

Literature Review: A Usage-Based Approach to Children's Grammatical Development

文献レビュー：用法基盤モデルの観点からの子どもの文法性の発達について

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Abstract

The formal foreign language education for 5th and 6th graders was introduced in public elementary schools in 2020, and under the new policy, the National Curriculum Standards state that children develop their grammatical awareness through the actual use of a foreign language (MEXT, 2018). Since grammar forms the basis of learners' language learning, young learners' grammatical awareness is critical. This article is a literature review on young children's second language (L2) development from the usage-based perspective. The usage-based approach asserts that people develop their grammar through the actual use of language, which is in line with the new foreign language policy for Japanese students learning English in public elementary schools. Through reviewing the previous research concerning usage-based theory in children's first language (L1) acquisition and L2 learning, this paper argues that children's L1 acquisition developed by Tomasello (2005) is applicable to children's second and foreign language learning; Tomasello (2005) argued that in L1 acquisition, children develop their language from whole to parts. Regarding young learners' L2 learning, many researchers argued that L2 young learners first use the frequently-used chunks, and they develop their language based on these chunks. It means that in L2 learning, there is a continuum between chunks and grammar, and the L2 development progresses from whole to parts, which is the

same as children's L1 learning proposed by Tomasello (2005).

Keywords: the usage-based approach, grammatical awareness, young learners' second language learning, chunks, frequency, continuum from chunks to grammar

1. Introduction

Introducing formal foreign language classes for 5th and 6th graders in public elementary schools in 2020 marked a huge impact on English education in public elementary schools, because the formal foreign language education was first implemented at that time. The overall objective of the National Curriculum Standards for Grade 5 and Grade 6 of Elementary School specifies that through language activities, elementary school students should develop their competencies and abilities that form the basis of communication (Ministry of Education, Culture, Sports, Science and Technology (MEXT), 2018). This means that elementary school children develop grammar skills through implicit learning, by the actual use of language. This marked a huge contrast with the old curriculum for the foreign language activities for 5th and 6th graders introduced in 2011, whose purpose was to form the basis for communication ability, focusing on developing positive attitudes toward communication (MEXT, 2008). This means that the purpose of foreign language activities for 5th and 6th graders in the old curriculum was not to improve the foreign language skills, and development of grammatical awareness was not mentioned.

Since introducing the formal foreign language classes in public elementary schools in 2020 was a big change, the transitional period between the old curriculum and the new one was set in 2018 and 2019. In that period, for 5th graders and 6th graders, the number of classes for foreign language activities increased from 35 to 50 classes per year. For 3rd and 4th graders, 15 classes of foreign language activities per year were introduced. In that transitional period, the government-authored text-

books were used for foreign language activities. Then, in 2020, the new policy was introduced to public elementary schools in Japan, and the new formal subject “foreign language” was implemented for 5th and 6th graders. In the new curriculum, government-censored textbooks are used in classes, and students' English skills are evaluated.

Under the new policy, the class hours increased; in the old curriculum, 5th and 6th graders had one class of foreign language activities a week. However, under the new policy, foreign language activities were introduced to 3rd and 4th graders, and they now take one foreign language activities class a week. This means that they take 35 classes of foreign language activities a year. Moreover, under the new curriculum, 5th and 6th graders take two foreign language classes each week, which means that they take 70 classes a year.

Formal foreign language education has just begun in public elementary schools, and elementary school students are expected to develop their grammatical awareness through the actual use of a foreign language. This new policy is in line with the usage-based approach, which claims that people develop their language through the actual use of language. Therefore, now is the time to overview previous research on children's L1 and L2 development from a usage-based perspective. Tomasello (2005) noted that in children's L1 development, children develop L1 from whole chunks to parts, and frequency plays a crucial role in this process. In L2 studies, many researchers noted that young L2 learners make use of chunks in the first stage of their learning, and there is a continuum between chunk learning and grammatical development. This paper will show that young learners' L2 learning progresses in the same way as children's L1 learning, that is, from whole to parts.

2. The Usage-Based Approach

Japan's national curriculum standards suggest that children develop language skills through communicative activities (MEXT, 2018). They do not learn grammar

explicitly, and they are expected to develop their grammatical awareness through the actual use of a foreign language. This is in line with the usage-based accounts.

The term “usage-based” was originally introduced by Langacker (1987). Tomasello (2005) later developed the usage-based theory of children’s L1 acquisition. The usage-based approach claims that people develop their grammar based on their language experiences; by hearing and imitating concrete expressions, people generalize and categorize these expressions based on similar patterns among them (Bybee, 2008; Tomasello, 2005).

In the usage-based theory, constructions are the basic units of grammar (Croft, 2001; Fillmore et al., 1988; Goldberg, 1995, Langacker, 2000), and they do not limit themselves to the concept of constructions in the traditional sense; from the usage-based perspective, constructions cover all levels of linguistic unit, from morphemes, words, and syntax (Bybee, 2008; Croft, 2001; Goldberg, 1995; Langacker, 1987), and “there are the form-function mappings that are conventionalized as ways to express meanings in a speech community” (Wulff & Ellis, 2018, p.38). Regarding the examples of constructions, Wulff and Ellis (2018) noted as follows;

Simple morphemes such as *-aholic* (meaning ‘being addicted to something’) are constructions in the same way as simple words like *nut* (meaning ‘a fruit consisting of a hard or tough shell around an edible kernel’), idioms like *It is driving me nuts* (meaning ‘It is greatly frustrating me’), and abstract syntactic frames like Subject-Verb-Object-Object (meaning that something is being transferred, as realized in sentences as diverse as *Max gave the squirrel a nut*, *Nick gave Max a hug*, or *Steffi baked Max a cake*, where nuts, hugs, and cakes are being transferred, respectively). (Wulff & Ellis, 2018, p.38)

Thus, there is a continuum between words and syntax. This means that vocabulary learning and grammar learning are connected. As we will see later on, children gradually develop constructions from one-word utterances into abstract constructions. Furthermore, in L2 learning, children develop their grammar based on chunks, which are stored “in a sense like large lexical items” (Hakuta, 1976, p. 333). These chil-

dren's language development process shows that children's language learning involves a process of moving from the whole to parts.

3. Frequency in Language Development

Many usage-based linguists have agreed that frequency plays an essential role in the development of constructions. There are two types of frequency; token frequency and type frequency. "The token frequency of a construction is how often in the input that particular word or specific phrases appears", and "type frequency... is the calculation of how many different lexical items a certain pattern, paradigm, or construction applies to i.e., the number of distinct lexical items that can be substituted in a given slot in a construction, whether it is a word-level construction for inflection or a syntactic construction specifying the relation among words" (Ellis, 2009, p.143). Regarding the token frequency, Ellis (2009) noted that the token frequency of any specific form is able to be counted in the corpus, such as "the syllable [ka], the trigram *aze*, the word *fog*, the phrase *on the whole*, the sentence *I love you*" (Ellis, 2009, p.143). In addition, a high token frequency item is entrenched, and this item is recognized as a unit (Langacker, 1987, p.59). With regard to the examples of type frequency, Ellis (2009) noted as follows:

The "regular" English past tense *-ed* has a very high type frequency because it applies to thousands of different types of verbs, whereas the vowel change exemplified in *swam* and *rang* has much lower type frequency. Similarly the prepositional transfer construction [Subj ObjDir *to* ObjInd] has a high type frequency (*give, read, pass, donate, display, explain...*) because many different verbs can be used in this way, whereas the ditransitive alternative [Subj [V ObjInd ObjDir]] is only used with a small set of verbs like *give, read, and pass* and not others (**donate, *display, *explain*). (Ellis, 2009, p.143)

Token frequency and type frequency are related to children's development of constructions. Based on token frequency of verbs, children construct item-based

schemas; when children encounter constructions with high frequency verbs, they form verb-specific constructions such as “Throw ___”, “___kick ___”, “___ running”, “___ give ___”, “Break___”, and “___fall down” (Tomasello, 2005, p.120). Tomasello (2005) called these types of verb-specific constructions as “item-based schemas”. Tomasello (2005) implied that item-based constructions are verb islands, and Tomasello (1992) established “the Verb Island hypothesis” (p.238); by investigating his daughter’s utterances, Tomasello (1992) found that “many of her verbs are used with more than one argument (up to three), and argument roles in many sentences are clearly marked with either word order or the appropriate preposition” (Tomasello, 1992, p.238). His hypothesis was that his daughter’s grammaticalization originated from “learning about the combinational possibilities, and the marking of these, for each verb individually” (Tomasello, 1992, p.238). Tomasello (2005) noted that “in the verb island hypothesis the schemas are not structurally related” (p.120), thus each item-based schema exists independently. Since item-based schemas are high frequency constructions, they are entrenched and each of them is a separate unit.

On the other hand, type frequency of verbs is concerned with the generalization of the item-based schemas. Kodama and Nozawa (2009) suggested that without encountering certain type frequencies, verb islands are mere lists of constructions; in that case, it is difficult for children to generalize these constructions (Kodama & Nozawa, 2009, p.84). Tomasello (2005) noted that children develop the abstractness of constructions by the use of their general cognitive skills, such as analogy; children form abstract constructions “by a structural alignment across different item-based constructions” (Tomasello, 2005, p.166). Therefore, type frequency of constructions helps children make analogy among them. For example, in the case of verb island constructions with the verb “give”, “tell”, and “send”, these verbs “share a ‘transfer’ meaning, and they appear in the form: NP1 + V + NP2 + NP3” (Tomasello, 2005, p.166). Children compare the verb islands with the verbs “give”, “tell”, and “send”, and they find the common patterns among them; all of these verb islands share that

"NP1 is the 'giver', NP2 is the 'receiver', and NP3 is the 'gift'" (Tomasello, 2005, p.166). This example shows that type frequency facilitates the analogy for similar constructions and find patterns among them, which help them to develop the abstractness of constructions.

4. Growth of Grammatical Awareness of Children

4.1. Growth of Grammatical Awareness among L1 Learners

Tomasello (2005) developed the usage-based approach in the acquisition of children's L1. Tomasello (1992) collected the speech data of his daughter during her second year of her life. By analyzing the data of these utterances, he concluded that children develop their grammar from concrete examples into abstract grammar, and develop their language from whole to parts (Tomasello, 2005).

Tomasello (2005) argued that the development of children's utterances is formed through several stages of language development: in the first stage when children produce one- word utterances, they encapsulate the meaning into one word. For instance, when a child produced the word "Rockin", the context of the utterance was "first used while rocking in the rocking chair, then as a request to do so, and then as a name for the object" (Tomasello, 2005, p.36). Moreover, in the first stage, children perceive adults' language as unparsed chunks, such as "*I-wanna-do-it, Lemme-see, and Where-the bottle*" (Tomasello, 2005, p.38). He referred to this stage of children's language as "holophrases" (Tomasello, 2005, p.36). Then, at around 18 months of age, children start to produce two-word utterances, such as "Ball table" (p.114). In this stage, children divide the scene into multiple symbolizable units" (Tomasello, 2005, p.114). In the same period, children also begin pivot-like expressions, such as "More _" (More milk, More grapes, More juice) (Tomasello, 2005, pp.114-115). This shows that children fill the slots with various words.

Then, at around two years of age, children produce "item-based constructions" (Tomasello, 2005, p.117). As mentioned in the previous section, children construct

item-based schemas based on token frequency of verbs, and each of the schemas is separate unit. Regarding the participant roles of the item-based schemas, Tomasello (2005) noted that children perceive participant roles at the verb-specific level; thus, these participant roles are not generalized. For example, in the case of verb “kiss”, children are not aware of the generalized syntagmatic roles such as “agent” and “patient”, but they only notice that “kisser” is filled in the slot before the verb “kiss”, and “person kissed” is filled in the slot after the verb “kiss” (Tomasello, 2005, p.118). Therefore, for children at this stage, the participant roles of the verb “kiss” (“kisser” and “person kissed”) and those of another verb such as “break” (“breaker” and “thing broken”) are separate, and they do not have the generalized concept such as “agent” and “patient”. However, from the results that children fill each slot of item-based schemas with various words, it follows that children form at least the category of words in each slot. With regard to the formation of paradigmatic categories, Tomasello (1992) noted that his daughter began forming the word class “noun” in the early stage; she filled things or people in slots of constructions. With regard to the paradigmatic relations of verbs, Tomasello (1992) mentioned that his daughter did not form the category of “verbs” in the early stage. From the results, he hypothesized that her constructions in the early stage were verb-specific and item-based, and presented the Verb Island hypothesis (Tomasello, 1992, p.263). Tomasello (1992) noted that “the child’s syntagmatic categories based on word order remain verb-specific because she cannot generalize what she knows from one verb to another” (p.263). In other words, forming the abstractness of constructions is facilitated by forming the paradigmatic category of “verbs”.

The final stage of children’s constructional development occurs during their preschool years; as previously mentioned, children generalize across several item-based constructions and develop into abstract constructions (Tomasello, 2005). In this final stage of constructional development, children find the patterns of similar item-based constructions and generalize them into more abstract constructions.

This part summarizes young children’s growth of grammatical awareness in L1

acquisition, mostly based on Tomasello (2005). Children first perceive language as a whole, and parse the language as they develop language. They gradually develop the abstractness of constructions based on language they have been exposed to.

4.2. Growth of Grammatical Awareness among L2 Learners: Chunk Learning

It is stated that in L2 learning, L2 learners recognize language as a whole unit, as stated by Tomasello (2005) in L1 acquisition. Several researchers have claimed that the process of L2 learning starts from chunk learning, which is the basis of acquiring more abstract grammar (Cameron, 2001; Hakuta, 1976; Wong-Fillmore, 1976; Myles, Hooper, & Mitchell, 1998; Myles, Mitchell, & Hooper, 1999). "A chunk is a unit of memory organization" (Newell, 1990, as cited in Ellis, 2003, p.76). L2 learners mainly learn unanalyzed chunks in the first stage of L2 learning, and chunks account for a large proportion of learners' utterances (Hakuta, 1976). Hakuta (1976) commented that chunks help L2 learners to express their opinions; they mostly use rote-memorized chunks for communication, because they are not able to construct language based on linguistic system from scratch (p.333). In other words, chunks facilitate L2 learners' communication in the initial stage, when they cannot produce language creatively and their grammar has not yet been established (Hakuta, 1976; Wong-Fillmore, 1976; Myles, Hooper, & Mitchell, 1998).

Several researchers have claimed that there is a continuum between chunks and grammar. For example, based on Hakuta (1976), Ellis (2002) noted that in L2 learning, children first recognize L2 language as a chunk, and they come to analyze its components as they develop their language (Ellis, 2002, p.321). Cameron (2001) also noted the importance of chunks in early stage of L2 learning. She noted that children may sometimes use a chunk as a whole and for other time, they might use a chunk with substituting the parts of the chunk with other words. For example, when a child has already encountered the phrase "it was very big", he/she might substitute the word "big" with another word such as "dangerous", and might use "it was very dangerous" (Cameron, 2001, pp.97-98). Cameron (2001) concluded that "the break-

ing down and recombining of previously learnt chunks of language is a process of grammar construction, and appears to be a useful part of language learning” (p.98).

Regarding the link between the analysis of chunks and development of grammar, Myles, Hooper, and Mitchell (1998) suggested that analyzing chunks and emergence of pronoun system are closely linked; the participants of the study were child beginner class learners of French. This study focused on three unanalyzed chunks, such as “j’aime” (I like), j’adore (I love) and “j’habite” (I live). They commented that learners often use these chunks in overextended ways; for example, when a learner wanted to refer to the second person such as “Do you like it?” they would use “j’aime?” (literally, “I like?”) (Myles, Hooper, and Mitchell, 1998, p.332). Another example of overextended use of these chunks is that a learner wanted to refer to the third person, such as “Monique likes...”, they would use “Monique j’aime” (literally, “Monique I like”). Moreover, they found that learners who could use other pronouns such as “il” (he) and “elle” (she), combined with various verbs, were also able to use unanalyzed chunks without overextension. As a result, they concluded that “the breakdown of the chunks... was linked to the creative emergence of the subject pronoun system in non-formulaic contexts” (Myles, Hooper, and Mitchell, 1998, p.352). Perera (2001) found that over 60 % of multi-word utterances by L2 learners originated from prefabricated languages (p.333). This result also shows that children develop their grammar based on early-learned chunks.

Another example of the continuum between formerly learned chunks and grammar is the study by Myles, Mitchell and Hooper (1999), concerning the development of interrogative chunks by young beginning learners of the French language. They found that it was difficult for learners to produce the interrogative forms with the third person appropriately, such as “Comment s’appelle-t-il?” (What’s his name?); thus, they overextended a frequently-used chunk (“Comment t’appelles-tu?” (What’s your name?)) by breaking down the chunk and produced such as “*comment t’appelles-tu le garçon?” (literally, “what’s your name, the boy?”) to mean “what’s the boy’s name?” or “*comment t’appelles (la fille)?” (learners intended to express

“what is the girl's name?”) (p.67). These examples also show that learners struggled to produce utterances based on the early-learned chunks.

Regarding the overextended use of language, Cameron (2001) stated that overextended use of language shows that children form their own grammar and attempt to produce utterances based on their hypotheses. She called it “hypothesis testing” (Cameron, 2001); in L1 acquisition, when children have reached the language development phase of “past holistic use of language chunks” (Cameron, 2001, p.102), children make their own hypotheses about language and test their hypotheses. For example, though a child have never heard the word “tookened” by intending to produce the past tense “took”, the child forms the utterance based on their hypothesis, such as “*he tookened my ball (=took)*” (Cameron, 2001, p.102). Cameron (2001) commented that this overextended use of language shows that children form their own hypothesis about the language system based on their experiences. They would modify their hypotheses, if they find that their hypotheses do not reflect the actual use of language. In other words, children develop L1 grammar through the repeating process of tries and errors of their own hypotheses. Cameron (2001) mentioned that “the set of hypothesised patterns at any point would form the internal grammar” (p.102). Furthermore, Cameron (2001) mentioned that hypothesis testing occurs in L2 learning as well as L1 acquisition. In this regard, the previously mentioned learners' overextended use of chunk “*Comment t'appelles-tu?*” (What's your name?) to express interrogative forms for third person singular, such as “**comment t'appelles-tu le garçon?*” or “**comment t'appelles (la fille)?*”, are regarded as their hypothetical testing and these examples are their interlanguage at that time; based on their language experiences, they formed their own language system and attempted to apply their grammar into language production. In other words, these overextended use of language shows that learners construct their grammar from the chunks, and there is a continuum between chunks and abstract grammar.

With regard to foreign language teaching in public elementary schools in Japan, some studies investigated the grammatical awareness of elementary school students

in foreign language classes in Japan (Eguchi, 2020; Monoi et al., 2015; Uchino, 2019; Uchino, 2021; Urata et al., 2014). Regarding the methods of these studies, they used grammatical judgment tests with pictures (Monoi et al. 2015; Urata et al. 2014), or without pictures (Eguchi, 2020; Uchino, 2019; Uchino, 2021), metalinguistic knowledge tests (Uchino 2019; Uchino 2021), and imitation tasks (Eguchi, 2020). However, none of the studies established the exact methods of investigating grammatical awareness of elementary school students in foreign language classes, which would fulfill practicality, reliability and validity. Since English education for public elementary schools started in 2020, and children are expected to develop their grammatical awareness through foreign language classes in public elementary schools, measuring their grammatical awareness through the appropriate methods is crucial. Therefore, when developing the new test, it should be designed by considering the nature of young learners: actually, their concentration does not last for a long time. On the other hand, for increasing reliability, the test should include certain numbers of items, which means that certain amount of time is needed for implementing a test. Therefore, in order to collect enough data, researchers should consider how to keep students' concentration for a certain amount of time. In addition, though some of them used the usage-based account, they did not appropriately apply the theoretical framework into practice. For example, some of them pointed out that frequency is important for language learning (Monoi et. al. 2015, Uchino, 2019, Uchino, 2021). Regarding the frequency in language learning, Urata et al. (2014) mentioned that frequently-used chunks play a crucial role in foreign language learning. As previously mentioned, these accounts are basically the same as what is claimed in the usage-based approach. However, none of these former studies defined what the frequency is in their study. In order to claim that frequency is crucial in foreign language development, it should be clarified what kind of frequency is used in the study. For example, frequency can be defined as the number of token/type frequency in the textbooks, or those in exact numbers of utterances produced in classes. Therefore, in order to apply the usage-based account to the study of grammatical

awareness of young learners in foreign language, the frequency needs to be explicitly defined. In addition, it is needed to investigate whether the frequency of exposure impacts the development of Japanese young learners' grammatical awareness in classes in public elementary schools, and if it does, it is needed to reveal how it impacts the children's grammatical development.

5. Conclusion and Future Prospects

This paper reviews the previous literature concerning the development of young learners' grammatical awareness based on usage-based accounts. Tomasello (2005) established the developmental process of children's L1 development, claiming that children's grammar develops from whole to parts, and they develop abstract grammar gradually. Moreover, frequency plays the essential role in developing grammar: token frequency of a certain construction facilitates the entrenchment of constructions, thus children form item-based schemas under the Verb Island hypothesis introduced by Tomasello (1992). Type frequency of constructions helps children to generalize similar types of constructions, so that children form more abstract constructions.

Young learners' L2 language learning process also goes from whole to parts; they learn frequently used chunks in the early stage of learning. In that stage, children perceive language as a whole. As they develop their language, they come to parse the language into components. The overextended use of chunks shows that children made their own hypotheses about L2 language based on the early-learned chunks, and applied their own hypotheses to their language production. It shows that there is a continuum between early-learned chunks and grammar.

Lastly, some studies about grammatical awareness of elementary school students in foreign language classes in Japan are mentioned here. The exact methods to investigate grammatical awareness have not yet been established. This originates from the difficulty of collecting enough data from young learners, which satisfies the

practicality, validity and reliability. Moreover, though some of the previous studies seemed to intend to apply the usage-based accounts, none of them fully connected the usage-based theory to practice. However, from the overview of the former studies of children's grammatical development, the usage-based view is considered an adequate theory to apply to the investigation of grammatical awareness of elementary school students in foreign language classes in Japan. In order to investigate their grammatical awareness, the future studies need to define what kind of frequency these studies would use. Moreover, the future research is expected to reveal whether the frequency of exposure impacts the development of children's grammatical awareness, and if it does, how it impacts the children's grammar.

Grammar is the basis of language development, thus grammatical awareness formed in foreign language classes in elementary schools forms the basis of learners' lifelong foreign language learning. It is expected that future research will establish the exact methods for investigating young learners' grammatical awareness formed in the foreign language classes, and clarify what their grammatical awareness is. This will contribute to the development of foreign language education for elementary school students.

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