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An Empirical Learner-based Study on Transferring Mechanism of Chunks in Chinese-English Consecutive Interpreting

Yufan Zheng

School of English Language and Culture, Tan Kah Kee College, Xiamen University, Zhangzhou, Fujian 363105, China

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Abstract: Based on the cognitive mechanism of chunks, the paper, by designed experiment, studies how learning interpreters of different competent levels use chunks in the Chinese-English interpretation and what features they present. An empirical study was conducted, by collecting authentic test data from interpreting-major undergraduates and designing chunk extraction and scoring protocols based on Fillmore's tripartite framework, to collect both qualitative and quantitative data. The results show that bi-lingual transformation between chunks is essentially the transformation between conceptual system of our cognition and cognitive representations. Highly competent learning interpreters are proved to be better at processing and transforming chunks bilingually. They also demonstrate stronger resistance to native language interference. This study hence provides references for how to create more cognitive represents for a concept within a linguistic sub-system so as to boost learner adaptability to a conceptually diversified context. Such conceptual mapping can facilitating the transition of lexical chunks from working memory to long-term storage through internalization.

1. Introduction

Quite a few Corpus Linguistics studies have proven the importance and universality of language chunks, the prefabricated and formulaic components in discourse which are considered the smallest communicative units. [1] (Yang, 1999:24) Based on probability studies of various corpuses, researchers have deduced that, chunks exist in both oral and writing languages. [2] [3] [4] [5] (Altenberg 1987&1998; Erman & Warren 2000; Rayson 2008 et al.)Chunks consist of multiple words whose frequently simultaneous appearances enable their fixed structure. Since words as a whole is take the dominance of language communication for their conveyance of meanings, chunks as fixed semantic structure, not only integrate meanings but also offer necessary compositionality for the construction of syntactical structure. In addition, they are of pragmatic values as well. Hence, chunks are neither words or syntactical structures, they are basic component of text construction and the smallest units of meaning. Their semantic value and structural integrity show a great advantage in the bilingual communication.

On the other hand, interpreting is an intellectually demanding communicative activity that requires intensive cognitive attention for the achievement of instant information transfer, natural language flow, and integrated reconstruction. Unlike translation, which allows for deliberation and revision, interpreting operates under extreme time constraints, demanding split-second decision-making and near-instantaneous linguistic adaptation. Given the aforementioned qualities, chunks—prefabricated language units stored in memory—are unarguably critical to the information transfer process from the source to the target text during interpretations. These chunks, which include collocations, idioms, and formulaic expressions, serve as cognitive shortcuts, reducing mental effort and enhancing fluency. This is even truer in Chinese-to-English interpreting, since Chinese tends to convey semantic information in loose, paratactic structures with implicit logical connections, while English, as the target language, relies more on hypotactic structures with explicit grammatical markers, cohesive devices, and syntactic precision. The structural disparity between the two languages places additional cognitive strain on interpreters, making chunking an indispensable strategy. Thus, given that English employs a much higher frequency of fixed and semi-fixed lexical chunks, interpreters who have internalized these patterns can significantly improve efficiency. A rich mental repository of chunks allows for quicker lexical retrieval, smoother syntactic structuring, and more idiomatic output. Furthermore, chunk-based processing aligns with the brain's natural tendency to economize cognitive resources, freeing up mental capacity for higher-level tasks such as meaning negotiation and cultural mediation. Consequently, interpreters with a well-developed chunk inventory not only produce more accurate and fluent renditions but also mitigate cognitive overload, ensuring better performance under pressure. Therefore, deliberate chunk acquisition and activation should be a focal point in interpreter training, particularly for language pairs as structurally divergent as Chinese and English.

Traditionally, second language learning prioritizes the acquisition of individual vocabulary over grammar, operating under the assumption that mastering words and basic grammatical rules will enable learners to construct meaningful utterances. However, in real-life communication, language often relies on fixed expressions—such as idioms, collocations, and slang—that do not follow predictable grammatical patterns. For example, an English learner might understand the words kick and bucket separately but still fail to grasp the idiomatic meaning of kick the bucket (to die). Similarly, phrases like by and large (generally) or piece of cake (something easy) cannot be decoded through literal translation or grammatical analysis alone. These formulaic sequences function as single lexical units, requiring holistic storage and retrieval rather than compositional construction. This presents a significant challenge for second language learners, who may struggle to sound natural or comprehend native speakers if they rely solely on vocabulary lists and grammar rules. Research in corpus linguistics has shown that up to 60% of spoken English consists of prefabricated chunks, underscoring their essential role in fluency. Therefore, language pedagogy must shift toward explicit instruction of these fixed expressions to bridge the gap between textbook knowledge and real-world communication.

According Pawley and Syder[6] (1983:201), how to generate authentic native-speaker-like expressions remain a challenge, even for advanced second language learners. Besides, the level of correspondence between English and Chinese chunks varies. There is full-level correspondence , for instance, “cang hai yi su” coincides with “a drop in the ocean” in English; there is also semi correspondence, such as “dui niu tan qin” in Chinese and “cast pearls before swine”, or there is zero correspondence, which requires free interpretation of meanings, for instance, “zhi zui jin mi” finds no literal or similar correspondence whatsoever in English, hence requiring a free interpretation as “to indulge in a voluptuous and dissipated life”.

Furthermore, chunks are divided as fixed and semi-fixed in structure; in chunks with semi-fixed structures, there are slots to be filled in by interpreters based on contexts. Therefore, the differences

in the level of correspondence may lead to varied perceptions about the level of difficulty, resulting in gaps in efficiency and quality among different interpreters and consequently affecting the interpreting output.

Given that, this research attempts to understand the differences in the shifts between Chinese and English chunks among learners of various levels and their contributing factors by studying the Chinese-to-English consecutive interpretation output of learning interpreters.

2. Literature Review

2.1 Cognitive mechanism of chunks

Chunks are usually stable and closed in structure in compare with the flexibility of words in composition. According to Sinclair[7](1991), the open-choice principle and the idiom principle are both ways of interpreting language texts. She sees language texts as a result of a number of choices within the constrain of grammar. However, chunks lack this openness as spontaneous appearances of multiple words in a fixed order exist extensively. However, Sinclair[7]argues that "a language user has available to him or her a large number of semi-preconstructed phrases that constitute single choices, even though they might appear to be analysable into segments" (1991: 110).

Michael Lewis[8](1993) also suggest that, languages are composed of "grammatical lexis" instead of "lexicalized grammar" since lexis is the base of language. Thus, it is of even greater significance that learners should be instructed to get a handle on authentic chunks in the second language learning process where an immersive learning environment is in the lacking. In this way, learners can avoid producing sentences that are grammatically correct but lack authenticity and communicativeness.

On the other hand, despite the fact that different syntactic structures between two languages may correspond to each other, it is difficult to find semantic terms that are perfectly equivalent. While there may exist consistent parameter instantiation in a particular syntactic rule between the two languages, other parameters remains different. Genuinely similar cross-lingual features are only episodic. For instance, similar static features are presented and processed differently among various languages.

Though the basic lexical concepts of English and Chinese bilinguals overlap, conceptual categories are perceived differently in terms of the scope of generalization, cultural background, and word formation and collocation, which in turn lead to variations in cognitive representations.

However, opinions are varied on whether there are essential differences in language cognition among languages. Wary[9](2002) argues that, the pattern of formulaic language acquisition differ between first and second language learners based on the comparative study on their models of formulaic sequences output. Wary and Perkins[10](2000:14) even go further to suggest that second language learners can never reach the same level as native speakers in terms of formulaic language acquisition. While on the other hand, Beck and Andrea[11](2016:7), through two sets of experiment find that first and second language learners both need to process literal and figurative meanings in dealing with chunks. Hence, for advanced second language learners, there are no significant differences in their level of formulaic language acquisition.

Michel Paradis[12](2007:17) points out the four systems of cognitive architecture of bilingual speakers in verbal communication, i.e. implicit linguistic competence, explicit metalinguistic knowledge, pragmatic abilities and motivation. In organizing and processing concepts, there is no essential difference in monolingualism and bilingualism. Second language learners may lack implicit linguistic competence at the beginning since their main sources of input are textbooks, however, they will eventually develop their implicit linguistic competence as they frequently use the language for daily communication. However, their implicit linguistic competence has to largely

depend on explicit metalinguistic knowledge.

In second language acquisition, learners—whether adults or children with an established native language system—tend to adopt a cognitive strategy of least effort. Rather than relying on fixed idioms or conventional collocations in the target language, they instinctively draw upon the structural, combinatorial, and even phonological patterns of their native language. This proximity principle manifests universally in second language learning. Such cross-linguistic influence creates a dual effect: while it facilitates target language comprehension under certain conditions, it may also hinder acquisition in others, resulting in the bidirectional process of positive and negative native language transfer. Consequently, effective language pedagogy should guide learners to consciously leverage the conducive effects of explicit metalinguistic knowledge from their native language while mitigating its interferences. The ultimate goal is to enhance implicit linguistic competence and achieve fluid code-switching in bilingual communication.

2.2 Definition and classification of lexical chunks

Current research on interpreting employs diverse and often non-unified classification frameworks for lexical chunks, reflecting varying analytical objectives. Some studies adopt Biber's[13](2009:302) functional taxonomy, categorizing chunks into *stance expressions*, *discourse organizers*, and *referential bundles*; others follow Nattinger & DeCarrico's[14](2000) structure-based model, distinguishing *polywords*, *institutionalized expressions*, *phrasal constraints*, and *sentence builders*. Alternatively, syntactic classifications[15](Biber et al., 2004:378) group chunks as *verb phrase fragments*, *dependent clause fragments*, or *prepositional phrase fragments*, while interpreting-specific approaches classify them into *idioms*, *collocations*, and *routine formulae/clichés*. Further distinctions include syntactic constituent-based categories (e.g., *subject*, *predicate*, *object*, or *modifier* chunks) and hierarchical structural divisions (*clausal chunks* vs. *phrasal chunks*, the latter encompassing *noun phrases*, *verb phrases*, and *prepositional phrases*). This methodological plurality underscores the multidimensional nature of lexical chunks in second language acquisition and interpreting research.

Wang Yin[16](2007) synthesized Fillmore's analysis of idioms and proposed a classification system based on three key factors: lexical selection, syntactic arrangement, and semantic interpretation. Building upon Croft & Cruse's[17](1988:507) theoretical framework, Wang presented a comprehensive typology as Table 1 follows:

Table 1: Wang's typology for chunk classification

	Lexical selection	Syntactical arrangement	Semantic interpretation	examples	Note
I	-	-	-	kith and kin; with might and main	Type I
II	+	-	-	all of a sudden; in point of fact	Type II
III	+	+	-	pull X's leg; tickle the ivories	Type III
IV	+	+	+		routine formulae

The framework classifies idioms according to their compositional flexibility. Type I idioms exhibit minimal compositional flexibility, functioning as "frozen expressions" with mandatory lexical selection, rigid syntactic structure, and non-negotiable semantic unity. Type II idioms represent unconventional combinations of familiar words that create novel conceptualizations. Type III idioms are conventional arrangement of words in standard grammatical patterns to produce emergent meanings. Type IV represents conventional routine expressions.

Fillmore[17](1988:512) posits that Type I idioms maximally violate all lexical, syntactic and semantic conventions while Type II idioms violate syntactic and semantic conventions. Type III idioms, on the other hand, only deviate only in semantic interpretation. Although Type IV

conventional expressions technically fall outside this idiomatic spectrum, their status as lexical chunks is ultimately determined by high co-occurrence frequency in daily usage. Common collocations (e.g., "I think", "It can be proved that"), while conforming to all conventions, achieve such frequent usage that they constitute essential components of chunk-based acquisition and cannot be overlooked.

A systematic examination of the constituent factors underlying bilingual chunk transfer can reveal inherent cognitive divergences in how lexical chunks are processed across languages. Consequently, such analysis is instrumental in classifying chunks for cross-linguistic transfer research, which not only enhances the precision of pedagogical interventions in interpreter training but also significantly improves the accuracy and fluency of real-time chunk conversion.

3. Research Design

3.1 Research questions

This study aims to address the following key questions:

1) Chunk-use patterns in Chinese-English interpreting, including the quantitative and qualitative characteristics (e.g., frequency, types, and patterns) of lexical chunks employed by second language learners at different proficiency levels.

2) Cross-level processing differences, specifically, do significant differences exist among learners at varying proficiency levels when processing distinct types of Chinese lexical chunks (e.g., clausal chunks vs. phrasal chunks)? What cognitive or linguistic factors might account for these disparities?

3) Cross-linguistic asymmetry effects: how does the degree of equivalence between Chinese and English chunks influence production accuracy? What underlying mechanisms explain these effects when chunk correspondence levels vary?

3.2 Interpreting performance assessment methodology and criteria

Assessment design: The assessment utilized authentic audio recordings from one final test of third-year undergraduate students majoring in English interpretation and translation. The test material featured:

Genre: interview dialogue on China's cultural reform, specifically addressing the export of cultural products (films)

Length: 288 Chinese characters (90 second audio) with moderate speech rate (≈192 characters/minute)

Linguistic Features: clear discourse markers; balanced sentence complexity (8 sentences in total, 4 being complex structures); 9 domain-specific terms with 2 pre-provided glossary item

Participant profile: test takers are formally trained with 4 semesters of foundational and thematic interpreting courses covering note-taking techniques, memory retention strategies and information restructuring skills; they possess medium-to-high-level English proficiency in English listening, lexical precision and fluent expression; they are reasonably familiar with recurring interpreting topics and terminology

Assessment criteria: synthesizing established evaluation frameworks, including Chen Yu's systematic review of domestic interpreting assessment standards[18](2017:77), Professional Interpreting Examination Scoring Scale by Yang Chengshu[19](fidelity, fluency, language use, time management) (2005)and Chen Jing's[20]Quantitative Interpreting Assessment Matrix(2002:51), the scoring system as illustrated in Table 2 adopted a dual-focus approach which examines both the effectiveness of interpretation output and proficiency of interpreters. It ensures comprehensive

evaluation of both product (interpretation output) and process (cognitive skills), aligning with contemporary interpreter education models that emphasize holistic competency development.

Table 2: The scoring system

Item	Criterion
Fidelity(40%)	Correctly identifies primary intent and information hierarchy(15%)
	No substantive omissions of content(10%)
	Effectively utilize analytical skills and notes for information retention(15%)
Expression(40%)	Natural intonation and accurate pronunciation(10%)
	Grammatically correct output(15%)
	Maintain communicative purpose,avoids literal translation and redundancies(15%)
Logic(10%)	Logical information sequencing, use of cohesive devices
Cope tactics(10%)	Flexible application of inference, omission, summarization, repetition, paraphrasing and other coping tactics

The dual-focus approach examines both the interpretation output (linguistic accuracy, communicative effectiveness) and the interpreter's cognitive skills (information processing, adaptive strategies), ensuring a balanced evaluation of performance and potential.

The "fidelity" dimension prioritizes content integrity, assessing intent recognition, or the interpreter must discern the speaker's primary purpose and hierarchical structure (e.g., distinguishing claims from evidence in argumentation). Misinterpretation here risks distorting the discourse's pragmatic function. The dimension also assess completeness, critical omissions (e.g., omitting key statistics in a financial report) are penalized, while minor redundancies may be tolerated. This criterion aligns with Yang Chengshu's[19](2005) emphasis on fidelity as the foundation of trust. Cognitive skills under the dimension is also assessed, effective note-taking (e.g., using symbols for recurring concepts) and real-time analysis (e.g., identifying discourse markers like however for contrast) are evaluated, reflecting Chen Jing's[20] (2002) focus on measurable process skills.

The "expression" dimension evaluates communicative naturalness, including prosodic features (e.g., stress patterns in English vs. tonal nuances in Chinese), which must match target-language norms. A monotone delivery could undermine engagement. Grammatical errors are also included in this dimension (e.g., tense inconsistency in narrative interpreting), which are weighted more heavily than stylistic infelicities. Also, literal translations (e.g., rendering Chinese idioms word-for-word) are penalized; instead, dynamic equivalence is encouraged.

The "logic" dimension emphasizes coherence and cohesion in textual level, assessing the interpreter's ability to reconstruct implicit coherence from the source speech. For example, a cause-effect relationship signaled in Chinese should be rendered with "thus" in English, not left as an implied connection. Cohesive devices (e.g., furthermore, in contrast) must align with target-language conventions.

The "coping tactics" dimension acknowledges real-world challenges (e.g., rapid speech, technical jargon). Effective tactics include: omission, or the skipping redundant fillers (e.g., *"you know"*) without losing substance; summarization, or the ability to condense information when time-constrained; **paraphrasing**, which refers to the ability to rephrase ambiguous terms (e.g., *"stakeholders"* → *"affected parties"*) for clarity.

3.3 Lexical chunk extraction and scoring protocol

Building on the classification framework established in Section 2.2, Chinese lexical chunks were categorized into clausal chunks (CP) and phrasal chunks, while the latter are further subdivided into noun phrases (NP), verb phrases (VP), prepositional phrases (PP)and adjective phrases (AP)

Both source-text segments and interpreted output were analyzed according to Fillmore's tripartite framework (lexical selection, syntactic arrangement, semantic interpretation), yielding four distinct categories as detailed in Table 3 below:

Table 3: Extracted chunks in 4 categories

Type	Chinese Chunk	Category	Reference Interpretation	Category
CP1	hen duo ren ren wei…	IV	… are mostly seemed… (It is mostly believed…)	IV
CP2	jiang...lie wei...	IV	… are listed as …	IV
CP3	Hen duo ren ren wei zui zhong yao de yi ge yuan yin...	IV	the most important one by many…	IV
CP4	...yao zhen zheng fa zhan bing shi xian guo ji hua	IV	to essentially develop and internatioalize …	IV
CP5	bi xu jia qiang...de he zuo	IV	… cooperation must be strengthened.	IV
NP1	Zhong guo guo chan da pian	IV	Chinese blockbusters	IV
NP2	Zhong guo de dian ying yi shu chuang zuo	IV	Chinese film-making industry	III
NP3	dian ying gou si	III	ideas and plot design	IV
NP4	yi shi jian kong	III	ideological control	IV
NP5	zhong guo guang dian zong ju	I	SARFT	I
NP6	dian ying de shen he zhi du	IV	China’s film industry central censorship	IV
NP7	dian ying ji shu he chan ye lian de que fa	IV	the industry lacks technologies and necessary product chains	IV
NP8	cheng shu de hou qi zhi zuo,fa xing, xuan chuan	IV	fully-developed post-production teams, distribution and publicity services	IV
VP1	jiao hao bu jiao zuo	I	Despite their box office success, Chinese films turn out to be very disappointing.	III
VP2	que fa yuan chuang	III	in lack of originality	III
VP3	qu er dai zhi	I	be replaced with…/ be in replace of	III
PP1	zai xin lang de yi xiang diao cha zhong	IV	in the survey of Sina.com	III
PP2	zai hen chang yi duan shi jian nei	IV	for quite a long time	III
AP1	(qing jie)chen jiu cang bai	III	obsolete and dry (in story-telling)	IV
AP2	zui ling ren shi wang de	IV	the most disappointing	IV
AP3	he mei guo xiang si de	IV	American-like	III

The students’ interpreted recordings were first transcribed verbatim. Each target-language output was then analyzed to identify and extract lexical chunks corresponding to the source-text chunks (as classified in Table 3). Student performance on each chunk rendition was scored separately and assigned one of three tiers: A(100), B(50) and C(0).

3.4 Results

Overall student performance: students generally demonstrated a high level of concentration and task engagement under the formal test setting. While anxiety may have affected performance of some test-takers, the two-year training program and prior examination experience suggest that nervousness did not constitute a substantively influential variable in overall outcomes.

The average score was 67.18 (SD = 13.062) among 44 tesk-takers, with a near-normal distribution (skewness = -0.668, kurtosis = -0.031, skewness and kurtosis values within ±1), indicating that most students clustered around the mean, with fewer extreme high or low performers as illustrated in Table 4:

Table 4: Experiment result

	N	Min.	Max.	Mean	SD	Variance	SE		Kurtosis	
	data	data	data	data	data	data	data	Std. Error	data	Std. Error
mark	44	35	90	67.18	13.062	170.617	-0.668	0.357	-0.031	0.702

The test difficulty coefficient of P=0.33 indicates a moderate level of difficulty, suggesting that students were generally able to maintain acceptable faithfulness to key information in their interpretation outputs, with overall comprehensibility and reasonable fluency in expression.

An analysis of lexical chunk categories reveals distinct patterns in translation accuracy: CP chunks demonstrated relatively high accuracy, suggesting strong syntactic processing; NP and VP chunks showed more frequent mistranslations, possibly due to complex semantic or syntactic structures; PP and AP chunks exhibited predominant omission errors, indicating potential struggles with nuanced modifiers or idiomatic usage.

Furthermore, when examining performance by scores (dividing students into high- and low-performing groups of 10 students each), the score distribution across test items produced the following curve pattern in Figure 1:

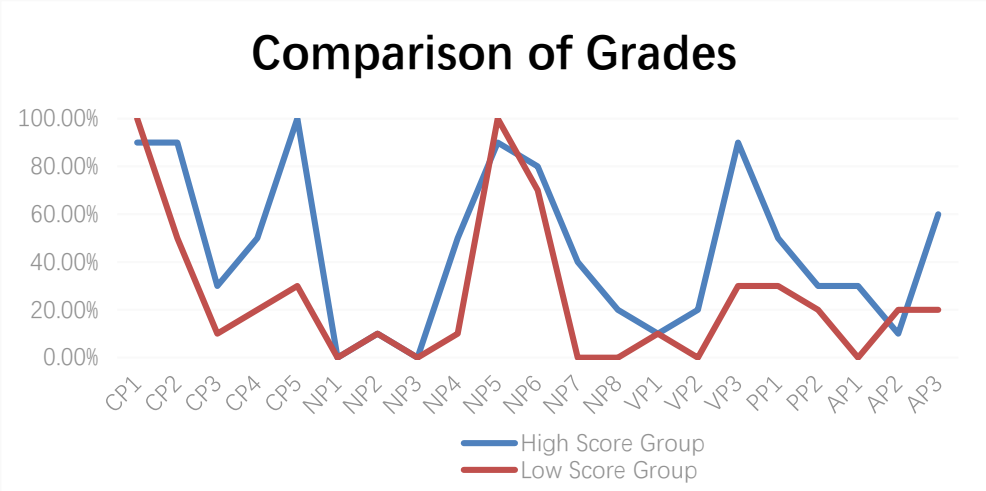

Figure 1: test score distribution pattern

The comparative analysis revealed distinct performance patterns across different chunk types: both high- and low-performing groups demonstrated consistently high accuracy rates in the interpretation of CP1, NP5, and NP6, Suggesting these structures were well-mastered or inherently easier, while both cohorts showed persistently low accuracy rates when it comes to NP1, NP2, NP3, and VP1 interpretation, indicating persistent difficulties, possibly due to ambiguous referents, complex noun modifiers, or irregular verb usage. Performance varies most significantly between groups in CP5, NP4, NP7, NP8, VP3, AP1 and AP3 interpretation. These may involve higher-order cognitive demands, such as: complex clause embeddings (CP5), technical or abstract noun phrases (NP4, NP7, NP8), figurative or idiomatic verb usage (VP3), and subjective or evaluative adjective phrases (AP1, AP3).

High performers excelled in cognitively demanding chunks, suggesting advanced training (e.g., syntactic flexibility exercises) could further enhance their skills, while low performers may need

foundational reinforcement.

The study highlights key strengths (CP accuracy) and systemic weaknesses (NP/VP mistranslations, PP/AP omissions) in student interpretation. The divergence between high and low performers in cognitively complex chunks underscores the need for differentiated training approaches. By refining instruction around problematic categories and investigating underlying causes, educators can enhance both accuracy and consistency in student outcomes.

3.5 Causal analysis

Overall, clausal chunks (CP) demonstrate relatively accurate conversion rates, as cognitively their strong macro-conceptual nature allows them to enter long-term memory more readily through training, thus achieving internalization. On the other hand, noun phases (NP) conveying core conceptual information as arguments, along with verb phrases(VP) describing dynamic events, directions, trends, or states, constitute the critical elements in chunk acquisition. Particularly, NPs functioning as arguments carry the primary informational load, significantly influencing sentence generation patterns. Empirical data from this study and others reveals that NPs occur with higher frequency than all other chunk types in language production. This suggests that proficient use of NPs is essential to enhancing interpreting quality and fluency under limited cognitive resources.

In contrast, adjective phrases (AP) specifying qualitative states and prepositional phrases (PP) delineating scope/direction are most susceptible to omission during time-constrained interpretation, as interpreters prioritizing core information often sacrifice these elements due to memory load constraints.

Other systemic issues in the output include: grammatical and syntactic errors (tense mistakes, incomplete sentences, agreement issues), mistranslation of technical terms and fixed expressions, mechanical source-to-target language equivalence without structural flexibility, and failure to logically reconstruct information.

Group-wise, both high- and low-performing groups exhibited higher accuracy in their conversion of three chunks: CP1 was predominantly rendered as “Many people think...”, which is grammatically and semantically acceptable, with only one high-scoring participant (86/100) producing the more idiomatic “It is widely acknowledged that...”. This indicates learners’ tendency to rely on native language cognitive patterns when selecting chunk equivalents before achieving advanced second language proficiency. The other two chunks, NP5 and NP6 are pre-provided terms, whose high accuracy in conversion is quite expected.

Among low-accuracy chunks, three are proper nouns (NP1-NP3), demonstrating how mastery of domain-specific terminology significantly impacts output quality. Participants also scored lower in the interpretation of VP1, a culturally dense idiom, which revealed their struggles with time-constrained conversion of conceptually concentrated items, highlighting the need for targeted idiom training.

In terms of diagnostic chunks whose interpretation quality varied significantly between two groups, CP5 is the only clausal chunk detected, which exposed a critical Chinese-English structural divergence: subjectless constructions are pervasive in Chinese, whereas English structurally requires explicit subjects. To accommodate this divergence, Chinese subjectless sentences are typically converted into either dummy-subject constructions or passive voice in English. High-scorers demonstrated internalization of such conversion strategies (using dummy subjects or passives), whereas others produced ungrammatical conversions due to negative native language transfers. It’s important to note that it takes systematic training and reinforcement to develop an internalized conversion mechanism capable of rapid deployment. And the high-performing participants’ responses demonstrate that such internalization is indeed achievable.

NP4/NP7/NP8 involved specialized terms (e.g., “ideological”, “chain of production”, “post-production”). Unfamiliarity with these terms caused processing breakdowns and subsequent output failures in low-scorers.

VP3 was correctly handled via verb chunks (“be replaced with/be in replace of”) or verb-preposition combinations (“adopt...instead”) by high-performing test-takers. Common errors involved misusing “instead of” as a main verb and reversing argument order, revealing insufficient understanding of the chunk’s syntactic-semantic constraints.

The conversion of two APs exposed different problems: when interpreting AP1, low-scorers showed a limited descriptive lexicon, producing generic terms like “old”, boring”, “not interesting or omitting the entire chunk in their outputs. On the other hand, AP3 required cross-category conversion (Type IV to Type III, or clausal modifier to compound adjective). Failures to use “noun-like” constructions (e.g., producing "like America" instead of "America-like [rating system]”) resulted in conceptual loss and ineffective translation.

To conclude, interpretation errors stem from two primary factors: native language cognitive interference and insufficient second language mental lexicon. For second language learners, richer chunk inventories enabling direct retrieval and transcoding. Conversely, when encountering unfamiliar chunks during Chinese-English conversion, learners can only resort to approximate substitutions. Highly proficient second language learners demonstrate three key advantages: stronger resistance to native language interference, richer effective information storage in their second language mental lexicon, and enhanced automaticity in lexical retrieval coupled with stronger language production capacity.

The analysis of high- and low-performing groups reveals distinct patterns in chunk conversion, highlighting both strengths and persistent challenges in second language acquisition. While high-accuracy chunks like CP1 and pre-provided terms (NP5/NP6) demonstrate learners’ ability to handle straightforward or familiar structures, the difficulties with proper nouns (NP1-NP3) and culturally embedded idioms (VP1) underscore the critical role of domain-specific knowledge and cultural competency. Proper nouns, often lacking direct equivalents, require prior exposure or research, while idioms demand conceptual rather than literal translation. Low-scorers’ struggles with these items reflect gaps in specialized vocabulary training and idiom acquisition strategies, suggesting the need for pedagogical interventions such as glossary-building exercises and contextualized idiom drills.

A key divergence between groups lies in their handling of structural differences between Chinese and English, particularly with subjectless constructions (CP5). High-scorers successfully applied grammaticalization strategies, employing dummy subjects (“It is necessary to...”) or passive voice (“Cooperation must be strengthened...”), whereas low-scorers often produced subjectless English sentences due to L1 transfer. This gap underscores the importance of explicit instruction on syntactic restructuring, emphasizing practice with L2-specific grammatical frames. Similarly, the misinterpretation of VP3 as “instead of” (misused as a verb) reveals insufficient awareness of chunk-internal syntax, pointing to the need for collocational pattern drills.

Lexical limitations further differentiate proficiency levels. For AP1, low-scorers relied on generic descriptors (“old,” “boring”), exposing a shallow adjectival repertoire. In contrast, high-scorers accessed nuanced terms like “clichéd” or “devoid of originality,” reflecting richer mental lexicons. AP3 required morphosyntactic flexibility to convert a clause into a compound adjective (“America-like”). Failures here illustrate learners’ tendency to default to familiar structures rather than adopting L2-typical forms, a hurdle addressable through contrastive grammar tasks and productive word-formation practice.

Ultimately, proficiency hinges on three pillars: resistance to L1 interference, lexical richness, and automaticity in retrieval. High-performers excel by internalizing L2-specific structures,

expanding their chunk inventories, and achieving fluent transcoding. For learners, systematic training in collocations, syntactic restructuring, and domain-specific terminology is essential to bridge these gaps. Pedagogical focus should prioritize not only comprehension but also the rapid, accurate production of L2-appropriate forms, fostering the transition from deliberate processing to automatic conversion.

4. Conclusion

Paradis (2007) posit that the cognitive foundations of bilingualism are essentially identical in terms of organizational architecture, development, and utilization. Second language learners possess not only dual linguistic storage systems but also a non-linguistic cognitive system—termed by some scholars as the "common underlying conceptual base." His argument stems from the observation that even monolinguals lack perfectly congruent conceptual representations, with native language speakers constantly adjusting their behaviors, linguistic or otherwise to situational demands—a process analogous to second language learners' selection of optimal expressions. Adult bilingual learners demonstrate no fundamental differences in conceptual cognitive development, representation, or operational mechanisms, despite their varying reliance on implicit linguistic competence, metalinguistic knowledge, and pragmatic competence. Notably, second language learners typically show diminished implicit linguistic competence and limited metalinguistic knowledge, while the latter often serves as partial compensation for the former.

This view of shared cognitive mechanisms between native language and second language acquisition yields two direct consequences: the integration of bilingual mental lexicons, and the absence of first/second language subsystem segregation when processing conceptual information. Lexical recognition operates automatically, with information activated only upon lexical retrieval. However, most adult second language learners exhibit native language dominance in semantic activation due to uneven language use frequency. The general bilingual cognitive system comprises: native language concepts, native language concepts modified by second language influence, second language concepts attaining native-language-like status, and second language concepts shaped by native language transfer. Though the two linguistic codes differ in their integration levels across phonological features, semantic conceptualizations, morphological characteristics, collocational patterns, and syntactic rules, both remain connected to the non-linguistic cognitive system while mapping onto their respective semantic-cognitive frameworks. The second language acquisition process essentially establishes connections between these dual linguistic subsystems and the non-linguistic cognitive system. Through continuous calibration of these tripartite relationships, learners develop increasingly sophisticated cognitive contexts that ultimately enrich the non-linguistic cognitive system itself.

As conceptual information complexes, chunks manifest divergent semantic prototypes, conceptual categories, and combinatorial patterns across linguistic systems—differences that create substantial code-switching challenges for learners. During lexical activation in context, not all associated conceptual features become operational; users prioritize contextually relevant features based on their mental lexicon's conceptual inventory. Sensitivity to such associations depends on the quantity and quality of stored conceptual features, with highly cohesive and frequently accessed features receiving preferential activation. As second language proficiency advances, fine-grained distinctions emerge between bilingual lexical entries, prompting cognitive feature regrouping and precise identification of cross-linguistic variations. Bilingual learners sometimes inappropriately transfer internalized native language metaphorical mappings as conceptual scaffolds for second language acquisition—a negative transfer that impedes communication. When encountering unfamiliar second language concepts during Chinese-English conversion, learners typically avoid

risky formulations, opting instead for safer, established expressions. This demonstrates that L2 acquisition and use constitute a dynamic process involving continuous linguistic and conceptual conversion between multiple language systems.

The cognitive cost of conversion varies significantly across chunk types during cross-linguistic and cross-conceptual transitions. Systematic classification of subsystem-specific conversion difficulties should identify individualized error patterns, enabling targeted pedagogical interventions. These include creating optimized contextual and conceptual combinations, strengthening chunks' representation in the common underlying conceptual base, and facilitating their transition from working memory to long-term storage through comprehensive internalization.

Like native language acquisition, second language learning involves continuous matching and categorization of linguistic knowledge against the learner's perceived world, requiring constant adjustment of cognitive schemata and experiential frameworks. This process is not merely additive but fundamentally reconstructive, as learners must reorganize their conceptual systems to accommodate new linguistic paradigms. The cognitive load is particularly high when dealing with "second language gap" items—lexical and conceptual domains that lack direct equivalents in the learner's native language. These gaps necessitate more than simple vocabulary substitution; they demand the construction of entirely new conceptual representations within the learner's mental lexicon.

The restructuring of categorical systems is central to this process. Learners must modify not only their basic-level categories but also the hierarchical relationships between concepts, which often differ across languages. This requires instructors to systematically guide learners through the target language's categorization patterns, emphasizing not just individual lexical items but their relational and contextual dimensions. By doing so, learners develop a more nuanced understanding of how words map onto concepts and how these concepts interact within the broader semantic network of the language.

Effective second language instruction must therefore prioritize conceptual fluency alongside grammatical and lexical accuracy. This involves exposing learners to varied contexts in which target words and structures are used, allowing them to infer categorical relationships and prototype effects. Over time, this leads to a more native-like grasp of the language, where lexical knowledge is not just stored but dynamically accessed and applied in a manner consistent with the cognitive patterns of proficient speakers. The ultimate goal is not merely the accumulation of vocabulary but the development of an adaptive, flexible system capable of handling the complexities of real-world communication.

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