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The Accuracy of English Grammatical Morpheme Orders among Chinese EFL Learners and Instructor Interventions

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A B S T R A C T

In the domain of first and second language (L1/L2) acquisition, Morpheme Order Studies (MOS) encapsulate a body of influential research. This study specifically aimed to (1) assess the accuracy of nine grammatical morphemes used by Chinese learners of English as a Foreign Language (EFL) in their compositions, (2) investigate the factors affecting the accurate use of these morphemes among Chinese EFL learners, and (3) explore the interventions implemented by their instructors to assist the Chinese EFL learners in accurately using these intricate grammatical constructs. Employing the Target-Like Use methodology, the data were collected from the essays of 108 high school learners in Kunming, Yunnan, China, to ascertain the order of their accuracy in using these morphemes. Subsequently, a semi-structured interview was conducted with five EFL instructors and 15 tested learners to delve into the factors influencing their proficiency with specific complex morphemes and the application of instructional interventions used by the instructors. The findings of the study revealed that the learners did not consistently adhere to Krashen's hypothesized natural order; rather, they exhibited idiosyncratic acquisition patterns. Particularly, it was noteworthy that there was a relatively low accuracy observed in the usage of certain morphemes, such as irregular past and 3rd person singular *-s* (features absent in the learners' native language). Furthermore, factors contributing to the diminished accuracy of these specific morphemes include the learners' mother tongue interference in their use of these morphemes, syntactic and semantic complexities, motivational factors, environmental factors, and limited output of specific morphemes. Additionally, the research uncovered various interventions such as peer review, storytelling, and incorporating songs employed by the EFL instructors to assist the Chinese EFL learners in using these challenging grammatical morphemes correctly. This study provides valuable insights for EFL students, instructors, curriculum developers, and textbook editors.

I. INTRODUCTION

In the realm of second language acquisition (SLA), a great deal of research primarily focuses on understanding how learners develop their linguistic skills in the target language. Scholarly investigation has been particularly drawn to the progression of interlanguage systems, thus focusing on grammatical morphemes such as plural markers

-s for nouns and progressive markers *-ing* for verbs. Morphemes order studies (MOS) have received significant attention from SLA experts and scholars (Bailey et al., 1974; Dulay & Burt, 1973, 1974; Hakuta, 1976; Pica, 1983; Shin & Milroy, 1999).

A body of research has supported the assumption that learners follow a fixed acquisition order of English grammatical morphemes,

regardless of their ages or mother tongues. Empirical studies, such as those conducted by Dulay and Burt (1973, 1974), examined the process of Spanish and Chinese children learning English as their second language (ESL). The researchers found that the accuracy order in a mixed group remained consistent for both learners. In a parallel vein, Madden and Krashen (1974) explored the acquisition order among adult ESL speakers. Seeking to determine whether adults followed a similar morpheme acquisition order as children's counterparts, the study involved 33 Spanish speakers and 40 individuals from various linguistic backgrounds. The findings reinforced the concept of a universal acquisition order that transcended age and native language. The results of MOS provide a strong indication that L2 learners were guided by internal principles that were largely independent of their first language (L1) (Mitchell et al., 2019).

Building upon these insights, Krashen (1982) concluded his MOS by highlighting notable similarities based on the results of many contemporary studies. In 1977, he introduced the Natural Order Hypothesis (NOH), claiming that a natural order existed in language acquisition. Krashen firmly believed that "the acquisition of grammatical structures proceeds in a predictable order. Acquirers of a given language tend to acquire certain grammatical structures early, and others later" (Krashen, 1982, p. 12). He asserted that morphemes in the same box were typically acquired before those in the next box, although no claims were made about the ordering relations for morphemes within the same box. Figure 1 illustrates the average order of acquisition for nine English grammatical morphemes among L2 learners.

While the majority of the MOS on the fixed accuracy order were conducted in English-dominant countries where English is the lingua franca or the official language, a few studies were conducted among learners from countries where English is not the dominant language (McBride-Chang et al., 2005).

Additionally, considerable evidence indicated that the acquisition order might not be as fixed as previously thought to be. Pica (1983), for example, examined naturalistic, instructed, and mixed learners of English. The study revealed that although the overall accuracy orders were consistent across the three groups of learners, there were slight differences among the groups concerning specific morphemes. This result suggests that the linguistic environment played a role in shaping the acquisition process and the timing of these linguistic features. In a subsequent study, Luk and Shirai (2009) argued that the morpheme acquisition order may vary depending on the learner's L1. This argument was also supported by Murakami (2013) who posed a "strong doubt on the universality of accuracy order, and it is very likely that SLA textbooks underestimate the effect of L1 in their discussion of morpheme studies and need to rethink the conventional wisdom" (p. 333).

Similarly, Seog (2015) observed that learners rapidly comprehended the irregular past and the possessive form, but they still encountered difficulties in mastering the use of the auxiliary *be*, which is a construct lacking a direct counterpart in Korean. These observations led Seog to conclude that Korean L1 learners may deviate from the NOH. Subsequently, Murakami and Alexopoulou (2016) scrutinized how L1 impacted morpheme acquisition among learners from six linguistic backgrounds. Their research revealed variations in the accuracy of morpheme use across diverse L1 backgrounds, thus emphasizing that the absence of equivalents in L1 often led to inaccuracies in L2 usage. These studies collectively affirmed that learners persistently encountered difficulties in using L2 grammatical morphemes that had no equivalents in their native languages and stressed the enduring influence of L1 transfer on morpheme order acquisition.

In line with MOS, several previous studies highlighted the existence of universal morpheme order acquisition (Bailey et al., 1974; Dulay & Burt, 1973, 1974; Fathman, 1975; Kessler &

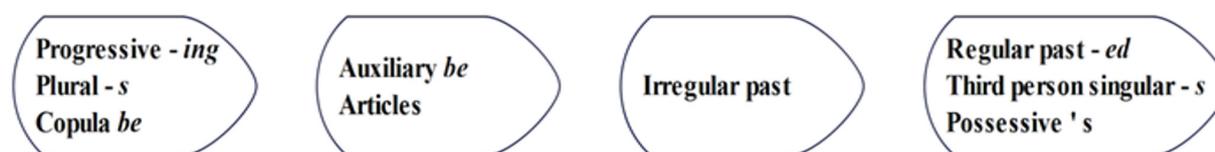


Figure 1: Krashen's average acquisition order of nine English grammatical morphemes for L2 learners (Krashen, 1977)

Idar, 1979; Larsen-Freeman, 1976), while other studies concluded that the morpheme acquisition order deviates slightly from each other depending on learners' various linguistic backgrounds (Murakami, 2013; Murakami & Alexopoulou, 2016). The lack of consensus on morpheme order acquisition highlights the necessity of investigating this interesting research topic among Chinese EFL learners. The current study, as a continuation of existing studies on morpheme order acquisition, explored the role of the natural order hypothesis in an EFL context. Additionally, most previous studies (such as Bailey et al., 1974; Brown, 1973; De Villiers & De Villiers, 1973; Hanania & Gradman, 1977) on morpheme order acquisition have explored language acquisition in a natural environment, with fewer studies focusing on a classroom setting. Therefore, it is necessary to study morpheme order acquisition among Chinese EFL students to determine whether learning grammatical morphemes in a formal classroom setting follows a specific order. Another gap in the literature is that previous research has either emphasized the order they discovered or compared it to Krashen's (1977) NOH. However, there has been limited discussion on effective interventions employed by teachers to assist learners in learning certain challenging grammatical elements. Given this research gap, this study provides language instructors with valuable insights for using interventions to help their students master challenging morphemes.

Following the purpose of the study, the acquisition of the nine English grammatical morphemes based on Krashen's (1977) pattern, namely, possessive *-s*, third-person singular *-s*, regular past *-ed*, irregular past, articles, auxiliary *be*, copula *be*, plural *-s*, and progressive *-ing* were investigated among Chinese EFL learners to achieve the following three objectives:

1. Assess the accuracy of nine grammatical morphemes used by Chinese EFL learners in English compositions at Kunming High School, China.
2. Investigate both linguistic and non-linguistic factors that influence the accurate use of grammatical morphemes among Chinese EFL learners.
3. Explore the interventions employed by the English instructors to assist the Chinese EFL learners in accurately using these grammatical morphemes.

II. METHOD

The current study adopted a mixed method approach that integrates both qualitative and quantitative methods to provide a more holistic understanding of the investigated phenomena (Creswell & Creswell, 2017). The participants, comprising 108 EFL learners with a median age of 18, enrolled at a local public high school in Kunming, were purposively selected. Each participant had at least six years of EFL learning experience, starting from middle school, and all hails from Yunnan province, People's Republic of China. These intentionally selected participants approximately learned concepts of grammar rules and developed proficiency in applying nine grammatical morphemes in writing, which catered to the purpose of this study.

Initially, the researcher selected two parallel classes of students from the senior high school using convenience sampling to ensure that no significant distinctions existed. Then, 108 students were instructed to write an 80-word descriptive essay. Then, they completed another 150-word narrative essay as a continuation of a given story within 60 minutes. Two distinct genres were chosen to examine the use of nine grammatical morphemes in different writing styles. A total of 216 short essays were collected, containing 24880 words. Thirdly, the collected writing samples were analyzed using an obligatory occasion analysis via the UAM Corpus Tool (O'Donnell, 2008). The text analysis was performed in three steps: (i) transcribing written samples into software, (ii) identifying instances of target-like use and non-target-like use of nine grammatical morphemes, (iii) describing non-target-like use in cases of overuse, misuse, and underuse.

Although the self-built corpus was relatively small and limited, it allowed for the emergence of enriching data for examining the observed accuracy level of nine grammatical morphemes ranging from progressive *-ing* to possessive *-s*. The accuracy level was accessed through the errors committed by the Chinese EFL learners in their English essay writing. According to Seog (2015) and Akbas and Dinçer (2021), the formula employed by Pica (1983) was used, and the target-like-use (TLU) for each grammatical morpheme was calculated. The researchers opted for the TUL formula for two reasons. First, Pica's formula focuses less on the frequency of errors while putting more value

on the three cases of overgeneralization (misuse, underuse, and overuse) and its distributional patterns of English grammatical morphemes, which aims to provide a better understanding of interlanguage users' mastery of a given morpheme. In addition, the TLU formula broadens the scope to include non-obligatory contexts, thereby highlighting cases where learners generalize rules to inappropriate contexts (Gass et al., 2013, p. 70). The formula is shown as follows:

$$TLU = \frac{n \text{ correct suppliance in obligatory contexts}}{(n \text{ obligatory contexts}) + (n \text{ suppliance in non-obligatory contexts})}$$

All the scripts were annotated and analyzed by the researchers. As the aim of this study was to determine the observed accuracy order and rank of the nine grammatical morphemes accordingly, these morphemes were first categorized into correct and incorrect usages. Specifically, if the students employed a grammatical morpheme correctly, it was identified as target-like use; if a grammatical morpheme was employed as grammatically incorrect by the student, it was annotated as non-target-like use. Then, the researcher further sub-categorized the non-target-like use as a case of underuse, misuse, or overuse (Pica, 1983). Underuse refers to cases where the students failed to supply a grammatical morpheme in an obligatory context. Misuse occurs when a grammatical morpheme was incorrectly used in an obligatory context. In addition, overuse is identified when the students typically used unnecessary grammatical morphemes in a non-obligatory context.

Concerning the coding annotation and analysis process, the researchers frequently reviewed the annotation scheme to maintain the consistency of tagged morphemes. The researchers also sought timely assistance from classmates, experienced language teachers and online resources encountering challenges in classifying grammatical morphemes as cases of underuse, misuse, and overuse. However, in cases where identification of particular grammatical morphemes was considerably ambiguous, the researcher excluded them from the analysis. After tagging all the grammatical morphemes in the corpus, the accuracy order was calculated based on Pica's TLU formula and then it was ranked accordingly.

A total of 15 tested students were identified as underachievers in their performance of certain grammatical morphemes. They were interviewed and their responses suggested the influence of

non-linguistic factors on their mastery of these challenging grammatical morphemes.

Five English teachers from Kunming High School, China, were selected for follow-up interviews. They hold at least a bachelor's degree in English studies and have a minimum of five years' experience teaching English at the high school level. They appeared to guide students in using grammatical morphemes across different semesters. Their responses were insightful in exploring both linguistic and non-linguistic factors influencing the acquisition of certain challenging morphemes. The interview questions were semi-structured, and the interview sessions were conducted in English. The interview questions also elicited the English instructors' responses related to the interventions employed by them to assist the Chinese EFL learners in correctly using these challenging grammatical morphemes. After transcribing the interviews, these transcripts were checked and verified by the interviewers to ensure accuracy and prevent misinterpretation by the researcher.

III. RESULT

Accuracy Order of English Grammatical Morphemes of Chinese EFL Learners

A range of results in terms of non-target-like uses and target-like uses, along with a total of 7879 cases of English grammatical morphemes, were yielded through our manual analysis of the self-compiled corpus. Table 1 shows the overall results for each English grammatical morpheme being examined. With the employment of macro-averaging to calculate the overall performance of the learners, an average TLU score of 0.80 was obtained. It was foreseeable that the accuracy level varied across the different morphemes. Of the total 7879 cases of grammatical morphemes, 6265 represented target-like uses (79.5% accuracy) and 1617 cases were identified as non-target-like uses (20.5% accuracy).

Interestingly, the researchers noticed an overwhelming tendency for given grammatical morphemes to be underused, overused to a fair extent, and misused to a lesser degree. Specifically, the Chinese EFL learners omitted these morphemes that should have appeared in obligatory contexts (691 instances, accounting for 42.7% of all non-target-like uses) or supplied grammatical morphemes which were not

Table 1: Non-target-like uses, target-like uses and accuracy order of grammatical morpheme

Grammatical morphemes	Target-like uses		Non-target-like uses						Obligatory & non-obligatory cases	TUL
	Freq	Freq	Misuse		Underuse		Overuse		Freq	
			Freq	%	Freq	%	Freq	%		
1. Copula <i>be</i>	579	64	18	2.8	29	4.5	17	2.6	643	0.90
2. Articles	1849	371	77	3.5	130	5.9	164	7.4	2217	0.83
3. Progressive <i>-ing</i>	80	17	4	4.1	9	9.3	4	4.1	97	0.82
4. Regular past	931	220	20	1.7	153	13.3	47	4.1	1151	0.81
5. Possessive <i>-s</i>	113	27	2	1.4	18	12.9	7	5.0	140	0.81
6. Plural <i>-s</i>	1369	351	10	0.6	288	16.7	53	3.1	1720	0.80
7. Auxiliary <i>be</i>	237	61	15	5.0	15	5.0	31	10.4	298	0.80
8. Irregular past	1085	486	426	27.1	35	2.2	25	1.6	1571	0.69
9. Third person singular <i>-s</i>	22	20	0	0	14	33.3	6	14.3	42	0.52
Total	6265	1617	572	46.2	691	103.1	354	52.6	7879	0.80

necessary, or they were used in non-obligatory contexts (354 instances, comprising 21.9% of all non-target-like uses). Additionally, a tendency for grammatical morphemes to be misused occurred either in contexts where they were obligatory or non-obligatory (572 instances, representing 35.4% of all non-target-like uses).

It should be noted that the supplience of nine grammatical morphemes differs from each other due to the nature of the two elicitation tasks used in this study. The students were free to write their compositions with various morphemes, which inevitably affected the number of morphemes to be supplied. The researchers considered the TLU scores as the primary indicator for the nine English grammatical morphemes under investigation and ranked them accordingly. As shown in Table 2, the Chinese EFL learners performed copula *be* best, which was placed at the top with the highest TUL scores of 90%, followed by articles (TUL: 83%), progressive *-ing* (TUL: 82%), regular past *-ed* (TUL: 81%), possessive *-s* (TUL: 81%), plural *-s* (TUL: 80%), auxiliary *be* (TUL: 80%), ended by irregular past and third-person singular *-s*, with the lowest TLU scores of 69% and 52% respectively. The grammatical morpheme of the copula *be* was used with the highest accuracy, which may be

potentially explained by the fact that the copula *be* had an equivalent in learners' L1. As Chan (2004) and Hsieh (2009) stated, the Chinese verb *shi* was used as a linking verb between the subject and its complement, thus functioning similarly to the English copula *be*. In addition, the absence of similar equivalents in grammatical morphemes in learners' native language would potentially hinder their L2 learning or may render the grammatical morpheme acquisition process more challenging for them (Alexopoulou & Murakami, 2016; Cheng & Lee, 2020; Luk & Shirai, 2009; Murakami, 2013). This assumption is supported by the lower accuracy level of the third-person *-s* and the irregular past forms, which are not explicitly present in Chinese.

The study mainly relied on the TLU scores for the nine English grammatical morphemes under examination and ranked them accordingly. By so doing, the researchers were able to determine the accuracy level of each grammatical morpheme in the corpus and then compared the observed accuracy order with Krashen's (1977) NOH. As presented in Table 2, the findings suggest that, overall, the accuracy order of Chinese EFL learners did not consistently align with Krashen's NOH, but the learners developed their own distinctive learning patterns.

Table 2: Accuracy order of current study and comparison with Krashen's (1977) NOH

Krashen's (1977) NOH	Accuracy order of current study
Progressive <i>-ing</i>	Copula <i>be</i>
Plural <i>-s</i>	Articles
Copula <i>be</i>	Progressive <i>-ing</i>
Auxiliary <i>be</i>	Regular past
Articles	Possessive 's
Irregular past	Plural <i>-s</i>
Regular past	Auxiliary <i>be</i>
3 rd person singular <i>-s</i>	Irregular past
Possessive 's	3 rd person singular <i>-s</i>

With respect to the results on the accuracy order presented above, it was noticeable that the overall order of English grammatical morphemes in the current study showed some similarities as follows:

1. The copula *be* and progressive *-ing* ranked relatively high in the present study and in Krashen's (1977) study, thus indicating that these two grammatical morphemes were, to some extent, easier for learners to acquire earlier than other morphemes.
2. Both irregular past and third-person singular forms were placed lower in the accuracy order in the present study and in Krashen's (1977) natural order. This suggests that these two grammatical morphemes were more challenging for L2 learners.

On the other hand, the data revealed differences between Krashen's (1977) NOH and the present study, which challenges the established view that L2 learners were guided by "internal principles that are largely independent of their first language" (Mitchell & Myles, 2004, p. 43). The primary deviations are outlined as follows:

In contrast to Krashen's (1977) NOH, the current study revealed that both articles and possessives were ranked relatively high. However, the plural *-s* and auxiliary *be*, which were expected to be learned earlier and placed in the top five, ranked lower in the morpheme list.

According to Krashen's (1977) NOH, the irregular past forms should be acquired before the regular past form. However, the analysis of the data in the current study revealed the opposite accuracy order for the Chinese EFL learners when learning English in a formal classroom setting.

The hierarchy observed in the present study regarding the mastery of plural *-s*, possessive *-s*, and third-person singular *-s* slightly differs from Krashen's (1977) NOH. According to Krashen, the plural should be acquired before the third-person singular, and possessive should present the greatest difficulty. However, the study found a contrasting trend. Surprisingly, possessive *-s* demonstrated higher accuracy compared to both plural *-s* and third-person singular *-s*.

Concerning the first research objective, the researchers found that the Chinese speakers of English employed grammatical morphemes with an average TLU score of 0.80. Additionally, the

researchers checked whether the observed accuracy order conformed to or deviated from Krashen's (1977) NOH. This is in line with Murakami and Alexopoulou (2016), who illustrated that learners from diverse L1 backgrounds might adhere to different accuracy orders for grammatical morphemes under investigation. The results of this study revealed that the Chinese EFL learners also took a distinct morpheme order pattern that did not mirror Krashen's (1977) NOH and echoed the results of previous research (e.g. Akbas & Ölçü-Dinçer, 2021; Murakami, 2013; Murakami & Alexopoulou, 2016; Seog, 2015). Therefore, the study provided further empirical data against the established universality of morpheme order acquisition.

Linguistic Factors Influencing the Accurate Use of Grammatical Morphemes among the Chinese EFL Learners

First Language Interference

Numerous studies have proved the prominent influence of first language over the order of morpheme acquisition (Fathman, 1975; Hakuta, 1976; Izumi & Isahara, 2004; Khor, 2012; Schenck & Choi, 2013; Seog, 2015). The accuracy in using the third-person singular *-s* and the irregular past forms are not explicitly present in Chinese, with the effect that these two morphemes are ordered at the lowest in the list, which reaffirmed that the grammatical morphemes that do exist in L1 are likely to be used inaccurately by English learners compared with those that do not. This result was supported by the students' follow-up interviews. The interviewed students highlighted the detrimental impact of first-language interference on irregular past verbs, providing a specific example to illustrate this point. Specifically, according to one interviewed student, the accurate use of the irregular past forms was challenging due to the absence of this morpheme in the Chinese language:

"I think that achieving 100% accuracy in irregular past forms can be very challenging because sometimes, I often forget to use irregular past verbs with corresponding changed forms due to no such verb changes in my native language." (Student-respondent)

Syntactic and Semantic Complexity

Both syntactic and semantic complexities have been shown to impact the accuracy of English grammatical morpheme usage (Brown, 1973; Goldschneider & DeKeyser, 2001). A morpheme's acquisition difficulty was proportional to its

semantic breadth; the more meanings it conveyed, the more complex and challenging it was to learn (Brown, 1973). This increased semantic content often requires learners to use a wide range of grammatical morphemes for accurate expression. Hence, learners may inadvertently complicate sentences, leading to decreased accuracy in grammatical morpheme uses. In this study, as shown by the following excerpts extracted from the follow-up interview, both student and teacher pointed at the major challenges relevant to the semantic complexity of these English morphemes:

“I feel like it is challenging to consider the tense and agreement of the entire paragraph, ensuring internal structural consistency in organizing compositions.” (Student-respondent)

“I believe that semantic complexity itself alone might not directly correlate with grammatical accuracy. The combination of syntactic and semantic complexity results in low accuracy regarding irregular past and third-person singular forms.” (Teacher-respondent)

Grammatical Competence

Grammatical competence entails learners' understanding of a limited set of grammar rules to produce an infinite number of grammatically correct sentences (Chomsky, 1965). Challenges in applying irregular past and third-person singular forms often stem from insufficient comprehension of both the tense and the agreement rules. In English, strict subject-verb agreement rules necessitate slight changes in verb forms, unlike in Chinese where predicates remain unchanged regardless of whether they are singular or plural subjects. Consequently, Chinese learners of English often either forget to apply the correct morphemes or supply incorrect ones. Similarly, English tense-aspect requires corresponding irregular past forms to express past events, such as adding *-ed* to verbs, which can be forgotten or improperly applied by L2 learners instinctively. In this regard, one of the EFL teachers highlighted this issue pertinent to students' lack of understanding English grammar rules, specifically these rules relevant to tense in English and its use. According to this interviewed teacher, students are challenged by changing English verbs to express their ideas and distinguishing the forms of the irregular verbs in English:

“I find students are struggling to understand English grammatical rules, especially related to tense. They have difficulty changing verb construction to express all 16 types of tense in standard English. I also notice that the forms of irregular past and past participle are so similar that students need much effort to distinguish them and

use them as native-like.” (Teacher-respondent)

Neglect of Irregular Verb Inflection

Neglecting irregular verb inflection contributes to students' low accuracy use of the irregular past and third person singular forms. English has a significant number of verbs that do not follow the regular pattern of supplying *-ed* for the past tense. These verbs can be particularly challenging as they often require rote memorization and no consistent rules governing their conjugation. One of the interviewed teachers reported that both educational curricula and teaching materials might focus on regular past patterns, which were easier to teach, thus leaving less practice on irregular past verbs, especially when there was limited time to cover extensive language contents:

“I have to say both educational curricula and teaching materials might more focus on regular past patterns, which are easier to teach, leaving less practice on irregular past verbs, especially when there is limited time to cover extensive language contents.” (Teacher-respondent)

Limited Quality and Quantity of Language Input

Corder (1967) introduced the concept of input as what learners could access, even if it was only audible but not understood. This type of input, however, does not seem to be integrated into students' current language system and it appears to serve no purpose beyond being unheard of language. Building on this, Krashen (1985) posited that learners acquire grammar naturally when they receive sufficiently understandable input. Thus, the quantity and quality of language input are believed to significantly influence second language acquisition (Hassanzade & Narafshan, 2016; Unsworth, 2016; Wang, 2022). In this study, both student and teacher, when interviewed, stressed the lacking or insufficient opportunities for exposing students to English use. The interviewed teacher added the reasons behind this including the limited time of classes and the complex nature of specific grammar rules in English:

“I have almost never been exposed to English classes. I think the teacher is afraid that we cannot follow her.” (Student-respondent)

“I seldom provide comprehensive English instruction, particularly when teaching grammar, due to time constraints and the complexity of specific grammar rules. Therefore, I believe the quality and quantity of language input in a formal classroom setting are unsatisfactory.” (Teacher-respondent)

Limited Output

Output refers to the language produced by learners. Swain (1985) posited that this production may compel learners to transition from semantic to syntactic processing. Additionally, output serves as an important platform for receiving feedback and prompting learners to generate more precise, appropriate, intricate, and understandable language (Long, 1996; Pica, 1994; Swain, 1993). The importance of output in L2 acquisition cannot be ignored. According to the interviewed teacher, the Chinese EFL learners are challenged by the restricted chances for practicing English due to the emphasis of the syllabus on reading and vocabulary learning skills, the design of the national entrance exam that neglects essay writing questions, the less time spent by teachers on teaching writing to students as well as time limitations in the classroom:

“I observe that students have limited opportunities to practice grammatical morphemes. As they enter sixth form, the focus shifts towards improving students’ reading skills and enlarging their vocabulary to aid in achieving higher exam scores. The national entrance exam, primarily consisting of multiple-choice questions, only required students to write two essays in writing sections. Some of our teachers choose to spend less time on these writing parts and on practicing English grammatical morphemes. Additionally, with only two or three English sessions available each day, each lasting just forty minutes, we face significant time constraints.” (Teacher-respondent)

Non-Linguistic Factors Influencing the Precise Application of Grammatical Morphemes among Chinese EFL Learners

Living Environment

Pica (1983) noted that the quality and condition of the living environment were crucial in language acquisition. The living environment should be a place where students can collaborate and support each other since they use a diverse range of information resources and available tools to engage in problem-solving activities, thus enabling them to achieve the desired learning objectives (Williams & Burden, 1997). Hence, the living environment can affect L2 acquisition. Based on the follow-up interview, two students pointed out at the linguistic factors affecting their acquisition of English morphemes. These factors include the status of English in China, the limited chances for using English and the lower motivation to learn English:

“Mandarin or local dialects dominate daily

communication, and English primarily functions as a foreign language within China. Compared to countries where English is an official language or lingua franca, the linguistic landscape in China provides relatively limited opportunities for English conversation.” (Teacher-respondent)

“I agree that the lack of a language-rich environment diminishes the perceived importance of English for me. Consequently, my motivation to learn also decreases.” (Student-respondent)

Attitude

Grammar instruction is essential and should be regarded as an indispensable component of language teaching (Doughty & Williams, 1998; Thornbury, 1997). Nevertheless, Polat (2017) argued that the focus should shift toward teachers’ attitudes concerning grammar instruction rather than the mere presence of grammar instruction within language classrooms. That is, teachers’ attitudes toward grammar instruction may hold considerable significance in shaping their teaching approaches in the formal classroom setting and ultimately influencing students’ learning outcomes. According to the teacher, the approach to teaching English prioritizes teaching rather than learning, and consequently, students have negative attitudes towards English grammar. Similarly, one interviewed student expressed his stress over grammar:

“Students feel grammar classes sometimes intimidating and monotonous because we always prioritize teaching over facilitating student learning. Such a crammer attitude to English grammar teaching result in reduced student participation and engagement.” (Teacher-respondent)

“I feel kind of stressful at grammar class due to the complexity of specific grammatical structures and the rote memorization of grammar rules.” (Student-respondent)

Individual Personalities

There is a clear relationship between SLA and individual personalities (Ehrman, 1996). It was commonly argued that extroverts were particularly well-suited for language learning. Extroverted language learners were inclined to seek more input (Krashen, 1985) and favor communicative approaches (Cook, 2001). They were also more likely to engage in group activities (McDonough, 1986), which, in turn, enhanced their language interaction, led to increased language output, and ultimately resulted in improved language proficiency. During the interview, some students talked about such different personalities such

as shyness, nervousness and silence as barriers affecting their grammar learning:

“I often remain silent in language classes due to feelings of nervousness about self-presentation, despite knowing the correct answers. As a shy and reserved person, unlike my more active peers, I find this a significant barrier.” (Student-respondent)

“My shyness prevents me from seeking assistance. Even now, when facing with perplexing grammar rules, I prefer to skip them rather than ask the teacher for help. I believe that my introverted personality sometimes hinders my progress in achieving higher language proficiency, especially in spoken English.” (Student-respondent)

Interventions Employed by English Instructors to Assist Chinese EFL Learners in Accurately Using Grammatical Morphemes

Regarding the third research objective, five language teachers were selected for the semi-structured interviews. Their perspectives on effective interventions aimed at assisting students in mastering English morphemes, including irregular past and third-person singular *-s*, were collected. These interventions encompassed brainstorming sessions, role-playing, storytelling activities, peer review practices, incorporation of songs, as well as a range of other activities and exercises. They are discussed as follows:

Brainstorming Sessions

Brainstorming, a method fostering creativity, involves participants' free exchange of ideas to tackle issues. Richards (1990) and Rao (2007) argue that targeted training in brainstorming stimulates cognitive faculties and generates vital ideas for language learning. This approach engages more students and encourages critical thinking, effective solutions, and peer idea-sharing. One of the interviewed teachers highlighted the role of using brainstorming sessions in engaging students in pair or group dialogues in English and post-brainstorming activities such as sentence writing in students' successful use of English morphemes such as irregular past morphemes:

“I would allocate students five minutes to independently brainstorm ideas and insights about the irregular past verbs. During this interval, students would engage in dialogues in pairs or groups, freely exchanging ideas about morphemes. The class is just like a platform for open sharing and expanding ideas, with students transcribing their notes onto the blackboard to create a visible repository for ongoing discussion. After brainstorming, ideas, such as definitions, forms, and examples for irregular past morphemes are shared

among students. And then I provide timely feedback and illustration. With these discussed materials, it is easy for students to write sentences and organize them into short paragraphs.” (Teacher-respondent)

Role-playing

Role-playing teaching practice can invigorate engagement between students by either immersing them in simulations of real-life scenarios or familiarizing them with prevalent linguistic expressions (Dorathy & Mahalakshmi, 2011; Liu & Ding, 2009). This practice is harnessed to foster self-reflection among students, broadly enhances their understanding of human behaviors and social dynamics, and transforms the classroom into a practical laboratory for social and academic exploration. When interviewed, one teacher stressed his use of role-playing in students' learning of morphemes such as the third-person singular forms where students are encouraged to write dialogues and reinforced to use these morphemes:

“I often dedicate one class to teaching the third-person singular forms through role-playing. Initially, I guide students in identifying third-person singular subjects and understanding the rules of subject-verb agreement. Then, providing examples on slides, I ask the students to identify the third-person singular subjects and annotate the corresponding verb inflections, which are designed to reinforce the practical application of third-person singular forms. Next, grouping students as 10 as a team, I encourage them to write dialogues based on a given example, emphasizing the use of the third-person singular. During this activity, I should assist them in completing their dialogues. Once necessary improvements and refinements are made, the students are invited to perform their dialogues in front of the class. After that, a reflection session is organized to engage students to discuss what they have learned from this activity, focusing on language use, verbal expression, and emotional intelligence.” (Teacher-respondent)

Storytelling Activities

Storytelling is regarded as one of the most ancient and enduring forms of communication, and scholars extol it as an educational tool for fostering language acquisition (Cameron, 2001; Isbell et al., 2004; Lucarevschi, 2016). The application of storytelling yields better learning outcomes than conventional pedagogic materials, such as textbooks in language instruction. The interviewed teacher was aware of using storytelling activities in warming up the class when teaching English morphemes such as irregular past verbs with the aim of engaging students in noticing these irregular forms:

“I begin my class with a five-minute storytelling session

as a warm-up when introducing irregular past tense verbs. For instance, I display pictures on slides and narrate a story, using underlined irregular past verbs, aiming to engage students interactively and guide them to notice the forms of these verbs. Next, I present a different set of pictures accompanied by cue irregular verbs and encourage students to describe them briefly. This approach helps students visually grasp the forms and patterns of some irregular verbs, while also enhancing their spoken English skills.” (Teacher-respondent)

Peer Review Practices

According to Hansen and Liu (2005), Lundstrom and Baker (2009), and Mangelsdorf (1992), peer review includes meaningful engagement with peers, greater exposure to ideas, and the exchange of new views on the writing process. Both the giver and the receiver participating in peer review can benefit significantly from these activities (De Guerrero & Villamil, 2000). This practice enables teachers to assist their students in receiving more feedback and provides students with practical skills essential for language and writing development. One teacher emphasized the usefulness of using peer review activities in raising students’ awareness of the incorrect use of English morphemes such as irregular past verbs and promoting their metalinguistic explanations:

“I observe that students are often aware of incorrect morpheme usage in their peers’ work but less likely to notice their own mistakes. During peer reviews focusing on irregular past verbs and third-person singular forms, I frequently encourage students to explain why a particular morpheme is misused and suggest the correct form. Additionally, when reviewing each other’s compositions, the students invest more time in reading and providing feedback, along with explanations for peers. I find that students display a greater willingness to consider their peers’ suggestions and make necessary changes. These aspects are challenging to achieve when I am solely responsible for reviewing compositions.” (Teacher-respondent)

Incorporation of Songs

Songs create a less intimidating atmosphere for students, especially those who may feel anxious when speaking English in front of the class (Lo & Li, 1998). This teaching practice is enjoyable, and it fosters an interactive and engaging learning environment that encourages active participation and the application of both existing and newly acquired language knowledge (Alinte, 2013; Saricoban & Metin, 2000). One interviewed teacher emphasized the use of English songs aiming at teaching students how to use irregular past verbs, which fosters their appreciation of English learning:

“‘Because You Loved Me’ is one of the popular songs I use to teach irregular past verbs. I present the lyrics of this song in class and guide them to notice how irregular verbs change. I follow up with exercises, such as gap-filling, where students put the verbs in brackets into the past simple tense. Afterward, they listen to the song to check their answers. Of course, these verbs mainly refer to the irregular past forms. Language learning should go beyond just perfecting and enhancing grammar. Teaching objectives should include fostering an appreciation for language and culture.” (Teacher-respondent)

A Range of Other Activities and Exercises

To provide students with effective interventions in the classroom, the interviewed teachers described the specific exercises, such as mind mapping, grammar bingo, and interactive worksheets they employed in their teaching practices.

Mind mapping is employed to organize ideas and represent words, tasks, or other connections arranged around a central keyword through branching, typically containing words, colors, concise phrases, and illustrations (Buzan & Buzan, 2006). It is used in the pre-class session, thus facilitating the memorization and comprehension of grammatical concepts. For instance, when explaining the application of third-person singular verbs, the teacher can draw a circle at the center of the blackboard with the third-person singular inscribed within it, which serves as the central concept for the mind map. From this central circle, the teacher then extends the branches to represent various subcategories, including (i) third-person singular subject, (ii) regular verbs add *-s*, (iii) verbs ending in *-ch*, *-sh*, *-x*, *-s* incorporate *-es*, (iv) verbs ending in *-y*, change *-y* to *-ies*, and (v) irregular verbs. For each subcategory, the teacher provides additional elaboration by including example sentences. For example, under regular verbs, the teacher offers an example sentence, such as “He walks to school.” Utilize distinct colors to differentiate between subcategories and integrate images or symbols to aid visual learners.

Grammar bingo games are designed to provide students with an engaging way to practice grammar structures. This fosters a relaxed atmosphere and motivates students to explore grammatical elements playfully. Additionally, it helps develop their teamwork, reading, and speaking skills throughout the learning process. For example, the teacher starts the class by introducing the concept of irregular past tense verbs. The teacher also provides shared resources, such as reading materials from textbooks. Subsequently, the

teacher organizes the class into several groups, asking them to collaborate and search for as many irregular past tense verbs as possible. To facilitate this, the teacher prepares bingo cards with various instructions, such as identifying the irregular past forms of the word “think” and locating sentences featuring irregular past tense verbs. When the game begins, the teacher randomly selects a card and reads the instructions aloud, prompting students to identify the specified grammatical structure. Once a group identifies all the sentences and records them on their blank card, they call out “bingo”. At this point, the teacher requests students to read the identified sentences aloud and assess whether they are correct or incorrect. If they are accurate, the group earns one point; if they are incorrect, no points are awarded. The ultimate victors are the groups that accumulate the highest scores.

Interactive worksheets require students to work in groups to complete assigned grammar tasks, such as filling in blanks, matching columns, or correcting sentence errors within a set time frame. This teaching post-class practice fosters a strong grasp of grammatical structures and enhances their reading skills. The teacher creates an interactive worksheet comprising various exercises tailored to irregular past and third-person singular forms. These exercises may involve sentence corrections, matching columns, multiple choices, and fill-in-the-blanks. Subsequently, the teacher distributes a copy of the worksheet to each group, thus granting them enough time to work on these exercises, discuss answers, and resolve any misunderstandings through the worksheet. Once the worksheet is completed, the teacher instructs the groups to exchange their worksheets and evaluate the answers by providing corrections. The teachers encourage students to ask questions and offer feedback on the exercises to customize future interactive worksheets to better suit their needs. Afterwards, the teachers request that students submit their worksheets for further analysis. This analysis allows teachers to gauge students’ mastery of the two grammatical morphemes, providing insights into the learning process.

IV. DISCUSSION

The current study revealed that the copula *be* had the highest TUL scores (90%), followed by articles (83%), progressive *-ing* (82%), regular past (81%), possessive *-s* (81%), plural *-s* (80%), and auxiliary *be* (80%). Irregular past and third-person

singular had the lowest TLU scores (69%, and 52% respectively). Secondly, the comparison of the observed accuracy order with Krashen’s (1977) NOH revealed that Chinese EFL learners exhibited a different pattern, thus deviating from universality as suggested by previous research (Akbas & Ölçü-Dinçer, 2021; Cheng & Lee, 2020). Thirdly, the interviews with the five language teachers indicated that EFL learners struggled with irregular past and third-person singular due to linguistic factors such as the negative transfer of mother tongue, semantic and syntactic complexity, and non-linguistic factors like motivation, living environment, and limited output of certain morphemes. The interventions were deemed significant in aiding learners’ learning of challenging morphemes and boosting motivation, with specific strategies including peer review, brainstorming, role-playing, storytelling, songs as well as various activities and exercises.

Murakami and Alexopoulou (2016) proposed that the absence of an equivalent in L1 led to low accuracy in grammatical morphemes use. The overall finding of the current study reinforced this statement. Specifically, the overall low accuracy in the use of irregular past and third person singular forms could be explained by the non-existence of these features in Chinese. In contrast, the overall accuracy in the use of copula was relatively high since the Chinese verb “*shi*” was used as a linking verb between the subject and its complement, thus functioning similarly to the English copula. This phenomenon was considered that language transfer positively impacted L2 learning outcomes if similar equivalents explicitly were presented in their L1 (Chan, 2004; Hsieh, 2009).

Regarding the acquisition order of regular and irregular past morphemes, it had been widely accepted that the past tense *-ed* was acquired later than irregular forms (Brown, 1973; Krashen, 1977; Kuczaj, 1977). However, the overall accuracy of these regular verbs surpassed that of irregular verbs in the current study. This discrepancy could be attributed to the high incidence of overgeneralization errors with irregular forms. As observed by Kuczaj (1977), once children gained a sufficient control over the regular past tense form, they tended to make two types of errors with the irregular past tense forms: attaching the suffix *-ed* to an irregular verb (*caughted*) or attaching the suffix to the past tense form itself (*helded*). In the current study, learners exhibited one or both of these error

types, resulting in lower accuracy when using irregular forms.

When it came to the hierarchy of the third person singular, plural *-s* and possessive *-s*, the observed accuracy order had been differed from the previous studies (Ghonchepour et al., 2020; Krashen, 1977; Seog, 2015). The observed order of possessive *-s* proceeded the plural *-s* and the third singular-s corroborated the observations of Luk and Shirai (2009). This discrepancy could be possibly explained by the similar equivalent existed in Chinese. Although Chinese did not have plural marking or the third person singular system, it had a structure of denoting possession that was similar to that of English (Qin de bi = Qin's pen) (Luk & Shirai, 2009). It was found that the third person singular-s consistently was difficult to master, which had the lowest accuracy level, and in line with the observations of Murakami and Alexopoulou (2016) for L1 Chinese learners. This result could be explained by Slobin's (1996) assertion that the form-related features, such as the third person singular, appeared later in the acquisition order compared to forms with semantic features like the plural *-s* and possessive *-s*. Another possible explanation could be the cross-linguistic comparison between Chinese and English. Since Chinese lacks an equivalent form for certain grammatical morphemes (such as the third person singular and irregular past forms), these morphemes ranked relatively low.

The implications drawn from this research offer valuable insights for curriculum development, instructional approaches, and student comprehension in English grammar learning. Firstly, resequencing grammatical morphemes in the syllabus according to their difficulty can streamline the learning process, with a focus on mastering challenging forms after foundational morphemes. Secondly, teachers are advised to adopt more interactive and exploratory teaching methods to alleviate the tedium and anxiety often associated with grammar classes. Customized materials and additional writing exercises can target specific challenging morphemes. Lastly, students are encouraged to understand the complexity of language acquisition and to prioritize accuracy in using the irregular past tense and the third-person singular forms, thus leveraging examples of incorrect usage to enhance learning. These implications collectively promote a more effective and engaging approach to English grammar instruction.

V. CONCLUSION

The present study revealed that the copula *be* had the highest TUL scores (90%), followed by articles (83%), progressive *-ing* (82%), regular past (81%), possessive *-s* (81%), plural *-s* (80%), and auxiliary *be* (80%). Irregular past and third-person singular morphemes had the lowest TLU scores (69%, and 52% respectively). Secondly, the comparison of observed accuracy order with Krashen's (1977) NOH revealed that Chinese EFL learners exhibited a different pattern, deviating from universality as suggested by previous research (Akbas & Ölçü-Dinçer, 2021; Cheng & Lee, 2020). Thirdly, the interviews with the five language teachers indicated that EFL learners struggled with the irregular past and third-person singular due to linguistic factors such as negative transfer of mother tongue, semantic and syntactic complexity, and non-linguistic factors like motivation, living environment, and limited output of certain morphemes. Finally, the interventions were deemed significant in aiding learners' learning of challenging morphemes and boosting motivation, with specific strategies including brainstorming, role-playing, storytelling, peer review practices, songs as well as various activities and exercises.

Despite the contribution of this study to previous research, it has several limitations that need to be addressed in future research. Firstly, the sample size and diversity are insufficient, which necessitates a broader and more representative selection of subjects and an extended duration for a more accurate analysis. Particularly, inclusion of students with different English proficiency levels would enrich the findings by highlighting the variances in morpheme learning among top performers and their peers. A longitudinal approach is recommended to capture the evolution of morpheme acquisition over time. Secondly, the effectiveness of the teaching interventions, as reported by a limited number of teachers, remains unverified. Future studies, therefore, should rigorously evaluate these interventions across various proficiency levels to determine their impact on morpheme order acquisition. Lastly, the study overlooked the strategies used by the students in learning English grammatical morphemes. Investigating the methods used by high-achieving students to surmount learning hurdles could provide valuable insights into effective morpheme learning strategies.

ETHICS STATEMENTS

The authors have read and followed the ethical requirements for publication in Jurnal Arbitrer and that the current work does not involve human subjects, animal experiments, or any data collected from social media platforms.

CREDIT AUTHOR STATEMENT

Wang Xianyuan: Collected data, conducted interviews, developed the methodology, analyzed data, drafted the manuscript, and revised the content;
Lau Su Kia: Supervised, validated, critically reviewed, wrote, and edited the manuscript;

Chew Fong Peng: Critically reviewed, wrote, and edited the manuscript; **Murad Abdu Saeed:** Proofread, wrote, and edited the manuscript; **Cao Xuejin:** Assisted in data collection and edited the manuscript.

DECLARATION OF COMPETING INTERESTS

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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