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Abstract

This study revisited L2 morpheme development order among Korean young learners of English. Taking into account the spirit of the current English curriculum in South Korea, the current study examined L2 morpheme development from two different perspectives: accuracy and fluency aspects. In the field of second language development, many studies have claimed the L1 effect in the acquisition of English morphemes, opining that the absence or presence of the corresponding morphemes in L1 affects the advancement or delay of the L2 morphemes. However, L1 effect appeared to be morpheme-specific in these previous studies, which raised a question if L1 alone is truly a definitive factor to explain the variability in L2 morpheme development. Thus, semantic aspects of morphemes, specifically semantic interpretability at LF, was additionally considered as part of factors in order to explicate the interlanguage variability. The Interpretability Hypothesis and Levinson's Mapping problem inspired this model testing. Investigating the fluency aspect, the current study adopted a poststructuralist perspective in interpreting learners' interlanguage, in order to understand their language use as processes of meaning making and communication from a more emic approach. Wug test is widely used to measure first language learners' morphological metalinguistic knowledge, but has not been adopted much for EFL learners. As the current study focused on morphemes, the applicability of this test among EFL learners was also tested to discuss its appropriateness for EFL contexts. The present study revealed semantic interpretability affects learners' morpheme development even more than L1 effect alone does, and when interpretability was combined with L1 effect as an independent factor, it was found to explain morpheme developmental patterns considerably. The poststructuralist analyses uncovered many cases where linguistic strategies/tools were appropriated to negotiate with the gap between the learners' L2 linguistic knowledge and conventional use of L2. However, when quantitatively approached, even the poststructuralist perspective was found not to reduce the potential of misunderstanding caused by the incorrect morpheme uses by far. Wug test demonstrated a reliable predictability on how precisely EFL learners produced morphemes in the natural speech data. Based on these findings, the present study suggested some theoretical and pedagogical implications.

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PERSPECTIVE

Heejin Kim

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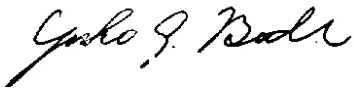
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To Zenas and Jinseo

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ABSTRACT

KOREAN EFL LEARNERS' MORPHEME DEVELOPMENTAL ORDER: EMBRACING SEMANTIC ASPECTS AND THE POSTSTRUCTURALIST PERSPECTIVE

Heejin Kim

Yuko G. Butler

This study revisited L2 morpheme development order among Korean young learners of English. Taking into account the spirit of the current English curriculum in South Korea, the current study examined L2 morpheme development from two different perspectives: accuracy and fluency aspects. In the field of second language development, many studies have claimed the L1 effect in the acquisition of English morphemes, opining that the absence or presence of the corresponding morphemes in L1 affects the advancement or delay of the L2 morphemes. However, L1 effect appeared to be morpheme-specific in these previous studies, which raised a question if L1 alone is truly a definitive factor to explain the variability in L2 morpheme development. Thus, semantic aspects of morphemes, specifically semantic interpretability at LF, was additionally considered as part of factors in order to explicate the interlanguage variability. The Interpretability Hypothesis and Levinson's Mapping problem inspired this model testing. Investigating the fluency aspect, the current study adopted a poststructuralist perspective in interpreting learners' interlanguage, in order to understand their language use as processes of meaning making and communication from a more *emic* approach. Wug test is widely used to measure first language learners' morphological metalinguistic knowledge, but has not been adopted much for EFL learners. As the current study focused on morphemes, the

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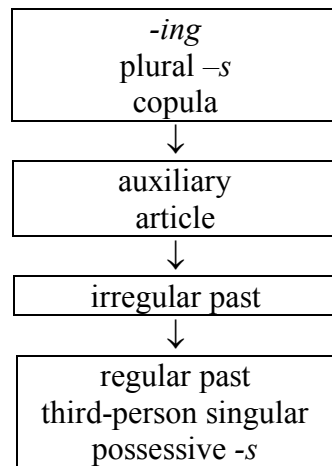
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CHAPTER 1: Introduction

In the field of language acquisition/development, researchers have paid considerable attention to the acquisition order of English grammatical morphemes both among first (L1) and second (L2) language learners since the 1970s (Brown, 1973; Dulay & Burt, 1973). In the initial phase of these morpheme studies, researchers were mainly concerned with discovering a universal, unified pattern in the acquisition order. Naturally, subsequent L2 morpheme studies of the 1970s and 1980s, in support of Krashen's (1977) natural order of acquisition order of English morphemes (Figure 1), assumed and showed that the effect of the first language (L1) is not strong in the acquisition of grammatical morphemes (Larsen-Freeman, 1975; Pica, 1983). However, later studies started proving L1 effect in L2 morpheme acquisition as they included English learners from more various L1 backgrounds. Spanish learners of English, who were mainly the subjects of the morphemes studies in 1970s and 1980s, actually displayed the acquisition order that is very consistent with the natural order, and this fact had rendered the studies with Spanish learners happened to blind researchers' insight on L1 effect. Luk and Shirai (2009), through a meta-analysis of the previous research, also suggested the L1 effects on the acquisition order of grammatical morphemes, the need to reconsider the L1 factor in studying L2 morpheme acquisition has been raised. Indeed, many relatively later studies have often attributed L2 learners' unconventional uses or omissions of English morphemes to the L1 effect, or, to be specific, an absence of equivalent morphemes in the L1 (Andersen, 1983; Lightbown, 1983; Pak, 1987; Shin & Milroy, 1999).

Figure 1 *Natural Order for L2 Acquisition (Krashen, 1977)*



More recent studies indeed show that depending on the presence or absence of the corresponding morphemes in the L1, the acquisition order of morphemes is affected (Jarvis & Pavlenko, 2008; Ionin & Montrul, 2010). In other words, cases are found where the presence of the corresponding L1 morphemes seems to facilitate the development of the pertinent English morphemes while L2 learners develop certain morphemes much later than predicted by the natural order when those morphemes are absent in the L1. However, in these studies, this L1 effect appears to be only relevant to specific morphemes; that is, L2 learners develop certain morphemes easily and early in spite of the absence of the matching L1 morphemes and some morphemes are developed with difficulty even though those morphemes are present in the L1 (Murakami & Alexopoulou, 2016). This morpheme-specific L1 effect suggests that L1 is not definitive in explaining the variability in the developmental order of English morphemes. Therefore, this dissertation attempts to investigate what other factors in addition to L1 per se can better explain L2 learners' acquisition order of English morphemes, which differs from the natural order. Taking into account that English morphemes actually consist of

not only morphosyntactic but also semantic, and sometimes even pragmatic features (Lardiere, 2003) and that the previous studies in L2 morpheme acquisition mainly focuses on the mere presence or absence of corresponding morphosyntactic features in the L1, semantic aspects of morphemes will be additionally considered as part of factors in order to explicate the variability of interlanguage in terms of English grammatical morphemes. Thus, the current study attempts to take into account the meaning aspect, which is also a component of morphemes but has not been touched upon in earlier research. This attempt is expected to help attain a more comprehensible, thorough insight on what factors cause difficulty and delay in developing English morphemes among Korean learners of English. Moreover, if a better theoretical understanding on what causes the variability in English morpheme development can be attained, the current investigation would consequently be able to provide practical insights and pedagogical directions to education policy makers, teaching material developers, and teachers on site.

In South Korea, English is formally taught as a subject from the 3rd grade nationwide, and under the current 7th education curriculum, English language education embraces a grammatical-functional syllabus, which intends to achieve not only grammatical competence but also communicative ability (Ministry of Education, Science, and Technology, 2011). According to this national curriculum, English morphemes are introduced and taught from the 3rd grade onwards. However, the current morpheme teaching order in this English as a Foreign Language (EFL) setting is neither based on Krashen's (1977) natural order nor the order found in studies that argued for the L1 effect. This implies that currently, English morphemes are not taught based on any theoretical or empirical justifications and thus morpheme teaching practice is in need of

some kind of guideline. Without the theoretically strong framework to explain the L2 morpheme development order, it would be also challenging to provide the pedagogical direction on in what order and in what manner morphemes should be introduced and taught to EFL learners. Thus, the present study attempts to test the soundness of the semantic aspects as part of factors predicting and explaining the L2 morpheme development pattern and ultimately suggest a more theoretically and empirically reasonable direction on morpheme teaching in the EFL settings.

Moreover, in that the current English education curriculum places an emphasis equally on accuracy and communicative ability and that the central, ultimate aim of the 7th English curriculum is actually to improve communicative competence (Kwon, 2000), the current study will examine Korean EFL learners' interlanguage by focusing not only on accuracy but also on its communicative functions. Recently, among more researchers in second language development, there emerged a trend to incorporate the socio-aspects of language and language learning, criticizing structuralist theories of language that espouses unchanging, universal patterns of human behaviors. Beginning from the late 20th century, many scholars have adopted poststructuralist theories of language (Bourdieu, 1977; Bakhtin, 1981; Luke, 2004; Kramsch, 2010), which argue that even the identical signs could carry different social meanings for different people within the same linguistic community (Norton & McKinney, 2011); in other words, to poststructuralists, linguistic communities are heterogeneous arenas and meaning is not fixed. Accordingly, poststructuralists consider language learning as particular and local meaning-making processes rather than as learners' internalization of grammar rules, structures, and vocabulary of a standard language (Firth & Wagner, 1997; Norton & McKinney, 2011).

This spirit of poststructuralism is in line with the aim of South Korea's current grammatical-functional syllabus as both parties value learners' communication capability. Nevertheless, despite the current national curriculum on English emphasizes both communicative abilities and grammatical accuracy, the prevalent assessment type in South Korea is a grammar-oriented testing. Thus, the present study will discuss future directions for testing based on both accuracy-focused and poststructuralist observations and interpretations on EFL learners' deviant uses of English morphemes.

CHAPTER 2: Literature Review

This chapter first reviews the previous studies on L2 English morpheme development among Korean speakers and raise limitations of them. Also, as the current study intends to provide a pedagogical direction on in what order and in what manner morphemes should be introduced and taught in EFL settings, reflection on the morpheme teaching order in the current South Korean public education arena is made. Then, theoretical frameworks and concepts that are fundamental to this study are be explained, and finally the purposes and research questions of the study are introduced.

2.1. Previous Studies on L2 English morpheme development

The previous studies on English morpheme acquisition order among Korean speakers of English showed mixed results in terms of the order and the degree to which morphemes are delayed or advanced. For example, Pak's (1987) study found that among children and adults acquiring English as a second language in the United States, plural *-s* is acquired much later, articles are developed relatively late, regular past tense is developed slightly earlier, third person singular *-s* is acquired a little later, and possessive *-'s* is acquired earlier compared to the natural order. Shin and Milroy (1999) showed similar results with Pak's (1987) with Korean children acquiring English as a second language in the United States as summarized in Table 1.

Table 1 Results of Studies with Korean Learners of English Compared with the Natural Order (modified and added from Luk and Shirai (2009))

Study \ Morpheme	Krashen's natural order	Pak (1987)		Shin & Milroy (1999)	Murakami & Alexopoulou (2016)
		Children	Adults		
Progressive	1	1	1	1	1
Plural	1	8	8	9	3
Copula	1	2	2	3	NA
Auxiliary	4	3	3	5	NA
Article	4	6	6	7	6
Past-irregular	6	7	5	6	NA
Past-regular	7	5	7	4	1
Third person	7	9	9	8	3
Possessive	7	4	4	2	3

These results have been interpreted as pieces of evidence that the absence or presence of a corresponding grammatical morpheme in the L1 strongly affects the acquisition of English morphemes as equivalents of plural *-s*, articles, and third person singular *-s* are absent in Korean while those of regular past tense and possessive *-'s* are present.

However, in one of the most recent studies that examine the acquisition order of morphemes with respect to the L1 factor, Murakami and Alexopoulou (2016) found that a regular past morpheme *-ed* and a plural morpheme *-s* are developed even earlier than claimed by Pak (1987) and Shin and Milroy (1999) among Korean learners of English.

Also, another different finding was that they revealed Korean learners of English develop a third person singular *-s* before articles. They argued these findings suggest that simply whether corresponding morphemes exist in L1 or not does not always decide how early or late the relevant morphemes are acquired. Dividing learners of English from different

L1 backgrounds (Japanese, Korean, Spanish, Russian, Turkish, German, and French) into two groups according to the presence of each morpheme in L1 and comparing them, they further generalized and confirmed the L1 effect is actually morpheme specific; that is, articles and progressive are heavily vulnerable, plural is mildly vulnerable, and possessive and third person singular are relatively immune to the L1 effect. This recent claim suggests that the L1 effect on L2 morpheme development is morpheme-specific and the degree of the L1 effect varies from morphemes to morphemes; and thus, the L1 effect per se cannot be a definitive, absolute factor to comprehensively explain L2 morpheme development.

2.2. Limitations of previous research

The results of morpheme studies from the earlier and recent days are different in that the earlier ones claim a presence or absence of the corresponding morphemes in the L1 affects early or late morpheme acquisition in L2 while the recent study argues this effect is morpheme-specific. Nevertheless, both studies in the earlier and recent days give rise to one common question why the mere presence or absence of the equivalent morphemes in L1 is not absolute and definitive in deciding the acquisition order. That is, although Pak (1987) and Shin and Milroy (1999) showed whether certain morphemes exist in L1 influences whether the acquisition of the relevant L2 morphemes is advanced or delayed, the mere presence or absence of the equivalent morphemes in L1 cannot explicate why the advancement or delay rate varies across morphemes. For example, even though both a plural morpheme and articles are absent in Korean (L1), the degree to which the acquisition of plural *-s* is delayed is much larger than that of articles, when compared

with the natural order as can be seen in Table 1 (Pak, 1987; Shin & Milroy, 1999). Also, Murakami and Alexopoulou (2016) proved certain morphemes are either more vulnerable or more immune to the L1 effect, which implies simply the presence or absence of the L1 equivalent morphemes is not a definitive factor affecting L2 morpheme acquisition. For instance, according to their study, both plural *-s* and 3rd person *-s* are absent in Korean language, but only plural *-s* is delayed in development and 3rd person *-s* is developed rather much earlier than predicted by the natural order. Furthermore, Korean has corresponding morphemes both for regular past *-ed* and possessive *-'s*, and both are developed earlier than the natural order because of L1 effect as predicted by the previous studies. However, by how early they are advanced in development varies; we can grasp this by calculating the rank differences among the natural order (Krashen, 1977) and Pak (1987), Shin and Milroy (1999), and Murakami and Alexopoulou (2016) from Table 1. Although Murakami and Alexopoulou (2016) made a preliminary attempt to explain the varying degrees of L1 effect on L2 morpheme development in the context of Slobin's (1996) distinction between morphemes encoding language-specific concepts (i.e. thinking for speaking, which refers to particular language-specific modes of thinking. It hypothesizes that the language we learn structures the way we perceive and understand the world.) and language-universal concepts, Slobin's proposal, as they admitted, did not explicitly predict or discuss the data of their study. Indeed, Murakami and Alexopoulou (2016) did not systematically treat these language-specific and language-independent concepts as variables while other concepts such as L1 type were statistically examined; instead, they considered the feasibility of Slobin's concepts in explaining morpheme-specific L1 effect in a post hoc manner. Furthermore, they commented that other factors

such as complexity of form-meaning mappings and more of the linguistic variation need to be incorporated to establish solid grounds for the varying L1 effect.

As can be seen from the previous studies, the mere presence or absence of the corresponding morphosyntactic L1 morphemes cannot comprehensively predict and explain the variation in L2 morpheme acquisition, and thus the current study attempts to take into account the semantic aspects of morphemes as well in order to fill in the gap previously unexplained. As English morphemes consist of semantic aspects as well as surface morphosyntactic representations (Lardiere, 2003) and underlying semantic aspects are what the past studies did not systematically consider, this study expects to provide an original insight. Although it was situated in L2 phonological, not morphosyntactic, acquisition, Brown's (2000) study also inspires this study in that her study also originated from the need to establish a principled explanation for “partial influence” of L1 and to describe the precise mechanism(s) by which this influence is manifested. Taking into account that the majority of L2 phonological acquisition research failed to explain why L2 learners would not have the identical degree of difficulty in acquiring each of the L2 sounds that are absent in the L1 inventory, Brown testified the distinction between mere phonological representations and the components, or features, of those representations needs be made. Similarly, Ionin et al. (2008) demonstrate how semantic universals, in addition to L1-transfer, can account for English learners’ article (mis)use by comparing English learners whose L1 has articles (Spanish) and lacks articles (Russian). While Spanish learners of English correctly employ English articles by transferring the semantics of Spanish articles, Russian learners of English show fluctuating English article (mis)use according to semantic universals in the absence of the

article system in L1. This study is another example implying the potential of semantic elements as a supplementary factor on top of L1 factor in explaining English learners' interlanguage. In a similar vein, the semantic features of morphemes in this study are expected to provide supplementary explanations on why the L1 effect appears to be morpheme-specific and how L1 and those semantic aspects of morphemes interact with each other in exerting their influence over L2 morpheme acquisition.

2.3. The current morpheme teaching in South Korea

In South Korea, English is formally taught as a subject from the 3rd grade nationwide and English morphemes are taught from then according to the national curriculum. The current morpheme teaching order in this EFL setting does not follow either Krashen's natural order or the order found in studies that argued for the L1 effect (Pak, 1987; Shin & Milroy, 1999; Murakami & Alexopoulou, 2016) as can be seen in Table 2.

Table 2 *The Current Morpheme Teaching Order in South Korea*

Grades	Morphemes introduced and taught
3 rd grade	Copula, articles, plural <i>-s</i> , auxiliary
4 th grade	Third person <i>-s</i> , progressive <i>-ing</i> , regular past <i>-ed</i> , irregular past
5 th grade	Possessive <i>-s</i>
6 th grade	

This implies that currently, English morphemes are not taught based on any theoretical justifications in South Korea. But without the theoretically strong framework to support the L2 morpheme development order as mentioned above, it is also challenging to provide the direction on in what order and in what manner morphemes should be introduced and taught to EFL learners. This situation provides a practical reason, in

addition to a theoretical reason, why a more comprehensive model to explain the L2 morpheme development order is needed.

A theoretically new model which incorporates the semantic aspects of morphemes on top of the L1 effect will be tested with EFL learners. In defining EFL for this study, I follow the convention of using EFL to indicate language learning that happens in a learners' home country that is not a native English-speaking nation (Bley-Vroman, 1989; Van Patten & Lee, 1990). The previous morpheme studies with young Korean learners of English (Pak, 1987; Shin & Milroy, 1999) actually only focused on English as a Second Language (ESL) learners or bilinguals residing in the United States. As ESL learners are situated in a country where English is the predominant language, it cannot be guaranteed that EFL learners' data will be consistent with these studies' results. As ESL learners or bilinguals' distinction between first language and second language is sometimes very fuzzy, arguing for L1 effect based on these learners might not be persuasive enough. Murakami and Alexopoulou (2016) actually did touch upon EFL learners as it is the Cambridge Learner Corpus (CLC)-based study that examined exam scripts of learners of English sitting exams of Cambridge English Language Assessment. Korean speakers are one of the seven different language background groups they investigated. However, as Murakami and Alexopoulou (2016) themselves pointed out, learners might have been form-focused in the written exam and exhibited different orders if they were meaning-focused. In that the current study especially pays attention to meaning components of morphemes as potential factors influencing morpheme development, it would be significant to measure learners' knowledge on English morphemes by implementing meaning-focused test materials. In addition, in that participants of the current study are

young Korean EFL learners who start learning English mainly through speaking-listening domain oriented manner, the present study elicits oral production, which is more familiar domain of language to students than others such as written formats.

Also, in Murakami and Alexopoulou's (2016) study, the exam scripts of corpus were excerpted from proficiency levels that correspond to the range from A2 to C2 of the Common European Framework of Reference levels: KET (A2), PET (B1), FCE (B2), CAE (C1), and CPE (C2). KET is generally for secondary school students, and CPE is the highest level qualification. A random selection from this wide range of population without a survey on their language education history and background implies that there might have been other external factors, not to mention an instructional effect, that were not controlled for, which might have been problematic to exclusively discuss the L1 effect on L2 morpheme development. The current study tries to restrict external factors as much as possible through a more systematic, confined selection of participants. Thus, the current study expects to provide insight into young EFL learners' morpheme development, which was not covered by the previous studies. Besides, Shin and Milroy's (1999) study was based on morpheme accuracy among children only from the first grade, which did not really touch upon a developmental path. Therefore, the present study implements a cross-sectional design to cover a wider range of developmental stages and attain a bigger picture on the morpheme development patterns.

2.4. Wug test in EFL contexts

Studies have shown that awareness of inflectional morphological rules is developed very early in childhood among native English-speaking children (Berko, 1958; Brown, 1973).

These studies adopt the famous classic Wug test (Berko, 1958), in which children were first presented with a picture of a bird and told that it is a *wug*, and below the picture was written “This is a wug”. Children would have never heard this word before as it is a pseudo word. When presented with another picture with two birds, most children, as young as four, precisely produced the plural morpheme *-s*, saying there are two *wugs*. Even though children had never heard of the word form *wugs* before, their correct answer demonstrates that they were certainly knowledgeable of the rule for generating a plural noun, by adding the plural morpheme *-s* at the end of a singular noun. Based on this rationale, this test also included other English morphemes such as progressive *-ing*, possessive *-’s*, 3rd person singular *-s*, and past *-ed*. This battery of questions was originally designed for English as a first language children and has been executed for EFL learners in only a few studies (Shintani, 2012; Zhao et al., 2017). Previous morpheme studies among young ESL learners only used spontaneous oral interaction data, oral interview data, paper-and-pencil tests, elicited speech from the Bilingual Syntax Measure (BSM), or MAT-SEA-CAL oral proficiency test (listening comprehension, sentence repetition, structured response) in order to investigate their morpheme accuracy and development. As the Wug test is proven to effectively measure morphological accuracy among native speaking children but there exists no specific test for EFL learners with the same purpose, the current study intends to examine the reliability and applicability of it to EFL contexts by investigating how well it reflects the participants’ morpheme production in the natural speech.

2.5. Theoretical frameworks

In order to take the semantic aspects of morphemes into consideration as a possible variable affecting L2 morpheme development, and to examine L2 learner's morpheme development from a more meaning-oriented viewpoint, this section introduces and explains relevant theoretical and conceptual frameworks that are incorporated in the current study.

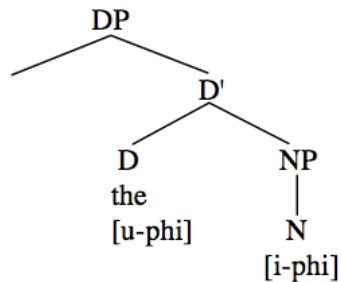
2.5.1. The Interpretability Hypothesis

The current study pays attention to the Interpretability Hypothesis because it addresses the learnability issues of why certain English morphemes are easier or harder for L2 learners to acquire based on semantic aspects of morphemes and why the L1 effect is not a panacea to comprehensively explain this different learnability among morphemes. To be specific, the Interpretability Hypothesis (Tsimpili, 2003; Tsimpili & Dimitrakopoulou, 2007) claims that morpheme operations are dependent on the distinction between features that are salient at the Logical Form (LF)-interface and those that do not have a role at LF and that the L2 learnability is influenced according to this distinction. An assumption here is that L2 variability is originated from two interfaces: LF, the covert level of representation that influences the semantic interpretation of a sentence structure, and Phonetic Form (PF), the level of representation that is derived from surface structure, and where a phonetic representation is overtly realized. Morphemes with the salient features are LF-interpretable because of their semantic embodiment (e.g., plural *-s*) while those with the opaque features are LF-uninterpretable and thus are only syntactically derived to

realize PF (e.g., third person singular $-s^1$). In other words, English morpheme $-s$ bears a semantic content that the entity is plural, not singular, and this morpheme is realized on the very noun for that entity. On the other hand, a feature of third person singular is about the subject, but third person singular morpheme $-s$ is derived on the verb due to a purely syntactic operation. In this study, articles are assumed to have uninterpretable features following van Gelderen's (2007) claim with a cognitive principle, Feature Economy. Articles cannot occur without a corresponding noun (e.g. in English **I ate the*) and this indicates that the article c(ategory)-selects a nominal constituent. C-selection is a syntactic one just as predicates select a proper syntactic category of complement arguments (e.g. noun phrase, verb phrase, adjective phrase, etc.), as opposed to s(emantic)-selection, where predicates select the semantic contents of the arguments. The configuration of articles and their nominal constituent is regarded as the output of syntactic operation, which supports that articles bear uninterpretable features. Moreover, van Gelderen (2007) presumed that “there is a probe (with uninterpretable phi-features, such as person and number) looking for phi-features on a nominal in its c-command domain and that these probes have to be heads. This set of grammatical features ensures that a noun can be interpreted in the discourse” (p.278). As can be seen in Figure 2 excerpted from van Gelderen (2007) below, articles are obvious probes in D, with uninterpretable features checking with the phi-features of the noun, which can be inferred from the discourse context.

¹ According to Chomsky, (1998), finite T (tense node in an X-bar structure that carries the tense feature of the sentence) in English bears uninterpretable person and number features.

Figure 2 Head D as a probe within DP (Determiner Phrase)



Based on this classification, the Interpretability Hypothesis assumes that L2 learners can access interpretable features more easily while uninterpretable features are more challenging to identify and analyze in the L2 due to their semantic opaqueness. For example, Tsimpli and Dimitrakopoulou (2007) found that although animacy is a semantic feature that is specified on English *wh*-phrases and pronouns (e.g., *who* vs. *what* and *he*, *she* vs. *it*) but not in Greek, as it is an interpretable feature, Greek learners of English acquire animacy in L2 *wh*-questions even from early stages of L2 development. This study's finding is only pertinent to *wh*-phrases and pronouns, yet suggests a potential of interpretability, a semantic feature, as a factor facilitating or exacerbating other L2 morphemes development. Moreover, the Interpretability Hypothesis argues for L1 effects on L2 grammar, not in a definitive way, but in a relative way. For instance, it claims that in spite of L1 transfer effects, uninterpretable features are more resistant to L2 acquisition while interpretable features are more easily accessible to L2 learners (Tsimpli & Dimitrakopoulou, 2007). This point aligns with the current study's intention to explore how and why the L1 effect is not absolute in explaining the L2 morphemes development order. As LF is a semantic level which bridges linguistic and conceptual representations,

looking at the interpretability of morphemes in addition/relation to the L1 within the framework of the Interpretability Hypothesis would help investigating the L1 effect and its interactions with the meaning aspects of morphemes. In other words, the consideration of the un/interpretability of morphemes might be an additional key variable to explain seemingly inconsistent, fluctuating L1 effects on L2 morpheme development.

2.5.2. Levinson's Mapping Problem

Although the Interpretability Hypothesis considers both L1 effect and semantic interpretability, it does not tackle interactional effect between these two factors. In order to examine the interactional effects of the L1 and the semantic aspects upon English morpheme development, I would like to look at the dimensions of the “mapping problem”. According to Levinson (2001), in discussing the problem of how children learn the meanings of words or morphemes, there can be three distinct degrees of ascending complexity in the mapping problem where children have to map words or morphemes onto meanings: Degree 1.0 mapping problem, Degree 2.0 mapping problem, and Degree 3.0 mapping problem. Degree 1.0 mapping problem refers to the easiest kind of mapping, mapping known phonological entities onto known semantic or conceptual entities, Degree 2.0 mapping problem indicates mapping known phonological entities onto unknown semantic entities, in turn constructed from universal concepts, and Degree 3.0 mapping problem is defined as mapping language-specific word-forms onto language-specific meanings, given non-universal working concepts. According to Levinson, children's early stage words are mostly classified under degree 1 and 2, and degree 3 learning happens a little later. Applying these three distinct levels of complexity in

mapping (Levinson, 2001), which were originally proposed for first language acquisition, to the second language development case, I newly classify three degrees of complexity of mapping in L2 morpheme development with the L1 and the interpretability considered as follows. The simplest mapping would be when both the L1 and L2 have morphosyntactic forms for a certain identical semantic feature. However, if the corresponding morpheme is absent in the L1, mapping the L2 morpheme onto semantic entities would be more complex. Also, this mapping would be even more complex when these semantic entities carry uninterpretable features than interpretable features.

Table 3 *Three Degrees of Complexity of Mapping in L2 Morpheme Development*

Degrees	Descriptions
Degree 1 mapping problem	Transfer corresponding L1 form-meaning mapping to L2
Degree 2 mapping problem	L2 form-meaning mapping of interpretable features that are absent in L1
Degree 3 mapping problem	L2 form-meaning mapping of uninterpretable features that are absent in L1

As can be seen in Table 3, these three levels resemble Levinson’s (2001) mapping levels in that Degree 1 problems consist of searching for correspondences between just two levels –the word forms and the innate concepts corresponding to the meanings for the L1 case, and the word forms in a target language and previously-acquired semantic concepts for the L2 case. Degree 2 problems involve the ‘universal’ semantic primes underneath the word meanings for the L1 case, which is in the similar vein with the mapping of the word forms in a target language to ‘interpretable’ semantic concepts for the L2 case. Degree 3 problems entails the universal conceptual primes underlying the ‘culture-specific’ semantic parameters for the L1 case, which can correspond to the involvement

of ‘uninterpretable’ semantic features in the L2 case. Based on this classification as shown in Table 3, I would like to examine to which degree of mapping L2 morpheme development is most vulnerable and whether these levels of mapping problem can be overcome developmentally.

2.5.3. Poststructuralist View

According to Block (2007), “poststructuralism is, in very general terms about moving beyond the search, associated with structuralism, for unchanging, universal laws of human behavior and social phenomena to more nuanced multi-leveled, and ultimately, complicated framings of the world around us” (p. 864). Since the late 20th century, many scholars have adopted poststructuralist theories of language (Bourdieu, 1977; Bakhtin, 1981; Luke, 2004; Kramsch, 2010), which are built on, but are distinct from, structuralist theories of language. One of the predominant structuralists, Saussure (1966) claimed the arbitrary meaning of signs is ensured by the linguistic system, and each linguistic community has its own system to validate the signs in a language. Poststructuralists, however, criticized this point arguing that even the identical signs could carry different social meanings for different people within the same linguistic community (Norton & McKinney, 2011); in other words, meaning is not fixed, but socially produced through discourses and practices. Thus, structuralists regard signs as having idealized meanings and linguistic communities as being homogeneous and consensual, whereas poststructuralists consider linguistic communities are heterogeneous arenas. Within this vein, Bakhtin (1981), one of the poststructuralists, claimed that language should be investigated as situated utterances where speakers struggle to create meanings through

interactions with other interlocutors. Norton and McKinney (2011) interpreted that Bakhtin's work situates "the learning of language within particular discourses and with particular interlocutors" (p. 78) rather than considering language learning as individuals' internalization of grammatical rules, structures, and vocabulary of a standard language. In sync with this perspective on language learning, Firth and Wagner (1997) called for increased *emic* (i.e., participant-relevant) sensitivity by criticizing that majority of Second Language Acquisition (SLA) research prioritizes the search for the universal and underlying features of language processes, and explanation for cognitive processes over the particular and local features of language processes and descriptions of language use phenomena. Thus, poststructuralism encourages a more *emic* approach to understand second language learners' language use as processes of meaning making through interactions in certain social discourses.

Another critique raised along with the surge of poststructuralism points toward a rigid binary distinction between L1 norms and L2 norms. For instance, Firth and Wagner (1997) calls for a reconceptualization of SLA research as they believed the former perspective had "conceived of the foreign language speaker as a deficient communicator struggling to overcome an underdeveloped L2 competence, striving to reach the target competence of an idealized native speaker" (p. 285). Indeed, in the SLA literature, a native speaker is assumed as an unproblematic person with a mother tongue, acquired from birth, which has resulted in the monolingual orientation to presume the ascendancy of native speakers and the assumed subservience of non-native speakers (Firth & Wagner, 1997). Firth and Wagner, however, criticized this orientation as problematic in that it overlooks the current global era's numerous communicative contexts where

English is used as a lingua franca even between groups of non-native speakers. This viewpoint indicates that poststructuralists cast doubt on native-speakerness as a norm, which has widely been a yardstick to assess accuracy of second language learners' interlanguage. Similarly, García, Flores, and Spotti (2016) also noted the concept of the native speaker is questioned by poststructuralist sociolinguistics as Bonfiglio (2013) showed, the dichotomous distinction between native and non-native speakers has “normalizing effects on speakers with native being constructed as “normal,” and others as “abnormal”” (p. 11). Furthermore, actually in much earlier time, Bley-Vroman (1983) introduced the concept of the comparative fallacy, which argues that L2 researchers should respect the autonomous nature of the learners' interlanguage rather than try to classify interlanguage data according to an ideal of the target language. Apparently, the binary viewpoint on target-like and non-target-like forms denies the internal logic of the student's interlanguage and what is “accurate” in the target language may not be associated with what is accurate in the student's own grammar at the very moment (Goldschneider & DeKeyser, 2005).

The previous studies exclusively took a dichotomous approach to data analysis while the current study additionally attempts to focus on individuals' idiosyncratic, autonomous interlanguage system, which could not be captured based on a dichotomous distinction between normal and abnormal. Thus, the poststructuralist view that pays attention to learners' meaning-making process from a more *emic* perspective is expected to shed light on how to differently interpret L2 morpheme variability within interlanguage. Even if English educators were to be more focused on improving students' communicativeness, it certainly does not imply that they can get lenient with students'

grammatical inaccuracy with no limit. Analyses from this poststructuralist approach is expected to provide them with a pedagogical guideline on precision of which morphemes is still quintessential for communicativeness and what communicative/linguistic strategies they should teach so that their students can become competent interlocutors even when they make grammatical mistakes.

2.6. Purpose of the Study and Research Questions

This study expects to clarify why the L1 effect on the acquisition of English morphemes is only specific to certain morphemes, and find out other factors that can further explain the variability in the acquisition order that could not be solely explicated by the L1 effect earlier. Moreover, the current study hopes to provide a morpheme teaching order for Korean EFL learners, which better corresponds to the linguistic theories and an actual phenomenon observed in the EFL contexts. Also, it attempts to suggest what the poststructuralist view can address in terms of the current morpheme teaching and learning in South Korea. Lastly, this study hopes to investigate whether the oft-cited phonological rule knowledge test, the Wug test, is also applicable to EFL learners. Thus, the current study raises research questions as follows:

1. How do Korean learners of English in EFL setting develop English grammatical morphemes? How are their developmental paths similar with or different from Krashen's (1977) natural order? How about compared to the orders based on L1 effect or interpretability?
2. Previous studies showed that the L1 effect on English grammatical morphemes is morpheme specific, which indicates the L1 effect is not definitive in explaining

English morpheme development. Can semantic interpretability at LF as an additional variable better explain Korean EFL learners' morpheme developmental patterns than the L1 effect alone can?

3. What different analyses does the poststructuralist perspective provide on EFL learners' unconventional forms?
4. How accurately does the Wug test reflect Korean EFL learners' morpheme accuracy? Is the Wug test, originally designed for first language acquisition, appropriate for assessing EFL learners' morpheme development?

Possible theoretical implications of this study would be that by taking into account the semantic aspects instead of just looking at the presence or absence of corresponding morphemes in L1, a potential of complexity of mapping as a factor influencing L2 morpheme development would be tested. As the fact that morphemes consist not only of surface forms but also of underlying semantic aspects is taken into consideration, the present study expects to explain the loopholes that previously could not be explicated by the L1 alone. More systematic consideration on L1 and semantic aspects is expected to better explain the variability of L2 morpheme development. Moreover, by looking at learners' unconventional uses of morphemes from the poststructuralist perspective, I expect to provide room to discuss different interpretations on learners' interlanguage. This point would be meaningful in that learners' so-called 'incorrect' uses of morphemes from a rather traditional, strict approach could be viewed as a meaning-making process/strategy from a more *emic* perspective. In other words, instead of taking a sharp, dichotomous distinction between correct and wrong uses of morphemes, this approach

would allow L2 learners' oral performance on morphemes to be interpreted as their strategies for communicative purposes rather than to be simply judged grammatically right or wrong. In that semantic aspects of morphemes and poststructuralist interpretations on learners' morpheme usages are additionally considered in this study while no previous studies have taken the poststructuralist perspective, but they only touched upon the unitary feature (surface morphosyntactic forms) of grammatical morphemes, this study is expected to provide theoretically original insights. Moreover, the current study expects to suggest whether the classic Wug test can be valid and reliable in measuring learners' morpheme accuracy among the EFL contexts as well. As the Wug test measures 'accuracy' of morphological rules application, not 'communicativeness' or 'meaning-making' beyond missing or non-target-like morpheme supplants, this investigation is anticipated to address assessment for grammatical accuracy, not for fluency.

This study is expected to provide practical contributions to the SLA field as well; as this study plans to test the predictability and explicability of a new theoretical model for L2 morpheme development, and investigate what the poststructuralist perspective, differentiated from the traditional approach, suggests for the current EFL learners' morpheme developmental patterns, a better teaching approach will be suggested. Discussion of this study would provide pedagogical insights to school teachers, textbook developers, and language policy developers with respect to English morpheme teaching. Also, currently there exists a discrepancy between the curriculum philosophy and the testing system. In that the national English curriculum for younger learners in South Korea focuses both on communicative aspects and on the accuracy of grammar aspects

while the assessment is highly grammar-oriented, by addressing learners' unconventional uses and strategies on English morphemes from the poststructuralist viewpoint, I hope to interpret oral performance of EFL learners as a meaning-making process rather than judging it with a sharp right or wrong dichotomous distinction. Bringing in this new perspective in discussing young learners' interlanguage, the current study wishes to suggest curricular directions to better fulfill the purposes of English education in South Korea and to narrow down the discrepancy between the pedagogical philosophy, instructions, and the testing system.

CHAPTER 3: STUDY

This chapter describes how the experiment was performed, including its participants, target morphemes, materials and procedures, scoring, and data analysis methods.

3.1. Participants

Participants for the current study were a EFL learners' group under public education setting. South Korea is an ethnically and linguistically relatively homogeneous nation where an ideology of one nation, one race, and one language is prevalent (Lee, 2013) and the Korean language is a predominantly used language within the nation. This feature of the linguistic environment renders the Korean learners of English in the current study to meet criteria of who is defined as EFL learners. As for the public school EFL group, participants were selected from the elementary and secondary level schools, which follow the national education curriculum enacted by the Ministry of Education. At public schools, the target morphemes for the current study are all first explicitly introduced and taught during the 3rd to the 5th grades according to the national curriculum. Therefore, learners from the 5th grade to the 7th grade, the period after which they are already exposed to most of target morphemes, were selected for the current study. 35 students for 5th grade, 33 students for 6th grade, and 33 students for 7th grade were recruited.

Recruitment was conducted through the acquaintanceship of the researcher, and the collaborators were those serving in schools or private educational institutes as teachers.

Recruitment was performed within Seoul Metropolitan area. All the participants were attending public schools except for some among the 6th grade at a private school. It should be noted that both public and private schools in the current study abided by the

national curriculum and exclusively used textbooks authorized by the Ministry of Education.

As specified in the 7th education curriculum targeted for students before high school (Ministry of Education, Science, and Technology, 2011), the aim of English language education in South Korea is to guide students to cultivate the ability to understand English and communicate in English in all the four domains (listening, speaking, reading, and writing) and thus to improve their basic communication ability that is necessary for understanding and using everyday English. Accordingly, these participants were learning English without explicit focus on grammatical concepts including morphemes, but they were rather naturally presented with morphemes through listening or reading scripts in the textbooks, which were designed to introduce communicative expressions and strategies. Therefore, we can say that grammatical morphemes were taught to these participants in a somewhat implicit manner. In order to attain a comprehensive picture on participants' backgrounds that might potentially account for individual differences, information on individual factors such as English education in private education sector, living or study-abroad experience, etc. were collected upon data collection. Students who had spent 6 or more months in English-speaking countries were excluded from data analysis, making the total number of participants 96. Out of 96 students, male students were 49 and female students were 47. Table 4 summarizes background information obtained from the survey.

Table 4 *Background Information on Participants*

	Average minutes per week spent in private English education sector	Number of students who had experienced studying/living abroad no more than 6 months	Average months abroad
5 th grade	149 mins	1 out of 34	1 month
6 th grade	178 mins	7 out of 30	4 months
7 th grade	283 mins	2 out of 32	2 months

It was observed that the upper graders were spending more time in private education sector for English learning (7th > 6th > 5th). The increased amount of time reserved for private education along with grade levels reflects how much more time and effort the students invest as they get closer to National College Entrance Exam.

3.2. Target morphemes

Among English grammatical morphemes, six morphemes that have been most often studied were selected as target morphemes of the current study: present progressive *-ing*, plural *-s*, possessive *'s*, articles, 3rd person singular present *-s*, and regular past *-ed*. These morphemes were actually targeted in Goldschneider and DeKeyser's (2005) meta-analysis study as well based on their frequency in the previous morpheme studies. For plural, both regular forms of *-s* and *-es* were included. Regarding articles, both indefinite (*a, an*) and definite (*the*) forms were considered. With respect to past tense, irregular past forms and the use of *-ed* as passives or participles were excluded, following the previous morpheme studies' conventions.

3.3. Materials and procedures

Taking into account that participants of the current study include young learners, the previous morpheme studies were examined to see what types of methods they adopted for collecting data among young learners. With Japanese children aged 5 to 10 years, Hakuta (1976), Koike (1983), and Sasaki (1987) used spontaneous oral interaction data, whereas studies with post-puberty Japanese learners implemented oral interview data (Izumi & Isahara, 2004) or paper-and-pencil tests (Makino, 1979; Nuibe, 1986). Pak (1987) collected elicited speech from eighty Korean ESL children through the Bilingual Syntax Measure (BSM), in which a picture stimulus book is utilized to prompt structured conversation with the child and the examiner asks questions that necessitate particular language structures in children's response, and Shin and Milroy (1999) attained audio-recordings from first-grade Korean-American schoolchildren through spontaneous storytelling, roleplaying in math-involving situations, and playing educational games. In addition, Dulay and Burt (1974) also adopted the BSM and Mace-Matluck (1979) the MAT-SEA-CAL Oral Proficiency Test² to examine the morpheme acquisition order among Chinese children learning English in the United States. As the current study attempts to attain young learners' data in a meaning-focused way as explained earlier, tasks inspired by and modified from the previously-mentioned studies were used to draw learners' oral production on certain English morphemes.

² In part one, listening comprehension, the student responds to an oral stimulus and selects an answer presented in visual format. Parts two and three, sentence repetition and structured response, require the student to respond orally.

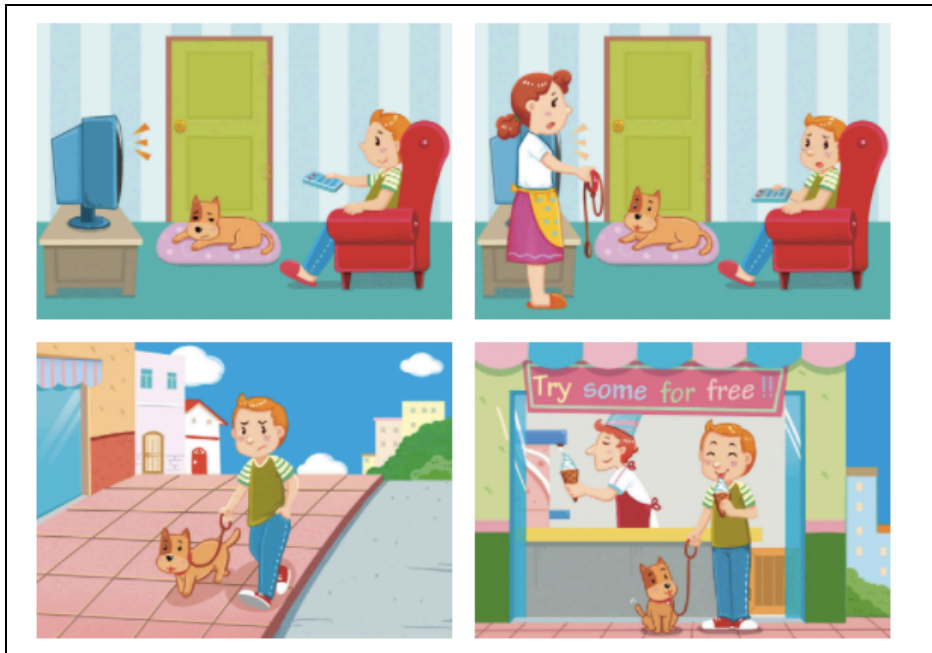
Considering a possibility that just naturally elicited speeches and spontaneous storytelling might turn out to be too discursive to focus on certain morphemes, the current study executed designed tasks that focus on eliciting target morphemes and control for the number of occasions where certain morphemes are required as much as possible. Two different types of tasks, in which learners are required to produce some kind of speaking, were conducted: narrative storytelling with picture prompts and storytelling in a dialog format. As I will explain more in detail below, all of these tasks intended to draw somewhat structured speaking in order to concentrate on particular morphemes and were designed to be contextualized so that learners' data are meaning-focused rather than form-focused. As to EFL learners Korean is their first language, an instruction was given in Korean even though they had to complete the task in English. Following these two tasks, students had to participate in the Wug test. All the tasks, including the Wug test, were administered to participants individually by the researcher. Learners' task completion was audio-recorded. What follows is detailed explanations on each task.

3.3.1. Narrative Storytelling with Picture Prompts

In this task, an interviewer provided four or six sequential pictures that build a story and offer a description/prompt only about the first picture to the learner in Korean. The learner had to continue the story by describing the other pictures in English. The sets of pictures were designed by the researcher following a format from GEPT (General English Proficiency Test) Kids as in Figure 3. This type of oral production task was adopted as the participants of the current study began learning English in a speaking-listening domain oriented manner, which they would feel more comfortable with than written

formats. Moreover, as high stakes testing form might be too burdensome for the participants to perform their language capability in a meaning-focused way, this type of task that can elicit their language production in a more natural manner.

Figure 3 *Example Picture Prompts from GEPT Kids*



The reason why the first picture was described in Korean is that learners might be exposed to target English morphemes even before conducting a task, which might function as a hint. This type of task is prevalently opted for in many English assessment tests such as Cambridge English test for young learners and GEPT Kids, a test specifically tailored to Taiwanese elementary students by Language Training and Testing Center. Three sets of picture prompts were included in this task and their blueprints are presented in Table 5. This task aimed to elicit all the six target morphemes for the current study throughout all the sets of task. Materials used for this task are presented in Appendix A.

Table 5 *Blueprints of Picture Prompts*

	Description on picture prompts	Description sentence given for the first picture (in Korean)	Target morphemes to be elicited
1 st set (Tom at the moment)	<ol style="list-style-type: none"> 1. A picture where Tom is watching TV and his dog seems bored. 2. A picture where Tom's mom is asking Tom to walk his dog. 3. A picture where Tom is walking his dog around the neighborhood. 4. A picture where Tom is eating an ice-cream cone and seems happy. 	<p>"Tom is watching TV in the living room right now. Tom's dog seems restless."</p>	<p><i>-ing</i>, possessive 's, articles</p>
2 nd set (Tom's daily life)	<ol style="list-style-type: none"> 1. A picture where Tom wakes up at 7'o clock in the morning. 2. A picture where Tom eats an apple for breakfast at 7:30. 3. A picture where Tom studies English at school. 4. A picture where Tom plays soccer with his friends after school. 	<p>"Tom wakes up at 7'o clock every day."</p>	<p>3rd person singular <i>-s</i>, plural <i>-s</i>, articles</p>
3 rd set (Tom's last summer)	<ol style="list-style-type: none"> 1. A picture where three thought bubbles are above Tom's head, and each bubble describes playing tennis, playing the piano, and a zoo respectively. 2. A picture where Tom played tennis and seemed very happy. 3. A picture where Tom was learning how to play the piano and it seemed from his expression that playing the piano is not easy for him. 4. A picture where Tom, Tom's mom and dad were looking at an elephant, two tigers, and a monkey at the zoo. 5. A picture where the monkey stole Tom's mom's bag by stretching out its arm through a fence. 	<p>(This story is about what Tom did last summer.) "During last summer, Tom played tennis, learned how to play the piano, and went to the zoo with his family."</p>	<p><i>-ed</i>, possessive 's, plural <i>-s</i>, articles</p>

6. A picture where Tom gave the monkey a banana and an orange and got back his mom's bag in exchange.

3.3.2. *Storytelling in a Dialogue Format*

In the second task, learners role played a dialogue with the interviewer with a variety of realia such as fruits, pictures, a grocery list. Topics of the dialogues were something very familiar and relatable to students' life. Interviewer's questions were designed to elicit students' answers in which the target morphemes need to be used. The setting behind the role-playing was given in Korean before the actual dialogue started. Four sets were included for this task, and the blueprints are presented in Table 6. This task was more authentic than the first task in a sense that students were engaged in spontaneous, interactive conversations. Upon data collection, the interviewer was required to be spontaneous and improvising in order to adjust and cater to each student's responses. Again, this task aimed to elicit all the six target morphemes for the current study. All the materials used for this task are presented in Appendix B.

Table 6 *Blueprints for Dialogues*

	Description on the setting and realia	Questions given to students	Target morphemes to be elicited
1 st set (Buying fruit)	Setting: Your mom is cooking dinner and forgot a couple of grocery items. She is asking you to go to the corner store to pick up a couple of vegetables and is giving you a short grocery list. Now you are at the market, and I am the seller at the market.	<p>“What are you looking for?”</p> <p>“How many onions do you need?”</p> <p>“What else do you want?”</p> <p>“I’m sorry, but we are out of tomatoes right now. would you</p>	- <i>ing</i> , plural - <i>s</i> , articles

Realia: A grocery shopping list consisting of one onion, two large tomatoes, and one potato.

like bell peppers instead?"

Things to buy	How many?
Onion	1
Large tomatoes	2
Potato	1

At the market, the interviewer is with real vegetables: one onion, two tomatoes, and one potato

2 nd set (Tom's day at school)	<p>Setting: These pictures show what Tom did at school today. Tom came back home, and his mom asks how his day was. Now imagine that you are Tom, and I am Tom's mom.</p> <p>Realia: Pictures describing 1) Tom studying English and Math, 2) Tom playing the piano during music class 3) Tom eating Kimchi, beef, rice, an apple, and an orange, 4) Tom playing tennis with three of his friends</p>	<p>"Tom, do you want to share what you did at school today?" "Oh I am so happy! Was it fun learning new stuff?" "I am glad you learned how to play the piano this summer!" "What song did you play?" "How did it go?" "What did you eat for lunch? Mmm That sounds delicious!" "Did you do anything after school with your friends? What did you do? Oh I am so glad that you got time to play tennis with your friends" "How many friends did you play tennis with?" "How did you play?" or "Did you have a good time?"</p>	-ed, plural -s, articles
3 rd set (Choosing Sally's birthday gift)	<p>Setting: Both you and I are Sally's good friend. Next week is Sally's birthday. Let's discuss what kind of gift we will buy for her based on this picture of Sally's room.</p>	<p>"Hmm what do you like in Sally's room?" "What else do you see in her room?"</p>	3 rd person singular -s, plural -s, possessive 's, articles

	<p>Realia: A picture of Sally's room describing a lot of books on the shelf, a guitar, a TV, video game, BTS posters on the wall, stuffed animals, cool shoes, cool electronic gadgets (computer, phone, headset), and a soccer uniform with numbers and Tom's name on it</p>	<p>"Whose soccer uniform do you think this is?" "What do you think Sally would like?" "So, what should we give her for her birthday?"</p>	
<p>4th set (Your winter vacation plan)</p>	<p>Setting: These pictures describe options you can do during your winter school break. Choose one picture and tell me about your plans for the winter. Realia: Four pictures describing 1) visiting grandparents via train), 2) going to the mountain for skiing or snowboarding), 3) visiting a museum, and 4) visiting another country by plane.</p>	<p>"What are your plans for this winter?" "Describe one of the special things you do when you visit your grandparents?" (open-ended)" "Oh what else do you like to do in the mountain?" "Why are you interested in museums? ((Can you describe how you feel when visiting a museum? Why do you think that is?))" "Why are you flying to another country? What interests you in this country? Please describe." Or "Oh, what are you going to do over there?"</p>	<p>-ing, plural -s, articles,</p>

3.3.3. *Wug Tests*

This test was adapted from Berko's (1958) study for young L1 children. Following the original test, the current study also only included plural -s, past -ed, 3rd person singular -s, progressive -ing, and possessive -'s in the test. There were three test items for each morpheme, making the total number of test items 15. Morphemes were orally elicited

with pseudo words and with pictures. For plural -s, the researcher first provided the singular form of the noun orally while pointing to the single entity picture (e.g. *'This is a glop'*), and then pointed to the plural entity picture and asked the participant to elicit its plural form (e.g. *'Now there is another one. There are two of them. There are two _____'*). As for past -ed, 3rd person singular -s, and progressive -s, the researcher first provided the bare form of the verb orally (e.g. *'This is a man who knows how to rick'*), and then elicited its inflected form from the participant by providing the appropriate context respectively (e.g. *'He is ricking. He did the same thing yesterday. What did he do yesterday? Yesterday, he _____'* for past -ed, *'He is ricking. He does it every day. Every day, he _____'* for 3rd person singular -s, and *'What is he doing now? He is _____'* for progressive -ing). Lastly, for possessive -'s, the researcher first provided the information on the possessor and its belonging (e.g. *'This is a niz who owns a bag'*), and then elicited the possessive form from the participant by asking a question (e.g. *'Whose bag is it? It is the _____ bag'*).

In Berko (1958), the questions were provided in English while in Shintani (2012) they were provided in English first, but Japanese was used if a student did not understand the instructions. Considering both Shintani (2012) and this study aim young learners of English as a foreign language, the current study also followed Shintani's (2012) approach in administering the Wug test. Before the test, the procedures and the instructions were explained in Korean. All the questions were performed in English, but Korean was used if a student did not understand the instructions or a student brought up any questions. Students were given ample time to answer the questions. The full set of Wug test can be found in Appendix C.

3.3.4. Background Survey

Students' background survey was also conducted as a first procedure upon data collection in order to learn about other individual factors such as English education in private education sector, living or study-abroad experience, etc. This survey was given and answered in Korean. The English translated version of this survey can be found in Appendix D.

3.3.5. Procedure of the Instruments

All the steps for data collection were taken place in an empty classroom and in a one-on-one manner, with the researcher and one student at a time. First, students had to fill out the background survey form, and then they were told they would perform some tasks in English and their performance would be audio recorded. The task 'Narrative storytelling with picture prompts' was administered first, followed by the task 'Storytelling in a dialogue format' and then by the Wug test. It took approximately 20 to 30 minutes for one student to complete all the procedures.

3.4. Scoring for Narratives Storytelling with Picture Prompts and Narratives in a Dialogue Format

The previous morpheme studies determined the acquisition order according to the following criteria: Suppliance in Obligatory Context (SOC) score, Target Like Use (TLU) score, and implicational scaling. The SOC score shows how accurate a learner is

in the obligatory contexts where a certain morpheme is required as the following formula reflects:

$$\frac{\text{Number of correct suppliance} + 0.5 * \text{number of misformations}}{\text{Total obligatory contexts}}$$

What differentiates the TLU score from the SOC score is that incorporating the notion of distributional patterns. The TLU score also takes into consideration possible overgeneralizations to inappropriate contexts as the following formula calculates:

$$\frac{\text{Number of correct suppliance in obligatory contexts}}{\text{Number of obligatory contexts} + \text{number of suppliance in nonobligatory context}}$$

These TLU and SOC scores were used either as proportional scores between 0 and 1 in their original forms or as whole number scores after the resulting quotient was multiplied by 100. Some studies obtained acquisition orders, based on the either form of these accuracy scores, by ranking the morphemes according to descending mean scores (Dulay & Burt, 1973, 1974; Shin & Milroy, 1999; Izumi & Isahara, 2004; Murakami & Alexopoulou, 2016), while others, mostly those of longitudinal studies (Hakuta (1976) among others), ranked acquisition orders with a criterion of 90% or 80% suppliance in obligatory contexts or target like use. Besides, some other studies used implicational scaling to determine the difficulty order with the criterion of 80% correct (Andersen, 1983; Nuibe, 1986; Shirahata, 1988). However, Stauble and Larsen-Freeman (1978) argued against the adequacy of implicational scaling in that it misrepresents the gradient and variable nature of second language learners' interlanguage because the dichotomous distinction between acquisition and non-acquisition is treated as categorical. In this regard, the current study will opt for TLU scoring and attain the developmental order according to decreasing scores without any specific number being a criterion for

acquisition and non-acquisition. TLU scoring was chosen over SOC scoring since SOC does not reflect whether the learner has acquired the distributional patterns of morphemes.

3.5. Data Analyses Methods

Based on the same oral productions via elicitation, a different series of interpretations and analyses were conducted. In order to answer the first, second, and fourth research questions, a rather strict, traditional criterion were adopted; in other words, students' morpheme accuracy was assessed from a dichotomous perspective, whether morpheme uses were target language like or not. For the first research question, ordinal variables derived from TLU scores were used as each grade's developmental order had to be compared with Krashen's (1977) natural order and the orders based on L1 effect and interpretability. Ordinal variables were entered into correlational analyses. For the second research question, regressions were performed with TLU scores, which are continuous in nature, entered as a dependent variable, and categorical variables such as L1 type, interpretability, complexity, and grade as independent variables. For the fourth research question, TLU scores were entered as a dependent variable and Wug scores as an independent variable in the regression model. Wug scores were an ordinal variable in nature as they only take the values of 0, 1, 2, or 3. In order to address the third research question, a slightly different viewpoint was applied on so-called deviant forms of morphemes. According to the newly-set criteria from the poststructuralist perspective, students' non-target-like morpheme uses were re-evaluated whether they were

unambiguous or not in terms of meaning making and communicative informativeness.

This reassessment was approached both quantitatively and qualitatively.

CHAPTER 4: RESULTS

This chapter summarizes all the statistical results obtained. There were 6 types of TLU scores for each individual participant as there were 6 morphemes in question: *-ing*, plural *-s*, possessive –‘*s*, articles, 3rd person *-s*, and past *-ed*. Possible TLU scores ranged from 0 to 1. In order to grasp the overall picture of the data, descriptive statistics on the total TLU scores were examined as shown in Table 7.

Table 7 Mean and Standard Deviation of TLU Scores

	Min.	Max.	Mean	Median	SD
TLU scores	.11	.93	.6000	.6364	.26771

A Shapiro-Wilk test and a Kolmogorov-Smirnov test showed TLU scores followed a normal distribution. Kurtosis and skewness also verified that TLU scores are normally distributed. Table 8 summarizes TLU scores each grade students received for each morpheme type.

Table 8 Means of TLU Scores for Each Morpheme

	<i>-ing</i>	Plural <i>-s</i>	Possessive – ‘ <i>s</i>	Articles	3 rd person - <i>s</i>	Past <i>-ed</i>
5 th grade	.6252	.6476	.3926	.1513	.1065	.3670
6 th grade	.8739	.8103	.8730	.3562	.4261	.7159
7 th grade	.8785	.8325	.9271	.4254	.4849	.9068

Through eye-measuring, TLU scores were observed to vary across six morphemes within each grade, and to increase along with grade levels for all the morphemes.

4.1. Specific Differences in the Accuracy Orders

In response to Research Question 1: How do Korean learners of English in EFL setting develop English grammatical morphemes? How are their developmental paths similar

with or different from Krashen's (1977) natural order? How about compared to the orders based on L1 effect or interpretability?

Spearman's rank order correlation analysis, a technique that prior morpheme studies commonly adopted for comparing acquisition order, was performed. Prior to carrying out this correlation analysis, morphemes with similar TLU scores were clustered together, following Murakami and Alexopoulou (2016) within each grade level. Rank order correlation analyses based on primary ranks have weak nature (Brown, 1983) as they tend to treat small differences in accuracy as heavily as large differences as it is assumed that ranks have strictly equal intervals in nature. However, if the distances between ranks are substantially uneven (e.g., if ranks 1 and 2 are widely spaced and ranks 2 and 3 extremely close), then the ranks and the order may be meaningless, which would distort the analyses results. Due to the potential that small differences might be statistically exaggerated, rank order correlation analyses were decided to be conducted with clustered ranks. Moreover, another main purpose of clustering was to make the accuracy order obtained in the current study comparable to Krashen's (1977) natural order and the hypothetical models based on L1 type, interpretability, and the degree of complexity of mapping. Krashen's (1977) natural order shows that it is not always the case that only one morpheme is developed at each learning stage, but rather at each stage, there can be one or more morphemes developed as presented in Figure 1. Also, according to the hypotheses that morpheme development is influenced by L1 type, interpretability, or the complexity of mapping, particular morphemes are grouped together within the same category depending on presence or absence of their corresponding morpheme in L1, their semantic un/interpretability, or the combination of the two previously-mentioned

factors. Accordingly, morphemes classified together are expected to develop pretty much simultaneously. Thus, based on these clustered rankings, Korean EFL learners' morpheme development was compared with Krashen's natural order and with the orders based on L1 type, interpretability, and the degrees of mapping complexity.

The clustering process was executed by using post-hoc tests with the One-way ANOVA. Based on Tukey post-hoc test results, morphemes were clustered together in one rank if their TLU scores did not differ significantly from each other, while a rank boundary was drawn between two morphemes if one morpheme's TLU score reached a significant difference from another's. Accordingly, morphemes were treated in different ranks with respect to the acquisition order in each grade as displayed in Table 9.

Table 9 *Clustered Order of Morphemes*

Clustered order	5 th grade	6 th grade	7 th grade
1	plural <i>-s</i> progressive <i>-ing</i>	progressive <i>-ing</i> possessive <i>-'s</i> plural <i>-s</i> past <i>-ed</i>	possessive <i>-'s</i> past <i>-ed</i> progressive <i>-ing</i> plural <i>-s</i>
2	possessive <i>-'s</i> past <i>-ed</i>	3 rd person singular <i>-s</i> articles	3 rd person singular <i>-s</i> articles
3	articles 3 rd person singular <i>-s</i>		

To investigate whether there exists a consistent acquisition order across grades, I followed Murakami and Alexopoulou's (2016) manner for the judgment. Each morpheme was examined if it marked a higher accuracy rank in one grade than in another; for example, it was judged that there was no difference in the order of possessive *-'s* among the 5th, 6th, and 7th grades because in the 5th grade, its accuracy was the third or fourth from the top, and in the 6th and 7th grades, its accuracy was the first, second, third, or

fourth from the top. That is, there is a possibility that possessive –‘s was the third most accurate morpheme in all the grade levels, which implies there is no difference in the order of accuracy across grades. After inspecting all the morphemes, it was revealed that the order of acquisition was consistent across the grade spectrum and there was no between-grade difference in terms of accuracy ranking.

Then the Spearman’s correlation analysis was run by entering 7 ordinal variables: 5th grade order, 6th grade order, 7th grade order, natural order, L1 type order (according to the presence/absence of the corresponding morphemes in L1), interpretability order (according to the inherent interpretability/uninterpretability of English morphemes), and complexity order (according to the degrees of complexity of mapping in each morpheme). 5th, 6th, and 7th grade orders were based on clustering as in Table 8, and natural order was based on Krashen’s (1977) natural order (Figure 1), but limited to the target morphemes of the present study. Correlation results are summarized in Table 10 and 11.

Table 10 *Spearman’s Rank Order Correlations among 7 Ordinal Variables*

	Natural order	L1 type order	Interpretability order	Complexity order
5 th grade order	.645	.408	.866*	.645
6 th grade order	.224	.707	1.000**	.894*
7 th grade order	.224	.707	1.000**	.894*

** $p < .01$ * $p < .05$

Table 11 *Spearman’s Rank Order Correlations among Grades*

	5 th grade order	6 th grade order	7 th grade order
5 th grade order	-	.866*	.866*
6 th grade order	-	-	1.000**
7 th grade order	-	-	-

** $p < .01$ * $p < .05$

The results showed that the orders of acquisition across 5th, 6th, and 7th grades were significantly correlated with the interpretability order ($r=.866, p<.05$; $r=1.000, p<.01$; $r=1.000, p<.01$, respectively), and 6th and 7th acquisition orders were significantly correlated with the complexity order ($r=.894, p<.05$ for both). None of the acquisition orders among 5th, 6th, and 7th grades was found to be statistically correlated with the natural order or L1 type order. Moreover, the acquisition orders across all grades turned out to be correlated with each other. All the Spearman's correlation coefficient values, which were found to be significant, implied a very strong, positive correlation between ordinal variables.

4.2. Different Factors Explaining TLU Scores

In response to Research Question 2: Previous studies showed that the L1 effect on English grammatical morphemes is morpheme specific, which indicates the L1 effect is not definitive in explaining English morpheme development. Can semantic interpretability at LF as an additional variable better explain Korean EFL learners' morpheme developmental patterns than the L1 effect alone can?

Since the correlation analysis is not sufficient enough to answer this question, a regression analysis was conducted in order to measure how much power of explanation each variable imposes on TLU scores. In the original plan on formulating a model that can predict TLU scores efficiently, there were 4 categorical independent predictors, which were L1 type (two levels: Absent or Present), Interpretability (two levels: Interpretable or Uninterpretable), Complexity (three levels: Degree 1 complexity, Degree 2 complexity, or Degree 3 complexity), and Grade (three levels: 5th grade, 6th grade, or 7th

grade). Also, there was a continuous independent variable which is the private English education time each participant received per week in minutes. This particular variable was treated as a covariate because I wanted to examine the predictability of other independent variables regardless of how much time the participants spent for English study in the private educational sectors. However, due to the study design that each individual had 6 TLU scores, if the private English education time were to be included in the model, it would be entered 6 times per one participant even though there is originally one value of time for one individual. In order to prevent this value from being entered repetitively, 6 separate regression analyses were run against each morpheme type TLU score with only Grade and the private education time entered as independent variables. In all the six analyses, the private English education time was not found to be a significant predictor, which implies TLU scores were not systematically affected by the amount of private English education the participants received. Aware of this fact, this variable was excluded from the following regression models. Thus, the following analyses attempt to examine which factor, among four categorical independent variables, had the biggest predictive and explanatory power on TLU scores.

In standard regressions, a predictor variable is automatically excluded if it can be perfectly predicted from one or more of the other independent variables and regression does not work well if there exists high multicollinearity between or among independent variables. Complexity, one of the independent variables, is an incorporative variable of L1 type and Interpretability; and owing to their multicollinearity issue, Complexity was not entered along with L1 type or Interpretability into any regression models. In addition, I avoided entering L1 type and Interpretability simultaneously into regression models

because a certain interactional term would be unavailable due to the absence of dependent variables at the [L1 type Present * Uninterpretable] level combination of factors. In other words, none of the target morphemes in this study corresponds to the characteristics of being present in L1 and uninterpretable at the same time, and thus there were no matching TLU scores. Indeed, when these two independent variables were actually entered at once, some of the values were missing in the output as one particular level combination of factors was not observed, and thus the corresponding population marginal was not estimable.

4.2.1. Regression Model with L1 Type and Grade

In Regression Model 1, L1 type and Grade were entered. As all the independent variables were categorical, dummy coding was performed for every regression model; in this particular model, the reference level of L1 type was the Absent group, and that of Grade was the 5th grade.

Table 12 *Regression Analysis 1 Predicting TLU Scores*

Variable	Coefficient β	
Constant	.251**	(<.001)
Grade 6	.297**	(<.001)
Grade 7	.364**	(<.001)
L1 type	.255**	(<.001)
R	.563	
R Square	.317	

p-values in parentheses

***p*<.01

As can be seen in Table 12, L1 type and Grade were combined to account for 31.7% of TLU scores variance and both variables were significant factors in predicting TLU scores. Both predictors were found to be significant in explaining TLU scores. The size

of coefficients implied that after effects of L1 type are controlled for, the upper graders (6th and 7th) would get .297 and .364 higher TLU scores than the 5th graders' TLU scores in L1 absent morphemes, and after effects of grade are taken into account, students would perform better by .255 TLU scores in English morphemes of which equivalent morphemes are present in L1 than absent ones. However, the L1 type factor (.255) appeared to bear relatively weaker influence on morpheme accuracy than the grade factor (.297 and .364).

4.2.2. Regression Model with Interpretability and Grade

In the sequent regression model, Interpretability, instead of L1 type, and Grade were entered. The reference level of Interpretability was the Uninterpretable group and that of Grade was the 5th grade. This Regression Model 2 revealed that Interpretability and Grade together explained 47.8% of the variance in TLU scores (Table 13).

Table 13 Regression Analysis 2 Predicting TLU Scores

Variable	Coefficient β	
Constant	.106**	(<.001)
Grade 6	.296**	(<.001)
Grade 7	.363**	(<.001)
Interpretability	.410**	(<.001)
R	.691	
R Square	.478	

p-values in parentheses

***p*<.01

Moreover, the *p*-values for both factors were significant enough. It could be inferred from the size of coefficients that the TLU accuracy was more affected by Interpretability (.410) than by Grade (.296 and .363). In other words, students would receive .410 higher TLU scores if morphemes are interpretable than they are uninterpretable after the grade level

was taken into account, and they would receive .296 and .363 higher TLU scores compared to 5th grade after considering effects of morpheme interpretability; nevertheless, interpretability can outweigh grade differences in morpheme accuracy as the sizes of their values indicate. Considering that the R-squared value in the first regression model was .317, Regression Model 2 had a much larger predictability on TLU scores by 16.1%.

4.2.3. Regression Model with Complexity and Grade

In the next regression model, Complexity and Grade were entered as independent variables. In this model, the reference level of Complexity was Degree 3 complexity and that of Grade was the 5th grade. As shown in Table 14, this Regression Model 3 showed that Complexity and Grade together accounted for 47.9% of the TLU scores variance and the *p*-values for both factors were significant (*p*<.001).

Table 14 *Regression Analysis 3 Predicting TLU Scores*

Variable	Coefficient β	
Constant	.106**	(<.001)
Grade 6	.296**	(<.001)
Grade 7	.363**	(<.001)
Degree 1 complexity	.400**	(<.001)
Degree 2 complexity	.439**	(<.001)
R	.692	
R Square	.479	

p-values in parentheses

***p*<.01

The size of coefficients suggested that after grade effects are controlled for, students will score .400 higher TLU scores for Degree 1 complexity morphemes and .439 higher TLU scores for Degree 2 complexity morphemes compared to Degree 3 complexity

morphemes among 5th graders; also, after complexity effects are considered, 6th and 7th grade students will respectively receive .296 and .363 higher TLU scores than 5th grade students. Meanwhile, degrees of complexity can override grade difference in morpheme accuracy as the relatively larger coefficient values show. Considering that the R-squared value in the previous regression model was .478, it is inferred that the replacement of Interpretability with Complexity as a predictor contributed only 0.01% to TLU scores. In sum, among the independent variable candidates, Interpretability and Complexity were identified to have a greater predictability on TLU scores than L1 type did. All the significant p -values attained from the three sets of regressions coefficients indicated to be less than the adjusted p -value according to the Bonferroni correction ($p=.017$).

4.2.4. General Linear Models with Interaction Effects

Since the difference between Model 2 and Model 3 in terms of variance explanation power was negligible, both models were kept for factorial analyses to examine whether there were interactive effects between Interpretability and Grade, and Complexity and Grade. Factorial ANOVA was opted for as it is suitable and convenient for examining interactions among categorical independent variables without having to perform dummy coding.

4.2.4.1. Interpretability, Grade, and Their Interaction. The first factorial ANOVA was fitted to TLU scores with Grade as a between-subjects variable (5th, 6th, and 7th grade) and Interpretability as a within-subjects variable (Interpretable and Uninterpretable).

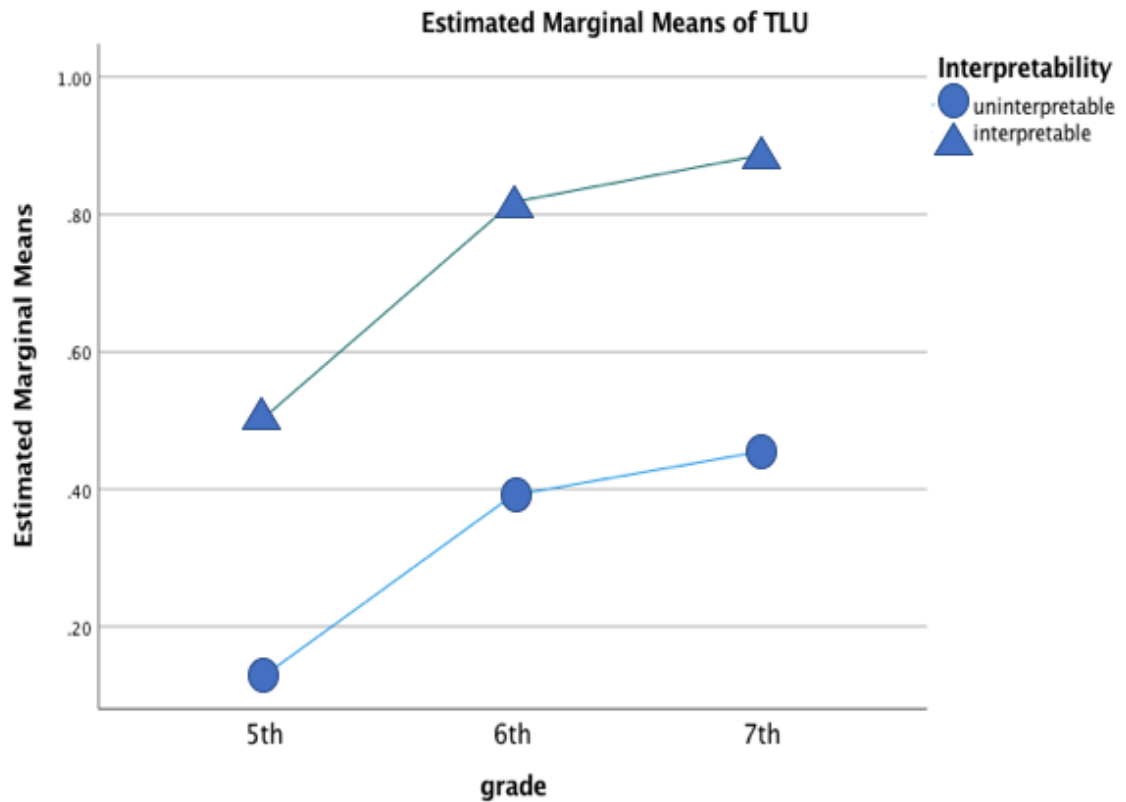
Table 15 Factorial ANOVA Summary Table: Grade and Interpretability

Source	SS	df	MS	F	Sig.	Partial η squared
Grade	12.405	2	6.202	88.690**	.000	.240
Interpretability	21.449	1	21.449	306.700**	.000	.353
Grade \times Interpretability	.083	2	.042	.597	.551	.002

** $p < .01$ R Squared = .479

As presented in Table 15, there was a significant main effect for Grade at the $p = .000$ level, and for Interpretability at the $p = .000$ level. There was no significant interaction effect of Grade and Interpretability. The Tukey post-hoc tests revealed that TLU score differences between and among all grade levels were statistically significant. Overall, 6th graders ($p = .000$) and 7th graders ($p = .000$) scored higher than 5th graders, and 7th graders ($p = .043$) received significantly higher mean scores than 6th graders. These pairwise comparisons implied their TLU scores increased gradually as grade levels go up and the graph in Figure 4 demonstrates it. Also, overall students received higher TLU scores in interpretable morphemes than in uninterpretable morphemes.

Figure 4 Mean Scores in 5th, 6th, and 7th Grade by Interpretability



4.2.4.2. Complexity, Grade, and Their Interaction. In the next factorial ANOVA, Grade was entered as a between-subjects variable and Complexity as a within-subjects variable (Degree 1, 2, and 3 complexity).

Table 16 Factorial ANOVA Summary Table: Grade and Complexity

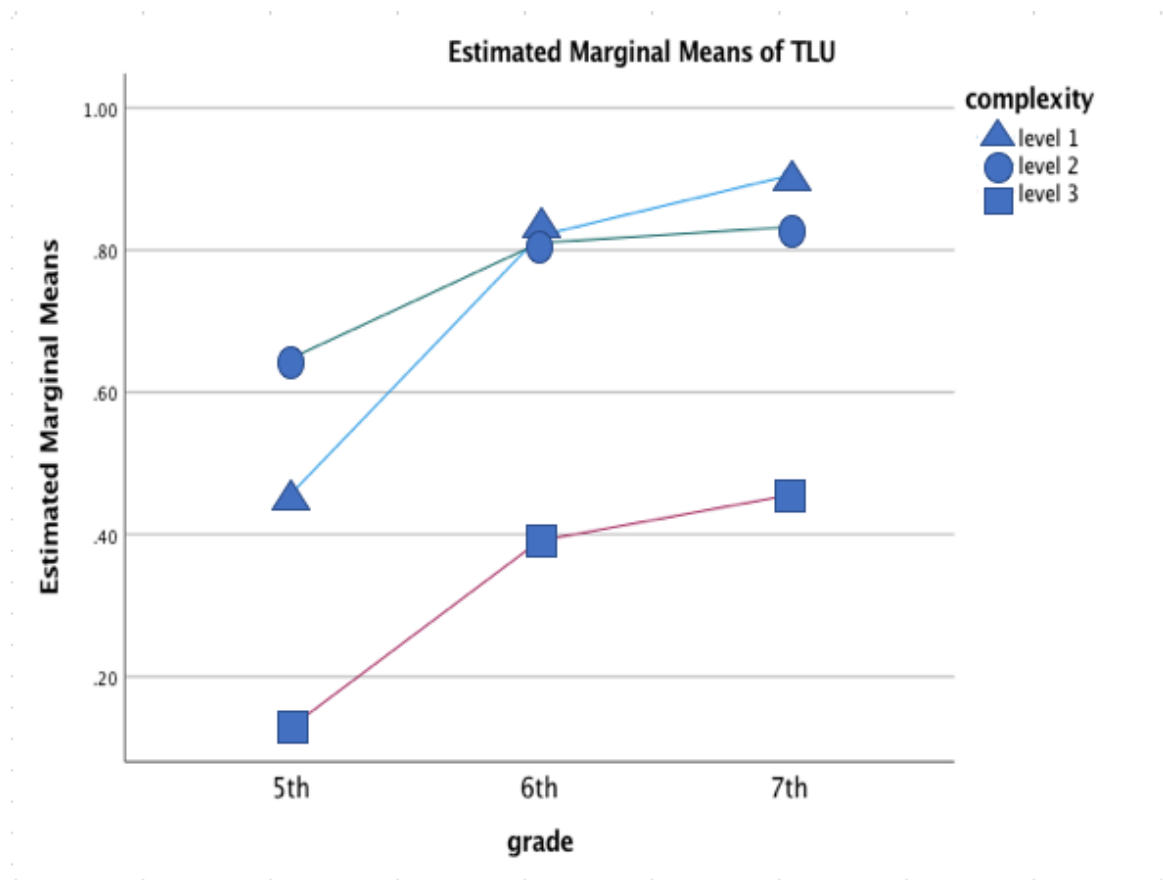
Source	SS	df	MS	F	Sig.	Partial η squared
Grade	9.307	2	4.653	67.960**	.000	.195
Complexity	21.560	2	10.780	157.444**	.000	.360
Grade \times Complexity	1.004	4	.251	3.666**	.006	.026

** $p < .01$ R Squared = .493

There was a significant main effect for Grade at the $p = .000$ level, and for Complexity at the $p = .000$ level as shown in Table 16. However, there was a significant interaction effect

of Grade and Complexity ($p=.006$), indicating that the effect of Complexity was moderated by that of Grade as can be seen in Figure 5.

Figure 5 Mean Scores in 5th, 6th, and 7th Grade by Complexity



The Tukey post-hoc tests showed that overall, 6th graders ($p=.000$) and 7th graders ($p=.000$) received significantly higher mean scores than 5th graders, and 7th graders ($p=.040$) scored significantly higher than 6th graders, contributing to the significant Grade (between-subjects variable) effect. Also, it was revealed in the Tukey post-hoc tests that there were significant differences between Degree 1 and 3 complexity ($p=.000$) and Degree 2 and 3 complexity ($p=.000$), which attributed to the significant Complexity (within-subjects variable) effect. Comparing the R-squared values from the two factorial ANOVAs (see Table 14 and Table 15), it was confirmed that the second analysis

accounted for TLU scores better by 1.4%. This fact also implies that the model with Grade, Complexity, and their interactional term together ($R^2=.493$) fits the data better than the model with Grade and Complexity alone ($R^2=.479$) does.

Since a significant interaction effect was identified in the previous factorial ANOVA, three separate one-way ANOVAs were performed on each grade level, to discover how different complexity types affect TLU scores. The results were summarized in Table 17.

Table 17 Results of Three Separate One-way ANOVAs for Complexity Effect

		df	SS	MS	F	Sig.	η squared
5 th grade	Between groups	2	7.231	3.616	40.737**	.000	.293
	Within groups	197	17.484	.089			
	Total	199	24.715				
6 th grade	Between groups	2	7.260	3.630	54.237**	.000	.381
	Within groups	176	11.779	.067			
	Total	178	19.039				
7 th grade	Between groups	2	8.017	4.008	82.554**	.000	.469
	Within groups	187	9.080	.049			
	Total	189	17.097				

** $p < .01$

In all the grade levels, the complexity type effect was significant as expected ($F(2,197)=40.737, p=.000$ in 5th grade, $F(2,176)=54.237, p=.000$ in 6th grade, and $F(2,187)=82.554, p=.000$ in 7th grade).

Table 18 Multiple Comparisons of Complexity Type for TLU Scores Using Tukey

Grade	(I) complexity	(J) complexity	Mean Difference (I-J)	SE	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
5 th	level 1	level 2	-.19099*	.05988	.005	-.3324	-.0496
		level 3	.32776*	.04692	.000	.2169	.4386
	level 2	level 1	.19099*	.05988	.005	.0496	.3324
		level 3	.51875*	.06320	.000	.3695	.6680
	level 3	level 1	-.32776*	.04692	.000	-.4386	-.2169
		level 2	-.51875*	.06320	.000	-.6680	-.3695
6 th	level 1	level 2	.01001	.05462	.982	-.1191	.1391
		level 3	.42908*	.04321	.000	.3269	.5312
	level 2	level 1	-.01001	.05462	.982	-.1391	.1191
		level 3	.41907*	.05785	.000	.2823	.5558
	level 3	level 1	-.42908*	.04321	.000	-.5312	-.3269
		level 2	-.41907*	.05785	.000	-.5558	-.2823
7 th	level 1	level 2	.07220	.04510	.248	-.0343	.1788
		level 3	.44957*	.03571	.000	.3652	.5339
	level 2	level 1	-.07220	.04510	.248	-.1788	.0343
		level 3	.37736*	.04771	.000	.2647	.4901
	level 3	level 1	-.44957*	.03571	.000	-.5339	-.3652
		level 2	-.37736*	.04771	.000	-.4901	-.2647

*. The mean difference is significant at the 0.05 level.

The Tukey post-hoc tests (see Table 18) showed that throughout the grade levels, students performed significantly better in Degree 1 ($p=.000$) and 2 ($p=.000$) complexity morphemes than in Degree 3 complexity morphemes. However, a significant difference between Degree 1 and 2 ($p=.005$) was found only in 5th grade, and interestingly, 5th graders' TLU scores in Degree 1 complexity morphemes were significantly lower than those in Degree 2 complexity morphemes. On the other hand, 6th and 7th graders' TLU scores in Degree 1 complexity morphemes were higher than those in Degree 2 complexity morphemes although these differences were not statistically significant ($p=.982$ in 6th grade and $p=.248$ in 7th grade).

4.3. Poststructuralist Analyses

In response to Research Question 3: What different analyses does the poststructuralist perspective provide on EFL learners' unconventional forms?

Thus far, the participants' morpheme competence has been analyzed from a rather conventional perspective. In this section, it is examined how the same performance can be assessed differently from the poststructuralist perspective in order to address the question above. For poststructuralist analyses, students' so-called "incorrect" suppliance of morphemes were reevaluated whether they generated any ambiguous meanings in a communicative sense. The incorrect suppliance of morphemes were accepted as unambiguous cases if other external factors such as linguistic devices, context settings configuration, and interactions with the interviewer functioned to disambiguate miscommunication that could have potentially occurred due to non-target-like morpheme suppliance. Inspired by the poststructuralist's core philosophy, this approach focuses on the particular and local features of language processes and how students managed processes of meaning making rather than on dichotomous distinctions between correct or incorrect language uses. Table 19 summarizes the list of criteria for judging what counts as unambiguous cases or not for each morpheme.

Table 19 *Criteria for Unambiguous Cases*

-ing	<ul style="list-style-type: none">• If a copular verb <i>be</i> is present, but the main verb is in its bare form in the progressive contexts. (ex. <i>Tom is walk dog.</i>)
Plural -s	<ul style="list-style-type: none">• If a numerical expression is present. (ex. <i>two tomato</i>)
Possessive -'s	<ul style="list-style-type: none">• If a possessor is expressed. (ex. <i>Tom uniform</i>)
Articles	<ul style="list-style-type: none">• A mix-up between <i>a</i> and <i>an</i> is accepted as unambiguous as it does not interrupt the utterance interpretation. (ex. <i>a ice cream</i>)• Article choice mistakes on formulaic expressions are accepted as unambiguous. (ex. <i>plays the tennis</i>)• <i>a</i> should be used for the first mentions, and <i>the</i> afterwards as definiteness is an important meaning part of articles (Ionin et al., 2008)• Specificity, the other meaning part of articles (Ionin et al., 2008)• should be met in order to be accepted as unambiguous. (ex. <i>walk the dog</i> is acceptable, but <i>walk a dog</i> or <i>walk Ø dog</i> is not because there is only one dog that belongs to Tom's family.)• As for the dialogue format task 3, even missing articles are accepted as unambiguous because of the task setting where the interviewer and a participant shared one picture to discuss what to give Sally for her birthday. However, unambiguity is accepted unless there are multiple identical items that could be referred to by one noun phrase.
3 rd person -s	<ul style="list-style-type: none">• If a 3rd single person subject is present and there is a bare form of the verb. (ex. <i>Tom play the soccer.</i>)
Past -ed	<ul style="list-style-type: none">• As for storytelling form tasks, if any past temporal expression is provided at least once at the beginning of the narratives or if a student had used the past -ed morpheme appropriately before the mistake occurred.• As for dialogue form tasks, if any past temporal expression is provided within one turn of interaction, or if a student had used the past -ed morpheme appropriately before the mistake occurred within one turn of interaction.• If a student overgeneralized the past -ed morpheme (ex. <i>stealed</i>) in the past tense contexts.

In order to be accepted as unambiguous cases, a sentence that includes target morphemes should not be confusing or misleading in terms of syntax (ex. *the monkey my mom bag take*) or semantics (ex. *one potatoes*) in addition to meeting the criteria listed above.

Based on these criteria, it was calculated how many unambiguous cases were there out of incorrect morpheme suppliance cases to examine how much portion of incorrect morpheme supplings can be credited as meaning-making attempts from the poststructuralist perspective. Table 20 describes unambiguous-to-incorrect ratios for each morpheme in each grade.

Table 20 *Unambiguous-to-incorrect Ratios*

	<i>-ing</i>	Plural <i>-s</i>	Possessive <i>-‘s</i>	Articles	3 rd person <i>-s</i>	Past <i>-ed</i>
5 th grade	47.83% (22/46)	53.52% (38/71)	71.19% (42/59)	54.65% (247/452)	64.38% (94/146)	5.93% (7/118)
6 th grade	15.79% (3/19)	44.44% (32/72)	92.31% (12/13)	50% (166/332)	78.91% (101/128)	58.33% (35/60)
7 th grade	28% (7/25)	50.98% (26/51)	100% (6/6)	54.04% (174/322)	71.82% (79/110)	66.67% (12/18)

The result showed the ratios were very high for possessive *-‘s* and 3rd person *-s*, while those for *-ing*, plural *-s*, and articles were around 50% or lower across the grades.

Interestingly, the ratio for past *-ed* was very low among the 5th grade while it was higher over 50% among the 6th and 7th grades.

4.4. Relationship between TLU Scores and Wug Scores

In response to Research Question 4: How accurately does the Wug test reflect Korean EFL learners’ morpheme accuracy? Is the Wug test, originally designed for first language acquisition, appropriate for assessing EFL learners’ morpheme development?

The participants’ Wug test scores and TLU scores were first compared to see if there was any correlation. There were 5 types of Wug scores for each individual participant as there was no test item that measured students’ command in articles,

following Berko (1958). Accordingly, TLU scores were only limited to the corresponding five morphemes (*-ing*, plural *-s*, possessive *-'s*, 3rd person *-s*, and past *-ed*) for analyses with respect to Wug scores. Possible scores in each morpheme in Wug test were 0, 1, 2, or 3. There were three test items for each morpheme and the Wug score indicates the number of items students got correct. Table 21 summarizes the mean Wug score for each morpheme for each grade.

Table 21 Means of Wug Scores for Each Morpheme

	<i>-ing</i>	Plural <i>-s</i>	Possessive <i>-'s</i>	3 rd person <i>-s</i>	Past <i>-ed</i>
5 th grade	0.53	0.65	0.56	0.15	0.44
6 th grade	2.76	2.57	2.83	1.4	2.27
7 th grade	2.63	2.56	2.69	1.19	2.53

Overall, the 6th and 7th grades performed better than the 5th grade in all the morphemes. Among all the morphemes, 3rd person *-s* was the most challenging one across the three grades. This tendency and pattern were also observed in TLU scores.

Pearson Correlation analysis results demonstrated that TLU scores and Wug scores in fact had a statistically significant linear relationship ($r=.656, p<.001$). The direction of the relationship was positive, meaning these variables tend to increase together. In other words, TLU scores and Wug scores are positively correlated and the greater TLU scores are associated with the greater Wug scores. The strength of the association was approximately high ($|r|>=.6$). As the correlation analysis does not demonstrate how much predictability the Wug test bears with respect to TLU scores, a regression analysis was executed against TLU scores with Wug scores being an independent variable.

Table 22 *Regression Analysis 4 Predicting TLU Scores*

Variable	Coefficient β
Constant	.366** ($<.001$)
Wug score	.168** ($<.001$)
R	.656
R Square	.430

p-values in parentheses

** $p < .01$

The result (Table 22) showed that Wug scores explained 43% of TLU scores variance and Wug scores as a predictor was found to be significant in predicting TLU scores. The size of coefficients indicated that as students received higher Wug scores by one point, they would perform better in TLU scores by .168 scores. Durbin-Watson value, VIF, and normal P-P plot of regression verified that this regression model satisfied the regression assumptions. The model would be as follows:

$$\text{TLU scores} = .366 + .168 * \text{Wug scores}$$

As this is a linear model, there is an assumption that TLU scores increase linearly with Wug scores.

CHAPTER 5: DISCUSSION

This chapter discusses the interpretations drawn from the results of statistical tests. Four research questions will be addressed one by one, resorting to quantitative results, and sometimes to a qualitative approach as well. Then I will discuss some other peripheral findings related to Korean EFL learners' morpheme development.

5.1. How do Korean learners of English in EFL setting develop English grammatical morphemes? How are their developmental paths similar with or different from Krashen's (1977) natural order? How about compared to the orders based on L1 effect or interpretability?

The current study observed that Korean EFL learners displayed clustered accuracy ranks among the six target morphemes as shown in Table 9 below. It was found that the morpheme acquisition order among Korean learners of English in EFL setting to be consistent across 5th, 6th, and 7th grades; in other words, there was no between-grade difference in terms of accuracy ranking. This eye-measured observation was confirmed by Spearman's rank order correlation analyses which proved that the acquisition orders across all grades were correlated with each other.

Table 9 (repeated) Clustered Order of Morphemes

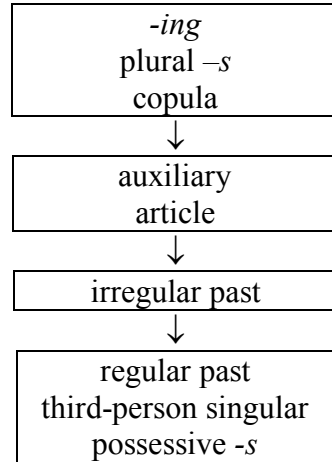
Clustered order	5 th grade	6 th grade	7 th grade
1	plural <i>-s</i> progressive <i>-ing</i>	progressive <i>-ing</i> possessive <i>-‘s</i> plural <i>-s</i> past <i>-ed</i>	possessive <i>-‘s</i> past <i>-ed</i> progressive <i>-ing</i> plural <i>-s</i>
2	possessive <i>-‘s</i> past <i>-ed</i>	3 rd person singular <i>-s</i> articles	3 rd person singular <i>-s</i> articles
3	articles 3 rd person singular <i>-s</i>		

Although TLU scores for all the morpheme types varied between and among grades as they gradually increased according to grade levels, how these morphemes were ordered in terms of accuracy was coherent across the grade spectrum. This observation implies that there are certain morphemes which Korean EFL learners have less or more difficulty with, and this relative level of difficulty is likely unchanging across grades even though their overall competition in morphemes improve according to grade levels. Overall, all the grade levels had most difficulty with articles and 3rd person singular *-s* among the six morphemes. 5th graders appeared to find possessive *-‘s* and past *-ed* more challenging than plural *-s* and progressive *-ing*, but it was not the case that possessive *-‘s* and past *-ed* marked lower accuracy ranks in 5th grade than in 6th and 7th grades; they were all within the fourth ranks across the grades. Moreover, all these four morphemes were clustered within the same accuracy level right off from the 6th grade. This observed accuracy ranking confirms that L1 effect is not a panacea in predicting advanced or delayed development of different morphemes. Although plural *-s*, articles, and 3rd person singular *-s* are all absent in Korean, plural *-s* is always within the first tier among ranks in all the grades, while articles and 3rd person singular *-s* seem challenging throughout the grades.

This observation is in line with the previous studies (Pak, 1987; Shin & Milroy, 1999), where students' performance in each morpheme was not impacted consistently and exclusively by the presence or absence of the corresponding L1 morphemes. Moreover, this finding agrees with Murakami and Alexopoulou's (2016) claim that L1 effect appears to be morpheme-specific. While the L1 factor cannot evidently explicate why plural *-s* is far more easily developed than articles and 3rd person singular *-s* notwithstanding all of their absence in Korean, the degree of mapping complexity in fact can. Indeed, Degree 3 mapping complexity morphemes include articles and 3rd person singular *-s*, but not plural *-s*, and Korean EFL learners were found to constantly have difficulty with Degree 3 mapping complexity. Also, Degree 3 level of mapping problem exists among all three grade levels' morpheme developmental paths.

Compared to Krashen's (1977) natural order in Figure 1 below, Korean EFL learners overall were found to develop articles little later and possessive *'s* much earlier. Moreover, their development order showed that a plural morpheme *-s* is developed much earlier and articles little later than claimed among Korean ESL learners and bilinguals in the United States (Pak, 1987; Shin & Milroy, 1999). This indicates that young Korean EFL learners display their unique morpheme development patterns different from Krashen's (1977) and Korean ESL learners or bilinguals.

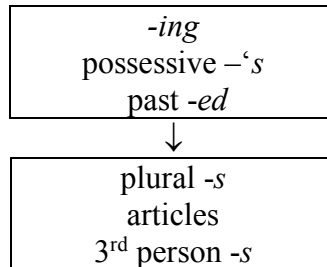
Figure 1 (repeated) *Natural Order for L2 Acquisition (Krashen, 1977)*



This visual measurement was confirmed by Spearman's rank order correlation analysis as it showed the natural order was not statistically correlated with any of acquisition orders among 5th, 6th, and 7th grades. This result indicates that Krashen's (1977) natural order, originally proposed for L2 acquisition, does not fit Korean EFL learners' morpheme development case. This result is actually not surprising as it is in line with many of the previous studies (Luk & Shirai, 2009; Pak, 1987; Shin & Milroy, 1999), all of which argued for the L1 effect in morpheme acquisition. These studies claimed if there are the matching L1 morphemes, the relevant English morphemes development would be facilitated while certain morphemes would be developed with difficulty than predicted by the natural order if those morphemes are absent in the L1. Nevertheless, in these studies, the L1 effect appeared to be only applicable to particular morphemes, and the authors did not explain why the L1 effect is morpheme specific, not to mention indicate this contrariety. As mentioned earlier, the current study also found that not all the morphemes that are missing corresponding L1 morphemes were identically delayed in terms of

development. If the L1 effect were to be definitive in explaining the varied difficulty of morphemes, the development order for Korean speakers should look like Figure 6.

Figure 6 *Development Order Based on L1 effect*



However, as expected, Spearman’s rank order correlation demonstrated that L1 type order was not significantly correlated with 5th, 6th, and 7th Korean EFL learners’ acquisition orders.

To find out what, in addition to the L1 effect, contributes to differential levels of morpheme difficulty was one of the foci of this study. More specifically, the present study expected to identify additional factors that can better explain the variability in English morpheme acquisition, which could not be comprehensively explicated by the L1 effect alone. Accordingly, semantic interpretability at LF level was proposed as a candidate for an additional factor affecting morpheme development. Figure 7 and 8 illustrate estimated morpheme development orders respectively based on interpretability and complexity, which is interactive combination of interpretability and the L1 effect.

Figure 7 *Development Order Based on Interpretability*

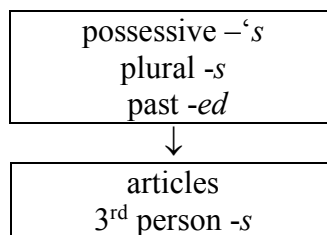
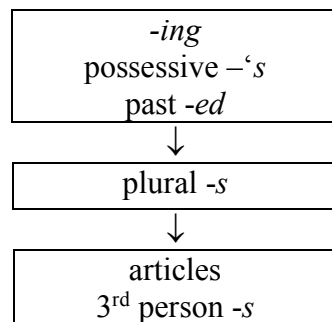


Figure 8 *Development Order Based on Complexity*



Spearman's rank order correlation analyses revealed Interpretability order was statistically correlated with 5th, 6th, and 7th Korean EFL learners' acquisition orders, while Complexity order with 6th and 7th's. The fact that Interpretability order and Complexity order are correlated with Korean EFL learner's acquisition order whereas L1 type order is not provides a preliminary ground that interpretability and complexity are worthwhile as potential factors influencing morpheme development. Therefore, the next section will further discuss whether interpretability and complexity can be a key to supplement the morpheme-specific L1 effect in explaining varied development rates among morphemes.

5.2. Previous studies showed that the L1 effect on English grammatical morphemes is morpheme specific, which indicates the L1 effect is not definitive in explaining English morpheme development. Can semantic interpretability at LF as an additional variable better explain Korean EFL learners' morpheme developmental patterns than the L1 effect alone can?

Intriguingly, Spearman's correlation analyses revealed none of the acquisition orders among 5th, 6th, and 7th grades was statistically correlated with the L1 type order while there was strong, positive monotonic correlations between all the grades' acquisition orders and the interpretability order, and 6th and 7th grade acquisition orders respectively had an increasing monotonic relationship with the complexity order. From the correlation analyses, whether morphemes are interpretable or uninterpretable, and what complexity degree do morphemes belong to appeared to be more associated with Korean EFL learners' morpheme developmental path than whether there exist relevant morphemes in L1 or not, but as it is not sufficient enough to figure out how much each variable accounts for TLU scores, a series of regression analyses was conducted.

As one of the foci of this study was to investigate why presence/absence of matching L1 morphemes cannot consistently explain learners' morpheme development, the effects of interpretability and complexity were compared with that of the L1 type in predicting morpheme accuracy. The statistical results verified that among the three independent variable candidates, interpretability and complexity had a greater predictability on TLU scores than the L1 type did. This indicates that whether a morpheme is interpretable or uninterpretable, and the way this interpretability interacts with presence or absence of the corresponding L1 morpheme tend to influence Korean

EFL learners' performance on that morpheme than simple presence or absence of the relevant L1 morpheme per se does. Nevertheless, from these regression analyses, it was not simple enough to assert which variable, between interpretability ($R^2=.478$) and complexity ($R^2=.479$), better accounted for TLU scores because the difference in variance explanation power was so negligible by 0.01%; and thus, both variables were maintained for further analyses. In the next subsection, potentials of interpretability and complexity as influential factors to morpheme development will be further comprehensively discussed by examining not only main effects of interpretability, complexity, and grade, but also their interactive effects.

5.2.1. Interpretability or Complexity?

It has been so far discussed English morphemes' inherent interpretability and complexity degrees appeared to better account for varied morpheme accuracy than the presence/absence of relevant morphemes in L1 does. Nevertheless, thus far it was not evident enough which factor between interpretability and complexity is more primary in affecting English learners' morpheme development. As this study is interested in the morpheme development path, not just a temporary state of morpheme accuracy, the grade factor is fundamentally essential; in fact, the effect of grade was found to be statistically significant in all the previous regression models, implying morpheme accuracy is differentiated according to grade levels. Consequently, examining how interpretability and complexity play interactively with this grade factor suggested a clearer picture on morpheme development.

5.2.2. Interpretability, Grade, and Their Interaction on Morpheme Development

The factorial ANOVA result confirmed that students received significantly higher TLU scores in morphemes that are interpretable than in uninterpretable morphemes and upper graders scored higher TLU scores, meaning overall they found uninterpretable morphemes more challenging and upper graders were more proficient in morpheme competence. No significant interaction effect of interpretability and grade was found, which implies students always performed better in interpretable morphemes than in uninterpretable ones that lack semantic contents no matter what grades they were in, and both for interpretable and uninterpretable morphemes, 6th and 7th graders performed better than 5th graders, and 7th graders better than 6th graders.

5.2.3. Complexity, Grade, and Their Interaction on Morpheme Development

The factorial ANOVA with complexity and grade as independent variables revealed that students scored significantly higher TLU scores for Degree 1 and 2 morphemes than for Degree 3 morphemes, implying they found Degree 3 morphemes most challenging. Also, it was demonstrated that 6th and 7th graders received significantly higher TLU scores than 5th graders, and 7th graders did so than 6th graders, which indicates that upper grade students outperformed the lower graders in morpheme accuracy. However, there was a significant interaction effect of complexity and grade, which suggests that the main effect of complexity was moderated by that of grade. In order to clarify what lies behind this significant interaction effect, how morphemes' different complexity types affected TLU scores in each grade level was examined.

It was found that the interaction effect originated from the fact that intriguingly 5th graders performed significantly better in Degree 2 complexity morphemes than in Degree 1 complexity morphemes while in the other grade levels, students performed the best in Degree 1 complexity morphemes, followed by Degree 2, and had the most difficulty with Degree 3 complexity morphemes. This particular observation actually seems to go counter to the current study's expectation that students' competence would be influenced by morphemes' gradient complexity degrees, with Degree 1 complexity morphemes being the most unchallenging ones and Degree 3 being the most problematic ones. However, U-shaped learning behavior (Sharwood Smith & Kellerman, 1989) might provide a plausible interpretation to this observation. This notion is defined by Sharwood Smith and Kellerman (1989) as 'the appearance of correct, or nativelike, forms at an early stage of development which then undergo a process of attrition, only to be reestablished at a later stage' (p. 220). Some of the oft-cited representative cases of U-shaped learning patterns in language acquisition are English morphemes *-ing* (Schmidt, 1983; Pica, 1985) and past *-ed* (Clashen (2006) for L1; and Leung (2006) for L2). It has been reported that English language learners display a tendency to oversupply *-ing* frequently as in (1) and (2), and to overgeneralize *-ed* to irregular verbs (*comed* instead of *came*, and *goed* instead of *went*).

(1) so yesterday I didn't painting (Schmidt, 1983, p. 147)

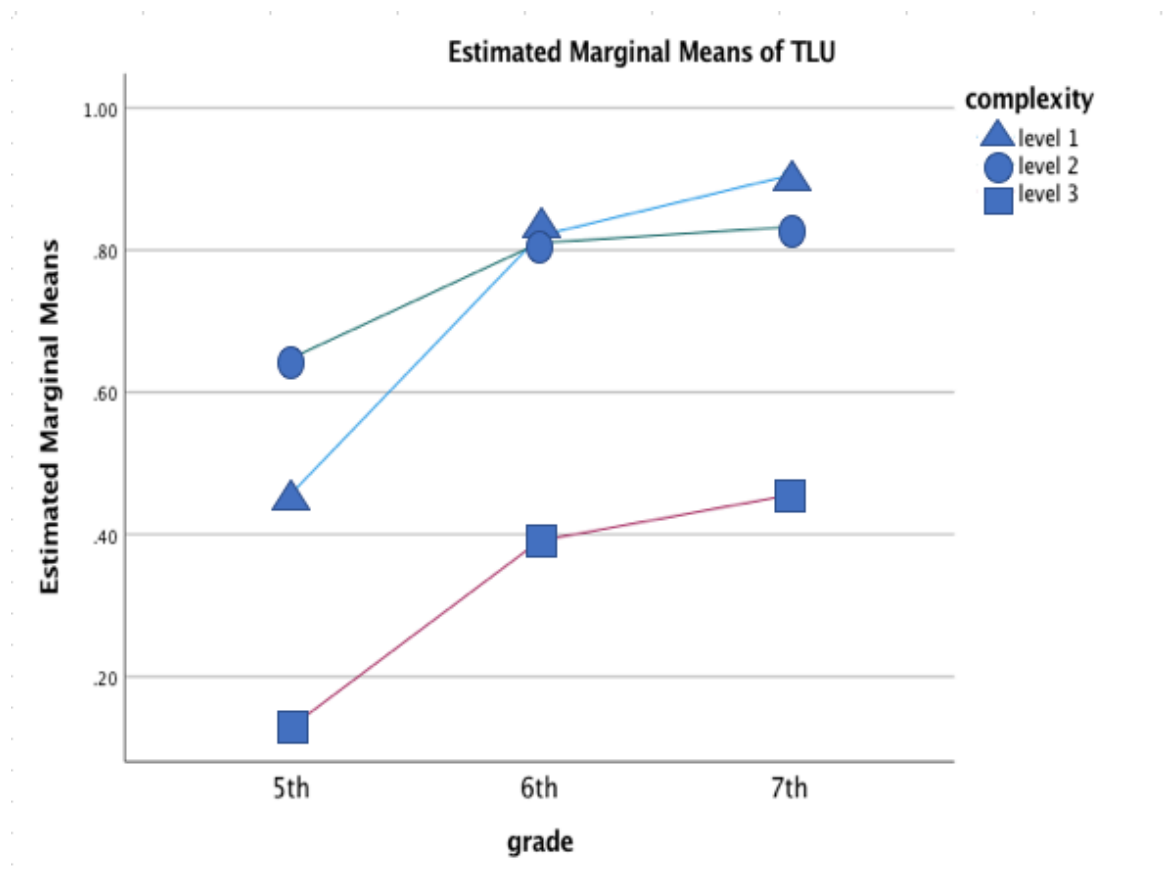
(2) I like to studying English (Pica, 1985, p. 143)

These occurrences of oversuppliance and overgeneralization are often observed during the middle stage, in between the earlier and later phases where learners in fact produce

target-like forms. In other words, oversuppliance and overgeneralization would characterize language patterns of those who are passing through U-shaped learning curve.

If we presume 5th graders in the current study happened to undergo the middle stage of U-shaped learning curve with respect to Degree 1 complexity morphemes, the crossline in Figure 5 is explainable because U-shaped learning assumes progress does not always equal to increased accuracy.

Figure 5 (repeated) Mean Scores in 5th, 6th, and 7th Grade by Complexity



Especially the fact that both English *-ing* and *-ed* belong to Degree 1 complexity morpheme group renders this hypothesis more applicable. Accordingly, 5th graders' usages of *-ing* and *-ed* were further inspected to see how many students produced not-

target-like morphemes via overgeneralization/oversuppliance, and what proportion of the entire non-target-like forms is categorized as overgeneralization/oversuppliance.

Table 23 *Analysis on 5th Graders' -ing and -ed Usages*

	<i>-ing</i>	<i>-ed</i>
Proportion of students with overgeneralization/oversuppliance	35.29% (12/34)	8.82% (3/34)
Proportion of overgeneralization/oversuppliance among non-target-like forms	57.78% (26/45)	2.5% (3/120)

As can be seen in Table 23, as for *-ing*, over 35% of the entire 5th graders showed the tendency of oversuppliance and out of all the non-target-like forms, over 55% were in the form of oversuppliance. Although very few students overgeneralized *-ed*, and overgeneralized *-ed* forms were hardly found among non-target-like forms, the oversuppliance case of *-ing* suggests that 5th grade's unexpectedly low scores for Degree 1 complexity morphemes might be attributed to U-shaped learning pattern.

Additionally, it was examined how many of 5th graders fluctuated between omissions and appropriate supplings during the same time by looking at intraindividual data and the result is presented in Table 24.

Table 24 *Analysis on 5th Graders' Fluctuation Patterns for -ing and -ed*

	<i>-ing</i>	<i>-ed</i>
Proportion of students with fluctuation between supplings and omissions	26.47% (9/34)	55.88 % (19/34)

If learners leave out morphemes in some obligatory contexts, yet at the same time they correctly supply them in some other obligatory contexts, this conflicting behavior would mark restructuring, 'the process of self-organization of grammar behavior representations' (Ortega, 2009, p.117). More than half of 5th graders were observed to

demonstrate a restructuring pattern for *-ed*, and it can be interpreted as they underwent a slight slump in terms of TLU scores, which was in turn established as a foothold for the next significant improvement. This piece of evidence also supports the proposal that students went through U-shaped learning for Degree 1 morphemes during the 5th grade. However, this interpretation is proposed with the caveat that further research is needed with participants younger than 5th grade to confirm as the current study is missing those population group.

Thus far, it has been proven that morphemes' interpretability and complexity better account for EFL learners' morpheme development pattern than L1 type does. It was suggested morpheme specific L1 effect, frequently observed in the previous studies, was either due to interpretability per se or complexity, which is theoretically a combination of interpretability and L1 effect. Yet, it was not simple and explicit enough to claim assuredly which one is the more influential variable affecting morpheme development. The R-squared values from two factorial ANOVA models indicated that the one with complexity ($R^2=.493$) explained TLU scores better by 1.4% than the one with interpretability ($R^2=.479$). Numerically speaking, the model with complexity demonstrated a better fit for the data, but it does not necessarily mean that we can abandon interpretability as an explaining variable. The number difference in data explainability was in fact not large; moreover, in order to make sense of the model with complexity, a speculative assumption had to be considered as there appeared an interactional effect between complexity and grade. The present study is preliminary in deciding between interpretability and complexity, and this issue remains open for future

research. However more importantly, the current study manifested that interpretability and complexity are critical variables to compensate morpheme-specific L1 type effect on morpheme development.

5.3. What different analyses does the poststructuralist perspective provide on EFL learners' unconventional forms?

Thus far, students' interlanguage has been analyzed from a binary perspective, whether their morpheme use was accurate or inaccurate from a target language point of view.

However, some scholars (Bley-Vroman, 1983; Firth & Wagner, 1997; Goldschneider & DeKeyser, 2005; Bonfiglio, 2013; García et al., 2016) assert that interlanguage should be respected and evaluated for its idiosyncratic and autonomous traits instead. For instance, the poststructuralist view criticizes the dichotomous distinction between native-speakerness and non-native-speakerness. They argue that we should respect the autonomous nature of L2 learners' interlanguage rather than assess interlanguage based on ideal L1 norms of the target language. They believe that the binary classification of target-like and non-target-like forms basically disregards the idiosyncratic system of interlanguage. In this vein, the poststructuralist perspective claims that learners' language use should be examined as processes of meaning making through interactions with increased *emic* sensitivity rather than processes of internalizing grammars, structures, and vocabulary of a standard language. Accordingly, learners' data were reinvestigated with a focus on local features of language processes; contexts of their non-target-like morphemes were assessed whether they contained any cues indicating that learners adopted certain language use or interactions with the interlocutor in order to make sense

of their intended messages in the absence of target-like forms of morphemes. Instead of focusing on their accuracy on morpheme use, learners' use of other linguistic tools was analyzed to see how they were utilized and incorporated in meaning-making in the absence of "correct" use of morphemes. This investigation revealed that learners indeed used, whether it be intentionally or unintentionally, linguistic strategies or tools to negotiate with the gap between their L2 linguistic knowledge and conventional use of L2. Table 25 exemplifies types of linguistic tools appropriated by the learners.

Table 25 *Select Examples of Linguistic Tools in "Incorrect" Morpheme Suppliance Contexts*

-ing	Tom is take a walk with my dog. Tom is eat a ice cream. (5 th grade #25306)
	Tom is walk dog. Tom is buy a ice cream. (5 th grade #25301)
Plural -s	Interviewer: Badminton? How many friends did you play badminton with? Student: Two. Two friend. (5 th grade #25306)
	I need two tomato. (5 th grade #15166)
	I'm looking for one onion and two big tomato and one potato. (6 th grade #16102)
Possessive -'s	Monkey steal Tom mom bag. (5 th grades #25304)
	Tom mother said... walk with dog. (5 th grade #25208)
	Interviewer: Whose soccer uniform do you think it is? Student: It Tom uniform? (5 th grade #15166)
	Interviewer: What are your plans for this winter? Student: I will go to grandfather house. (5 th grade #25310)
Articles	In three class, I played music and it is quite alright. We played Ø piano. (5 th grade #25355)
	Tom eating a ice cream.
	Tom is playing the tennis. (5 th grade #15152)
3 rd person -s	He eat the.. breakfast seven thirty every day. Tom have a English class. Tom play soccer. (5 th grade #25610)
	Tom is seven thirty eating every day. Tom go to school and study. Tom play the.. school done and then Tom play the soccer. (5 th grade #25357)
	And Tom eats breakfast at seven thirty. And Tom study English every day. Tom plays soccer with her ah his friends. (5 th grade #25256)

Past <i>-ed</i>	Tom do a many things <u>in vacation</u> . First, he <u>play</u> a tennis. And second he <u>play</u> the piano but it was hard to learn. [...]	(6 th grade #16352)
	Suddenly, the monkey <u>stealed</u> his mom's bag.	(5 th grade #15106)
	Monkey <u>catched</u> Tom's mom's bag.	(5 th grade #25210)
	I <u>start</u> skiing <u>when I was age eight</u> .	(6 th grade #16355)
	And one monkey <u>stoled</u> his mom's purse, but he found...	(6 th grade #16309)

This set of qualitative data demonstrates that EFL learners' morpheme usage may be inaccurate in terms of forms, but they somehow contrive communicative strategies for appropriate meaning-making. They used linguistic strategies or tools to supplement their incomplete morpheme knowledge.

It was observed that students employed numerical expressions in expressing plurality even though they left out the plural morpheme *-s*. Also, when they missed the possessive morpheme *-s*, they still specified the possessor of the following noun. As for the contexts where past *-ed* and 3rd person *-s* were obligated, although tense had been already assumed in the task instructions, some students were found to opt for temporal expressions such as *'in vacation'*, *'when I was age eight'* and *'every day'* to convey tense elements. Some students oversupplied past *-ed* to irregular verbs, producing forms such as *'stealed'* and *'catched'*, and sometimes even to already inflected past irregular verbs (*stoled*). These cases were counted 'incorrect' earlier in the analyses, but received credits from the poststructuralist viewpoint as students demonstrated evident attempts to mark and deliver the meaning of the past tense. Moreover, by saying the pronoun *'he'* or the proper noun *'Tom'*, students encoded a semantic aspect of 3rd person singular even when they failed to encode it syntactically by supplying *-s* at the end of the verb. The last

example of 3rd person -s (ID #25256) is very intriguing in that this intraindividual data display how an individual student can fluctuate between suppliance and omission during the same time. Interestingly, when this student correctly supplied 3rd person -s she did not express the temporal phrase, while when she left out the same morpheme, she compensated the absence of the morpheme by providing the temporal phrase.

These linguistic strategies seem to be associated with one of the postulations of VanPatten's (2002) Input Processing Theory that “learners will process lexical encodings before synonymous grammatical encodings (*yesterday* before *-ed*) as well as semantic or non-redundant encodings before formal or redundant ones (the pronoun *he* before the third person singular marking *-s* in *he works here*” (Ortega, 2009, p. 113). Although this theory was posited majorly in terms of input, the current study’s data demonstrated that learners do extend linguistic strategies and mechanisms they use during input process to the domain of output process. They tended to depend on lexical items (*two, in vacation, every day*) to deliver meaning as opposed to grammatical items (plural *-s, -ed, 3rd person -s*), and they resorted more on semantically-conditioned grammatical forms (*he*) to express meaning than on syntactically-conditioned ones (3rd person *-s*).

This finding is also in a similar vein with Butler, Liu, and Kim (2017)’s study in that they revealed young Chinese learners of English employ unique linguistic cohesive devices/strategies in order to make their English narrative coherent, while they are capable of incorporating all the major story structure elements in L1 narratives. Just as this unique use of linguistic cohesive devices/strategies was interpreted to fill in “the gap between their cognitive maturity and their limited linguistic knowledge in their foreign language” (p.172), the current study also observed Korean EFL learners employed certain

linguistic devices/strategies to narrow the gap between their limited capacity in English morphemes and their maturity in meaning-making.

In order to quantitatively understand how much these linguistic strategies actually contributed to disambiguation of misunderstanding originated from non-target-like morpheme uses, it was calculated how many of “incorrect” cases can be accepted as semantically unambiguous due to meaning-making attempts. The results showed that unambiguous-to-incorrect ratios for possessive *-‘s* and 3rd person *-s* ranged from 60% to 100%, which are very high, across all the grades. These figures indicate that in spite of inaccurate use or missing of possessive *-‘s* and 3rd person *-s*, semantic aspects of these morphemes were successfully communicated. As the morpheme 3rd person *-s* is a syntactic realization while its semantic aspect is in fact embodied via the presence of the 3rd person subject, it seems the errors in 3rd person *-s* seldom lead to miscommunication. Also, even in the absence of possessive *-‘s*, as long as the possessor is expressed, the relationship of what belongs to whom becomes readily self-explanatory. For this reason, even non-target-like uses of possessive *-‘s* seem to be relatively easily rescued from ambiguous meaning-making. On the other hand, unambiguous-to-incorrect ratios for *-ing*, plural *-s*, and articles were around 50% at their highest across the grades, implying that even from the poststructuralist perspective, potential of misunderstanding caused from the incorrect morpheme uses was reduced by half at best. Interestingly for past *-ed*, higher grades received higher unambiguous-to-incorrect ratios. This increase in ratios implies that higher graders better exploit other linguistic tools such as temporal expressions denoting past time in order to compensate for the incorrect morpheme uses, or they in fact markedly started supplying past *-ed* in a target like manner. Since even

inaccurate or missing past morphemes were accepted as unambiguous cases if a student had used the past *-ed* morpheme correctly before the mistake occurred within the narratives or within one turn of dialogic interaction, students received credits even if they fluctuated between suppliance and non/incorrect-suppliance.

The qualitative investigation from the poststructuralist viewpoint addresses that Korean EFL learners do possess capacity in conveying semantic aspects of English morphemes through other linguistic tools/strategies even when they did not succeed in realizing them syntactically. This seemed to suggest their communicative fluency aspect might be at a more satisfactory level compared to their morpheme accuracy. Nonetheless, the quantitative examination demonstrated that despite these other linguistic strategies, the “incorrect” morpheme uses were still not invulnerable to misunderstanding and miscommunication, especially as for *-ing*, plural *-s*, articles and past *-ed*.

5.4. How accurately does the Wug test reflect Korean EFL learners’ morpheme accuracy? Is the Wug test, originally designed for first language acquisition, appropriate for assessing EFL learners’ morpheme development?

In order to answer this question, Wug scores and TLU scores were analyzed to see if they were correlated, and the result revealed that they were positively correlated ($r=.656$, $p<.001$) and the higher TLU scores were associated with the higher Wug scores. The follow-up regression analysis further confirmed that Wug scores were significant in predicting TLU scores, and Wug scores reflected 43% of TLU scores variance. For each morpheme type, if students received one point higher Wug score, they are predicted to get .168 higher TLU score for the relevant morpheme.

This statistical result might urge us to conclude that the Wug test is also appropriate for assessing EFL learners' capacity in English morphemes. However, as the Wug test was originally designed for first language acquisition (Berko, 1958), we should be cautious about applying the test without a closer examination. Therefore, cases where Wug (possible scores: 0, 1, 2, 3) and TLU scores ($0 \leq \text{possible scores} \leq 1$) were excessively distant were identified because the previous analyses with mean scores could have concealed some extreme cases. It was judged Wug scores failed to reflect TLU scores if a great discrepancy existed between Wug and TLU scores. If a student's TLU score was distant from the corresponding morpheme's Wug score by 2 points or more on the scale of Wug score, the case was defined as an extreme discrepancy. Within each grade, cases where TLU score was by far higher than Wug score and cases where TLU score was extremely lower than Wug score were identified as in Table 26.

Table 26 *Cases of Large Discrepancy between TLU and Wug Scores*

	TLU >>> Wug	TLU <<< Wug	Total Large Discrepancy Cases
5 th grade	22.35% (38/170)	0% (0/170)	22.35% (38/170)
6 th grade	1.33% (2/150)	4.67% (7/150)	6% (9/150)
7 th grade	6.88% (11/160)	0% (0/160)	6.88% (11/160)

The majority of discrepancies were concentrated in the case where TLU scores were much higher than Wug scores, especially among 5th graders (22.35%). The cases of TLU scores being by far lower than Wug scores were only found among 6th graders although the percentage was very low (4.67%). 5th graders' much higher TLU scores than Wug scores imply that they produced appropriate morphemes in natural speech, but they failed to do so in the Wug test. This might be because the while 5th graders haven't established

a solid and stable foundation on morpheme formation rules that Wug test measures. Or it might indicate that the Wug test is more appropriate for upper graders due to the characteristics of the test itself and age. 5th grade might still be a young age to be cognitively mature enough to understand and perform the Wug test in their foreign language. For these reasons, the Wug test should be executed with caution to 10-11 aged EFL learners as it might underestimate their actual morpheme production skills. The cases where TLU scores were much lower than Wug scores indicate that students' performance on morpheme production in oral speech were poorer than their actual competence in terms of rule application. They might have been slips of the tongue, or students were not proficient enough to verbally realize their knowledge on morphemes in natural speech. However, as these cases were not as much found as the cases of much higher TLU scores than Wug scores, we need to be more cautious about Wug scores underestimating test takers' production of correct morphemes. Select examples of each discrepancy case are presented in Table 27 and 28 below for more concrete grasp on the concept.

Table 27 *Select Examples of TLU >>> Wug (TLU=1, Wug=0)*

5 th grade (ID#25311) – target morpheme: <i>-ing</i>
I <i>looking</i> for onion, big tomato, potato. Sally is <i>looking</i> TV, TV, BTS, soccer T-shirts, computer, shoes, book, guitar.
Wug test Zib/bing/bod (no suppliance) correct answers: zibbing/binging/bodding
7 th grade (ID#270524) – target morpheme: <i>-ed</i>
Tom <i>played</i> the tennis last summer. ... Tom and monkey <i>changed</i> fruit and bag. I <i>studied</i> English and Math. ... I <i>played</i> the piano. I <i>played</i> bad.
Wug test Rick/motting/spowing (no/inappropriate suppliance) correct answers: ricked/motted/spowed

Table 28 *Select Example of TLU <<< Wug (TLU=0, Wug=3)*

6 th grade (#16357) – target morpheme: 3 rd person singular -s
Tom <i>is eating</i> breakfast. Tom <i>is learning</i> at school. Tom <i>is playing</i> soccer. (where 3 rd person singular -s was expected as they described Tom's daily routines.)
Wug test
Loodges/nazzes/glings (correct suppliance)

As can be seen from these examples, students displayed some extremely contradictory performances between in their narratives and in the Wug test. English educators need to be cautious not to accept the Wug test results at their face value, but at the same time, they need to be aware that learners' natural speech production also does not always reflect their actual competence or morphological rule application ability.

To sum up, large discrepancy cases were almost all found in the category of TLU scores much higher than Wug scores, particularly among 5th grade. However, considering that large discrepancy cases accounted for just over 20%, it can be concluded that the Wug test is decently appropriate in predicting EFL learners' morpheme knowledge. Nevertheless, we have to be always careful in interpreting the Wug test results among 10-11 aged EFL learners as its results could underrate their actual capacity in morpheme production.

CHAPTER 6: CONCLUSION

This chapter discusses some limitations of the study, and theoretical and pedagogical implications drawn from this study.

6.1. Limitations

As the current study did not follow the same set of participants for three years, it is challenging to argue that this cross-sectional study precisely reflects Korean EFL learners' developmental path of morpheme acquisition. Results could have been more robust if the study had tracked the same students for the consecutive three or more years. Moreover, if a wider range of grade levels had been covered instead of just 5th, 6th, and 7th grades, more comprehensive developmental trends and patterns might have been discovered.

This study claimed and proved that the interpretability effect and its interaction with L1 effect (i.e. complexity) are far more powerful than the L1 effect per se in explaining and predicting EFL learners' morpheme development. However, this argument could have been more corroborative if more various L1 background groups had been included in the study. Studies with such a design would contain different combinations of morphemes for each complexity level (level 1 with morphemes with corresponding L1 counterparts, level 2 with morphemes that are interpretable and absent in L1, and level 3 with morphemes that are uninterpretable and absent in L1). Results from these studies are expected to cover variant morpheme developmental orders among different EFL groups. In the meantime, they are anticipated to verify the soundness of interpretability and complexity as factors resolving why the L1 effect appeared to be morpheme specific in the earlier studies.

6.2. Implications

The most crucial implication that can be deduced from this study for EFL education contexts is that interpretability, an inherent trait of each morpheme, more strongly affects how early and easily EFL learners develop it than whether there exists the corresponding L1 morpheme or not. This finding resolves why the L1 effect per se seemed only applicable to certain morphemes while not to the others, nonetheless the previous morpheme studies (Andersen, 1983; Lightbown, 1983; Pak, 1987; Shin & Milroy, 1999; Luk and Shirai, 2009) specified the absence or presence of corresponding L1 morphemes exclusively as a factor behind advancement or delay of morpheme development.

Korean EFL learners were found to have difficulty in particular with English morphemes that are uninterpretable and do not have matching L1 morphemes, and this tendency did not seem to recede even among higher graders in this study. In order to help students improve accuracy in those relevant morphemes with more ease, teachers can reinforce learning by emphasizing the contrary of Korean and English in terms of some grammatical concepts. Highlighting the obligation of verb inflection for 3rd person singular subjects and of the article system in English as opposed to Korean would enhance students' notice level on those morphemes. Moreover, introducing 3rd person -s as a rather pure syntactic/grammatical marker, yet an interesting feature of English language, might help them overcome with the difficulty of understanding the uninterpretable trait. As for articles, teachers can adopt a more systematic teaching approach; both the concepts of definiteness and specificity need to be introduced and highlighted distinctively, and how different combinations of each concept require

different article choices. Providing them with appropriate examples with contexts would be conducive to help them grasp these somehow intangible concepts underlying the article system more concretely. Although, teachers should keep in mind that allotting the vast amount of time to these morphemes might not bring satisfactory results as private English education time and morpheme accuracy were not found to be correlated at all in this study. Even though it is unknown what types of instruction was given to students in the private education sector in terms of morpheme pedagogy, this finding suggests that the absolute amount of time spent in learning does not override the effects of factors such as grade, interpretability, and complexity in morpheme accuracy. This implies that what is more needed in morpheme teaching is a proper direction and focus on some essentials of the English morphemes that particularly call for Korean EFL learners' attention.

The poststructuralist analyses revealed that a considerable number of Korean EFL learners' 'incorrect' morpheme uses could actually be accepted as nonproblematic in terms of communication. This implies there is a discrepancy between Korean EFL learners' capacities in grammatical accuracy and communicative fluency. Nevertheless, currently South Korea executes National College Entrance Exam that is highly grammar-oriented, insinuating this assessment type is missing on evaluating students' communicative fluency. Mid-terms and Final-terms, which are executed at each secondary school's level, are also heavily grammar-focused, not to mention National College Entrance Exam. In that the current 7th English education policy espouses both accuracy and fluency, there exists the mismatch between the grammar-focused assessment system and the goals stated in the policy. This fact urges education policy makers to develop and implement assessment tools that evaluate students'

communicative skills so that education practitioners better grasp the current state of students' fluency and accuracy levels, and their interrelation. With the performance evaluation data both on fluency and accuracy, they would also be able to reform teaching materials and curricula to a more adequate direction.

Although the poststructuralist analyses seem to suggest Korean EFL learners' fluency is decent, the poststructuralist's leniency still did not increase meaning unambiguity to a significantly high level; except for possessive -'s and 3rd person -s, unambiguous-to-incorrect ratios were around 50% or as low as about 6%. Taking into account that fluency is as much emphasized as accuracy in the current English curriculum of South Korea, Korean EFL learners' communicativeness also seems to need advancement. Teachers can encourage student to utilize linguistic tools such as temporal expressions that denote tense and aspect, and numerical expressions (numbers, *a lot of*, *many*, etc.) so that they can enhance their meaning making even in the absence of 'accurate' morpheme usages.

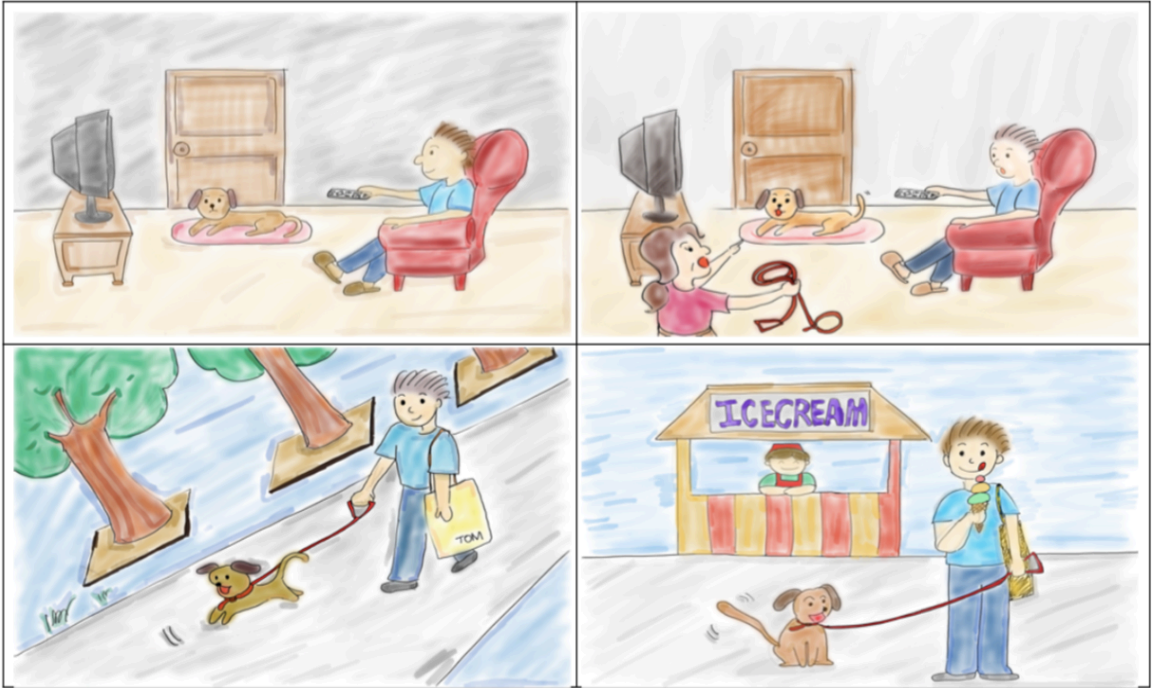
The current study found that Wug test is also appropriate for EFL learners as its scores demonstrated a reliable predictability on how accurately they produced morphemes in the natural speech data. Although English educators should be cautious in implementing Wug test among 10-11 aged students as it tends to underestimate their morpheme performance in natural speech, teachers can apply this test to older aged groups as an alternative grammar accuracy test especially if they would like to comprehend students' accuracy in morphological rules application. Moreover, as it is logistically and practically challenging for teachers to execute narrative kinds of tasks, just as those in this study, and analyze the data, the Wug test could be a simpler, more

manageable alternative option for them to understand their students' competency in morphemes.

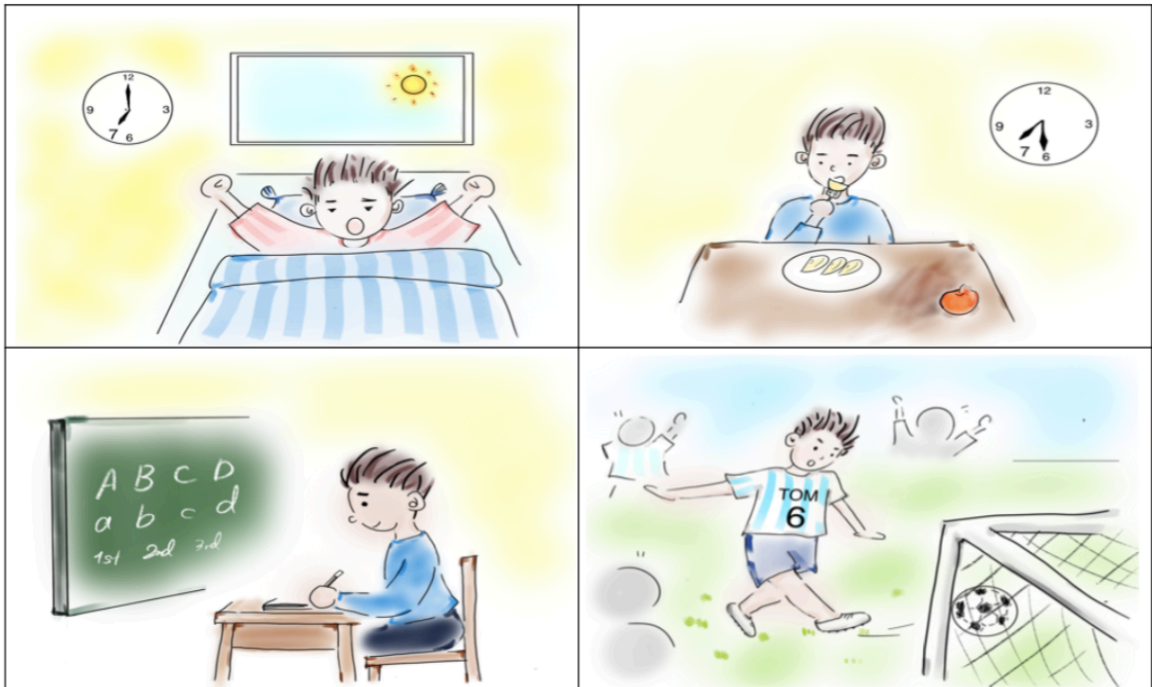
APPENDICES

Appendix A: Materials for Narrative Storytelling with Picture Prompts

1st set






2nd set





Appendix B: Materials for Storytelling in a Dialog Format

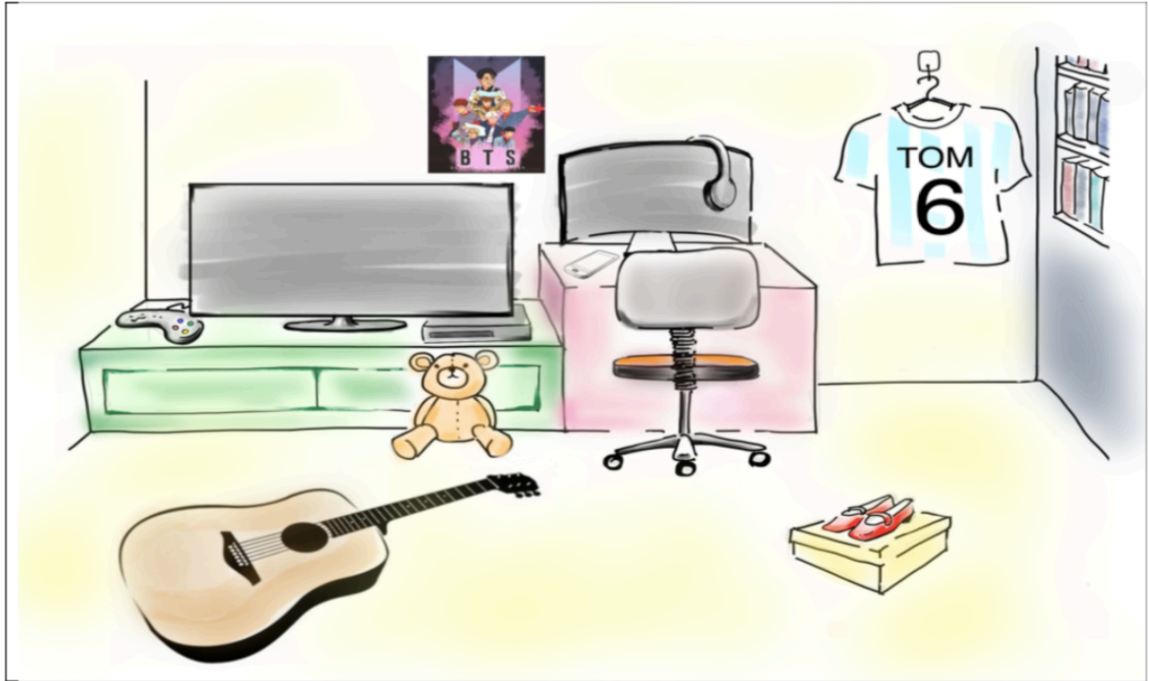
1st set

<p>양파</p> 	<p>1개</p>
<p>큰 토마토</p> 	<p>2개</p>
<p>감자</p> 	<p>1개</p>

2nd set

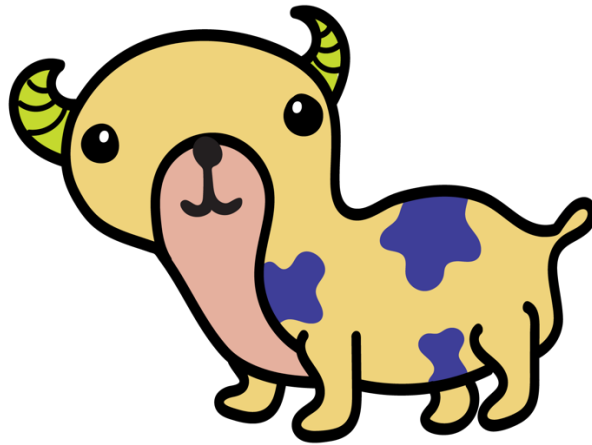


3rd set

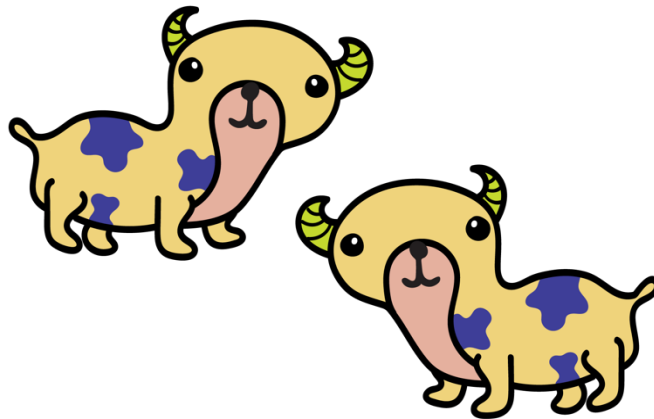


4th set





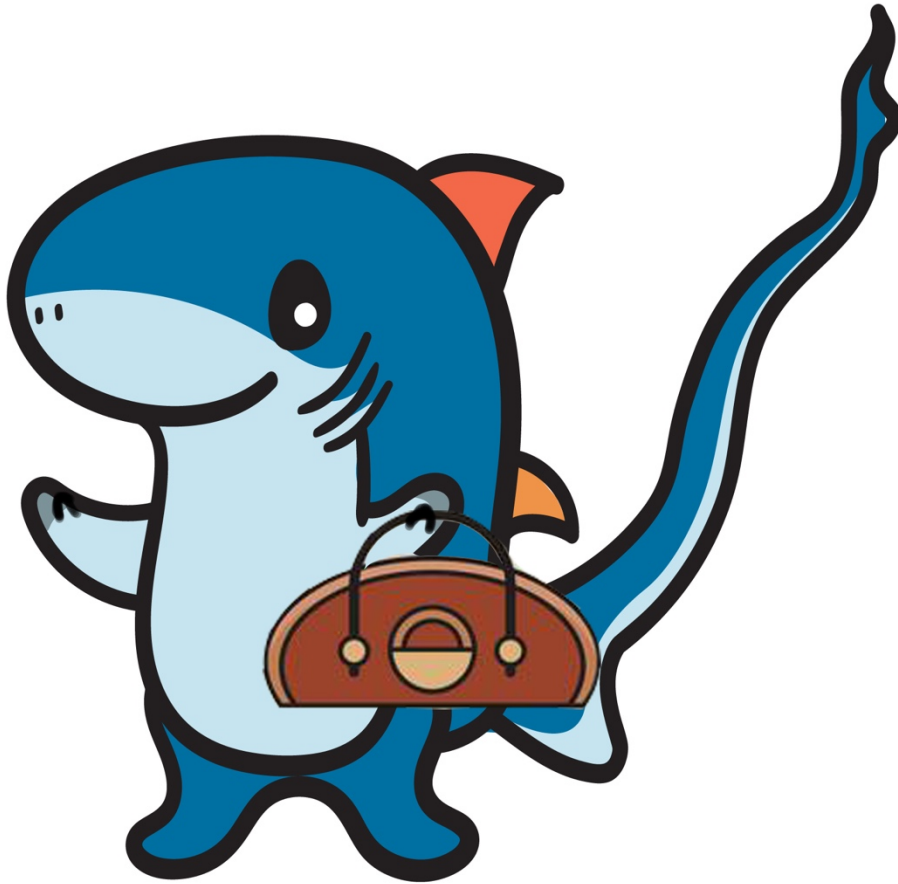
THIS IS A GLOP.



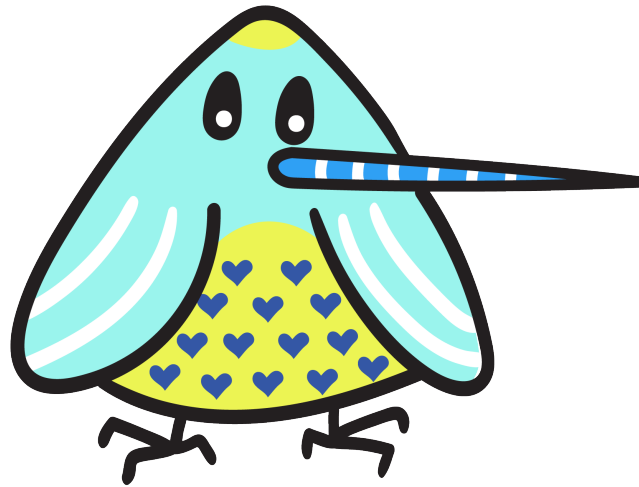
**NOW THERE IS ANOTHER ONE.
THERE ARE TWO OF THEM.
THERE ARE TWO _____.**



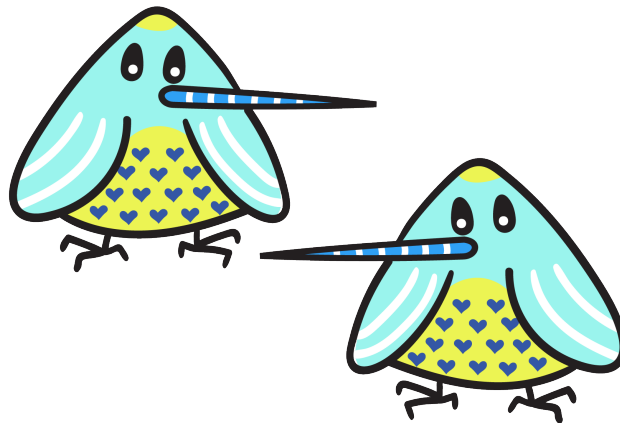
**THIS IS A MAN WHO KNOWS HOW TO LOODGE.
HE IS LOODGING.
HE DOES IT EVERY DAY.
EVERY DAY HE _____.**



**THIS IS A NIZ WHO OWNS A BAG.
WHOSE BAG IS IT?
IT IS THE _____ BAG.**



THIS IS A MUK.



**NOW THERE IS ANOTHER ONE.
THERE ARE TWO OF THEM.
THERE ARE TWO _____.**



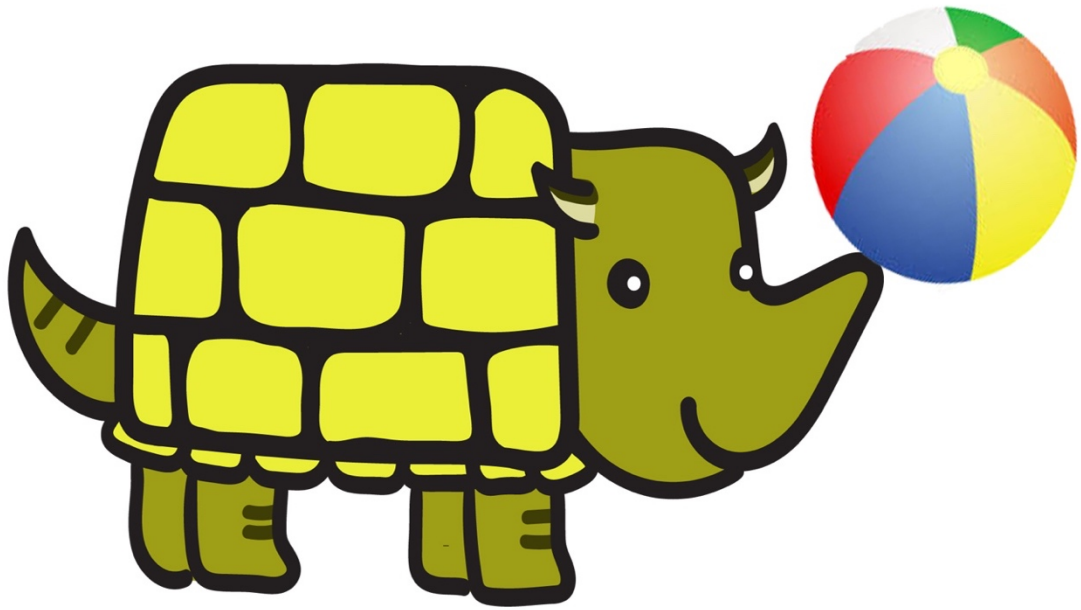
THIS IS A MAN WHO KNOWS HOW TO ZIB.
WHAT IS HE DOING?
HE IS _____.



**THIS IS A MAN WHO KNOWS HOW TO BING.
WHAT IS HE DOING?
HE IS _____.**



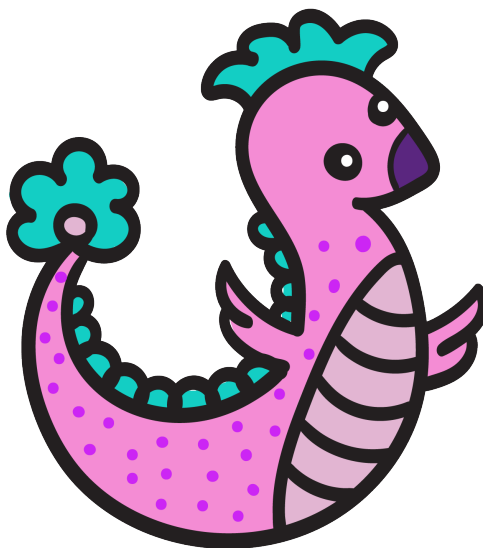
**THIS IS A MAN WHO KNOWS HOW TO NAZ.
HE IS NAZZING.
HE DOES IT EVERY DAY.
EVERY DAY HE _____.**



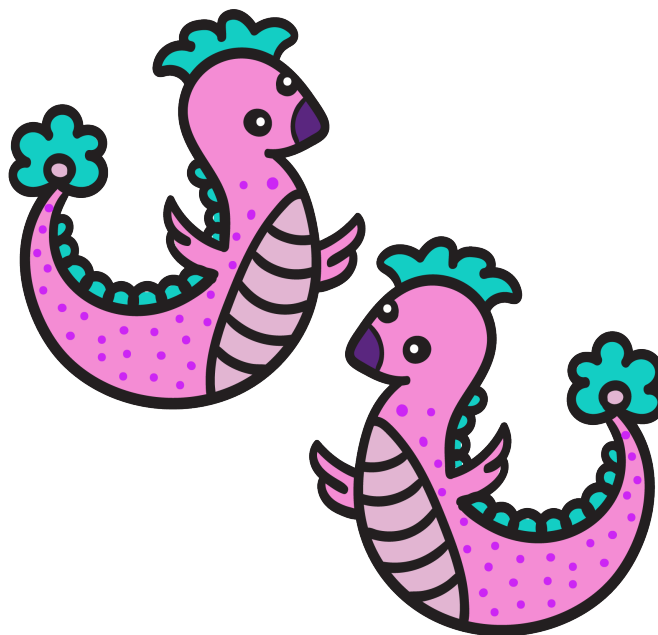
THIS IS A WUG WHO OWNS A BALL.
WHOSE BALL IS IT?
IT IS THE _____ BALL.



**THIS IS A MAN WHO KNOWS HOW TO RICK.
HE IS RICKING.
HE DID THE SAME THING YESTERDAY.
WHAT DID HE DO YESTERDAY?
YESTERDAY HE _____.**



THIS IS A KLIG.



**NOW THERE IS ANOTHER ONE.
THERE ARE TWO OF THEM.
THERE ARE TWO _____.**



**THIS IS A MAN WHO KNOWS HOW TO GLING.
HE IS GLINGING.
HE DOES IT EVERY DAY.
EVERY DAY HE _____.**



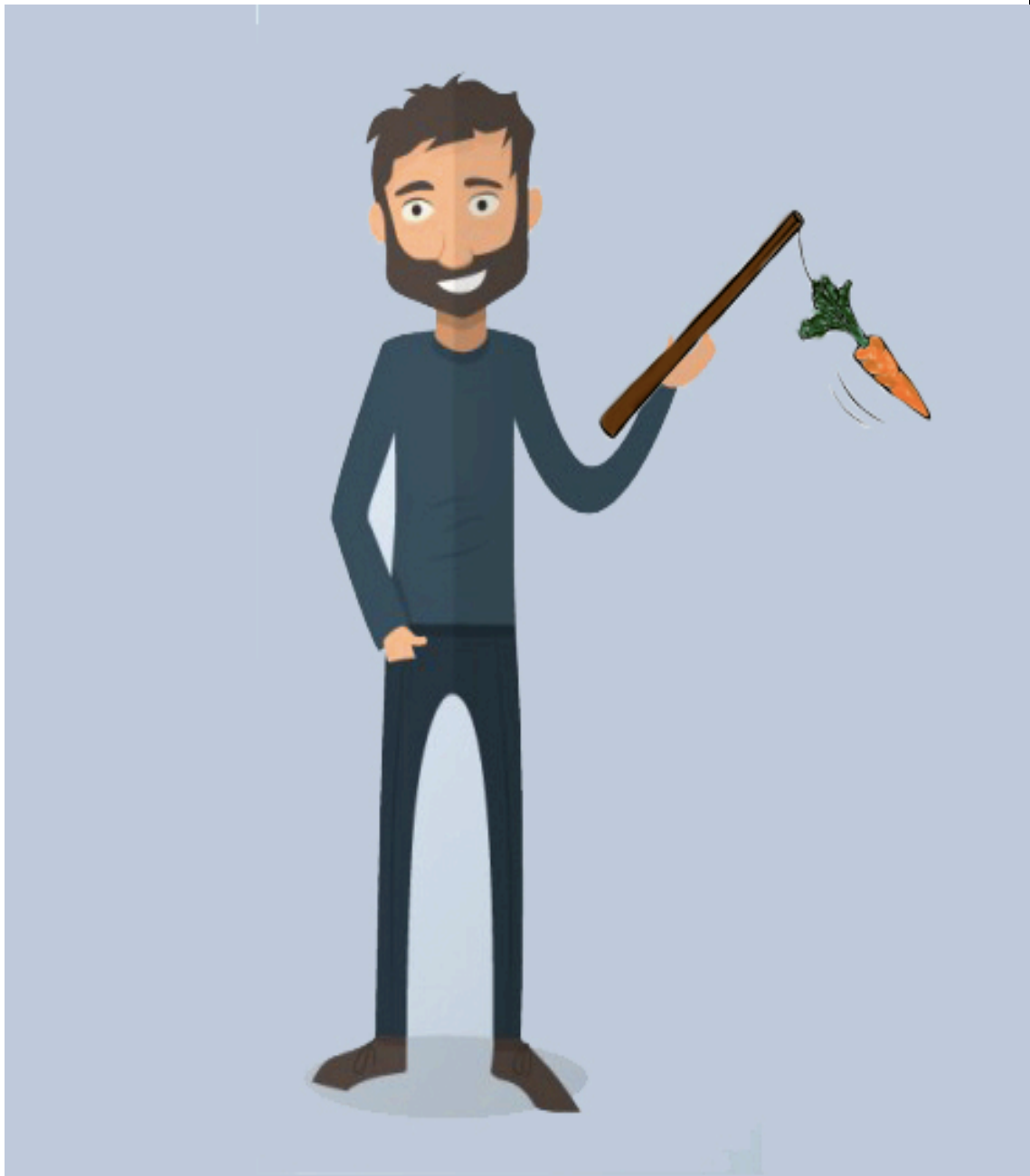
**THIS IS A MAN WHO KNOWS HOW TO MOT.
HE IS MOTTING.
HE DID THE SAME THING YESTERDAY.
WHAT DID HE DO YESTERDAY?
YESTERDAY HE _____.**



**THIS IS A MAN WHO KNOWS HOW TO SPOW.
HE IS SPOWING.
HE DID THE SAME THING YESTERDAY.
WHAT DID HE DO YESTERDAY?
YESTERDAY HE _____.**



**THIS IS A BIK WHO OWNS A HAT.
WHOSE HAT IS IT?
IT IS THE _____ HAT.**



**THIS IS A MAN WHO KNOWS HOW TO BOD.
WHAT IS HE DOING?
HE IS _____.**

Appendix D: Background Survey (English Version)

Background Survey

- 1. Name _____
- 2. School _____ / Grade _____ / ID number

❖ **Please check boxes relevant to you.**

Example) Are you a middle school student? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

- 3. Do you attend English classes out of school or receive any private English lessons?
 Yes
 - If it is Yes, how many hours a week?
 If less than 1 hour, _____ minutes
 1 hour
 If more than 1 hour (60 minutes), _____ minutes No
- 4. Have you ever lived in English-speaking countries?
 Yes
 - If it is Yes, where was it? _____
 - How old were you? _____ years old
 - And, how long was it?
 If shorter than 6 months, _____ months
 6 months
 If more than 6 months, _____ months No

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