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Impact of L1 Salar and L2 Mandarin Transfer on L3 English Grammar Acquisition Among Trilingual Salar Students

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ABSTRACT

In China's multilingual context, third language (L3) acquisition among ethnic minority groups remains underexplored. This study examines the impact of language transfer on English grammar acquisition among Salar students, whose first language (L1) is Salar, second language (L2) is Mandarin, and third language (L3) is English. Drawing on the Contrastive Analysis Hypothesis and Trilingual Acquisition Theory, the study investigates the transfer effects of L1 Salar and L2 Mandarin on L3 English grammar learning. The sample consisted of 50 students whose L1 is Salar and 50 students whose L1 is Mandarin, with data analyzed using SPSS. Results reveal significant differences between the two groups in English grammar acquisition, with L1 Salar students exhibiting a higher error rate in sentence writing. Further analysis reveals that, contrary to Hypothesis 2, L2 Mandarin exerts a stronger negative influence on the English writing of Salar L1 students, although L1 Salar also contributes to transfer effects. This study highlights the significant role of language transfer in the language acquisition of ethnic minority students, with a particular focus on the English learning of Salar students. The findings provide empirical evidence for understanding the impact of language transfer on English grammar acquisition and offer important implications for future language research.

Keywords: Trilingual Acquisition (TLA); Language Transfer; Contrastive Analysis Hypothesis (CAH); Salar Students; Salar Language (L1); Mandarin (L2)

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1. Introduction

China is a multilingual and multiethnic nation with nearly 300 spoken languages. Mandarin Chinese, the official language, holds a dominant position in education, government, and media [1,2]. Although it promotes national unity, China maintains its linguistic diversity, being home to 56 ethnic minorities, each with its own language [3]. These minority languages are crucial for preserving cultural heritage and also function as a primary means of daily communication within local communities [4].

The Salar minorities are one of China's ethnic minorities, and their mother tongue is Salar. As an oral language without written characters, Salar is mainly passed down from generation to generation through oral communication [5]. Although Salar students use Mandarin in public places such as schools, Salar is still the primary means of communication in the family and daily interpersonal interactions, so the language still occupies an essential position in their daily lives [6]. For Salar students, Mandarin functions as the second language.

With the acceleration of globalization and the development of the social economy, English as an international standard language has become a compulsory course in China's compulsory education [7]. According to the English Curriculum Standards for Compulsory Education 2020, English instruction begins in the third grade and continues as a core subject throughout secondary and higher education. Consequently, many ethnic minority students, including Salar learners, are involved in a trilingual acquisition process: Salar (L1), Mandarin (L2), and English (L3).

Trilingual acquisition has become an emerging focus in applied linguistics. As emphasized, L3 acquisition involves the interaction of previously acquired languages, not merely their chronological order [8]. One of the core phenomena observed in multilingual learning is language transfer, where learners apply knowledge from L1 and L2 to L3, often unconsciously [9].

Given this context, this study aims to investigate the influence of language transfer on the acquisition of English grammar as the third language (L3) among Salar students. Specifically, it compares the relationship between L3 English grammar and the students' first language L1 Salar and second language L2 Mandarin, with particular attention to how transfer manifests in tense usage and simple sentence construction.

This study grounded in contrastive analysis Hypothesis and trilingua acquisition theoretical perspectives, this study empirically investigates whether the acquisition of English grammar by Salar students is influenced by transfer effects from their L1 (Salar) or their L2 (Mandarin). By focusing on tense usage and basic syntactic structures, this research seeks to address a gap in the current literature on L3 (English) grammar acquisition among underrepresented Salar language learners in China.

The study addresses the following research questions: (1) Is there a statistically significant difference in English grammar acquisition performance between Salar L1 students and Mandarin L1 students? (2) Do Salar (L1) and Mandarin (L2) exert transfer effects in the acquisition of English grammar? (3) What are the most common types of grammatical errors made by Salar students during English learning, and can these errors be attributed to transfer from their first or second language?

Based on theories of language transfer and third language acquisition (TLA), the following hypotheses are proposed:

H1: *There is a statistically significant difference in English grammar test performance between students whose first language is Salar and those whose first language is Mandarin.*

H2: *The grammatical errors made by Salar students in English learning are influenced by transfer effects from both Salar (L1) and Mandarin (L2), with a greater influence exerted by L1 Salar compared to L2 Mandarin.*

2. Literature Review

2.1. Research on Language Transfer in Trilingual Acquisition

Odlin pointed out that when learners master two languages, both languages can influence the learning of a third language. With the expansion of global communication, more than two languages are increasingly required to meet international communication needs [10]. The number of people learning three languages worldwide is constantly

increasing, which has attracted the attention of the academic community. In addition, Odlin stated that language transfer has always been a central issue in applied linguistics, second language acquisition, and language research [9].

However, with the increasing number of third language learners, language transfer in trilingual acquisition has gradually become the focus of academic research. When learning the third language (L3), whether L1 affects L3 learning, L2 affects L3 learning, or both L1 and L2 jointly affect L3 learning remains a complex and worthy topic of investigation. Compared with language transfer in second language acquisition, language transfer in trilingual acquisition is more complex. The current research focuses on phonetics, vocabulary and grammar. As language learning continues to deepen, students' awareness of meta-language gradually increases, and the potential advantages of mastering two languages also increase, thereby helping students better learn a third language. In language acquisition, the effect of language transfer is usually analyzed in grammar. He and Wang highlighted the significant influence of language transfer on trilingual acquisition at the grammar level in review and prospects of language transfer in trilingual acquisition [11]. Furthermore, Cai Jin also emphasized that empirical studies on language transfer in trilingual and multilingual acquisition primarily focus on grammar [12].

Early studies on language transfer in second language acquisition were largely shaped by the Contrastive Analysis Hypothesis (CAH), which assumed that the degree of similarity or difference between L1 and L2 structures would predict learning difficulty [13]. However, later research has highlighted limitations of CAH, particularly its failure to account for individual variation and its oversimplification of transfer directionality [14]. These limitations are especially evident in trilingual acquisition, where both L1 and L2 may affect L3 in complex ways.

To address these gaps, more recent models such as the Typological Primacy Model (TPM) and the L2 Status Factor have been developed. The TPM argues that the language most typologically similar to the L3 tends to serve as the primary source of transfer [15], while the L2 Status Factor emphasizes the dominant role of the second language, especially when it has greater educational or societal use [16]. These models offer a more nuanced understanding of transfer in multilingual contexts and have been widely applied in current trilingual acquisition research.

2.2. The Syntactic Structures of the Three Languages

The three simple sentence structures of Mandarin and English are consistent. The three simple sentence patterns include

- subject + predicate (S + V),
- subject + predicate + object (S + V + O),
- subject + copula + predicate (S + V + P),

However, Salar's sentence structure differs from Mandarin and English [17]. The simple sentence patterns of Salar include

- subject + predicate (S + V),
- subject + object + predicate (S + O + V),
- subject + predicate + linking verb (S + P + V)

2.2.1. S+V

Verbs in Salar are similar to English verbs and have intransitive, transitive, and linking verbs. First, analyze the subject of the intransitive verb. The sentence structure is subject + predicate (S+V). The intransitive verbs in Salar have the same form in both the agentive (having control over the situation) and non-agent (having no control over the situation) conditions and do not take different forms [17–20]. For example:

a. Salar: me(n) iš-ji. (S+V)
   Mandarin: 我吃了。 (S+V)
   English: I have eaten. (S+V)
b. Salar: me(n) yükürğü-ji. (S+V)
   Mandarin: 我跑步了。(S+V)
   English: I ran. (S+V)

The sentence structure of subject + predicate (S+V) is prevalent in Mandarin. The subject + predicate (S+V) sentence in Mandarin comprises a subject-predicate phrase plus a particular intonation. According to the different parts of speech of the predicate, subject-predicate sentences can have four types: adjective-predicate sentences, noun-predicate sentences, verb-predicate sentences, and subject-predicate sentences. Among them, the subject + predicate sentence is a subject+predicate sentence in which the subject+predicate phrase serves as the predicate. For example,

a. Mandarin: 我们赢了。(S+V)
   Salar: ipeser seni quebaminsi. (S+O+V)
   English: We won. (S+V)
b. Mandarin: 时间到了。(S+V)
   Salar: gun yemisï. (S+V)
   English: Time is up. (S+V+P)

Although the sentence structure of English is similar to that of Salar and Mandarin, and the verbs in English and Salar are also divided into transitive and intransitive verbs, the use of verbs in Mandarin and English is different. In English, a sentence with an intransitive verb is subject + predicate (S+V). The meaning of the intransitive verb in this sentence is complete and does not require an object, but it can be modified by an adverbial. For example,

a. English: He ran.
   Salar: u yükürğü-bar.
   Mandarin: 他在跑步。
b. English: He runs in the park.
   Salar: u gunyuan-der yükürğü-bar.
   Mandarin: 他在公园里跑步。

By comparing the subject + predicate (S+V) sentence structures of Salar, Mandarin and English, there are similarities in intransitive verbs in Salar and English. At the same time, there is no precise intransitive verb in Mandarin. In addition, although Mandarin's subject + predicate (S+V) sentence structure is similar to Salar and English, the verb is sometimes omitted in Mandarin.

2.2.2. S+V+O

In Salar, when the verb is transitive, the sentence structure is subject + object + predicate (S+O+V) [18–20]. In Mandarin, the sentence structure of transitive verbs is subject + verb + object (S+V+O). The sentence structure of transitive verbs in English is the same as that in Mandarin: subject + verb + object (S+V+O). However, Salar differs from English and Mandarin in that the verbs are usually placed at the end of sentences. For example,

a. Salar: me Salïr i-dïr.
   English: I'm a Salar ethnic.
   Mandarin: 我是撒拉族。
b. Salar: men emex-ne yi-ji.
   Mandarin: 我吃了馍馍。
   English: I ate bread.

As can be seen from example sentence a, the verb "i-dïr" in Salar is located at the end of the sentence, while the verb " 是 " in Mandarin and the verb "am" in English is located after the subject and before the object. In the example sentence b, the verb "var" in Salar predicates the end of the sentence, while the verb " 是 " in Mandarin is omitted, and the verb "am" in English is between the subject and the object. In the example, sentence c, the verb "yi-ji" in Salar is located at the end of the sentence, while the verb " 吃 " in Mandarin and the verb "ate" in English are located after the subject and before the object.

2.2.3. S+V+P

The predicative structure of the Salar language is subject + predicative + linking verb (S+P+V) [18–20]. The predicative structure of Mandarin and English is subject + linking verb + predicative (S+V+P). In contrast, predicatives in Salar come after the subject, while predicatives in Mandarin and English come after the linking verb. For example,

a. Salar: se(n) jyltus ir-a.
   Mandarin: 你是星星。
   English: You are the start.
b. Salar: bu dağ-ini dağ-baš-ï ir-a.
   Mandarin: 这是山头。
   English: This is the top of the hill.

In the example sentence a, the Salar verb "ir-a" is at the end of the sentence, and the predicate "jyltus" is after the subject and before the verb "ir-a", forming subject + predicate + verb (S+P+V). In Mandarin, the verb " 是 " is located between the subject " 你 " and the predicate " 星星 ". Form the subject + predicate + predicate (S+V+P) structure. Similarly, the verb "are" in English was also located between the subject "you" and the predicate "the start", forming an S+V+P structure. In example sentence b, the Salar verb "ir-a" is at the end of the sentence, and the predicate "dağ-ini dağ-baš" followed the subject "bu", forming an S+P+V structure. In Mandarin, the verb " 是 " is located between the subject " 这 " and the predicate " 山头 ", forming an S+V+P structure. In English, the verb "is" is also located between the subject "this" and the predicate "the top of the hill", forming the "S+V+P" structure.

2.3. The Tenses of Three Languages

The most significant difference between English grammar and Mandarin grammar is that English expresses tense through changes in verb forms. In English grammar, different verb tenses represent past, present, and future time changes. As shown in **Table 1**, the distinction of tenses depends entirely on the change of verbs. In Mandarin, the verb form does not change, and the tense is usually not expressed through word changes [21]. In Mandarin, tense is mainly expressed when an action occurs through time nouns, adverbs, or other words. For example, words such as " 今天 ", " 明天 " and " 前年 " are used to distinguish tenses, as shown in **Table 2**.

Table 1. The Verb Tense of English.

	Past Tense	Present Tense	Future Tense
Simple Tense	did	do/does be (am/ is/ are)	will do/ be (am / is/ are) going to do
Continuous Tense	was/ were+doing	am/ is /are+doing	will be doing
Perfect Tense	had done	have/ has+done	will have done

Table 2. The Verb Tense of Mandarin.

	Past Tense	Present Tense	Future Tense
Verb	/	/	要、将要、准备 +verb、 希望、打算、会 (want to, be going to, plan to, hope to, intend to, will)
Verb + Complement	Verb+ 了 (verb + le)、 Verb+ 过 (verb + guo) 是……的 (used to emphasize past actions)	/	/
Temporal Words	昨天、前天、过去、几天前、几周前、几月前、几年前 (yesterday, the day before yesterday, in the past, a few days/weeks/months/years ago)	现在、正在、在、……呢、一直、继续 (now, in the process of, still, continuously)	将来、明天、后天、明年、后年、几天后、几周后、几月后、几年后 (in the future, tomorrow, the day after tomorrow, next year, a few days/weeks/months/years later)

As a part of the Altaic language family, the Salar language also expresses tense through the change of verbs, but compared with English, the tense changes of the Salar language are more straightforward, as shown in **Table 3** [22]. However, tense expression in Mandarin relies on the semantics of the entire sentence or paragraph, sometimes with the help of words describing time to distinguish time, rather than relying on changes in verb forms. In contrast, English and Salar rely on different forms of verbs to express tense.

Table 3. The Verb Tense of Salar Language.

Past Tense	Present Tense	Perfect Tense	Future Tense
-ji	-bar (进行体) (progressive) -ï (现在时) -dïr (现在时) (non-progressive present)	-mïš	-vlr -ğa/qa

In the tense Tables 1, 2 and 3 of Salar, Mandarin and English, although three languages have the same tense names, such as present, past, perfect, and future, their usage differs. However, it should be noted that although the usage is different, the meaning expressed by each tense in these three languages is the same.

3. Materials and Methods

This study adopts quantitative research methods and focuses on the language transfer phenomenon in English grammar acquisition of senior high school students of the Salar nationality. Based on the independent sample T-test of SPSS statistical software, the experimental data were

systematically analyzed to quantitatively evaluate the specific impact of language transfer on English grammar acquisition. At the same time, the study also used error analysis methods to classify and analyze typical errors made by subjects whose native language is Salar in English tests, thereby revealing the impact of language transfer in multiple dimensions. The research method of this study is based on the test tools and analysis method system developed in the author's doctoral dissertation to ensure the scientificity of the research and the validity of the data.

3.1. Participants

The participants in this study were two groups of 15-year-old senior high school students from Xunhua Salar Autonomous County, China. All participants had comparable proficiency in both Mandarin and English, with scores ranging from 85 to 90 out of 120 in each subject on the Zhongkao, a regionally standardized senior high school entrance examination administered under China's national education framework.

The experimental group comprised 50 students whose first language (L1) was Salar, second language (L2) was Mandarin, and third language (L3) was English, which they were actively acquiring. The control group consisted of 50 students whose first language (L1) was Mandarin and second language (L2) was English, with no background in any ethnic minority language.

3.2. Instruments

The English grammar test used in this study was adapted from the instrument developed as part of the author's doctoral dissertation. It primarily focuses on the use of English tenses and simple sentence structures. The test included choice questions, cloze tests, and writing sentence tasks, aiming to assess students' mastery of basic grammatical forms and to enable detailed error analysis. SPSS was used to determine whether significant differences existed between the experimental and control groups.

To ensure internal consistency, a reliability analysis was conducted on the grammar test. The results yielded a Cronbach's alpha of 0.82, indicating good internal reliability ($\alpha > 0.80$ is generally considered acceptable in educational research). This suggests that the test items consistently measured the same underlying construct of grammatical knowledge. To ensure content validity, the test items were reviewed by an experienced English language educator and a specialist in Salar language studies. The test was also aligned with China's official secondary school grammar curriculum standards. Sample test items and error coding criteria are available from the corresponding author upon reasonable request.

3.3. Data Collection

Data were collected by administering the grammar test under standardized classroom conditions. All participants completed the test within a prescribed time limit, and the test papers were collected immediately upon completion to ensure the integrity and consistency of the data.

3.4. Data Analysis

The test results were analyzed using independent-sample t-tests in SPSS to determine whether significant differences existed between the experimental and control groups in their grammatical performance. In addition, a systematic error analysis was conducted on the L1 Salar speaking students' responses. Errors were categorized according to language transfer types, providing deeper insights into how L1 Salar and L2 Mandarin influenced English grammar acquisition.

In this study, error rate is calculated to measure the accuracy of students' grammatical performance. The formula used to calculate the error rate is as follows:

$$\text{Error Rate} = \frac{\text{Number of Errors}}{\text{Total Attempts}} \times 100\% \quad (1)$$

This formula is used to quantify students' grammatical errors, providing a basis for analyzing language transfer.

3.5. Ethical Considerations

This study was approved by the UPSI Ethical Review Authority (UPSI/PPPI/PYK/ETIKA/JID.18(336)). Written informed consent was signed by the Salar students prior to data collection. All students were informed that they could withdraw from participation at any time, without any consequences and were compensated for their time with one chocolate.

4. Results

An independent samples t-test was conducted to examine whether there was a statistically significant difference in grammar test scores between the L1 Mandarin group (n = 50) and the L1 Salar Group (n = 50). The results showed a significant difference in the overall performance (**Table 4**):

Table 4. Independent Samples T-Test.

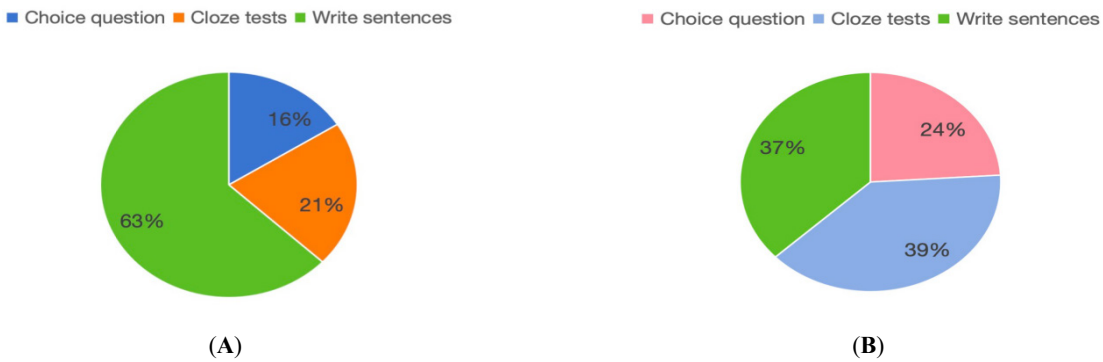
	Group (Mean ± Std.)		*t*	*p*
	L1 Mandarin Group (n=50)	L1 Salar Group (n=50)		
Pair 1	76.92±9.40	62.38±10.23	7.402	0.000**

* $p < 0.05$ ** $p < 0.01$.

In **Table 4**, an independent samples t-test was conducted to compare the English grammar test scores between the Mandarin group (n = 50) and the Salar group (n = 50). The results indicated a significant difference between the two groups. The Mandarin group (M = 76.92, SD = 9.40) outperformed the Salar group (M = 62.38, SD = 10.23), t = 7.402, p < 0.001. These findings suggest that the Mandarin group performed significantly better on the English grammar test than the Salar group, which may be attributed to the negative transfer effects of Salar and Mandarin on English language acquisition.

Error Analysis

The error analysis, as shown in **Figure 1**, indicates that the L1 Salar group exhibited a higher error rate in sentence writing (**Figure 1(A)**), accounting for 63%, whereas the L1 Mandarin group demonstrated a lower error rate in this area (**Figure 1(B)**), at 37%. Since this study investigates the transfer effects on the English grammar acquisition of Salar students, the following analysis will focus specifically on the sentence-writing errors of the L1 Salar group. This will enable a more in-depth exploration of the transfer effects of L1 Salar and L2 Mandarin on English grammar acquisition.



(A) **(B)**

Figure 1. The error rate of L1 Salar and L1 Mandarin. (**A**) L1 Mandarin Group. (**B**) L1 Salar Group.

Due to the large sample size in the error analysis of the write sentences section, the study detailed error analysis to ensure the data's representativeness and the analysis's accuracy. Thus, this study used the cluster analysis method to divide students with similar answers into five groups, each containing 10 Salar students. Namely G1 (1–10), G2 (11–20), G3 (21–30), G4 (31–40) and G5 (41–50). The characteristics of students within the group were similar, but there were obvious answer differences between groups. The following section presents the results of grammar analysis in detail.

这些苹果非常新鲜，你必须吃一个。

G1: These apple very fresh you must eat a.

G2: This is apple very fresh. You must eat it.

G3: The some apple very fress. You need a eat.

G4: There are many apple is very fash, you must eat one.

G5: These apple is very feash. You must a eat.

In task 1, there is no verb in the sentence " 这些苹果非常新鲜 " in Mandarin. Similarly, there is no verb in the sentence "bu armut nizex-a" in Salar. However, every sentence requires a verb to join the nouns to form a complete sentence in English. Due to the different sentence structures between Salar and Mandarin, Salar students tend to ignore the verb when writing this sentence. For example, G1and G3 had no verbs, So S+V+P is written as S+P, with-

out V, resulting from the negative transfer effect of Salar and Mandarin on English.

In addition, in Mandarin, in the sentence " 你必须吃一个 ", the verb " 吃 " came after " 必须 " and the quantifier " 一个 " comes before the noun. In the Salar language, in the sentence "se bir yi kei-li-a", the verb "yi" is located after the quantifier "bir", and "must" is placed at the end of the sentence for emphasis. The Salar students tested often put the verb "eat" after "must" or "need", such as G1, G2 and G4. At the same time, some Salar students wrote the verb after the quantifier, such as G3, and G5. This results from the negative transfer effect of the Salar language on English.

In addition, some Salar students used two verbs in the sentence, such as G4. Moreover, some Salar students used the verb in the sentence but ignored the verb tense change, although the tense changes in Salar also changed with the verbs, such as "-ji" for Past Tense, "-blr" for Continuous Tens, "-mïš" for Perfect Tense, and "-vlr" and "-ğa" for Future Tense. The verb remains unchanged in Mandarin, and only time words were added to the sentence. Thus, when acquiring English, Mandarin and Salar have a negative transfer effect on English, resulting in tense errors.

In **Table 5** of the error analysis, the error rate at the syntactic level is the highest in error analysis table. The error rate is 56%. The main reason is that Salar and Mandarin had a negative transfer effect on English, resulting in a high error rate. Errors at the syntactic level mainly included errors in literal translation and syntactic structure. When Salar students write sentences, they often translated Mandarin sentences word for word instead of writing according to the English syntactic structure. In addition, when Salar students write simple sentences, Salar language had high negative transfer errors. Error analysis found that when Salar students write English sentences, it had a negative transfer effect by Salar and Mandarin, which tend to ignore the verbs in English sentences.

他昨天已经离开。

G1: He go out in yesterday.

G2: He yesterday already leave.

G3: He yesterday live.

G4: He yesterday already left on.

G5: He yesterday already leaved.

Table 5. Task 1.

Error Analysis		Number of Error	Error Rate
Tense	Verb	25	50%
Syntactic Level	S+V+P	28	56%
	Word literal translation	20	40%

In task 2, this sentence is simple with subject + predicate. In this sentence, the verb in Mandarin is " 离 开 ", the subject is " 他 (he)", and the time adverbial is " 昨天 (yesterday)". The correct English expression of this sentence is "He left yesterday.". In Salar, this sentence can be expressed as "u geji var-mïš" with the subject "u (he)", the time "geji (yesterday)" and the verb "var-mïš (left)". Therefore, in Salar and Mandarin, time adverbials are usually placed between the subject and the verb, which is also why G2, G3, G4, and G5 students error this sentence, they have negative transfer effects in writing English sentences.

It can be seen from the samples of Salar students that they all used verbs, but since this sentence is in the past tense, the verbs need to use the corresponding tense form. It is observed in the sample that G2 used the verb prototype "leave", while G1 used "go". In Mandarin, "go" can be translated as "go," such as "let's go." It means " 让我们走 ". Additionally, the verbs are not conjugated correctly in G3 sample, except for G5, which noted that the verb needed to be in the past tense. Verbs in Mandarin do not change with tense. It resulted in Salar students tending to use the base form of verbs when writing English sentences. At the same time, the past tense in Salar adds "-ji" to the verb stem. Therefore, when acquiring English, Salar also has a negative transfer effect on English, resulting in tense errors.

Although some Salar students' errors are not limited to verbs, the more common phenomenon is literal translation in syntactic errors. This phenomenon is mainly because simple sentences are more susceptible to the negative transfer effect of Mandarin. The above analysis showed that G2, G4, and G5 in the sample were translated directly into Mandarin, and each word was translated into English word by word. This phenomenon reflected the negative transfer effect of Mandarin on English.

In the error analysis (**Table 6**), the verb error rate is the highest, which is 88%. In the error analysis that reflected the negative transfer effect of Salar and Mandarin to English, resulting in a lower rate of correct use of verbs. In

Mandarin, verbs use their base form regardless of tense. In Salar, affixes add to the tense verb stems. Therefore, Salar and Mandarin had a negative effect on English transfer.

我乘坐火车离开了北京。

G1: I by ture life Bie jing.

G2: I by train leave Beijing.

G3: I by train go out Beijing.

G4: I take tain go away Beijing.

G5: I by train leave Beijing.

Table 6. Task 2.

Error Analysis		Number of Error	Error Rate
Lexical Level	Verb	44	88%
Syntactic Level	Word literal translation	42	84%

In task 3, the Salar students are affected by literal translation in syntactic errors. Instead of expressing according to the sentence structure of English, they translated word for word from Mandarin to English. The correct English expression of the sentence is "I left Beijing by train.", in which the verb "left" came after the subject "I", the object "Beijing" came after the verb and the subordinate "left", and the adverbial of place is the end of the sentence. However, Salalr students wrote this sentence just translated into English according to the word order of Mandarin. That showed a negative transfer effect when writing English sentences using Mandarin sentence structures, resulting in grammatical errors. In Salar, the same sentence expresses "me xuo che-ot-ğa-le Beijing var-ji." "me" means "I", "xuo che-ot-ğa-le" means "by train", "Beijing" means "Beijing", and "var-ji" means "left". Therefore, Salar also had a negative transfer effect on English.

It can be observed in the Salar students' samples that they all used verbs, but since this sentence needs to express past tense, the verb should use the corresponding tense form. In the sample, G2 and G5 used the verb prototype "leave", while G3 and G4 used "go". In Mandarin, "go" can be translated as " 去 ". Students used the base form of verbs in sentences because verbs in Mandarin do not change depending on the tense. By contrast, in Salar, the past tense is added to the verb stem with "-ji". Therefore, it is inferred that Mandarin and Salar have a negative transfer effect on English when acquiring English, causing Salar students to make errors in using the tense.

In the error analysis **Table 7**, the syntactic level error rate is 80%. That is mainly due to the negative transfer effect of Mandarin to English. In Mandarin, verbs remain in their original form regardless of tense. Therefore, when acquiring English, Mandarin had a negative transfer effect on English, resulting in tense errors. In addition, the error analysis also found that the literal translation error rate 80% when writing sentences is also very high. It showed that Mandarin still has a negative transfer effect on English, causing Salar students to be accustomed to following the syntactic structure of Mandarin when writing sentences in English.

在我生日上她送给了我一本书。

G1: In my birthday. She give me a book.

G2: At my birthday, she give a book.

G3: In my birthday. She give me a book.

G4: On my birthday she give my a book.

G5: There my birthday, she give me book.

Table 7. Task 3.

Error Analysis		Number of Error	Error Rate
Tense	Verb	36	72%
Syntactic Level	Word literal translation	40	80%

In task 4, in Mandarin, time adverbials are usually at the beginning of sentences. However, most Salar students used the structure S+V+Oi+Ot when writing the sentence, " 她送给我了一本书。". Just like in G1, G2, G3, G4 and G5 samples. However, like the previous questions, these Salar students did not pay attention to the tense and used the original form of the verb "give". It is because, in Mandarin, the verb remains in its original form regardless of tense, resulting in a negative transfer effect to English and errors. In contrast, the past tense in Salar adds the suffix "-ji" to the verb stem. Salar also has a negative transfer effect in acquiring English verb tenses.

In English, whether it is an adverbial of time or an adverbial of place, it is usually located at the end of the sentence. In Salar language "mi-niği dou-gen-gün u mang-a kitap-ïng ösi-bir-ji." "mi-niği dou-gen-gün" means "On my birthday", and the time adverbial was in the sentence head. Similarly, in Mandarin, the time adverbial " 在 我 生 日 上 " is also placed at the beginning of the sentence. Therefore, many Salar students made errors when writing this sentence. For example, G1, G2, G3 and G4 all put the time adverbial at the beginning of the sentence. It showed

that Salar and Mandarin have a negative transfer effect on English sentences. However, the negative transfer effect of Salar is relatively less because the verb of Salar is at the end of the sentence. It is mainly affected by the negative transfer effect of Mandarin.

In the error analysis (**Table 8**), syntax error rates were very high in the error rate table. Specific data showed that the syntactic error rate is 80%. This high error rate is mainly due to the negative transfer effect of Mandarin to English. In Mandarin, verbs of tense usually remain in their original form regardless of tense. It resulted in a higher error rate.

他经常在下午打篮球。

G1: He often on afternoon play basketball.

G2: He often afternoon play basketball.

G3: He often in afternoon play basketball.

G4: He often in afternoon play basketball.

G5: He often at afternoon play basketball.

Table 8. Task 4.

Error Analysis		Number of Error	Error Rate
Tense	Verb	30	60%
Syntactic Level	S+V+Oi+Ot	40	80%
	Word literal translation	40	80%

In task 5, in Mandarin, time adverbials are usually in the middle of the sentence. This word habit caused Salar students to follow the grammatical structure of Mandarin for literal translation when writing sentences in English. In the cases of G1, G2, G3, G4 and G5, students tended to translate Mandarin into English word for word without noticing the differences in English syntactic rules, thus being affected by the negative transfer effect of grammatical structures produced in Mandarin. Moreover, in Salar, "öldengsongïna" in "u gešgünčüx öldengsongïna yumax vur-bar." means "in the afternoon" is usually placed in the middle of the sentence, which also led to the occurrence of errors and is affected by the negative transfer effect of Salar.

In English sentences, the subject " 他 " is the third person singular, so the verb must be added with "-s", but the student had not written this verb correctly among these ten samples. It is similar to the error seen in the previous sentences. In Salar, the "-bar" in the verb "vur-bar" in the sentence indicated the present tense, but the verb " 打 " in Mandarin did not change with the change of tense. Therefore, due to Mandarin's negative transfer effect, students made writing sentence errors.

In the error analysis (**Table 9**), the verb error rate is the highest in error rate table. Specifically, it is 84%. It is mainly because, in Mandarin, tense of verb always remains in their original form. Therefore, it is affected by the negative transfer of Mandarin.

Table 9. Task 5.

Error Analysis		Number of Error	Error Rate
Tense	Verb	42	84%
Syntactic Level	Word literal translation	35	70%

However, in the structure of English sentences, since Mandarin habitually places time adverbials in the middle of sentences, Salar students wrote English sentences according to the word order of Mandarin, so errors occur. The errors in literal translation and sentence structure were the same, and both were affected by the negative transfer effect of Mandarin. The literal translation and syntactic structure errors are 70%.

The analysis of five-sentence written sentences found that from the perspective of syntactic structure, Salar students made literal translation errors when writing English sentences. They often directly translated Mandarin sentences into English word by word and ignored the syntactic structure of English sentences. The negative transfer effect of Mandarin mainly caused this error.

In addition, many Salar students did not use verbs when writing sentences. For example, in the first written sentence, there is no explicit verb in the Mandarin sentence " 这些苹果非常新鲜 ", but the verb "are" is required in the English sentence, so the correct translation should be " 这些苹果是非常新鲜的 ". In Salar and Mandarin, it does not omit the verb. Students often omitted verbs when writing sentences, resulting in sentence structure errors. Therefore, Salar students are affected by the negative transfer effect of Salar and Mandarin.

From the perspective of tense, although in Salar, the verb is written at the end of the sentence, it adds specific suffixes after the stem according to the needs of the tense. For example, when expressing the past tense, a suffix such as "-ï" or "-dïr" is added to the verb stem. Therefore, the Salar language had a negative transfer effect on English

tense acquisition. Unlike Salar and English, Mandarin verbs cannot change in tense. The error analysis found that the use of verbs often occurs due to the negative transfer effect of Mandarin.

5. Discussion

The findings of this study indicate that both Salar (L1) and Mandarin (L2) exert negative transfer effects on the acquisition of English grammar among Salar students. In particular, the areas of tense usage and basic sentence structure appear to be the most susceptible to such influence, confirming previous assumptions grounded in trilingual acquisition theory [13,23]. The results also echo the assumptions of the contrastive analysis hypothesis, which shows that structural similarities between L1 or L2 and the target language may lead to positive transfer, while disparities are more likely to cause persistent errors [13].

The SPSS results reveal a statistically significant difference in grammatical performance between the Salar L1 students ($M = 62.38$, $SD = 10.23$) and the Mandarin L1 students ($M = 76.92$, $SD = 9.40$), with $p < 0.001$, thus supporting Hypothesis 1. This suggests that Salar L1 students experience greater negative transfer from either their first language (Salar) or the second language (Mandarin) when acquiring English grammar. According to Language Transfer Theory and the Contrastive Analysis Hypothesis [9,23], these findings further substantiate that structural differences between the learners' L1, L2 and the L3 significantly affect the acquisition process, often resulting in negative transfer effects.

However, despite Hypothesis 2 initially predicting that the influence of L1 (Salar) on English grammar acquisition would be greater than that of L2 (Mandarin), the results revealed that negative transfer from L2 Mandarin was more prominent during the learning process. This finding partially contradicts the original hypothesis, suggesting that, within the context of third language acquisition, cross-linguistic transfer may be more strongly determined by structural dissimilarities between languages (Mandarin and English) rather than by the chronological order of language acquisition. This unexpected outcome aligns with recent studies on the asymmetry of cross-linguistic transfer among multilingual learners. Furthermore, it is consistent with the findings of Majid, who, through an empirical analysis of Salar students, demonstrated that although L1 Salar exerts some influence on English acquisition, the higher frequency of Mandarin use in students' daily communication results in Mandarin having a more substantial impact on their English learning. This finding further substantiates the results of the present study [6].

While this study primarily highlights negative transfer effects from both L1 Salar and L2 Mandarin, it is equally important to acknowledge the potential for positive transfer, particularly in areas where linguistic structures align between L1 Salar and L3 English. For example, both Salar and English share certain features of inflectional verb marking, which may facilitate learning in domains such as tense or aspect when properly leveraged. These structural similarities, though not the main focus of the present study, suggest that positive transfer may offer pedagogical advantages. Future research should explore such cross-linguistic grammatical commonalities more explicitly and examine how instructional design can harness these similarities. For instance, developing contrastive grammar exercises that promote awareness of positive transfer opportunities could be a useful direction. Nevertheless, given that negative transfer was found to be the predominant challenge in the current data, pedagogical interventions must still prioritize mitigating such interference in English grammar instruction.

Furthermore, the error analysis results provide additional support for these observations. The analysis shows that the L1 Salar speaking group exhibited a 26% higher rate of errors in sentence writing tasks compared to the L1 Mandarin speaking group, indicating that the L1 Salar speaking students were more strongly influenced by both their L1 (Salar) and L2 (Mandarin). Specifically, the main types of errors identified among Salar students included verb tense errors and direct translation errors from Mandarin, reflecting patterns of both negative transfer from L2 and the syntactic influence of L1. Although both Salar and Mandarin exerted transfer effects on English grammar acquisition, the error analysis clearly demonstrated that errors stemming from Mandarin interference were more prevalent. These findings are in line with the trilingual acquisition (TLA) framework, which suggests that multiple previously acquired languages can simultaneously

influence the acquisition of a new language, but that dominance, usage frequency, and structural similarity often determine the strength and direction of such influence [24].

5.1. Typological Considerations: Ergativity and Word Order Interference

While this study has primarily examined lexical and syntactic errors through the lens of language transfer theory, it is also important to consider deeper typological differences between Salar and English that may underlie certain transfer effects. As a Turkic language, Salar exhibits a basic SOV word order and a rich case-marking system, which contrasts with the fixed SVO word order and nominative-accusative alignment of English. Although Salar is not fully ergative, it exhibits some ergative-like patterns such as the differential marking of agents and patients, which may contribute to transfer effects in English sentence construction.

In particular, Salar strictly places the verb at the end of the sentence, even in complex or transitive constructions. This rigid verb-final structure, combined with flexible word order for subjects and objects due to morphological case marking, may interfere with English production, where the verb typically appears in the middle position. Learners accustomed to final-position verbs may misplace English verbs or omit auxiliary elements, leading to ungrammatical or incomplete sentences.

Future research should systematically examine how typological features of Salar, particularly its verb-final syntax, case-marking strategies, and non-canonical alignment patterns, influence L3 English acquisition. Referring to typological frameworks such as those proposed by Johanson may help uncover how argument structure in Turkic languages shapes the grammar development of trilingual learners [25].

5.2. Influence of L1 Salar and L2 Mandarin on Verb-Related Syntactic Errors

Although this study primarily focused on grammatical structures and tense usage to examine language transfer among Salar students in the context of English learning, it is also necessary to further explore the unique transfer mechanisms stemming from Salar as an unwritten language. Despite having a systematic linguistic structure, Salar lacks a standardized writing system. Consequently, its use relies heavily on oral communication, and language acquisition is predominantly shaped by spoken experience. This "orality-dominant linguistic background" may lead to deeper negative transfer effects in English writing, particularly in terms of verb placement and sentence completeness.

In the written data collected for this study, some Salar students exhibited notable errors involving verb-final constructions during the sentence-writing tasks. For instance, the sentence "这些苹果非常新鲜，你必须吃一个" was written as "The some apple very fress. You need a eat.", placing the verb "eat" at the end of the sentence. Such errors may not result solely from a lack of grammatical knowledge in English, but are more likely influenced by the syntactic habits of Salar, where placing the verb at the end of the utterance is common. This high-context, orally-driven discourse pattern creates structurally incomplete sentences in English, representing a typical case of syntactic transfer.

Given that Salar is an unwritten language, the pathways of linguistic transfer differ significantly from those of languages with established orthographic systems. Future research should pay closer attention to the influence of oral language systems on English written production. On one hand, analyses combining transcribed oral data and verb position patterns can provide deeper insights into the syntactic projection mechanisms of Salar. On the other hand, psycholinguistic approaches such as stimulated recall and process-tracing interviews may help reveal the cognitive representations and transfer strategies used by learners when constructing English sentences.

From a pedagogical perspective, it is recommended that English teachers strengthen learners' awareness of sentence structure from the outset, for example by introducing sentence skeleton frameworks such as "Subject + Verb + Object." Additionally, grammar instruction should be designed with the multilingual background of students in mind, incorporating targeted sentence construction tasks that guide students in transitioning from oral expression to standard written syntax. Such practices may help reduce structural errors caused by negative transfer from oral patterns in Salar.

In addition to the verb-final constructions influenced by Salar, this study also found instances of verb omission in English sentences written by some Salar students, particularly the omission of linking verbs. This type of error is more likely the result of negative transfer from their second language (L2), Mandarin. In Mandarin, sentence structures expressing states or qualities often omit the copular verb " 是 ". For example, in the sentence " 这些苹果很新鲜 " ("These apples very fresh"), the verb " 是 " is absent, yet the sentence remains semantically complete. In contrast, English requires the use of a linking verb, as in "These apples are very fresh.".

Students tend to transfer this structure into English writing, producing sentences that lack a main verb, such as "These apples very fresh." This suggests that in the process of English sentence construction, students may be more strongly influenced by Mandarin syntax due to its high frequency in dominance in formal education, sometimes even more than by their first language, Salar.

Therefore, English instruction should place greater emphasis on the grammatical necessity of verbs, particularly in written contexts. Teachers are encouraged to explicitly highlight the role of linking verbs and to reinforce the structure of complete English sentences, in order to reduce omission errors stemming from Mandarin transfer.

5.3. Limitations and Implications for Future Research

Despite the robustness of the findings, this study has certain limitations. The sample is limited to 50 Salar high school students from Xunhua County, which may restrict the generalizability of the results due to regional and age-group homogeneity. Additionally, the control group consists solely of L1 Mandarin speakers, without the inclusion of other trilingual learners from diverse ethnic backgrounds. These constraints may reduce the representativeness of the cross-linguistic comparisons.

Future research should consider expanding the sample size to include Salar students from various regions and age groups, as well as different educational levels. Furthermore, incorporating additional control groups, such as trilingual learners from other ethnic minority communities, would enhance the diversity and generalizability of the findings. Expanding the sample in future studies would provide stronger evidence as to whether the observed transfer patterns apply across other multilingual groups and contexts.

Additionally, this study's reliance on written tasks may limit the scope of transfer phenomena identified, as language production in real-time spoken communication may exhibit different patterns of interference or facilitation. Oral language use often involves spontaneous grammatical decision-making that cannot be fully captured through written compositions. To gain a more holistic understanding of cross-linguistic influence, future research should incorporate multimodal data such as spoken recordings, classroom interactions, or real-time grammar elicitation tasks. Furthermore, cognitive interviews or stimulated recall protocols could help uncover learners' psycholinguistic reasoning behind grammatical choices, revealing the dynamic and process-oriented nature of third language acquisition.

In addition to these research-oriented suggestions, this study also carries pedagogical implications that are especially relevant in the context of trilingual education for minority students. The bilingual educational background of Salar students plays a decisive role in the process of language transfer. Although their first language (L1) is Salar, the medium of instruction in schools is predominantly Mandarin (L2). As a result, students are exposed to and use Mandarin far more frequently than Salar in their academic and daily environments. Consequently, during third language (L3) acquisition, Mandarin exerts a more prominent negative transfer effect on English learning than Salar. This phenomenon suggests that in multilingual contexts, the source of language transfer is influenced not only by the order of acquisition, but also by the frequency and intensity of language input.

Given the significant negative transfer effects of Mandarin on English learning, English instruction should incorporate more contrastive and awareness-raising pedagogical content to help students identify and correct errors arising from Mandarin grammatical structures. For instance, teachers can explicitly highlight the syntactic, tense, and subject-verb agreement differences between English and Mandarin, with special emphasis on sentence structures that require verb inflection. Systematic contrastive instruction can enhance learners' grammatical awareness and help

them avoid common transfer-related pitfalls.

Based on the findings of this study, it is recommended that a grammar teaching module be developed specifically for learners in a trilingual context, focusing on comparisons among English, Mandarin, and Salar. This module could include: (1) visual charts comparing typical grammatical structures; (2) explanations of common transfer points in Mandarin and Salar that impact English acquisition; (3) targeted exercises and positive transfer tasks designed to reinforce correct usage; and (4) multilingual transfer case analyses to foster students' metalinguistic awareness. Such a module would support targeted instruction in classrooms and help Salar students form cross-linguistic structural connections, ultimately improving their grammatical competence in English.

6. Conclusions

This study aimed to investigate the factors influencing the acquisition of English grammar among Salar students in a trilingual context. The findings indicate that during the process of English grammar acquisition, Salar students were predominantly influenced by negative transfer from their L2 Mandarin, while their L1 Salar also exerted noticeable negative effects. These results contribute to the fields of trilingual acquisition, language transfer research, the contrastive analysis hypothesis, and error analysis by providing empirical evidence on the complex interactions among multiple language systems in third language learning.

In light of these findings, future research can be carried out in two main directions. 1. Systematically compare and analyze the grammatical systems of Salar, Mandarin, and English to explore the impact of structural differences among these languages on transfer effects; 2. Based on the native language background of Salar students, the specific influence of L1 transfer on English acquisition should be examined in depth, particularly from the perspectives of phonetics and lexicology.

In addition, the possibility of positive transfer, such as structural similarities between Salar and English in certain grammatical domains, should be further investigated. Recognizing and leveraging such commonalities in instructional design could offer pedagogical advantages in trilingual contexts. Exploring both negative and positive transfer would provide a more balanced and comprehensive understanding of cross-linguistic influence. Expanding both negative and positive transfer will contribute to a more balanced and comprehensive understanding of cross-linguistic influence in third language acquisition.

Author Contributions

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Conflicts of Interest

The authors declare no conflict of interest.

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