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An Empirical Study of Subjective Cross-Linguistic Similarity Among Chinese-English-Korean Beginner Trilingual Learners

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Abstract: Subjective cross-linguistic similarity is a key factor influencing cross-linguistic transfer. This study investigated 117 Chinese-English-Korean beginner trilingual learners' perceived similarity between Korean (L3) and Chinese (L1), and between Korean (L3) and English (L2) across word classes and grammatical items using a self-designed 5-point Likert questionnaire. Data were analyzed with descriptive statistics and paired-samples t-tests. The results showed that: (1) Learners' perceived similarity varied across linguistic categories, with a wider range of variation in Korean-Chinese similarity than in Korean-English similarity; (2) Korean-Chinese similarity was rated significantly higher than Korean-English similarity in all word classes except verbs; (3) Korean-Chinese similarity was significantly higher in all grammatical items except sentence structure and tense-aspect, where Korean-English similarity was rated higher. These findings provide empirical support for understanding subjective similarity in trilingual acquisition and highlight the roles of typological proximity and Sino-Korean linguistic commonalities.

Keywords: Third language learners; subjective cross-linguistic similarity; word classes; grammatical items

1. Introduction

Language transfer constitutes a pivotal research area in second language acquisition (SLA) and multilingual acquisition [1]. Early research on language transfer originated from contact linguistics and foreign language teaching, with a primary focus on its negative manifestations and an advocacy for contrastive analysis. For instance, Weinreich [2] identified the phenomenon of "interference" when discussing the situation where a single group of people alternates between two or more languages. He argued that the greater the differences in forms and patterns between two linguistic systems, the more learning problems arise and the wider the scope for potential interference. From a pedagogical perspective, Lado [3] emphasized the significance of comparative research on learners' mother tongue and target second language for language teaching, and elaborated on how to conduct comparative analyses of phonology, grammatical structures, lexis, writing, and cultural behavior systems. He pointed out that for language learners, linguistic features similar to their mother tongue are easier to acquire,

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while those that differ are more challenging. However, numerous subsequent studies have refuted the contrastive analysis hypothesis, which equates the linguistic similarities and differences between the mother tongue and target language with second language acquisition difficulty [4-6].

In the 1970s, Kellerman made seminal contributions to the theory of language transfer and its predictive power. He conceptualized transfer as a communication and learning strategy: when second language learners lack sufficient proficiency in the target language and perceive a degree of similarity between their mother tongue and the target language, they are likely to transfer linguistic features from the mother tongue to the second language [7]. In this process, learners' perception of the relationship between their mother tongue and the target language is termed psychotypology, which, together with their perception of the markedness of linguistic structures or meanings in the mother tongue [8], determines the transferability of linguistic features. With regard to psychotypology, Kellerman [9] emphasized that learners' perception of the overall linguistic distance between two languages largely dictates the occurrence of transfer: the greater the perceived differences between the mother tongue and the target language, the lower the likelihood of mother tongue interference. Furthermore, psychotypology undergoes dynamic changes as learners increase their exposure to the target language [7-9].

The theoretical and empirical study of psychotypology has been further advanced since the early 21st century. Theoretically, Ringbom [10] distinguished between perceived similarity—grounded in learners' direct perception of cross-linguistic phenomena—and assumed similarity, which is closely tied to objective linguistic facts and largely shaped by learners' subjective beliefs. In practice, however, it is difficult to draw a clear distinction between the two. Currently, the most widely accepted approach is to combine them under the unified term of subjective similarity [11]. In the present study, subjective cross-linguistic similarity is used as the overarching term to capture learners' perceptions of cross-linguistic likeness across specific linguistic categories. Psychotypology, rooted in Kellermann's research tradition, is regarded as the theoretical precursor of subjective similarity. Psychotypology generally refers to learners' global perceptions of language distance, whereas subjective cross-linguistic similarity focuses on fine-grained judgments of form and meaning across word classes and grammatical items. Subjective similarity is closely associated with the occurrence of language transfer; a growing body of research has demonstrated that learners' subjective judgments of cross-linguistic similarities and differences in lexis [12], phonology [13], and grammar [14] exert a significant influence on transfer processes.

Empirical studies on subjective cross-linguistic similarity to date have mostly focused on specific cross-linguistic phenomena, measuring learners' subjective perceptions of similarity for one or a limited number of linguistic features. The majority of these studies have taken second language learners as their participants [12,15-17], and only a small number have extended to third language acquisition [14,18]. To the best of our knowledge, no systematic investigation has yet been conducted into the subjective cross-linguistic similarity of Chinese-English-Korean trilingual learners across multiple lexical and grammatical phenomena.

To address this research gap, the present study adopted a self-designed

questionnaire to measure the subjective cross-linguistic similarity perceptions of Chinese-English-Korean trilingual learners, a large and representative group of trilingual learners in China. This group has also been examined in recent studies on cross-language semantic access [19,20], further validating its representativeness and research significance. The research methodology and findings of this study will, on the one hand, lay a foundation for future research into the dynamic changes of subjective cross-linguistic similarity and its impact on language transfer, and on the other hand, provide a methodological reference for the measurement of subjective cross-linguistic similarity among other groups of trilingual learners.

2. Research Background

Although Kellerman [7,9] first proposed that psychotypology exerts an influence on transferability, the construct was merely used to explain language transfer for a long time [12], and empirical studies in second language acquisition (SLA) that actually measure psychotypology or subjective cross-linguistic similarity remain scarce. Following the principle of reviewing second language research prior to third language studies, this paper synthesizes existing empirical research in chronological order, with a specific focus on the research content, methodologies and key findings of each study. Ultimately, it identifies the research gaps in the existing literature, laying a foundation for formulating the research questions and determining the methodological approach of the present study.

Yu [15] was the first to adopt a self-designed questionnaire to investigate the subjective cross-linguistic similarity in the lexical domain among Chinese and Japanese EFL learners and its impact on their use of English motion verbs. The questionnaire, designed to measure L2 learners' perceptions of lexical similarities and differences between their mother tongue and English, consisted of 10 items covering grammar, word order, modal particles, verbs, common nouns, rhetorical uses of vocabulary, pronunciation, word stress and loanwords. Each item was followed by six options reflecting varying degrees of cross-linguistic similarity and difference, and participants were instructed to select the most appropriate one. A questionnaire survey and statistical analysis were conducted on 30 first-year English majors from China and 30 from Japan with comparable English proficiency. The results revealed that Chinese learners perceived a higher degree of similarity between Chinese and English, while Japanese learners perceived a lower degree of similarity between Japanese and English, with a significant difference observed between the two groups.

Sakuragi and Fuller [17] examined the impact of perceived linguistic distance (i.e., psychotypology) when comparing the translatability of body-part metaphors among American and Japanese L2 learners. The researchers employed a questionnaire to measure the two groups of L2 learners' perceptions of the overall linguistic distance between their respective mother tongues and multiple target languages. The findings were as follows: (1) American learners' perceived linguistic distance from English to the three target languages, in ascending order, was Spanish, Japanese and Chinese; a significant overall difference was found among the three ($p < .01$), yet no significant difference was observed between the latter two. Japanese learners' perceived linguistic distance from Japanese to the three target languages, in ascending order, was Chinese, English and Spanish, with significant differences found both overall and between each

pair ($p < .01$). (2) Overall, Japanese learners perceived a greater linguistic distance than American learners ($p < .01$), though the result varied with specific target languages. Japanese learners perceived a larger linguistic distance than American learners when the target languages were Arabic, French, German, Russian, Spanish and Swedish; by contrast, American learners perceived a greater linguistic distance than Japanese learners when the target language was Chinese. Notably, American learners also perceived a larger linguistic distance between English and Japanese than their Japanese counterparts.

Zhang and Yu [16] explored the role of psychotypology in Chinese university students' comprehension of English idioms, using a self-designed questionnaire as the research instrument. The questionnaire presented 32 commonly used English idioms, asking participants to guess their meanings and provide justifications, while also rating the idioms' guessability, comprehensibility and similarity to Chinese expressions. Correct guesses of the idioms' meanings were taken as indicators of language transfer. Statistical analysis of the data yielded two key findings: (1) the higher learners' perceived similarity of the idioms to Chinese expressions, the higher the proportion of mother tongue transfer observed; (2) the correlation coefficient between perceived similarity and the accuracy of idiom guessing was higher among high-proficiency learners, whereas low-proficiency learners relied more heavily on perceived similarity when guessing and comprehending English idioms.

Research on language transfer in multilingual acquisition has confirmed that psychotypology is a key factor influencing third language acquisition and use, yet empirical studies in multilingualism that actually measure this construct are still few and far between.

Hall et al. [21] conducted their research through two experiments, in which the participants had Spanish and English as their L1 and L2, with German or French as their L3. The study investigated the impact of psychotypology on the syntactic frames of L3 words. The researchers used a questionnaire to measure learners' perceptions of the overall similarity between their background languages and the L3. In Experiment 1, 82% of participants perceived the greatest similarity between English and German; in Experiment 2, 95% of participants identified the closest similarity between Spanish and French.

Tang [18] explored the reverse impact of third language learning on learners' perceived similarity between their L1 and L2 by comparing the perceived similarity of trilingual and bilingual learners. The participants were university students in Hong Kong, China, including Cantonese-English bilinguals and Cantonese-English-French trilinguals; the trilingual learners were further divided into low, intermediate and high proficiency groups based on their French level. The main research instruments included English and French proficiency tests and a questionnaire. The questionnaire collected participants' personal information, language background, English learning experience and perceptions of linguistic distance. The measurement of perceived linguistic distance comprised two open-ended questions and a Cantonese-English perceived similarity scale. The open-ended questions asked participants whether they perceived any similarities between Cantonese and English and to provide specific examples if applicable. Data analysis revealed the following: (1) responses to the Cantonese-English

perceived similarity scale showed that bilingual learners and trilingual learners as a whole held highly similar perceptions of the similarity between the two languages, while high-proficiency trilingual learners perceived a significantly lower degree of similarity than bilingual learners; (2) with regard to the open-ended questions, bilingual learners and trilingual learners overall gave highly similar responses regarding the existence of similarities between Cantonese and English, yet the majority of low-proficiency trilingual learners believed no such similarities existed, whereas most high-proficiency trilingual learners identified similarities between the two languages.

Nelson et al. [22] proposed and applied a visual psychotypology measurement method to investigate multilingual learners' psychotypology in the phonological domain. This method required learners to adjust the positions of circles representing different languages, with the distance between the circle centers indicating the perceived linguistic distance between languages; participants were also asked to explain their reasoning for the placement of the circles. The participants were divided into two groups: German-English-Polish trilinguals (Group 1) and Polish-English-German trilinguals (Group 2). The findings indicated that learners perceived the shortest subjective distance between English and German, while the perceived distance between Polish and English and between Polish and German was largely comparable; additionally, a significant interaction effect was found between group and language combination on perceived linguistic distance.

The above review demonstrates that international research on subjective cross-linguistic similarity has gradually shifted its focus from second language acquisition to multilingual acquisition. The limited existing studies in multilingualism have mostly asked learners to make general judgments of the overall linguistic distance (or similarity) between their background languages, or to assess distance in one or a few specific linguistic domains. However, language is a complex system comprising multiple sub-systems such as phonology, lexis, grammar and discourse, each of which can be further divided into several subcategories. Whether using questionnaires or visual psychotypology measurement methods, asking learners only to judge the overall distance between languages or distance in a single sub-system may lead to considerable errors in their subjective distance judgments, as learners may base their judgments on vastly different linguistic facts. Therefore, when measuring subjective cross-linguistic similarity, a more fine-grained approach is preferable, with specific linguistic phenomena presented to enhance the comparability between languages.

Compared with international research, subjective cross-linguistic similarity has long received insufficient attention in Chinese academia. With the exception of Zhang and Yu [16], who measured the psychotypology of L2 idioms, there is a notable research gap in empirical studies on Chinese-English-Korean multilingual learners in this field. Meanwhile, existing studies on Chinese-English-Korean trilinguals have focused on semantic access rather than subjective cross-linguistic similarity [19,20].

3. Research Design

The primary objective of this study was to develop a tailored questionnaire to measure Chinese-English-Korean trilingual learners' subjective perceptions of cross-linguistic similarity between their third language (L3), mother tongue (L1) and second language (L2) across specific lexical and grammatical categories. Additionally,

this study aims to provide a methodological reference for investigating subjective cross-linguistic similarity (hereafter referred to as subjective similarity) among other trilingual learner groups. The research focuses on beginner learners of Korean, and the research questions are formulated as follows:

(1) How do Chinese-English-Korean beginner trilingual learners perceive the degree of cross-linguistic similarity between Korean and Chinese, and between Korean and English, across different word classes?

1a) What are the subjective similarity scores of Chinese-English-Korean beginner trilingual learners for Korean-Chinese and Korean-English across different word classes?

1b) Are there significant differences in the subjective similarity scores of Chinese-English-Korean beginner trilingual learners between Korean-Chinese and Korean-English for the corresponding word classes?

(2) How do Chinese-English-Korean beginner trilingual learners perceive the degree of cross-linguistic similarity between Korean and Chinese, and between Korean and English, across different grammatical items?

2a) What are the subjective similarity scores of Chinese-English-Korean beginner trilingual learners for Korean-Chinese and Korean-English across different grammatical items?

2b) Are there significant differences in the subjective similarity scores of Chinese-English-Korean beginner trilingual learners between Korean-Chinese and Korean-English for the corresponding grammatical items?

3.1Participants

The participants of this study were 117 undergraduate students majoring in Korean at three universities in northern China, with a mean age of 19.38 years (SD = 0.696). Among them, 17 were male and 100 were female. All participants were native Chinese speakers who started learning English by the third grade of primary school.All participants reached a B1 level (CEFR) in a standardized online English placement test, ensuring relatively homogeneous English proficiency.All three universities used the same national-standard Korean textbook series with identical course syllabi, teaching pace, and instructional methods. All participants began learning Korean in the first semester of university and had completed exactly two semesters of formal Korean instruction at the time of data collection. For the purpose of this study, beginner learners are operationally defined as undergraduate students who had no prior exposure to Korean before university enrollment, had completed exactly two semesters of formal Korean language instruction, and had not attained any standardized Korean language proficiency certification (e.g., TOPIK).

3.2Questionnaire

Given the absence of a dedicated questionnaire for assessing subjective cross-linguistic similarity among Chinese-English-Korean trilingual learners both domestically and internationally, the authors developed the Korean-English-Chinese Similarity Questionnaire through the following five-step process: (1) The first two authors defined the questionnaire's objective, structure and content, with reference to authoritative Korean and Chinese grammatical treatises and dictionaries, such as A New

Practical Korean Grammar (Wei & Xu, 2010) and Standard Korean Grammar (Nam & Ko, 2011). (2) Upon the completion of the initial draft, the latter two authors provided detailed revision comments and suggestions. (3) All four authors conducted a collective discussion on the comments and revised the draft accordingly to finalize the preliminary version. (4) Five second-year Korean majors were selected to pilot-test the preliminary questionnaire, and one-on-one interviews were conducted to elicit the difficulties they encountered during the completion process. (5) The preliminary questionnaire was revised by incorporating the constructive feedback from the pilot participants, which led to the final version of the questionnaire.

The opening section of the formal questionnaire clarified its research objective and structural composition. The questionnaire consisted of three parts: Part 1 included 15 items on personal information, designed to collect the participants' background information regarding their English and Korean learning experiences. Parts 2 and 3, the core sections of the questionnaire, focused on word classes and grammatical items respectively, with detailed response instructions. Participants were instructed to read the explanations and exemplifications of specific Korean word classes and grammatical items provided in the questionnaire, identify their corresponding counterparts in Chinese or English, and judge the degree of similarity and difference between Korean and Chinese, and between Korean and English, in terms of the form (or structure) and meaning of each specific linguistic item. A 5-point Likert scale was adopted to rate the cross-linguistic similarity, where a higher numerical score indicated a higher degree of perceived similarity (1 = completely different, 5 = completely identical).

Part 2 (Word Classes) comprised 53 items covering the major word classes in Korean, with the number of items varying in accordance with the complexity of each word class's usage. The specific breakdown was as follows: nouns (1 item), formal nouns (1 item), pronouns (2 items), verbs (2 items), adjectives (2 items), determiners (1 item), adverbs (3 items), case particles (9 items), conjunctive particles (5 items), auxiliary particles (3 items), sentence-ending particles (3 items), auxiliary verbs (12 items), numerals (1 item), interjections (1 item), conjunctions (6 items), and phrases equivalent to case particles (1 item). Each item was accompanied by corresponding definitions and illustrative examples; for items involving linguistic forms with multiple usages, separate examples were provided for each distinct usage.

Part 3 (Grammatical Items) included 34 items covering the core grammatical features of Korean, encompassing sentence structure, sentence components (topic and subject, predicate inflection, adverbial modification, attributive modification, adverbials, etc.), basic sentence types (affirmative sentences, negative sentences, interrogative sentences, imperative sentences), special sentence patterns (existential sentences, benefactive verb sentences, causative sentences, perceptual and affective predicate sentences), tense and aspect (present tense, past tense, continuous aspect), voice (passive voice, causative voice, potential voice), complex sentences, ellipsis, and honorifics. For some complex grammatical usages, multiple items were designed to ensure comprehensive assessment: 3 items each for the continuous aspect and causative voice, and 2 items each for the potential voice, complex sentences and honorifics.

Efforts to ensure the validity and reliability of the questionnaire are briefly elaborated as follows: (1) Construct validity, which refers to the extent to which a

measurement tool fully reflects the target research construct, was ensured by centering the questionnaire on Korean language learning and designing it to measure Korean majors' subjective perceptions of cross-linguistic similarity between Korean, Chinese and English. Only the most universally applicable Korean word classes and grammatical items were included to accommodate learners at different stages of Korean proficiency. (2) Content validity, the degree to which the content of a measurement tool adequately represents the research domain, was guaranteed by comprehensively covering the major Korean word classes and grammatical items with reference to authoritative Korean linguistic resources both in China and abroad. (3) Face validity, which pertains to participants' perceived clarity and comprehensibility of a measurement tool, was confirmed by the post-pilot interviews: all five pilot participants reported that the questionnaire had clear instructions and an intuitively understandable structural design. (4) Reliability encompasses instrument reliability (e.g., internal consistency) and inter-rater reliability. Given that the questionnaire's two core sections (word classes and grammatical items) address distinct linguistic domains with unique specific items, an assessment of internal consistency via Cronbach's alpha coefficient was deemed unnecessary. However, the questionnaire achieved a high level of inter-rater reliability, as the researchers only needed to input the participants' numerical similarity ratings into Excel spreadsheets without any additional subjective scoring or interpretive judgment.

3.3Data Collection and Analysis

The questionnaire survey was administered by Korean language instructors at the three participating universities during students' self-study sessions in March 2025. The average completion time for the questionnaire was 50 to 60 minutes, and a total of 117 valid questionnaires were collected for subsequent analysis. First, the participants' responses to each item were coded and input into an Excel spreadsheet, with numerical scores representing their perceived cross-linguistic similarity between Korean and Chinese or between Korean and English for each linguistic item (1 = completely different, 5 = completely identical). For each Korean word class or grammatical item covered by multiple questionnaire items, the mean score of the relevant items was calculated as the final subjective similarity score for that specific word class or grammatical item.

The Excel dataset was then imported into IBM SPSS Statistics 19.0 for statistical analysis. Descriptive statistics (mean values and standard deviations) were calculated to characterize the participants' subjective similarity scores for Korean-Chinese and Korean-English across all word classes and grammatical items. Paired-samples t-tests were conducted to examine whether there were statistically significant differences in the subjective similarity scores between Korean-Chinese and Korean-English for the corresponding word classes and grammatical items.

4. Results and Discussion

4.1Subjective Similarity across Word Classes

Table 1 presents the mean subjective similarity scores between Korean and Chinese (K-C) and between Korean and English (K-E) for each word class. Regarding Korean–Chinese similarity, notable disparities are observed across word classes, with scores ranging from 2.5 to 3.9 on a 5-point Likert scale, where higher values indicate

greater perceived similarity and 2.5 represents the median. Scores above the median suggest that participants perceived more similarities than differences between Korean and Chinese across most word classes. The four highest-scoring classes are nouns, pronouns, numerals, and interjections. This high perceived similarity can be attributed to three factors: grammatically, these Korean word classes behave as independent items without conjugation, consistent with their Chinese equivalents; semantically, the signifier–signified relationships in these classes display cross-linguistic universality, as they denote concrete referents, numerical concepts, and iconic affective expressions; orthographically, many Korean nouns and pronouns are Sino-Korean words, numerals include both Sino-Korean forms and Arabic digits, and some interjections share phonetic resemblance with Chinese. In contrast, the lowest-scoring classes are auxiliary verbs, verbs, formal nouns, and connective particles, reflecting participants' awareness of pronounced differences. These categories form the core of Korean's agglutinative system, with no direct equivalents in Chinese; they involve complex inflectional rules, combinatorial restrictions, and case-marking dependencies that are absent in Chinese, where relational meanings are often conveyed via connectives or contextual cues rather than bound morphemes.

For Korean–English similarity, while scores also vary across word classes, the range of variation is narrower than that of Korean–Chinese, implying lower overall perceived similarity between Korean and English. The highest-scoring categories are interjections, numerals, and pronouns, likely because participants recognized conceptual parallels despite formal divergence, reinforced by the shared use of Arabic numerals. The lowest-scoring categories are formal nouns, sentence-final endings, and auxiliary verbs, which embody defining agglutinative features of Korean. Formal nouns and sentence-final endings lack direct counterparts in English, and auxiliary verbs overlap only partially, as in past-tense marking. With relatively strong English proficiency, participants clearly identified these structural discrepancies.

Paired-samples t-tests, summarized in Table 2, were performed to compare differences between K-C and K-E scores. For all word classes, K-C scores were higher than K-E scores, as indicated by positive mean differences. All comparisons reached statistical significance ($p < .05$) except for verbs ($p = .307$). The non-significant difference for verbs may stem from participants' mapping of Korean intransitive/transitive distinctions onto English equivalents, limited exposure to peripheral verbal meanings among novice learners, or recognition of numerous Sino-Korean verbs that enhance formal similarity with Chinese.

This pattern can be interpreted from three interrelated perspectives. First, typological distance plays a key role: Korean and Chinese share prolonged historical contact and a large number of Sino-Korean words, which enhances learners' perceived form and meaning similarity, especially in content words such as nouns, pronouns, numerals, and interjections. Second, morphological typology differentiates the two pairs: Korean is an agglutinative language with rich bound morphemes, particles, and auxiliary verbs, which lack direct counterparts in Chinese. This structural mismatch leads to relatively low similarity judgments in functional word classes. Third, learners' L2 proficiency and learning experience shape their subjective judgments: as beginners, learners rely heavily on their L1 knowledge and observable surface features rather than

abstract structural similarities, resulting in higher perceived similarity between Korean and Chinese.

Table 1 Mean Scores of Subjective Similarity between Korean-Chinese and Korean-English across Word Classes

Word Class	Korean-Chinese Subjective Similarity	Korean-English Subjective Similarity	Word Class	Korean-Chinese Subjective Similarity	Korean-English Subjective Similarity
Noun	3.8718	2.3707	Conjunctive Particle	2.5419	2.1795
Formal Noun	2.5128	1.9744	Auxiliary Particle	2.5983	2.3219
Pronoun	3.5641	2.8846	Sentence-ending Particle	3.1140	2.0598
Verb	2.5000	2.3846	Auxiliary Verb	2.4124	2.1695
Adjective	2.8889	2.4145	Numeral	3.5043	2.9744
Determiner	3.1368	2.5214	Interjection	3.4872	3.0256
Adverb	2.9516	2.4644	Conjunction	3.0114	2.5769
Case Particle	2.6904	2.3628			

Table 2 Results of Paired-Samples t-Test for Subjective Similarity Scores between Korean-Chinese and Korean-English across Word Classes

Word Class	M	SD	t	p (two-tailed)
Noun	1.49573	1.26371	12.803	.000*
Formal Noun	0.53846	1.05486	5.521	.000*
Pronoun	0.67949	0.85717	8.574	.000*
Verb	0.11538	1.21660	1.026	.307
Adjective	0.47436	0.83523	6.143	.000*
Determiner	0.61538	0.97243	6.845	.000*
Adverb	0.48718	0.76506	6.888	.000*
Case Particle	0.32764	0.65602	5.402	.000*
Conjunctive Particle	0.36239	0.60739	6.454	.000*
Auxiliary Particle	0.27635	0.89837	3.327	.001*
Sentence-ending Particle	1.05413	0.93255	12.227	.000*
Auxiliary Verb	0.23635	0.67593	3.766	.000*
Numeral	0.52991	1.19317	4.804	.000*
Interjection	0.46154	1.08706	4.592	.000*
Conjunction	0.43447	0.68122	6.899	.000*

Note. df = 116. * $p < 0.05$

4.2Subjective Similarity in Grammar

Table 3 presents the mean scores of learners' subjective cross-linguistic similarity between Korean and Chinese and between Korean and English for each grammatical item. As shown in Table 3: (1) Scores for Korean-Chinese subjective similarity varied across grammatical items, with a range of 2.1 to 3.6. (2) The three highest-scoring grammatical items were ellipsis, complex sentences, and sentence constituents, all scoring above 3.0, indicating that the participants perceived a relatively high degree of similarity between Korean and Chinese in these three domains. Specifically, both Korean and Chinese allow frequent ellipsis, especially the omission of subjects and objects in daily communication; clauses forming complex sentences may or may not be marked by conjunctions; and despite terminological differences, the two languages share functionally similar sentence constituents, including subject and topic, predicate, object, adverbial, and attributive. (3) The lowest score was observed for sentence structure, at slightly above 2.1, suggesting that the participants clearly perceived the syntactic differences between Korean and Chinese. Korean exhibits the canonical SOV word order, whereas Chinese is predominantly an SVO language.

Table 3 also reveals that: (1) Scores for Korean-English subjective similarity also varied across grammatical items but with a narrower range (2.0 to 2.9), indicating lower perceived grammatical similarity between Korean and English than between Korean and Chinese. (2) Four items scored above 2.5, ranked in descending order as follows: ellipsis, sentence constituents, complex sentences, and tense-aspect. This suggests that the participants perceived greater similarity between Korean and English in these domains. Some of these perceptions align with linguistic reality: the two languages possess functionally equivalent sentence constituents (e.g., subject, predicate, object, adverbial, attributive); their tense-aspect systems encode present, past, and future, as well as progressive and perfective meanings; and some complex sentences rely on conjunctions to link clauses. However, other perceptions are inconsistent with facts. For instance, ellipsis is pervasive in Korean but highly restricted in English, which requires relatively full clause structure—an obvious distinction that these beginner Korean learners had apparently not recognized. (3) The lowest-scoring domains were honorifics and sentence structure, with scores at or below 2.0, demonstrating that the participants detected salient differences between Korean and English in these two respects. Through classroom instruction and Korean input, the participants had learned that honorifics and SOV word order are defining features of Korean. In contrast, English lacks a rigid honorific system and typically follows SVO word order.

Table 3 Mean Scores of Subjective Similarity between Korean-Chinese and Korean-English for Each Grammatical Item

Grammatical Item	Korean-Chinese Subjective Similarity	Korean-English Subjective Similarity	Grammatical Item	Korean-Chinese Subjective Similarity	Korean-English Subjective Similarity
Sentence Structure	2.1026	2.0085	Voice	2.5311	2.3639
Sentence Constituents	3.0179	2.7573	Complex Sentences	3.0726	2.7051
Basic	2.8068	2.4957	Ellipsis	3.5128	2.8974

Sentence Types					
Special Sentence Patterns	2.6068	2.3447	Honorifics	2.6410	1.8761
Tense-Aspect	2.4630	2.6610			

Based on the above descriptive statistics, paired-samples t-tests were conducted to compare the mean similarity scores between Korean–Chinese and Korean–English across all grammatical items, with the aim of examining whether significant differences existed between the two language pairs. The results are detailed in Table 4.

Two key findings emerged. First, the mean differences between Korean–Chinese and Korean–English were positive for all grammatical items except tense-aspect, suggesting that participants perceived higher similarity between Korean and Chinese than between Korean and English in most grammatical domains. Furthermore, these differences were statistically significant ($p < .05$) for all items except sentence structure. Second, with respect to tense-aspect, the mean similarity score for Korean–Chinese was significantly lower than that for Korean–English ($p < .05$), indicating that participants viewed Korean and English as more similar in this domain. This perception is consistent with linguistic facts: both Korean and English possess overt morphological markings for tense and aspect, encoding three basic temporal categories (present, past, and future) as well as progressive and perfective aspects. By contrast, Chinese is generally considered to possess grammatical aspect but no grammatical tense [1].

The observed patterns can be explained from typological, cognitive, and pedagogical perspectives.First, morphological marking of tense-aspect distinguishes Korean and English from Chinese: both Korean and English employ overt bound morphemes to mark tense and aspect distinctions, whereas Chinese lacks grammatical tense. This typological feature makes learners perceive higher similarity between Korean and English in this domain.Second, pragmatic and discourse characteristics (e.g., ellipsis, topic prominence, complex sentence construction) are more similar between Korean and Chinese, leading to higher subjective similarity.Third, learners' cognitive bias toward salient, frequent, and easily detectable linguistic features reinforces the overall pattern: beginners rely on surface-level form and meaning correspondences rather than abstract structural distance, which further amplifies the perceived similarity between Korean and Chinese.

Table 4. Paired-Samples t-Test Results for Subjective Similarity Scores between Korean-Chinese and Korean-English across Grammatical Items

Grammatical Item	M	SD	t	p (two-tailed)
Sentence Structure	0.09402	0.95577	1.064	.290
Sentence Constituents	0.26068	0.65836	4.283	.000*
Basic Sentence	0.31111	0.59390	5.666	.000*

Types				
Special Sentence Patterns	0.26211	0.74898	3.785	.000*
Tense-Aspect	-0.19801	0.95415	-2.245	.027*
Voice	0.16728	0.73643	2.457	.015*
Complex Sentences	0.36752	0.90590	4.388	.000*
Ellipsis	0.61538	0.94546	7.040	.000*
Honorifics	0.76496	1.05367	7.853	.000*

Note. df = 116. * $p < 0.05$

Based on the findings from the two sections concerning word classes and grammar, the overall similarity between Korean and Chinese was perceived to be significantly higher than that between Korean and English. This finding is partially consistent with Yu [15] and Sakuragi and Fuller [17], who both reported relatively low perceived similarity between non-Indo-European languages and English. However, the present result diverges from that of Tang [18], who found that most low-proficiency Cantonese-English-French trilinguals perceived no similarity between Cantonese and English.

This discrepancy may be attributed to two factors. First, as a dialect, Cantonese possesses unique lexical and grammatical features that distinguish it from both English and Mandarin Chinese. Second, the acquisition of different third languages may shape learners' perceptions of similarity between their first and second languages to varying degrees. In addition, Korean and Chinese share a broad Sino-Tibetan linguistic sphere, characterized by a large inventory of Sino-Korean vocabulary and substantial grammatical commonalities, which constitutes another critical reason for the higher perceived similarity between these two languages.

To sum up, the subjective cross-linguistic similarity patterns observed in this study are not random. They reflect the joint effects of historical linguistic contact, typological proximity, morphosyntactic differences, and learners' cognitive processing strategies as trilingual beginners. These findings confirm that subjective similarity is not simply a reflection of objective linguistic features, but a complex psycholinguistic construct shaped by multiple factors in third language acquisition.

5. Conclusion

Employing a self-developed questionnaire, this study investigated the subjective cross-linguistic similarity of Chinese-English-Korean beginner learners with regard to word classes and grammar. The main findings are as follows: (1) The perceived similarity between Korean and Chinese and between Korean and English varied across word classes and grammatical items, and the range of variation was greater for Korean-Chinese than for Korean-English in both word classes and grammar. (2) With respect to word classes, the highest perceived similarity between Korean and Chinese was found for nouns, pronouns, numerals, and interjections, while the largest perceived

differences appeared in auxiliary verbs, verbs, formal nouns, and connective particles. For Korean-English, the highest perceived similarity was observed for interjections, numerals, and pronouns, whereas the greatest differences were detected in formal nouns, sentence-ending particles, and auxiliary verbs. Furthermore, the perceived similarity between Korean and Chinese was significantly higher than that between Korean and English for all word classes except verbs. (3) Concerning grammar, the highest perceived similarity between Korean and Chinese was obtained for ellipsis, complex sentences, and sentence constituents, and the lowest for sentence structure. For Korean-English, the highest perceived similarity was found for ellipsis, sentence constituents, complex sentences, and tense-aspect, and the lowest for honorifics and sentence structure. In addition, the perceived similarity between Korean and Chinese was significantly higher than that between Korean and English for all grammatical items except sentence structure and tense-aspect.

The data and findings of the present study can be integrated into research on language transfer to explore the relationship between subjective cross-linguistic similarity, L1 transfer, and L2 transfer. The questionnaire developed in this study can also be applied to intermediate and advanced Chinese-English-Korean learners to examine how changes in L2 and L3 proficiency relate to subjective cross-linguistic similarity and language transfer.

However, the use of a questionnaire to measure learners' subjective cross-linguistic similarity cannot reveal the reasoning processes underlying their specific judgments.In future research measuring subjective cross-linguistic similarity among various trilingual populations, researchers may draw on the design and methodology of the present questionnaire while combining it with other methods such as open-ended interviews and think-aloud protocols [22], so as to further improve the validity and reliability of measurement.

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