Developing L2 Chinese Learners' Conceptual Understanding of the Polysemous Verb Compound Verb-dao

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Abstract

Chinese vocabulary is characterized by compound words composed of monosyllabic morphemes. Compounds sharing a common lexeme often exhibit polysemous meanings, forming a cognitive semantic network. Systematic instruction on these high-frequency compounds can help learners access their meanings and underlying structure, making learning more predictable. This study applied concept-based instruction (CBI) to teach the polysemous verb compound Verb-dao, using a Schema for Complete Orienting Basis of Action (SCOBA) to visually represent its four core meanings. Conducted with third-semester Chinese students at a Midwestern public university in the United States, the four-week study followed a pre-test, intervention, and post-test design. The intervention included SCOBA instruction, a practice session, and verbalization exercises. A follow-up survey indicated that SCOBA aided students in grasping Verb-dao's meanings. This study highlights the effectiveness of explicit, systematic vocabulary instruction and shows that visualizing the semantic network of compounds can improve learners' processing and retrieval of these words.

Keywords: *Concept-Based Instruction, Schema for Complete Orienting Basis of Action, Chinese Verb-Complement Compounds, Verb-dao*

[1]Introduction

A distinctive feature of Chinese vocabulary is the prevalence of compounds composed of two or three morphemes (Chinese terms made up of two or three 字 *zi* 'character'). These

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morphemes are typically monosyllabic and polysemous. According to cognitive linguists Evan and Green (2006), compounds sharing a common lexeme exhibit polysemous meanings and form a systematic cognitive semantic network. Systemic instruction on the semantic structure of high-frequency compound words can help students recognize and grasp these underlying linguistic patterns. This study applied Concept-Based Instruction (CBI) to teach the polysemous verb compound Verb-dao (hereafter abbreviated as *V-dao*) to Chinese language learners. CBI, as described by second language (L2) researcher, promotes language development by presenting a linguistic concept followed by verbalization and internalization (Lantolf & Thorne, 2006; Lantolf & Poehner, 2014). Based on a cognitive semantic analysis of *V-dao*, a Schema for Complete Orienting Basis of Action (SCOBA) was designed to visually represent its multiple meanings. The study was conducted with a class of third-semester Chinese students at a Midwest public university in the United States, using a pre-test, instructional intervention, and post-test design. Results showed significant improvement in the students' production of the verb-complement compounds. In a follow-up survey, students expressed that the CBI approach, especially the visual representation of *V-dao*'s polysemous meanings, enhanced their understanding. These findings suggest that teaching the semantic structure of Chinese verb compounds can deepen L2 learners' vocabulary knowledge and production skills.

Theoretical Framework

Concept-Based Instruction

Concept-based instruction is an explicit pedagogical approach grounded in Vygotsky's general principles of learning and psychology (Lantolf & Thorne, 2006; Lantolf & Poehner, 2014). Vygotsky (1986) distinguished between spontaneous and scientific concepts, where the former are derived from direct experience and are often concrete, empirical, and context bound. Take the Chinese aspect marker *-le* as an example, most native Chinese speakers know it typically co-occurs with past events. However, this understanding alone does not account for cases like 要下雪了。('Yao xia xue le.' meaning *It is going to snow*.) or 快一点儿，我们要迟到了。 ('Kuai yi dian'er, wo-men yao chi-dao le.' meaning *Hurry up! We will be late.*). Linguistic knowledge of *-le* is needed to explain the full range of its usages. That is what Vygotsky referred to as scientific concepts, which are abstract, explicit, and generalizable (Lantolf, 2006, 2011). Vygotsky (1978, 1987) argued that formal schooling be structured around scientific concepts rather than spontaneous ones, as he believed these concepts enhance learning outcomes.

Applying Vygotsky's principles, Gal'perin (1979, 1989, 1992) developed a five-step formation of mental actions model, the central concepts of which are materialization, verbalization, and internalization. Materialization, the first step, focuses on representing instructional content visually or concretely, often through models, pictures, diagrams, or flowcharts – termed a "Scheme for Complete Orienting Basis of Action" (SCOBA). In CBI, SCOBA often serves to aid in the explanation of a scientific concept, also called materialization, which is presented in the form of models, flowcharts, pictures, or graphs, to encapsulate the essential attributes and relationships of concrete, physical objects that will guide the learner in carrying out the intended mental action. The second step, verbalization, is first attempted as overt and then as covert speech in Gal'perin's model, the purpose of which

is to convert the materials (in this case the SCOBA) provided by the instructor to the verbal forms practiced by students. It is regarded as a sign of internalization if learners can verbalize the concepts in covert form. Then, students will be ready to transition to the final stage, the mental stage, in which words are replaced with images and concepts. Having achieved materialization, verbalization, and internalization, mental action may become implicit and automatic so that students will be able to bring it to conscious awareness when needed.

In this model, materialization constitutes the foundation for subsequent mental actions. Given that verbal explanation alone is not concrete enough for learners, Gal'perin advocated for use of physical objects, such as diagrams and flow charts to further explicate abstract concepts (Gal'perin, 1989). In L2 learning, sociocultural theory (SCT) scholars have explored materialization across grammatical, pragmatic, and rhetorical concepts (e.g. Negueruela, 2003; Ferreira, 2005; Serrano-Lopeaz & Poehner, 2008; Lee, 2012; van Compernolle, 2012, 2014; Zhang, 2014). CBI principles are particularly effective when combined with cognitive linguistics, as both approaches emphasize meaning-making in language (Lantolf & Thorne, 2006). This study utilizes CBI to develop materials for teaching the polysemous Chinese particle *dao* in *V-dao* compounds, following Lee's (2012) work with English phrasal verbs.

Lee's (2012) study on English as a Second Language (ESL) instruction illustrates how CBI aids comprehension of complex grammatical constructs, such as phrasal verbs. Traditional structural instruction, focused on either syntax or functions, often fail to address metaphorical usages. Based on analysis of particles and prepositions provided by Tyler and Evans (2001) and Rudzka-Ostyn (2003), Lee developed a set of SCOBAs to map out the literal and metaphorical meanings of particles like *out*, *up* and *over*. Following Gal'perin's instructional model, Lee carried out a classroom study as part of an ESL course for graduate teaching assistants at a large research university. The six-week course showed that CBI greatly improved students' comprehension and correct usage of phrasal verbs, while their ability to verbalize these concepts became more image-oriented and semantically driven. Students also transferred their understanding to new, untaught directional particles, finding SCOBAs essential for grasping the cognition-motivated nature of particles. Specifically, students were able to transfer the skills and knowledge to understanding other directional particles that were not taught in the study.

In our study, we similarly applied cognitive linguistics to map out the polysemous meanings of *dao* in the Chinese *V-dao* compounds. The following sections will introduce how cognitive semantics offers a systematic and comprehensive explanation of *V-dao* compounds.

Cognitive Semantics and Word Polysemy

Cognitive semantics, a subfield of cognitive linguistics, posits that language is rooted in people's bodily experiences of the physical, cultural, and social world (Lakoff & Johnson, 1980; Langacker, 1987, 1991; Sweetser, 1990; Talmy, 2000; Tyler & Evans, 2001). Proponents of this approach argue that language does not directly refer to concrete objects; rather, it conveys mental concepts, with words acting as 'prompts' to activate knowledge related to these concepts. In this framework, meaning is not encoded within language itself but is constructed at a conceptual level in the mind of the speaker (Lakoff, 1987; Evans & Green, 2006).

In cognitive semantics, lexical items are treated as conceptual categories, with each word representing a radial category of distinct yet interrelated meanings exhibiting typicality effects.

These lexical categories are structured similarly to non-linguistic conceptual categories. The various meanings of a word are organized around a prototype, which serves as the most typical example of the category (Rosch, 1975). More prototypical senses are 'closer' to the prototype, while less prototypical senses are 'further' from it. This radial category is represented as a semantic network, where the central node denotes the prototypical sense, and the peripheral nodes represent extended or related ones. Together, these form a radial category representing the cognitive semantic network of a word.

This raises the question: How does word polysemy arise? Scholars of cognitive semantics explain polysemy through general cognitive mechanisms that humans use to interpret the world, such as image schemas, conceptual metaphors, and metonymy (Lakoff, 1987; Langacker, 1987, 1991). Image schemas are abstract representations of spatial relationships and experiences derived from sensory and perceptual interactions with the environment. They emerge from people's sensory and perceptual experiences as they interact with and navigate the world. Since image schemas are dynamic representations of physical experiences, they can be transformed by one's perception and focus. For example, physical movement or direction, which are concrete and observable, can be applied to describe abstract concepts such as time and psychological states. Indeed, directional words are commonly used to express temporality as well as sensory and psychological states across many languages (Langacker, 1987, 1991).

In addition to image schema, conceptual metaphors play a crucial role in extending the meanings of words and forming semantic networks by mapping conceptual structures from concrete domains of experience onto more abstract concepts. Kövecses (2006) provided such examples as HAPPINESS IS UP, ANGER IS FIRE, LIFE IS A JOURNEY, TIME IS MONEY, illustrating how abstract domains are mapped onto concrete ones. Another cognitive mechanism for meaning extension, metonymy, refers to a part-whole relationship in which a part of an entity is used to represent the whole, due to salient features of the element (Kövecses, 2006). For instance, in Chinese, the word 头 'head' can refer to a leader. These cognitive mechanisms enable the systematic extension of lexical categories, giving rise to polysemy whereby a single lexical item's semantic network consists of multiple distinct yet interrelated senses.

Chinese Verb-Complement Compounds

Many frequently used Chinese verb compounds fall within the lexical radial category. A prominent example is the Verb-Complement (hereafter abbreviated as V-C) compound, which is composed of two elements: a verb denoting an action (the main verb) and a complement usually indicating some kind of result of the action (the complement). In V-C compounds, a single complement lexeme can pair with various verbs, each conveying distinct yet related meanings. These complement verbs are often high-frequency and can also stand alone. Over years of language evolution, they have assumed the role of complement, where they contribute similar verbal meanings while also indicating the extent or resultative state of the main verb.

Viewed from a cognitive semantic perspective, V-C compounds with shared complement particles form a radial category, encompassing one or more central (prototypical) senses as well as peripheral but related senses. Shi (1999) argues that by examining the etymology of these verbs prior to their grammaticalization, we can pinpoint the central sense and map out the semantic network of V-C compounds. Understanding the systematicity and purposeful

structure of these words has significant implications for L2 Chinese learning and teaching. If the motivation of lexicon is explained and presented to learners in a systematic way, it can facilitate understanding of the target form and encourage better acquisition outcomes, as it may enhance comprehension, retention, production, and cultural awareness of the linguistic forms. To explore these effects, we focused on *V-dao* compounds to examine their cognitive semantic networks and consider how these linguistic concepts can serve as a mediational tool to help learners develop a systematic understanding of such compounds.

Textbook Presentation and L2 Acquisition of V-dao Compounds
The Chinese character 到 (*dao*) is picto-phonetic, with the semantic element 至 on the left. In its ancient form, 至 (*zhi*), which is depicted as an arrow flying toward its target, means "arrive," "reach," "extremely," and "most." The right side of the character, 刂, carries phonetic information. In modern usage, 到 means "to arrive," "to reach," "go to," or "leave for" (Wu, 2010).

Over the course of the Chinese language's evolution, the verb *dao* has been grammaticalized into a complement in Verb-Complement compounds. Like other grammaticalized verbs in Chinese, it retains its core meanings as an independent verb while extending its central semantic domain beyond directionality to temporal, sensory and psychological domains. Liu (1998) categorized the meanings of *V-dao* compounds into directional and resultative uses. The directional category is further divided into literal movement towards a location as well as metaphorical uses, such as indicating the duration or degree of an action. The resultative use applies when *dao* follows such action verbs as "acquire, gain, or obtain" or sensory verbs such as "speak, talk, ask, think".

Traditionally*, V-dao* has been taught as a grammatical construction rather than a semantic one. For instance, *Integrated Chinese*, a widely used introductory textbook in North America, introduces *dao* as an independent verb in Lesson 6, and then as a resultative complement in Lesson 13's "Grammar" section. Examples such as *zhao-dao* (find [something or someone] successfully), *kan-dao* (see [something or someone]), *ting-dao* (hear [something or someone]), and *mai-dao* (buy [something] successfully) are provided (Liu et al., 2009a, p. 86). However, the textbook lacks an explanation as of how *dao* collocate with different verbs to convey varied meanings, nor are these words included in the glossary. Learners are thus asked to memorize these compounds individually, without understanding their underlying semantic connections. This lack of semantic instruction may contribute to learners' difficulty in correctly producing *V-dao* forms. An analysis of second- and third-year students' writing at a North American Comprehensive University (Zhang, 2011) found that *dao* was one of the most frequently omitted resultative verb complements under study. Table 1 presents learner errors involving *V-dao* compounds, with the number of omissions noted: *dao* was omitted 40 times in *kan-dao* 'see', 17 times in *zhao-dao* 'find', 14 times in *ting-dao* 'hear', and so forth. Zhang (2011) attributed this high omission rate to the abstractness of *dao*'s resultative meaning. Specifically, for sensory and psychological usages, *dao* is so metaphorical that it primarily takes on a grammatical function. The prevalence of such errors suggests a need for explicit pedagogical approaches to teaching *V-dao* and similar resultative compounds.

Table 1

Frequency of Errors in V-dao Compounds (Zhang, 2011, p. 154-5)

| Learner-Produced Forms	Target Forms	Frequency
看 *kan* 'look'	看到 *kan dao* 'look arrive' (see)	40
找 *zhao* 'seek'	找到 *zhao dao* 'seek arrive' (find)	17
听 *ting* 'listen'	听到 *ting dao* 'listen arrive' (hear)	14
学 *xue* 'study'	学到 *xue dao* 'study arrive' (learn)	4
见 *jian* 'perceive'	见到 *jian dao* 'perceive arrive' (see)	4
买 *mai* 'buy'	买到 *mai dao* 'buy arrive' (buy)	3
受 *shou* 'suffer'	受到 *shou dao* 'suffer arrive' (suffer)	3
得 *de* 'get'	得到 *de dao* 'get arrive' (obtain; get)	2
做 *zuo* 'do'	做到 *zuo dao* 'do arrive' (accomplish)	1

SCOBA of V-dao Compounds

To simplify the nuanced senses of *V-dao* for pedagogical purposes, we categorized them into four groups, illustrated in Figure 1 (Zhang, 2018). In the diagram, the dotted line represents the starting point, while the solid line marks the final, actual position. Red squares signify the endpoints of a movement or action.

Figure 1

SCOBA of the V-dao Compounds
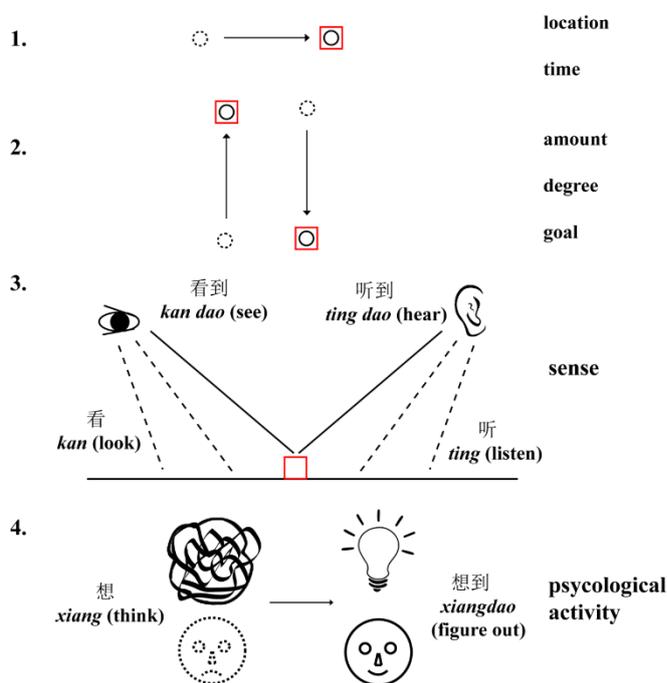
The first schema in Figure 1 depicts an entity (shown as a black circle) that moves until it reaches a physical or temporal reference point (represented by a red square). Examples of physical movement include actions like running, walking, or driving to a specific place, while examples of temporal movement involve activities such as working, sleeping, or playing up to a set time. The second schema represents a shift towards a specific amount or degree, where

directionality is less critical, as *V-dao* can indicate both increases and decreases in amount or degree. For example, it may refer to changes in population, size or quantity, or shifts in intensity. The third schema represents the metaphorical transfer from physical movement to the sensory domain, where sensory experiences are conceptualized as reaching a reference point. As an example, the verb *kan* 'look' typically implies an atelic activity that is ongoing and aimless, but the V-C compound *kan dao* 'look arrive' denotes a purposeful action with the result of seeing a specific object (illustrated by the red square). This principle also applies to compounds such as *ting dao* 'listen arrive' (to hear) and *wen dao* 'smell arrive' (to detect a smell). The fourth schema shows a more abstract usage of *V-dao*, transferring movement from the physical to the psychological domain. While *xiang* (to think) indicates an atelic activity, *xiang dao* 'think arrive' (figure out) emphasizes the result of arriving at an idea or solution. Table 2 provides examples of *V-dao* compounds illustrating these different senses.

Table 2

Examples of the Different Meanings of V-dao

Chinese Characters	Pinyin	English Translation
The "location" or "time" meaning		
来到（教室）	lái dào （jiāo shì）	'to come to (classroom)'
学到（早上）	xué dào （zǎo shàng）	'to study until (morning)'
The "amount", "degree", or "goal" meaning		
写到第五遍	xiě dào dì wǔ biàn	'to write for the fifth time'
增加到一百人	zēng jiā dào yī bǎi rén	'to increase to 100 people'
做到最好	zuò dào zuì hǎo	'to do one's best'
The "sense" meaning		
看到	kàn dào	'to see'
听到	tīng dào	'to hear'
说到	shuō dào	'to talk about or mention'
The "psychological activity" meaning		
想到	xiǎng dào	'to figure out; to think of'
感到	gǎn dào	'to feel'
注意到	zhù yì dào	'to pay attention to'

The Study

This paper reports on a study that utilized the SCOBA of *V-dao* (see Figure 1) as the primary pedagogical tool for an intermediate Chinese course at a large Midwest public university in the United States. The study aimed to evaluate whether explicit instruction on the conceptual structure of *V-dao* compounds could improve students' understanding of the compounds' multiple meanings. Three research questions were addressed:

RQ1: Did concept-based instruction enhance students' lexical repertoire of *V-dao* compounds*?*
RQ2: Did concept-based instruction promote a conceptual understanding of the *V-dao* lexical category?
RQ3: What were the students' perceptions of the concept-based instruction?

Participants

The university offers a four-year Chinese program as part of a Chinese major and minor. This study was conducted in intermediate Chinese I, the program's third course. The class met three times a week for 50 minutes over a 16-week semester, focusing on the four skills of listening,

speaking, reading, and writing at the ACTFL Intermediate Low level. The main textbook was *Integrated Chinese Level 2 Part 1* (Liu, et al., 2009b), covering Lessons 1-7. Sixteen students were enrolled, including two heritage speakers. The course instructor, who has over ten years of experience teaching Chinese, provided consent for the study, excusing herself from the three class periods allocated for a pre-test, pedagogical intervention, and post-test.

Procedures

The study was conducted during the spring semester of 2016 using a pre-test, intervention, and post-test format as shown in Table 3. In the fifth week, students attended an information session, signed consent forms, and completed a 30-minute pre-test. The intervention took place in the seventh week during a 50-minute class. Following Gal'perin's stepwise approach, the researcher began with a verbal explanation of *dao* as a directional complement – a concept that students have been introduced in the previous semester – the researcher explained how *V-dao* compounds can convey different meanings by shifting perspectives, such as arrival at a location, time, amount, or goal. When the researcher asked for examples, some students mentioned *kan-dao* and *ting-dao*, which led to a discussion of how *V-dao* compounds transition from concrete to metaphorical meanings. Next, the researcher presented SCOBA (Figure 1) to illustrate how the four senses of *dao* are conceptually connected within a semantic network. Students discussed the SCOBA, then used a worksheet to translate different *V-dao* compounds into English and create their own examples. Two weeks later, the students completed the post-test and filled out a survey collecting their experience and perception of the CBI (see Appendix C).

Table 3

Study Timeline and Activities

Stage	Week	Activity
Pre-Test	Week 5	Information session, consent form collection, and 30-minute pre-test
Pedagogical Intervention	Week 7	CBI session with practice activity
Post-Test & Survey	Week 9	Post-test and survey completion

Instruments and Data Analysis

Both the pre- and post-tests (see Appendix A & B) assessed conceptual understanding and lexical knowledge of the *V-dao* semantic network. Part one of the tests asked students to list as many *V-dao* compounds as they could and explain their semantic relationships. Part two had translation (13 items) and error correction (5 items) tasks.

To assess students' lexical knowledge of *V-dao* after CBI, we compared their pre- and post-test scores. Of the ten students who took both tests, one heritage speaker demonstrated a significantly higher understanding of the target structure compared to peers. To prevent skewed results, we excluded this student's data. Consequently, data from nine students' pre- and post-tests were analyzed. Due to time constraints, most participants could not complete the error correction section of the pre-test; therefore, this section was excluded from analysis in both tests. Excluding filler items, we graded a total of 11 items. Each item was worth one point if answered correctly. If students provided only part of the target structure correctly (e.g., the verb or complement), they received half a point. If they missed the target structure entirely,

they received zero points. Since this assessment did not test character writing accuracy, missing character strokes did not affect scores.

To address the second research question, i.e. whether students were able to develop a conceptual understanding of *V-dao*, we analyzed participants' verbalizations of *V-dao* in the first part of the pre- and post-tests. The third research question was examined through students' responses to the survey.

Results
Students' Pre- and Post-test Scores

The pre- and post-test scores are presented in Table 4. Seven of the nine students showed varying degrees of improvement, with one student scoring lower on the post-test and another maintaining the same score on both tests. We used a Wilcoxon signed-rank test to compare the pre- and post-test scores, chosen for its effectiveness in comparing medians of paired samples to determine if a statistically significant difference exists between the median scores of two related groups. This test is particularly useful in pre-test/post-test scenarios and repeated measures with the same participants, as it examines changes over time. The Wilcoxon signed-rank test calculates both a W-value and a Z-value. Given our sample size of fewer than 20 participants, the W-value was used to evaluate our hypothesis. The results indicated that the median post-test scores were statistically significantly higher than the median pre-test scores ($W = 3$, $p \leq 0.05$). This finding supports our first research question, confirming that students' lexical knowledge of *V-dao* significantly improved after receiving CBI.

Table 4
Students' Pre- and Post-test Scores

Participant	Pre-test Score	Post-test Score
1.	5.5	8.5
2.	5	8
3.	3.5	2
4.	0.5	5.5
5.	6.5	11
6.	3	4
7.	2	3
8.	3	3
9.	3	5
Mean	3.56	5.56
Median	3	5

Since the post-test was administered two weeks after the intervention, this delay may have contributed to attrition and learning loss regarding students' acquisition of the target form. This could partially explain why one student received the same score on both tests and another scored lower on the post-test.

Students' Pre- and Post-Instruction Verbalizations

In examining students' verbalizations of *V-dao*, we found that, compared to the pre-test – where some students left the verbalization questions blank -- nearly every student was able to accurately articulate their understanding of the lexical forms on the post-test. Table 5 presents select students' verbalizations before and after the pedagogical intervention. Prior to receiving

CBI, Amy and Toby had no knowledge of *V-dao* and its semantic functions. The post-test revealed a marked improvement in their verbalizations: Amy acquired both the temporal and resultative meanings, while Toby successfully learned the locative, resultative, and sensory meanings. As another example, David's initial understanding was limited to the locative meaning, but after CBI, he acquired the resultative meaning. Victoria and Ashley, who already have some knowledge of *V-dao*'s different meanings, were also able to expand their understanding through CBI. Victoria's prior understanding was confined to the directional meanings, but instruction enabled her to extend her understanding from the physical to the temporal domain. Initially, Ashley was only aware of *V-dao*'s broad resultative meaning. After instruction, she developed a more nuanced understanding of the resultative meanings, encompassing not only actions but also goal attainment and sensory events.

Table 5

Students' Verbalizations Pre- and Post-CBI

	Pre-instruction	Post-instruction
Amy	N/A	- to arrive at a time - to specify the object of the action - action has come to an end point
David	- They can be used when some form of movement is present. For example, to get somewhere, on your way to something, 到 is required for these kinds of actions	- to finish something - something has been completed
Victoria	- to arrive - to reach a point - degree	- They are meant to complete some types of action - a past event - a time interval
Ashley	- to find something - completion	- goal attainment - actions - emotional
Toby	N/A	- to finish - walking to arrive - shopping to buy - "to finish looking": to see

While students' verbalizations indicated a deepened semantic understanding of *V-dao*, none attempted to visually map out the semantic network as presented in the SCOBA. Although they became aware of the various domains of *V-dao* compounds, some students' verbalizations remained limited to specific examples. For instance, Toby only noted "*to finish looking, to see*". These results suggest that their knowledge of *V-dao* was still in development, and their conceptual structures of the target form were not as fully developed as the SCOBA model presented. This may be due to limited discussion time in class, which is crucial for transferring knowledge from an external, material form to an internal, psychological form.

Students' Perceptions of CBI

Overall, students responded positively to the lesson. They particularly appreciated the visual presentation of the semantic network, which helped them grasp the multiple meanings of *V-dao* more easily. Students remarked that CBI could be a valuable supplement to the traditional method of memorizing vocabulary. Below are some of their direct quotes:

- Yes. Explained physically and visually and mentally organized.
- Yes. The instruction helped me to understand when I should use 到 in sentences. I think that going into depth on a grammar point like the use of 到 is helpful, and I would encourage the use of more exercises on common grammar points.
- I really enjoyed the visual aids used. The instruction of Verb + 到 was very helpful. It greatly contributed to further understanding of 到 words. The exercises greatly helped! Helped master dao!
- I think the instruction of verb+到 is very helpful. I learned many uses and definitions of 到. I like this approach more, because the map emphasis the meanings and makes it more memorable.
- Yes! I liked a lot about the effect of 到. I do like this approach, knowing them in context helps me to understand them better.
- Yes, it gives me the knowledge to implement my verbs into more situational clauses. I feel that supplementing this lesson alongside the traditional approach would be beneficial. However, I think the methods would complement each other far better than separate.

One student, however, expressed concern about the depth of focus on *V-dao*, stating, "*I felt that this method was effective, but I did not feel it needs this amount of focus; only a small amount would have been sufficient.*" This comment reflects a general lack of emphasis on vocabulary among both students and instructors. Traditional vocabulary teaching tends to be implicit, leaving students responsible for processing and memorizing words on their own. This approach contrasts sharply with the explicit vocabulary instruction advocated in this study. We argue that systematic teaching of lexical items, especially high-frequency lexemes, is particularly valuable because it not only introduces the conventional usages of target forms but, more importantly, opens new avenues for students to access semantic knowledge of vocabulary.

Conclusion

In this study, guided by a cognitive semantic analysis of the *V-dao* compounds, we first developed a SCOBA to illustrate the conceptual network of *V-dao*'s multiple senses and adopted CBI as an explicit pedagogy to systematically teach *V-dao* polysemy. Our findings provided initial but encouraging evidence that visually presenting the conceptual semantic structure of verb compounds could facilitate L2 vocabulary learning and production. Pre- and post-test scores indicated a positive, statistically significant impact on students' understanding of *V-dao*, though a few students showed limited improvement. Students' verbalization demonstrated a better grasp of *V-dao*'s multiple meanings; however, unlike in other CBI studies (e.g. Lee, 2012), none of the participants visually represented their conceptual understanding, suggesting the full conceptual mastery was not achieved. This may be attributed

to the study's time constraints, as conducting both the intervention and practice within a single 50-minute period proved insufficient. This constraint limited students' ability to internalize the SCOBA as a mediational tool, possibly explaining their difficulty in reproducing it on the post-test. Given the nuanced meanings of *V-dao*, a two-session intervention with additional practice time may have enhanced comprehension, and allowed students to create their own SCOBAs, fostering deeper cognitive processing.

Students' perception of the CBI instruction was positive, though some questioned the amount of time devoted to a single lexical structure. This feedback raises questions about how to approach lexical instruction in CBI. Future research could consider grouping similar verb-complement constructions into categories for a more systematic approach. For example, *V-dao* could be taught together with other directional verb complements as part of a broader construct, enabling students to develop a more comprehensive understanding of these forms.

The study has several limitations. First, its small scale, with fewer than 20 participants, limited the generalizability of the findings. Second, it lacks a prior assessment of students' vocabulary knowledge before the intervention. In hindsight, students limited exposure to the target structure likely contributed to their difficulties with the pre-test. Introducing semantic networks at an early stage may overwhelm learners, as excessive information can be confusing. Future studies should introduce semantic networks when students have a foundational understanding and are ready to map forms to meanings. This approach may be more effective with more advanced learners, ideally those with at least four or five semesters of Chinese study. Lastly, the absence of a control group limits our ability to attribute improvements exclusively to CBI. Without a comparison group, there is a possibility that students' gains resulted from explicit instruction alone rather than CBI. Future research should incorporate a control group to more definitively determine the unique effects of CBI on learning outcomes.

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Ethics Declarations
Competing Interests
No, there are no conflicting interests.
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Appendix A: Pre-Test

Part 1:

1. Please write down as many Verb+ 到 as you can. Here are some examples: 走到，看到，听到.

   Your words:

2. Did you notice some similarities in the meaning of these words? What are they?

3. Can you make a list of the type of different meanings that Verb+到 can express?

Part 2:

A. Translate the following expressions into Chinese. Please use the pinyin system for characters you don't know.

1. drive to school _____
2. study until morning _____
3. find a good book _____
4. return back home _____
5. walk into the room _____
6. think of an idea _____ 主意 (zhǔyì: idea)
7. sit on the chair _____ 椅子 (chair)
8. hear some music _____ 音乐 (yīnyuè: music)

B. Translate the following sentences into Chinese. Please use the pinyin system for characters you don't know.

1. I saw a friend of mine in the library.
2. When I returned to my dorm room, my roommates were watching a Chinese movie.
3. He slept from 10:00pm until noon.
4. Oklahoma's temperature in summer can reach as high as 110 degrees (度 dù).
5. It suddenly occurred to me that I haven't seen my parents for a year.

Appendix B: Post-Test

Part 1:

1. Now write down as many Verb+ 到 as you can. Please also write down the English meaning of these words.
   Your words:

2. See if you can draw a semantic map of Verb+到. List different meanings of Verb+到 and explain how the different meanings are related.

A. Translate the following expressions into Chinese. Please use the pinyin system for characters you don't know.

1. found my phone   _____ 手机 (shǒu jī: cell phone)
2. leave the room
3. feel happy   _____
4. see a friend   _____
5. move to a new country   _____ 一个新国家 (xīn guó jiā: new country)
6. receive a letter   _____
7. play until midnight   _____ 半夜 (bànyè: midnight)
8. open the door

B. Translate the following sentences into Chinese. Please use the pinyin system for characters you don't know.

1. When I ran to the classroom (教室 jiāoshì), class has started (开始 kāishǐ).
2. Speaking of her son, she is very proud (自豪 zìháo).
3. Last week I had a fever of 101 degrees (度 dù).
4. I learned a lot from my Chinese classes.
5. Have you ever thought about my feelings (感受 gǎnshòu)?

Appendix C: Survey

We would appreciate receiving your feedback on this lesson ***using this survey***. It should only take about 5 minutes to complete. Thanks!

a. What did you think about the <u>instruction</u> on Verb+到？ Did it contribute to your knowledge of the Verb+到 words? Why or why not?

b. What did you think about the <u>exercises</u> on Verb+到? Did they contribute to your mastery of the Verb+到words? Why or why not?

c. How do you feel about this method of instruction compared to the traditional teaching? Do you like this approach? Why or why not?

d. Do you have any suggestions or comments for the design team to help them improve such instructional materials to benefit more Chinese students?