The Fossilization of Grammar in the Case of Chinese German Learners and Suggestions

Qi Liu*

School of Foreign Languages, Beijing Institute of Technology, Beijing, China

*Corresponding author. Email: 1120200004@bit.edu.cn

Abstract. As China's level of internationalization increases, the number of Chinese German learners in schools and universities continues to rise. Under such circumstances, the research of fossilization in the process of German acquisition is of great significance for the teaching and learning of German. However, there is still a notable scarcity of studies on fossilization in the case of Chinese learners acquiring German. This longitudinal case study examines the fossilization of grammar in a group of Chinese students majoring in German in the example university. Their fossilized errors were identified from the data collected and an error analysis was conducted. The analysis showed that three major factors underlay fossilization in this case study: language transfer, imperfect learning strategies, and lack of feedback, with language transfer being the primary cause. The result reveals that the combined efforts of both the teacher and the learner are necessary to combat fossilization. Based on the findings, some suggestions for avoiding fossilization are also put forward.

Keywords: fossilization, interlanguage, Chinese German learners, error analysis

1   Introduction

As China keeps developing towards internationalization, the teaching and learning of foreign languages in China are gaining more and more importance. At present, not only English as a lingua franca, but also other languages such as German, French, and Spanish are taught in Chinese middle schools with the aim of cultivating talents in foreign languages. Under such circumstances, the study of fossilization, the serious problem confronting virtually all L2 learners, is of great significance in China.

The concept of fossilization was first brought forward by Selinker in 1972 [1]. Since then, it has become a popular topic in the field of SLA, for it deals with the important question of why so few L2 learners ever manage to acquire native-like competence. Fossilization takes place in L2 learners' interlanguage (IL): In the process of second language acquisition, the language of the learner is in a state of changing and progressing, between his native language (NL) and the target language (TL). As learning continues, the interlanguage develops towards the target language, however not throughout the learning process. In the case of most L2 learners, their inter-

language stagnates after a certain point despite ample exposure to L2, preventing them from acquiring native-like competence. In other words, they experience fossilization.

The Fossilization Hypothesis has been one of the most popular theories in the field of SLA and has guided a large quantity of SLA research in the past five decades [2]. Fossilization is a complex phenomenon and a number of researchers have offered views on the nature and root causes of fossilization since this concept was introduced. In Selinker's original conception, fossilization was as follows:

Fossilization, a mechanism which also exists in this latent psychological structure, underlies surface linguistic material which speakers will tend to keep in their IL productive performance, no matter what the age of the learner or the amount of instruction he receives in the TL [1].

And fossilizable structures can reappear in IL performance, even when they were thought to be eradicated [1]. Selinker also pointed out that fossilization can not only take place in individual learners, but also in a whole group of learners. Later, Selinker and Lamendella redefined fossilization as a permanent cessation of IL learning before the learner has attained TL norms at all levels of linguistic structure and in all discourse domains despite the learner's positive ability, opportunity, and motivation to learn and acculturate into target society [3]. In 1992, Selinker and Lakshmanan renewed the definition in terms of persistent non-target-like structures [4]. Apart from the definitions brought forward by Selinker, a number of conceptions proposed by other researchers are also found in the literature, but they are similar in essence to those of Selinker's [5].

As to the causes of fossilization, Selinker proposed 5 central processes: language transfer (if fossilization is a result of the NL), transfer of training (if fossilization arises from the training procedures), strategies of second-language learning (if fossilization is a result of learning approaches adopted by the learner), strategies of second-language communication (if fossilization is a result of communicative approaches adopted by the learner) and overgeneralization of TL linguistic material (if fossilization is a result of overgeneralization of TL rules) [1]. There is also an abundance of different accounts: the biological, the social, the environmental, etc. Scovel proposed that it is the biological factor in the brain - cerebral dominance or lateralization, which occurs around the age of 12 - that inhibits adults from fully mastering the phonology of a second language without accent [6]. Schumann argued that affective factors may be more important than biological maturation in second language acquisition [7]. Depending on the way the initiating factors operate, the learner can have empathic capacity, motivation, and attitudes that are either favourable or unfavourable to the target language and its community, and the cognitive processes that produce language acquisition will be accordingly activated or blocked. Vigil and Oller cited pedagogical feedback as the cause of fossilization [8]. They argued that expected negative feedback on the cognitive dimension is the principal factor driving the development of learner grammar and that if learners cannot receive appropriate feedback concerning errors, those errors are expected to fossilize. They also pointed out that negative cognitive feedback is in fact probably essential to a high level of attainment in L2. The explanatory theories of fossilization abound in the literature. Han summed up a dozen

causal variables and pointed out that fossilization has become rather an intricate and complex construct [5].

This research is longitudinal and the aim is to examine the fossilization of grammar in the case of a group of Chinese sophomores majoring in German in the example university. The peculiarity of these students is that they have already studied German for 6 years before entering college and have reached a relatively high level of attainment, so they provide good examples to study fossilization. The data collected in this research is from two main sources: transcriptions of the recorded Oral German class and written essays. Through analysing the data, the fossilized errors will be identified, the causes of fossilization will be determined, and based on the findings suggestions on how to delay or avoid fossilization will be made.

At present, much work has been done on fossilization in the case of Chinese learners learning English, and some suggestions on avoiding fossilization in English teaching and learning have been put forward. However, there is still a notable scarcity of research examining the fossilization of Chinese learners acquiring other languages, such as German. Therefore, this research has the meaning of supplementing existing works. Another existing problem is that longitudinal studies are rarely seen. Many studies are in fact only simple error analyses based on data spanning a short period of time, thus are not in accord with the definition of fossilization, because without longitudinal data it would be impossible to determine whether the interlanguage forms have permanently fossilized or only temporarily stabilized. Therefore, to overcome this shortcoming and ensure the validity of this research, data that spans a year was collected and only errors that occurred no less than three times for an individual are considered as indications of fossilization. The research discovered that transfer from L1, imperfect learning strategies, and lack of feedback account for the fossilization in this case study, and language transfer is the primary source of fossilization.

2   Methodology

This research studies the fossilization of grammar in the case of 5 Chinese sophomores majoring in German. These students are different from other students in that they have already studied German for 6 years before entering university (they are thus addressed as early beginners hereafter) and have reached the B2 or C1 level of the Common European Framework of Reference for Languages. Therefore, they provide good examples to study fossilization. The early beginners arise from a policy in China that aims to cultivate talents in foreign languages: Starting from junior high school, students in 16 Foreign Language Middle Schools (schools with an emphasis on foreign language teaching) in the country may switch from English to other languages, they will also take the foreign language test in that language in the College Entrance Examinations (Gaokao). Another choice for them is to take part in a special entrance examination arranged specifically by each university, where their talent and competence in the foreign language will be tested and based on which admissions into the university will be issued. Compared to students who choose to study a foreign language (other than English) after entering college, the early beginners possess a clear

advantage. However, as some faculty members have discovered, the early beginners tend to stagnate in their foreign language competence as time goes on, and after approximately 2 or 3 years the gap between the two kinds of students becomes relatively narrow. Therefore, it is meaningful to look into fossilization confronted with these students.

The research is a longitudinal case study and uses error analysis to analyse the data collected. The data spans two consecutive semesters and mainly includes transcriptions of the recorded Oral German class and essays written by students. In total, data of 35468 words has been analysed and 596 errors have been located. The next step is to determine which errors are persistent fossilized errors and can serve as indications of fossilization. In this research, only errors that have been made no less than 3 times by an individual are considered fossilized errors. The top 5 most frequent fossilized errors are identified and the causes of these errors are categorized.

3   Presentation of data

The top 5 most frequent types of fossilized grammatical errors identified in the data and their percentage are presented in the table below:

Table 1. Top 5 Most Frequent Types of Grammatical Errors and Percentage

Types of errors	Percentage
Errors in the use of definite and indefinite articles	26.1%
Errors in inflectional morphology	15.4%
Errors in word order	10.5%
Errors in cases	9.8%
Errors in the use of reflexive verbs	5.4%
Others	32.8%

Examples of the top 5 most frequent fossilized errors, which will be discussed in the next section, are listed below along with translation into English (underlining indicates violation of grammatical rules, corrections in brackets indicate the correct forms; some errors don't translate well into English, therefore their translation is replaced with explanations):

Table 2. Examples of the Top 5 Most Frequent Errors and Translation

Examples	Translation/Explanations
1. Errors in the use of definite and indefinite articles	

(1) Er hat (ein) Vorurteil gegen seinen Partner.	He has (a) prejudice against his partner.
(2) (Die) Genaue Antwort weiß er nicht.	He doesn't know (the) exact answer.
(3) Die Anzahl von (den) Kindern ...	The number of (the) kids ...
(4) ... als <u>der</u> wichtiger Zugang zu ...	... as <u>the</u> important access to ...
(5) ... spielt <u>eine</u> (die) wichtigste Rolle ...	... plays <u>a</u> (the) most important role ...

2. Errors in inflectional morphology

(6) Mit seinen Bücher(n) ...	"Bücher" (books) lacking "n" (dative, plural)
(7) Er hat keine gute(n) Ideen.	"gute" (good) lacking "n" (accusative)
(8) Das Auto seines Bruder(s) ...	"Bruder" lacking "s" (genitive)
(9) Sie weiß<u>t</u> nicht, dass ...	Verb incorrectly conjugated
(10) Sie fragten den Polizist(en).	"Polizist" (policeman) lacking "en" (N-Deklination)

3. Errors in word order

(11) Er glaubt, dass Lesen <u>ist</u> gut für die Seele (ist).	Incorrect verb position
(12) Obwohl <u>waren</u> die Fragen sehr schwer (waren), konnte er noch ......,	Incorrect verb position
(13) sondern <u>soll sie</u> (sie soll) eine Pause machen.	Incorrect verb position (violation of V2 word order)
(14) Er hat <u>zu Hause am letzten Wochenende</u> (am letzten Wochenende zu Hause) lange gearbeitet.	Incorrect order of adverbials
(15) Morgen <u>in der Schule</u> können wir (in der Schule) ...	Incorrect verb position (violation of V2 word order)

4. Errors in cases

(16) Er ist größer als sein<u>en</u>(sein) Vater.	Misuse of accusative (correct case: nominative)
(17) Jeden Tag joggt er in den(dem) Park.	Misuse of accusative (correct case: dative)
(18) Außer <u>ihn</u>(ihm) sind alle hier.	Misuse of accusative (preposition calls for dative)
(19) Es mangelt viele(n) Schüler(n) an Erfahrungen.	Misuse of accusative (verb calls for dative)

(20) Er bedient sich <u>ein</u>(es) Gerät(s).	Misuse of accusative (verb calls for genitive)

5. Errors in the use of reflexive verbs

(21) Er bewarb (sich) um eine Stelle ...	He applied for a job. (Omission of reflexive pronoun)
(22) Ich mache (mir) Sorgen um dich, ...	I'm worried about you, ... (Omission of reflexive pronoun)
(23) Die Wirtschaft hat (sich) schnell entwickelt.	The economy has developed quickly. (Omission of reflexive pronoun)
(24) Er weiß nicht, dass (sich) die Bibliothek im Stadtzentrum befindet.	He doesn't know that the library is in the city center. (Omission of reflexive pronoun)

4   Results and Discussion

4.1   Errors in the use of definite and indefinite articles

As can be seen in the table above, the top 5 most frequent errors account for more than 60% of all fossilized errors. The errors in the use of definite and indefinite articles are the most frequent type of errors. In this respect, the students seem unable to accurately determine when to use a definite or an indefinite article and when not to. In example (1), the student omitted an indefinite article when there should be one, in examples (2) and (3) the student omitted the definite articles, in example (4) the student overused the definite article and in example (5) the student confused the use of definite articles with that of indefinite articles. The probable explanation is that German and Chinese are very different in this regard - definite and indefinite articles don't exist in Chinese. The influence of L1 has had an impact on the use of articles by these students. In fact, the errors (1-3) presented here would match literally perfectly the corresponding Chinese expressions:

Table 3. Comparison of Erroneous Expressions and Chinese Expressions

(1)	German Chinese	Er hat (ein) Vorurteil ... Ta you pianjian
(2)	German Chinese	(Die) Genaue Antwort ... Zhunque daan ...
(3)	German Chinese	Die Anzahl von (den) Kindern ... Ertong de shuliang ...

The influence of L1 Chinese is thus clearly presented in table 3.

4.2   Errors in inflectional morphology

Inflectional morphology proves hard for Chinese learners to master. Although these grammatical rules have been emphasized in the classroom as a key point in German grammar, students keep making mistakes in inflectional morphology frequently (example 6: possessive pronoun, example 7: adjective, example 8: noun, example 9: conjugation, example 10: noun). Considering the complexity of the inflectional morphology in German, it is not surprising that frequent errors would occur here. Of all the errors in inflectional morphology, incorrect adjective forms are the most frequent. However, the attention learners pay to inflectional errors is in stark contrast to their high frequency. This contrast will be discussed later.

4.3   Errors in word order

Errors in word order show that some students cannot arrange the position of the verb correctly, especially in clauses (as shown by examples 11 and 12) or when there is a conjunction (example 13) that might cause distraction. The order of the adverbials also appears hard to be fully mastered (example 14). When formulating long sentences with multiple adverbials, the frequency of errors rises sharply. And when the learners intend to emphasize other constituents of the sentence, they sometimes ignore the position of the verb (example 15).

4.4   Errors in cases

The four cases in German (nominative, genitive, dative, and accusative) also pose a challenge to Chinese learners. Errors in this regard mostly are misuse of a certain case (example 16 and 17, where the learner misused accusative) and failure to identify prepositions and verbs that call for a certain case (example 18 and 19, where the learner failed to use dative; example 20, where the learner failed to use genitive).

4.5   Errors in the use of reflexive verbs

Reflexive verbs prove hard to comprehend for Chinese learners. Though the students understand that reflexive verbs are to be used together with reflexive pronouns, they do not always recall this rule in daily usage and often leave out the reflexive pronouns, especially when the reflexive pronoun is relatively distant from the reflexive verb (in clauses, as shown by example 24).

In summary, transfer from L1 can be identified as the primary cause of fossilization in this case: The grammatical rules that were violated in German by the errors are all typologically distant from those in Chinese, and the patterns of the errors show a strong sign of L1 influence. This finding is in accord with that of Han, that influence of L1 is a primary factor of fossilization [9]. Another major source of fossilization discovered in this case study is inappropriate learning strategies that pay little or no attention to error correction. Because the learners noticed that certain errors in fact don't necessarily cause failure in the communication or overall learning, or because

the situation then didn't allow for a careful examination of the errors made (e.g. in a conversation or in class), the learners sometimes tend to pay little attention to or simply ignore the errors. Taking errors in inflectional morphology as an example: Based on observation of the learners, they rarely return to review the erroneous morphological endings they produced in communication, and when errors (verbal or in written form) are pointed out for them, their usual method is to change the ending to the correct one verbally or simply write down the correct ending without further attempts to identify the causes of the error or to reinforce the mastery of corresponding grammatical rules. Such a method and its inadvertence allow errors to continue to exist, to appear repeatedly, and finally to fossilize.

Insufficient feedback from teachers also plays an important role in fossilization in this case. Vigil and Oller pointed out that frequent negative feedback can be essential to the achievement of the learners and the teacher's expectation serves probably as the only limitation of their level of correctness [8]. However, based on observation in the classroom, the teachers tend to overlook the types of errors listed above. There are proper reasons for the teachers to do so: Firstly, some errors don't cause a significant negative impact on communication. Secondly, too frequent corrections of the errors might damage students' confidence and interrupt the progression of the class. However, in terms of fossilization, this could have two possible consequences: If the learner is aware that he has just made a mistake and the teacher didn't correct him, it would lower the expectation of the learner of the level of correctness he needs to exhibit and discourage him from putting much weight on error correction; if the learner is not aware of the error he made, he will most likely regard the error as correct and continue to use the erroneous forms, with a possible outcome of fossilization.

To summarize, the results of this case study correspond with the theories put forward by Selinker and Vigil and Oller [1, 8]: transfer from Chinese, imperfect learning strategies, and lack of feedback are identified to be the main causes of fossilization in these Chinese learners. This research also verified the claim of Selinker and Lakshmanan, that when multiple factors are working in tandem, the possibility of fossilization increases [4]. In this case it was primarily the combined effects of language transfer, improper learning strategies, and lack of feedback that led to fossilization. These findings could have great pedagogical implications for future Chinese foreign language learners.

5   Suggestions

Based on the findings of this research, some suggestions on how to delay or avoid fossilization in L2 teaching and learning are made:

1. Teachers should put emphasis on the differences between L1 and L2 in teaching.

As discussed above, L1 transfer turns out to be the primary source of fossilization. Preventing the interference of L1 would have great positive effects on avoiding fossilization. To reach this target, the teachers must be well aware of the differences between the two languages and consciously emphasize these differences in the class-

room. The desirable approach is to highlight and explicitly explain the distinctions and possible errors the first time a set of grammatical rules is taught and repeat these distinctions whenever transfer errors are observed. Some specifically developed exercises would be favourable to deepening the understanding of the distinctions, thus preventing fossilization.

2. Learning strategies with an emphasis on error correction should be adopted.

As mentioned above, errors, which the learner fails to correct tend to fossilize. Learning strategies with an emphasis on error correction are of great significance for L2 learners. Should learners leave the errors unchecked, their IL forms will stop developing and their sensitivity to correct forms will decrease. It is important to note that error correction not only includes the procedure of correcting specific errors, but also the meticulous identification of the causes of the error and a thorough review of and reflection on the grammatical rules in question. It is the effective approach to combat potentially resistant errors.

3. Frequent feedback should be provided for learners.

According to Vigil and Oller, the fossilization of grammatical forms is chiefly governed by cognitive feedback [8]. Combined with the findings of this research, it is suggested that teachers offer students feedback, especially negative cognitive feedback more frequently when possible. When doing so the teachers should also make sure that their affective feedback is always positive so as not to injure the self-confidence and enthusiasm of the students. Moreover, if the student is unable to discover the nature of his errors himself, teachers should preferably point out the causes of errors for him. In a study conducted by Han and Selinker, the subject of the study was able to eradicate errors and use the grammatical rules correctly only after the causal factors were identified for her and explicit pedagogical feedback was given (contradicting her error to the textbook, explaining grammatical concepts, and providing exercises) [10].

6   Conclusion

This case study examined the fossilization of grammar in the case of Chinese German learners, the causal factors of fossilization were identified and the primary cause of fossilization in this case proved to be language transfer. Working in tandem with two other main factors - improper learning strategies and lack of pedagogical feedback - it led to the fossilization in these students. The identified causes include both internal and external factors, which means that the efforts of both the teacher and the learner are needed to combat fossilization. Based on the findings, some suggestions of practical implications for avoiding fossilization are put forward: The teachers should be sensitive to differences between L1 and L2 in teaching, alert to students' stabilized errors, and provide pedagogical feedback frequently. The students should attach more importance to error correction, and combat potentially persistent errors by reviewing grammatical rules every time when the need arises. The probability of fossilization

can thus be reduced to a minimum. This research is meaningful and helpful for Chinese learners and teachers to improve the teaching and learning of L2 German. However, it also has its limitations. Only 5 students were studied in this research, the data collected spans only 2 semesters and is limited to class transcriptions and essays. A longer longitudinal case study that includes more participants and more comprehensive data is suggested for a more representative study. Although this research put forward some suggestions for avoiding fossilization, their positive effects remain untested. Future research can deepen the understanding of fossilization by verifying and comparing the effectiveness of different measures brought forward in the literature so far. Also, this research only examined the fossilization in the acquisition of German by Chinese students. In fact, there is a lack of studies on fossilization in the acquisition of almost all foreign languages other than English (e.g., French, Spanish) in China. Future research is suggested focus more on the teaching and learning of these languages and fill the existing gap to improve the overall acquisition of these languages.

References

1. L. Selinker, Interlanguage. 10(1-4), 1972, 209-232. https://doi.org/10.1515/iral.1972.10.1-4.209
2. Z. Han, Forty years later: Updating the fossilization hypothesis. Language Teaching, 46(2), 2013, 133-171.
3. L. Selinker, J. T. Lamendella, Two perspectives on fossilization in interlanguage learning. Interlanguage Studies Bulletin, 143-191, 1978.
4. L. Selinker, U. Lakshmanan, Language transfer and fossilization: The multiple effects principle. Language transfer in language learning, 197-216, 1992.
5. Z. Han, Fossilization: five central issues. International Journal of Applied Linguistics, 14(2), 2004, 212-242.
6. T. Scovel, Foreign accents, language acquisition, and cerebral dominance 1. Language learning, 19(3-4), 1969, 245-253.
7. J. H. Schumann, Affective factors and the problem of age in second language acquisition. Language learning, 25(2), 1975, 209-235.
8. N. A. Vigil, J. W. Oller, Rule fossilization: A tentative model 1. Language learning, 26(2), 1976, 281-295.
9. Z. Han, Fossilization in adult second language acquisition (Vol. 5). 2004, Multilingual Matters.
10. Z. Han, L. Selinker, Error resistance: Towards an empirical pedagogy. Language Teaching Research, 3(3), 1999, 248-275.