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Cognitive pitfalls and pedagogical breakthroughs in teaching cognate disyllabic synonyms to central Asian students

Yijing Liu

School of International Cultural Exchange, Northwest Normal University, Lanzhou, China

1018817906@qq.com

Abstract. This study examines 28 pairs of cognate disyllabic synonyms from Developing Chinese: Intermediate Comprehensive I, establishing a three-level classification system of "within-level," "cross-level," and "cross-band" distinctions based on the Chinese Proficiency Grading Standards for International Chinese Language Education. A questionnaire administered to 51 Central Asian students reveals that (1) cross-level synonym discrimination forms a cognitive pitfall (accuracy rate of only 59.15%), markedly lower than within-level (75.98%) and cross-band (74.59%) items. The main causes are conflicts across multiple dimensions (grammatical properties × affective connotation × situational constraints) and the mismatch of instrumental strategies (60.78% dependence on dictionaries). (2) Core difficulties lie in collocational differences (52.94%) and distinctions in affective connotation (52.94%), while a passive learning mode exacerbates pragmatic challenges. In response, the study proposes a three-dimensional pedagogical reconstruction framework: creating contrastive scenarios through dynamic contextual training, establishing a graded annotation system, and promoting explicit development of metacognitive strategies.

Keywords: cognate disyllabic synonyms, Chinese proficiency grading standards for international Chinese language education, graded instruction, central Asian students, metacognitive strategies

1. Introduction

Discriminating between near-synonyms is a core difficulty for intermediate-level learners. In particular, after acquiring approximately 1,500 basic words, cognate disyllabic near-synonyms—due to morphemic similarity—exhibit blurred semantic boundaries, making them a frequent source of learner errors [1]. These words are prominent in the post-lesson exercises of Developing Chinese: Intermediate Comprehensive I (with 28 out of 54 synonym pairs being cognate disyllabic words). However, the current textbook analysis model does not implement a graded instructional design, and the accompanying teacher's guide fails to explicitly identify learner difficulties or common error points, resulting in widespread confusion among students [2].

Current research reveals a "broad vs. narrow" debate over the definition of near-synonyms: ontological studies emphasize a strict distinction between synonyms and near-synonyms [3], while second-language pedagogy advocates for a broader scope that includes easily confused cognate words [4]. In terms of teaching methods, existing approaches have focused on morphemic analysis (e.g., parsing the semantic contributions of "持" and "续"), collocational contrast, and contextual training [5]. However, three major limitations remain: (1) Lack of level alignment: Although scholars have recognized the hierarchical nature of difficulty in distinguishing cognate disyllabic near-synonyms, few studies have quantitatively examined differences in discriminative difficulty among within-level, cross-level, and cross-band words using the Chinese Proficiency Grading Standards for International Chinese Language Education (hereafter the Grading Standards) and its "three bands, nine levels" framework [6]. (2) Insufficient understanding of cognitive processes: The semantic processing mechanisms used by international students—such as morphemic awareness and situational adaptation strategies—have yet to be thoroughly investigated. (3) Limited generalizability of strategies: Although Deng Yan's research on adjectives [7] and Zhang Qin's analysis of verbs [8] offer valuable insights, neither establishes a graded instructional paradigm. Yu Lei's investigation of cognate reversed-sequence words in the Grading Standards also does not address hierarchical training for near-synonym discrimination [9]. In response, this study develops a three-level system of within-level, cross-level, and cross-band distinctions, empirically deconstructs cognitive difficulties, and proposes a graded instructional framework.

2. Research materials and methods

This study is based on Developing Chinese: Intermediate Comprehensive I, from which 54 pairs of near-synonyms were extracted from its post-lesson exercise system. The focus is on 28 pairs of cognate disyllabic near-synonyms, which were categorized according to the "three bands, nine levels" framework of the Chinese Proficiency Grading Standards for International Chinese Language Education. A stratified sampling method was employed to select six pairs from each of the three near-synonym categories (for a total of 18 pairs) as test items, ensuring coverage of different levels of cognitive difficulty (see Table 1).

Table 1. Grading standards distribution of the selected 18 Pairs of cognate disyllabic near-synonyms

Category	Level		Pairs
Within-level Synonyms	Elementary	Level 2	以为 — 认为 (think — believe)
		Level 3	继续 — 持续 (continue — persist),坚强 — 坚决 (strong — determined),证明 — 证据 (prove — evidence)
	Intermediate	Level 4	规律 — 规则 (regularity — rule)
		Level 5	享受 — 分享 (enjoy — share)
Cross-level Synonyms	Elementary	Level 2–3	消息 — 信息 (news — information),面前 — 前面 (in front — front),合适 — 适合 (suitable — suit)
	Intermediate	Level 4–5	不免 — 难免 (inevitably — hardly avoidable)
		Level 4–6	约会 — 约定 (date — agreement)
Cross-band Synonyms	Elementary–Intermediate	Level 1–5	时间 — 时光 (time — time (poetic))
		Level 2–4	心理 — 心里 (psychology — in the heart)
		Level 2–6	特意 — 故意 (deliberately — intentionally)
		Level 3–4	职业 — 行业 (occupation — industry)
	Elementary–Advanced	Level 2–Advanced	感动 — 感激 (moved — grateful)
	Intermediate–Advanced	Level 6–Advanced	相遇 — 遭遇 (encounter (neutral) — encounter (negative))

The questionnaire consisted of three parts: (1) Personal information, which collected participants' country of origin, linguistic background, HSK level, and duration of study to analyze learner differences. (2) Near-synonym test: Each synonym pair was presented in two example sentences, requiring participants to choose the most appropriate word and indicate their selection rationale (e.g., meaning, collocation). (3) Subjective feedback: Multiple-choice questions surveyed learners' awareness of difficulties (e.g., differences in meaning, affective connotation) and their problem-solving strategies (e.g., dictionary use, contextual guessing), along with a five-point scale for evaluating perceived test difficulty.

3. Data analysis

3.1. General characteristics analysis

This questionnaire survey employed purposive sampling, selecting all intermediate and advanced international students in the Chinese language program at Northwest Normal University from Kyrgyzstan, Kazakhstan, and Uzbekistan, yielding a total of 51 valid responses.

The data show that the sample mainly comprised intermediate-level Chinese learners with a Central Asian, Russian-speaking background (primarily HSK Level 4), with a significant male majority and learning duration concentrated in the 1–2 year range —characteristics typical of intermediate-level learners. Learners' difficulties in near-synonym discrimination exhibited multidimensional patterns. Notably, collocational differences (52.94%) and affective connotation distinctions (52.94%) emerged as the most prominent challenges, reflecting deep-seated confusion at the semantic-pragmatic level. Morphemic differences (41.18%) and situational constraints (35.29%) represented secondary difficulties, indicating systematic blind spots in learners' understanding of word formation logic and contextual adaptation [10]. Notably, difficulties related to grammatical properties (31.37%) and formal similarity (13.73%) were relatively low. This may result from explicit instruction in features such as word class, but also suggests that learners are more sensitive to subtle semantic differences overall, revealing a cognitive pattern of "semantic-pragmatic priority over grammatical form."

In addition, learners' near-synonym learning strategies showed a marked dependence on tools: 60.78% preferred consulting dictionaries or searching for example sentences, and 45.10% relied on memorizing comparison tables. This reflects a general

tendency toward passive learning modes that seek definite answers through external resources. By contrast, strategies requiring active reasoning, such as contextual guessing (43.14%), and those involving authentic interactive practice (31.37%), were used less frequently. This "input-heavy, output-light" distribution of strategies indicates clear shortcomings in learners' autonomous application and pragmatic practice.

3.2. Stratified comparative analysis

Survey results show that the overall accuracy rate for the 6 pairs of same-level synonyms (12 items in total) was 75.98%. Among these, the pair "享受/分享" ("enjoy/share") achieved the highest accuracy (88.24%–90.20%), while the remaining pairs ranged from 66.67% to 80.39%. The accuracy rates for the two questions per pair were largely consistent, indicating that learners demonstrated a systematic cognitive pattern in distinguishing same-level synonyms. In contrast, the cross-level synonym pairs had a significantly lower overall accuracy rate of 59.15%, well below that of same-level pairs (75.98%). Within this group, "面前/前面" ("in front of / front") had the highest accuracy (72.55%), while "难免/不免" ("hard to avoid / inevitably") and "约定/约会" ("agreement / date") had the lowest (47.06%–49.02%). This reflects a marked increase in difficulty for cross-level distinctions. Notably, even for high-frequency pairs such as "适合/合适" ("suitable for / suitable") (52.94% / 50.98%) and "信息/消息" ("information / news") (64.71% / 66.67%), accuracy remained low, indicating significant confusion even with common vocabulary when it crosses proficiency levels [11]. Overall, learners particularly struggled with distinguishing abstract concepts (like "难免/不免") and context-specific terms (like "约定/约会"). For cross-category synonyms, the overall accuracy rate was 74.59%, falling between same-level (75.98%) and cross-level (59.15%) pairs. Within this category, "时间/时光" ("time / period") and "特意/故意" ("deliberately / intentionally") had the highest accuracy rates (82.35%–86.27%), while "心理/心里" ("psychological / in one's heart") and "相遇/遭遇" ("meet / encounter [often negative]") were lower (64.71%–66.67%). Interestingly, "职业/行业" ("profession / industry"), despite being in different semantic domains, achieved a relatively high accuracy of 80.39%, suggesting stronger learner differentiation for certain specialized terms, possibly due to a greater reliance on dictionary look-up strategies [13]. Overall, cross-category synonyms showed wider variability in accuracy, suggesting that learners had better mastery of some everyday terms but continued to struggle with abstract concepts and special usages.

In sum, the difficulty of distinguishing disyllabic near-synonyms with shared morphemes showed clear stratified differences. Cross-level synonym accuracy was significantly lower (by more than 15%) than for same-level and cross-category pairs. Combining these results with learners' reported difficulty rankings, the author argues that the core challenge of cross-level synonyms lies in the compounded effect of their complex features and learners' cognitive blind spots. These pairs typically involve simultaneous differences in multiple dimensions, including: Grammatical function (e.g., "合适" is an adjective vs. "适合" is a verb), Affective nuance (e.g., "遭遇" has a negative connotation), and Situational constraints (e.g., "约定" emphasizes negotiation, while "约会" highlights emotional or romantic purposes). Survey data showed these difficulty dimensions accounted for 31.37%, 52.94%, and 35.29% of reported issues, respectively. Learners could generally manage single-dimensional explicit differences, but cross-level synonyms require integrating multiple implicit distinctions simultaneously, which exceeds the cognitive load typical for intermediate learners. This compound challenge is especially evident in the pair "不免/难免." Distinguishing them requires learners to analyze: Word class (adverb vs. adjective), Subjective tolerance ("难免" implies resigned inevitability), and Syntactic collocation ("不免" often follows completed actions). These layered demands resulted in the lowest accuracy (47.06%) [12].

Furthermore, analysis of learner strategy preferences reveals a serious mismatch between the demands of cross-level synonyms and learners' dominant strategies. 60.78% of learners relied on dictionaries or example sentences, 45.10% memorized comparison tables. These tool-based strategies only deliver static rules (e.g., "适合 + object," "合适 + 的 + noun") and fail to address dynamic pragmatic contexts. Learners who depend on passive input struggle to flexibly adapt these distinctions in authentic contexts for accurate output. At a deeper level, this challenge stems from a disconnect between teaching logic and cognitive development. Cross-level words are scattered across different levels in the Proficiency Standards, but in practice, they are often introduced in segmented fashion or only explained when they appear, lacking systematic comparative training. Additionally, learners' morpheme analysis skills were underdeveloped (41.18%), for example failing to recognize that "免" emphasizes "avoidance" while "难" signals "difficulty." Without an integrated network linking cross-level near-synonyms, intermediate-level learners (primarily at HSK 4) concentrated their errors in these cross-level items.

Therefore, the author argues that the fundamental reason cross-level synonyms have become an "instructional blind spot" lies in a triangular contradiction among complex pragmatic rules, fragmented teaching practices, and passive learning strategies. To address this, instruction must be restructured along three dimensions: dynamic contextual training, explicit highlighting of contrasting dimensions, and cultivation of metacognitive abilities. Only in this way can cross-level synonyms be freed from the trap of rote memorization and transformed into a stepping stone for advancing learners' pragmatic competence.

4. Pedagogical implications

4.1. Strengthening contextual training: from static input to dynamic validation

Learners' high confusion rates with collocations (52.94%) and situational appropriateness (35.29%) reveal the limitations of current contextual training, which remains too static and uniform. There is an urgent need to enhance memory through pragmatic conflict, ultimately achieving accurate usage. The author argues that creating contrasting contexts is an effective approach—transforming isolated example sentences in textbooks into sets of conflicting scenarios. For example, when teaching the distinction between "特意 (deliberately/with a positive purpose)" and "故意 (intentionally/with a negative purpose)," teachers might design the following contrasting scenes:

①※他特意弄坏我的手机. (He deliberately broke my phone. → Confuses negative intent)

②他特意修好手机给我惊喜. (He deliberately fixed the phone to surprise me. → Highlights purposeful positivity)

By triggering cognitive conflict, learners are pushed to actively identify implicit rules, thereby avoiding misuse in specific contexts. In addition, for novice teachers, building a multimodal contextual corpus can help students memorize distinctions more effectively. This can include integrating film/TV clips (e.g., contrasting the line from The Untamed "匆忙之中,不免会有些丢失残缺" ["In haste, some losses are inevitable"] with Exclusive Memory "难免有摩擦" ["Conflicts are hardly avoidable"]), social dialogues (e.g., WeChat chats where "约会" emphasizes intimacy versus "约定" for formal arrangements), and news styles (e.g., formal "信息泄露" ["information leak"] versus colloquial "好消息" ["good news"]). Such a three-dimensional contextual reference system can support richer, more flexible learning [14].

4.2. Systematic reconstruction of a stratified teaching framework

The low accuracy rates in cross-level synonym discrimination expose the mechanical flaws in current stratified teaching. In response to the inadequate labeling of cross-level vocabulary in existing textbooks, the author proposes that materials should clearly mark such items with their difficulty levels and key learning points to provide learners with explicit goals. It is recommended to build a dynamic level-linkage model by establishing composite indicators such as "grammatical complexity × affective implicature × situational constraint," and assigning star ratings to target words. For example:

特意—故意:★★☆ (Intermediate-Advanced Difficulty)

Grammatical Complexity: ★

Both are adverbs (same word class), no grammatical function difference.(e.g., 特意/故意 + verb).

Low complexity: no need to distinguish usage by word class.

Affective Implicature: ★★★

特意: implies positive purpose (deliberate, often benevolent acts).

Example: 他特意早起为你做早餐.(He deliberately got up early to make you breakfast. — shows care.)

故意: implies negative intention (premeditated harm).

Example: 他故意打碎花瓶.(He intentionally smashed the vase. — shows malice.)

High discrimination demand: strong affective contrast.

Situational Constraint: ★★

特意: limited to planned contexts (emphasizes preparation).

Example: 我特意买了演唱会门票.(I deliberately bought concert tickets in advance.)

故意: limited to immediate contexts (emphasizes on-the-spot intent).

Example: 他故意在会议上反驳我.(He intentionally contradicted me in the meeting.)

Medium complexity: requires judging the timing of the action.

Teaching Focus: Affective contrast (core) > Temporal context of scenes (secondary); emphasizes comparative context training.

Based on such ratings, teachers can allocate differentiated instructional resources, assigning double the class time and context-intensive exercises to higher-star words to enhance learners' discrimination ability.

Furthermore, an inverse reinforcement mechanism should be established by embedding lower-level vocabulary review within advanced-level teaching. For example, when explaining "遭遇" (encounter/adverse), teachers can simultaneously contrast it with "相遇" (encounter/neutral), using symbols like △ to flag affective differences and create an inter-level cognitive loop. For the most complex cross-level pairs, it is recommended to develop dedicated thematic modules that break the rigid level boundaries of the Grading Standards. This involves reorganizing scattered cross-level words (e.g., "适合/合适" spanning Level 2–3) into units such as "Grammatical Function," "Affective Expression," and "Contextual Adaptation," enabling systematic comparative instruction.

4.3. Explicit cultivation of metacognitive abilities

The survey revealed that learners excessively rely on rote memorization strategies while neglecting morpheme analysis and strategic monitoring. Based on this, teachers need to help students establish an explicit metacognitive training mechanism. Since "a method is just a method," learners must internalize it and develop their own strategy system to effectively distinguish near-synonyms. The author argues that reinforcing morpheme awareness and visualizing morpheme decomposition can effectively enhance learners' ability to differentiate disyllabic near-synonyms with shared morphemes. For example, in distinguishing "持续/继续" ("persist/continue"):

The morpheme "持" in "持续" implies linear extension → continuity vs "继" in "继续" suggests sequential action → intermittency.

Moreover, the "Strategy-Matching Training Table" offers a relatively "safe" pathway for learners inclined to rely on tools. By developing a correspondence system between near-synonym types and cognitive strategies—for instance, designating "contextual simulation exercises" as the preferred approach for cross-level synonyms—learners can be guided away from "mechanical memorization of tables." In Chinese language classrooms, conscious implementation of strategy selection competitions can be conducted. For example, upon drawing a word card such as "心理/心里" ("psychological / in one's heart"), learners would be required to select a strategy within a time limit (e.g., if choosing "contextual guessing," they must construct and verify sentences on the spot).

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