

Review of Research on the Transfer of L3 (German) to L2 (English) Learning among Native Chinese Speakers

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Abstract. Based on L1 Chinese, this study examines the multidirectional transfer mechanisms among Chinese (L1), English (L2), and German (L3), highlighting bidirectional influences beyond traditional unidirectional models. It explores how L3 German acquisition impacts L2 English across phonetic, lexical, and syntactic levels, mediated by L1 Chinese. Key findings reveal that typological proximity between English and German intensifies transfer, while L2 proficiency and L3 exposure duration modulate its direction and strength. Effective trilingual strategies involve three interconnected approaches. Firstly, leverage the linguistic proximity between English and German by designing explicit comparative training on phonological, lexical, and grammatical similarities and differences to foster positive cross-linguistic transfer while mitigating interference. Secondly, prioritize the consolidation of foundational L2 English proficiency, encompassing core grammar and high-frequency vocabulary, to establish a stable system resilient to L3 influence; this involves sustained L2 maintenance activities and, for advanced learners, structured language-switching tasks to enhance metalinguistic awareness. Thirdly, manage initial L3 exposure through a graduated model starting with limited, structured input, progressively increasing intensity as learners gain explicit control over L2-L3 boundaries, with conscious monitoring strategies and instructor collaboration to track and counteract unintended reverse transfer effects.

Keywords: Third Language Acquisition, Language Transfer, Bidirectional Transfer

1. Introduction

In the domain of language acquisition, Second Language Acquisition (SLA) has long been a focal point of research. Early SLA studies predominantly delved into how learners acquired a second language based on their first language, with a marked emphasis on the unidirectional influence of the first language (L1) on the second language (L2).

These studies examined syntactic transfer, phonetic interference, and lexical borrowing, revealing that early L2 learners often rely on L1 structures [1]. Ellis noted that Chinese English learners' L1 tone transfer leads to persistent phonetic inaccuracies. Such findings laid the theoretical foundation for understanding cross-linguistic transfer but remained confined to the binary relationship between L1 and L2.

However, as globalization advances and multilingual communication becomes common, Third Language Acquisition (TLA) has grown into a notable language learning trend. Researchers

highlight TLA's difference from SLA: it involves multiple linguistic systems [2]. In multilingual learning, L3 is influenced by L1 and L2 but can also impact L2 reciprocally. A study on native German/English speakers learning L3 Spanish found L1/L2 to L3 transfer appeared as phonetic substitution, lexical calquing, and syntactic alignment--these multi-level interactions challenged unidirectional transfer views [3]. A separate investigation into L1 Swedish/L2 English/L3 Dutch learners revealed that L3 acquisition altered L2 English (e.g., more modal verbs post-Dutch exposure) and caused shifts in L1 Swedish vowel lengths, which further illustrates bidirectional language influence in multilingual learning [4].

Currently, TLA research on native Chinese speakers is limited; most existing studies focus on L1/L2 to L3 transfer, especially how L1 Chinese and L2 English impact L3 syntax and vocabulary [2]. Understanding the impact of learning an L3 on the already-mastered L2 is crucial for comprehensively grasping the dynamic relationships within multilingual systems, as it sheds light on whether linguistic systems remain stable or undergo restructuring in multilingual minds. It also has far-reaching implications for language maintenance--helping educators design strategies to prevent L2 attrition--and language teaching--informing curriculum development that leverages positive cross-linguistic feedback [5]. Singleton emphasized that explicit instruction on cross-linguistic feedback mechanisms can enhance L2 proficiency while facilitating L3 acquisition.

Therefore, this study, based on native Chinese speakers with Chinese as L1, aims to systematically review the impact of learning German as an L3 on L2 English. By focusing on changes at the grammatical level (e.g., tense-aspect marking, article usage) and phonetic level (e.g., vowel quality, stress placement) and analyzing specific research cases from longitudinal learner corpora, this study attempts to integrate new evidence on bidirectional transfer from German (L3) to English (L2). For example, it will examine whether exposure to German's compound noun structures influences English learners' use of phrasal verbs, or if German's phonemic distinctions between /ɛ/ and /e/ affect English vowel production. Drawing on Dynamic Systems Theory (DST), which emphasizes the fluidity of linguistic systems, this research seeks to construct a theoretical framework for cross-language feedback within the "Chinese L1-English L2-German L3" triangular relationship, which has been rarely explored before [6]. Such a framework could not only advance theoretical understanding of multilingualism but also provide practical guidance for language education, particularly in designing curricula that optimize cross-linguistic synergies while mitigating potential interference.

2. Third language acquisition and language transfer

2.1. Definitions of third language acquisition and language transfer

Third Language Acquisition (TLA) specifically refers to the dynamic interaction between language systems (including L1, L2, and L3) when L1 Chinese speakers, who have already mastered a second language (e.g., English as L2), acquire a third language (e.g., German as L3) [7]. Unlike bilingual acquisition, TLA is characterized by multidirectional transfer--involving not only influences from L1 on L2/L3 and L2 on L3, but also reverse effects from L3 on L2.

Language transfer in TLA is defined as cross-linguistic influence among these multilingual systems: it includes both facilitation or interference of existing language knowledge (e.g., Chinese tonal rules, English syntactic structures) on L3 (German) acquisition, and the restructuring of L2 (English) representations due to L3 (German) learning [8]. Jarvis & Pavlenko further note that such transfer involves not only surface forms like phonology and lexicon but also deep-level conceptual and cognitive domains, forming multidimensional interactions [9].

2.2. Core mechanisms of language transfer in TLA

The core mechanisms of language transfer in third language acquisition (TLA) can be categorized into three interrelated processes. The first core mechanism is the surface form association mechanism, through which the surface features (such as phonology and lexicon) of the first language (L1) and the second language (L2) establish connections with the third language (L3) based on similarity [10].

The second core mechanism is the deep structure projection mechanism, which involves the projection of grammatical and conceptual systems across languages [11]. Its operational level focuses on underlying structural rules and conceptual frameworks, enabling the promotion or inhibition of the transfer of grammatical and semantic patterns between existing language systems (L1 and L2) and the target language L3.

The third core mechanism is the cognitive competition regulation mechanism, which primarily controls the activation and inhibition of multiple language systems in multilingual thinking. Specifically, when L2 and L3 are more closely related typologically (e.g., both belong to the Indo-European language family), the so-called "L2 dominance transfer" phenomenon may occur [12]. Conversely, improvements in L3 proficiency may lead to reverse transfer, thereby weakening the representation of L2 in the cognitive system [13].

3. A transfer model of L2 English and L3 German based on L1 Chinese

This study focuses on the complex cross-language transfer mechanisms between Chinese (L1), English (L2), and German (L3), aiming to construct a multidimensional framework to capture the bidirectional dynamic interaction among the three languages. In a language acquisition scenario where Chinese is L1, English is L2, and German is L3, language transfer exhibits multi-directional dynamic interaction characteristics, differing from the simple binary transfer model observed in second language acquisition. This model can be explored across three core dimensions: pronunciation, vocabulary, and grammar. The migration pathways within each dimension are determined by the typological characteristics of the three languages and not only include positive/negative migration from L1 to L2/L3 and from L2 to L3 but also involve the reverse influence of L3 on L2.

3.1. Transfer mechanisms in the pronunciation dimension

Transfer at the pronunciation level operates through a sequential mediating process, where L1 phonetic features first shape the acquisition of L2 pronunciation, and this L1-influenced L2 system subsequently becomes a critical mediator in interactions with L3. Specifically, the phonetic patterns established in L2, which bear the imprint of L1, serve as a bridge for cross-linguistic influence when learners acquire L3, while L3 may also exert reverse effects on the already-formed L2 pronunciation system.

The mediating role of L2 is evident in how L1 phonetic habits infiltrate L2 first and then extend to L3. As a tonal language, Chinese ingrains in learners a tonal perception framework that primarily affects their acquisition of L2 English prosody--for instance, leading to persistent difficulties in distinguishing English stress patterns, as tonal awareness overrides sensitivity to stress-based rhythm [10]. This L1-induced weakness in L2 English stress perception then becomes a transferable trait when learning L3 German: learners often carry over their English stress misperceptions to

German, misapplying tonal patterns to German pitch accents or failing to adjust stress positions across polysyllabic words in both languages, creating a cascading effect of L1 influence via L2.

The interactive transfer between L2 and L3 further reflects this mediated relationship, with the L1-influenced L2 system engaging in dynamic interplay with L3 phonetics. Despite their shared Germanic roots, English and German have distinct phonemic systems, and the L2 English pronunciation (already shaped by L1 Chinese) becomes a reference point for L3 acquisition. For example, learners whose English alveolar /r/ pronunciation has been subtly altered by Chinese tonal articulatory habits may struggle to differentiate between this L2-influenced /r/ and German uvular /r/, leading to interference in L3 production. Conversely, prolonged exposure to German phonetics can trigger reverse transfer onto L2 English: the habit of using falling intonation in German interrogatives, once internalized, may disrupt the rising intonation patterns required in English yes/no questions--with the L2 English system, originally mediated by L1, now undergoing adjustments under L3 influence [14].

3.2. Transfer mechanisms in the vocabulary dimension

Transfer at the vocabulary level operates through a sequential mediation model, where L1 lexical structures first shape L2 vocabulary acquisition, and this L1-influenced L2 system then becomes a critical mediator in L3 vocabulary learning. Specifically, the lexical patterns established in L2 (already bearing L1) serve as a bridge for cross-linguistic influence when acquiring L3, while L3 may also exert reverse effects on L2 vocabulary use.

The mediating role of L2 is evident in how L1 word-formation logic infiltrates L2 first and then extends to L3. For example, Chinese learners' reliance on the L1 "礼物" ("gift") to memorize English "gift" creates a cognitive anchor that may lead to false friend errors in L3 German, where "Gift" actually means "poison". This L1-induced lexical mapping in L2 becomes a transferable trait: learners often project their L2-anchored semantic associations onto L3, resulting in systematic misinterpretations.

The interactive transfer between L2 and L3 further reflects this mediated relationship. Partial spelling similarities between English and German (e.g., "information"/"Information") can enhance L3 vocabulary retention through L2 mediation, as learners leverage their L2 orthographic knowledge to decode L3 words. However, German's grammatical rules (e.g., capitalizing all nouns) may trigger reverse transfer onto L2 English writing, causing overgeneralization errors like capitalizing common English nouns. Similarly, German's simplified prepositional collocations (e.g., "abhängen von") may lead learners to oversimplify English fixed expressions (e.g., "depend of"), reflecting how L3 exposure remodels L2 collocational patterns.

3.3. Transfer mechanisms in the grammar dimension

Transfer at the grammar level follows a dynamic mediation pathway, where L1 syntactic features first shape L2 grammatical acquisition, and this L1-influenced L2 system subsequently mediates L3 grammar learning. The L2 grammatical framework, already adjusted to accommodate L1 typological traits, becomes both a facilitator and a constraint in L3 acquisition, while L3 may also induce restructuring of L2 grammatical representations.

The mediating role of L2 is exemplified by how L1 syntactic habits infiltrate L2 first and then affect L3. Chinese learners' mastery of English SVO structure (shaped by L1) initially facilitates L2 syntactic development but later creates challenges in acquiring German's V2 rule. The L1-induced reliance on SVO word order in L2 becomes a transferable bias: learners often misapply English

clause structures to German subordinate clauses, resulting in errors like "He said that tomorrow he will go" (instead of "He said that tomorrow will he go"). This cascading effect highlights how L1 influences are filtered through L2 before impacting L3.

The interactive transfer between L2 and L3 further illustrates this dynamic mediation. Syntactic differences between English and German (e.g., verb placement) frequently lead to negative transfer in both directions. For instance, German's V2 rule may interfere with English subordinate clause formation, while English's simple sentence structure may hinder mastery of German's frame construction. However, advanced L3 learners can leverage their Germanic language family awareness (mediated by L2) to enhance metalinguistic awareness of English tense systems, demonstrating how L3 exposure can refine L2 grammatical cognition. This bidirectional interaction is regulated by typological proximity and L2 proficiency, with higher L2 mastery enabling more strategic cross-linguistic comparisons.

4. The transfer mechanisms and implications of third language acquisition

4.1. Regulating variables of the transfer model

The direction and intensity of the transfer mechanisms described above are regulated by three key variables. First, linguistic distance plays a critical role: as typologically related languages within the Indo-European family, L2 English and L3 German exhibit significantly stronger transfer effects compared to the interaction between L2 English and L1 Chinese, which belongs to the Sino-Tibetan isolating language family [15]. This typological proximity facilitates cross-linguistic alignment in phonology, lexicon, and syntax, while the greater distance between Chinese and Indo-European languages amplifies interference in structural mapping. Second, L2 proficiency level moderates transfer dynamics: learners with lower English proficiency are more prone to interference from German grammatical rules, whereas those with higher proficiency can mitigate negative transfer through metalinguistic awareness--such as explicitly identifying structural differences between languages [16]. Higher L2 mastery also enhances the ability to leverage English as a mediating tool for German acquisition, fostering positive transfer in cognate recognition and semantic mapping. Third, the length of L3 exposure influences transfer accumulation: long-term German learning intensifies both negative interference (e.g., confusion between English and German verb placement rules) and positive reinforcement (e.g., strengthened cross-linguistic association skills) [17]. Learners who are exposed to German for a long period of time will internalize its unique linguistic patterns, which may gradually reconstruct the representation of English (L2) through reverse transfer.

4.2. Implications for trilingual learning strategies

Combining the aforementioned transfer mechanisms and moderating variables, for learners whose first language is Chinese (L1), second language is English (L2), and third language is German (L3), optimizing trilingual learning outcomes requires teaching strategies that prioritize leveraging the proximity between languages while minimizing cross-language interference. To fully leverage the positive transfer effects between English and German, teachers can clearly contrast the structural features of the two languages, emphasizing their shared Indo-European characteristics--such as article systems and compound noun formation--while systematically outlining and explaining differences, such as the distinction between German case markers and English prepositional phrases. For example, guiding learners to compare the spelling of "information" in English and 'Information'

in German can reinforce their awareness of the similarity in spelling. Additionally, providing specific reminders about "false friends" (such as the German word "Gift," which means "poison," differing in meaning from the English "gift") can effectively prevent vocabulary confusion [18].

Improving English (L2) proficiency is equally significant, as a solid intermediary language system can help learners enhance their cross-linguistic strategic analysis skills. Prioritizing advanced English training can cultivate learners' metalinguistic awareness, enabling them to accurately identify the subject-verb-object (SVO) structure in English and compare it with the verb-second (V2) rule in German, thereby reducing overreliance on the native language, Chinese, for grammatical mapping [2]. With this foundation, learners can determine when to apply knowledge transfer (such as the use of cognate vocabulary) and when to avoid interference (such as avoiding the habit of capitalizing the first letter of German nouns in English writing).

Reasonably controlling exposure to German (L3) is another core teaching strategy, as long-term German learning can simultaneously exacerbate both positive and negative transfer effects. By introducing complex linguistic features of German (such as separable verbs and clause structures) in stages and providing targeted error correction for learners' mistakes, it can prevent incorrect usage from becoming ingrained. Additionally, incorporating metacognitive tools (such as self-monitoring checklists) can guide learners to actively identify deviations in English (L2) usage caused by German (L3), such as avoiding the overapplication of German preposition patterns to English [17].

Cultivate a dynamic and interconnected understanding of multilingual systems, further supporting adaptive learning. Encouraging reflection on how German influences English--for example, whether exposure to German's aspectual system refines English tense usage--aligns with Dynamic Systems Theory and helps learners embrace bidirectional transfer as a natural part of linguistic development [6]. Finally, assessments should integrate cross-linguistic feedback, such as evaluating translations from German to English to highlight both positive transfer (e.g., improved phrasal verb use due to German compound structures) and negative interference (e.g., misplaced verb placement). Explicit feedback on these patterns reinforces strategic learning and helps maintain L2 stability amid L3 acquisition [5].

5. Conclusion

In conclusion, the transfer model of L2 English and L3 German acquisition based on L1 Chinese reveals a complex multidirectional interaction among the three languages. Across pronunciation, vocabulary, and grammar dimensions, L1 Chinese exerts a foundational influence--its tonal system, morphological simplicity, and lexical logic shape learners' initial processing of L2 and L3. Meanwhile, L2 English and L3 German, as genetically closer Germanic languages, show more prominent interactive transfer: their shared typological features can trigger positive reinforcement via metalinguistic awareness, while structural differences (e.g., V2 syntax in German vs. SVO in English) often lead to negative interference. These transfer effects are further moderated by linguistic distance, L2 proficiency, and L3 exposure duration, highlighting the dynamic and context-dependent nature of multilingual transfer.

Future research could combine longitudinal tracking, comparisons of varying L2 English proficiency, and neurocognitive investigations to clarify transfer dynamics in L1 Chinese learners' L3 German acquisition, thereby refining multilingual teaching strategies.

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