A. S. Hornby Educational Trust

REPORT ON A.S. HORNBY DICTIONARY RESEARCH AWARD PROJECT

Title: Improving the dictionary skills of teacher trainees

Country: People's Republic of China

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Lead researcher: Dai Lingzhen

1 BACKGROUND AND OBJECTIVES

Dictionary use has been shown to be constructive to language learning. However, that doesn't mean that the use of a dictionary guarantees successful retrieval of information. It requires the user to acquire some reference skills. These dictionary reference skills, defined as the ability to find the information being sought (Hartmann 2001), have been extensively studied. The most thorough of these studies was conducted by Nesi (1999), in which dictionary skills were classified chronologically into six stages. More recently, Lew (2013) examined the relevance of the specification of dictionary skills and supplemented some search techniques adapted to online dictionaries. Empirical studies confirm that dictionary training enhances dictionary skills (Chi 1998, 2020; Carduner 2003, Lew & Galas 2008, Bae 2014, Yamada 2022). However, most of this training focuses on the traditional print dictionary or uses static handouts, except Campoy-Cubillo (2021). In the context of online dictionaries, the landscape of dictionary use has changed significantly. The range of online dictionaries offers richer dynamic resources but can also compromise reliability and impose higher cognitive demands on users. Without proper instructional support to help students develop the ability to make informed decisions about which digital resources to use for learning purposes (Hubbard 2004), learners may easily fall into cognitive disorientation or information overload. Thus, while dictionary skills remain foundational for autonomous language learning, their pedagogy must evolve to address the complexities of the digital reference landscape. It seems clear that future training

needs to emphasize critical evaluation and metacognitive awareness to optimize learners' engagement with ever-expanding lexical resources.

To improve education resources for less-resourced areas

My university is a ‘normal university’ in Southeast China which specializes in training teachers. Many students will become teachers for county or district-level middle schools when they graduate. Dictionary education for this group of trainee teachers is of great significance. Firstly, it will equip them with dictionary knowledge and skills themselves; thus, they will be able to better instruct their students. Students’ lack of dictionary knowledge and skills is often attributed to insufficient instruction from their teachers. However, teachers don't get the training they need to know which dictionaries are best for their students or how to teach them to use dictionaries effectively (Hartmann 2001, 26). In China, a dictionary course is typically only offered in a few prestigious universities, which usually have lexicographic research centres. Given this background, if more teacher trainees were taught dictionary knowledge and skills, they would be able to better serve their students. Secondly, better dictionary skills training would enable students to access more resources and become more independent learners. This is particularly crucial in less-resourced county/district-level middle schools, where students rely more on teachers and textbooks as their sources of knowledge.

> The need for dictionary education becomes evident when considering the variable quality of dictionary-style resources, especially given the proliferation of online dictionaries where reliable and unreliable sources inevitably coexist.

Dictionaries provide a wealth of resources. Definitions, examples, collocations, usage notes, synonyms, antonyms, and etymologies can meet users’ needs at lexical, grammatical, pragmatic and cultural levels. However, the need for dictionary education becomes evident when considering the variable quality of dictionary-style resources, especially given the proliferation of online dictionaries where reliable and unreliable sources inevitably coexist. As Sterkenburg (2003, 98) notes, the quality of a dictionary depends on its microstructure. Features such as adequate definitions, consistent formatting, and informative usage examples often distinguish high-quality dictionaries from inferior ones. Yet, ordinary users may struggle to assess this without proper dictionary education. If they are given examples of well-constructed dictionaries (such as those by established publishers), they can better recognize

what a high-quality reference should look like. Also, the teaching of dictionary skills by emphasizing critical thinking in information selection empowers learners to navigate the knowledge system independently and become autonomous learners. When students learn to effectively utilize dictionaries with teacher guidance, they gain access to broader resources and become more independent learners.

Students' poor dictionary knowledge and skills: a preliminary survey

I have been teaching Pragmatic Translation for undergraduate students for several years and was interested in understanding more about how they use dictionaries. Ahead of the current study, I gave a group of students on my course in September 2022 a pre-instruction survey about how they search for information, including questions about dictionary knowledge and skills.

This preliminary survey revealed students' deficiencies in dictionary use and the likely need for dictionary education. 45 English major junior students took part in the survey. Though students rated dictionaries as the most effective source for resolving language problems, slightly more students referred to search engines for language problems than to dictionaries (88.89% vs. 86.67%), largely because search engines are more easily accessible. However, 80% of them admitted that the information sources offered by the search engines were mixed, which was a challenge for effective information retrieval. Meaning and usage were the most frequently sought types of information, while other information categories which are important for deep understanding and precise use of words, such as examples, collocations, prosody, register, synonyms, and antonyms were seldom mentioned. Most of the students (73.33%) attributed their inability to use dictionaries effectively to insufficient dictionary knowledge and a lack of instruction. None of them had received formal dictionary instruction, only some isolated guidance from teachers (86.67%) or they had learned by themselves through practice (84.44%). 97.78% of students deemed it necessary to have dictionary instruction.

Objectives

To counter students' difficulties with dictionary use, this project offered a training tutorial designed to improve both their dictionary knowledge and skills. The focus of the training was twofold: to introduce dictionary knowledge and skills through examples; and to encourage and train students to think metacognitively when searching for information in dictionaries, thus improving their dictionary skills. This metacognitive element is crucial, as the survey found that in the internet era, 86.67% of students primarily use electronic dictionaries. Without metacognitive skills, students can easily become lost or overwhelmed by the sheer volume of information these digital tools provide.

2 DESCRIPTION OF RESEARCH

This research was a two-year action research project consisting of two cycles in which dictionary education was integrated into a translation course taught by the researcher.

The participants

The participants were junior undergraduate students in a 'normal university' in China focused on teacher training. During the first cycle of research (September 2023 to January 2024), 54 students signed up for the translation course. During the second cycle (September 2024 to January 2025), 56 students signed up for the course.

Before they started the module, I told them about the research and how it would be conducted. The data were gathered in the form of questionnaires and after-task journals. They were told that if they didn't want to participate in the tasks, they didn't need to hand in the journals, and it wouldn't affect their final grades.

Main stages of research

The research adopted an action research approach, which involved four broad phases in a cycle of research: planning, action, observation, and reflection (Kemmis & McTaggart 1988; Burns 2010). During each phase, data were collected through questionnaires and reflective journals from both the students and the teacher.

Planning: The planning phase aimed to identify the problems related to teaching dictionary skills to this group of students. In this stage, a questionnaire was designed to investigate students' prior dictionary knowledge and skills. Teaching materials were prepared based on this survey and the previous preliminary survey from September 2022.

Action and observation: Before the course, students' knowledge and strategies in dictionary use were investigated through the pre-designed questionnaire, a real task, and an after-task reflective journal. Then a dictionary tutorial was delivered in the classroom. Students' reflective journals were collected to observe and monitor its effects. I also observed the class and wrote my own reflective journals after each class to reflect on the teaching and made changes as necessary.

Reflection: In the reflection phase, I evaluated and reflected on the effects of the tutorial by analyzing the data collected in the action and observation phase and comparing the participants' initial dictionary use with subsequent dictionary use in a real task.

It is worth mentioning that I had been thinking about gathering part of the information by screen recording. Two students were invited for a pilot study, but both reported that they felt like they

were being watched when they were consulting the dictionary, and it was not comfortable. For this reason, screen recording was not adopted.

Data collection

Pre-tutorial: Before the tutorial, a questionnaire, a real task, and an after-task reflective journal were used to survey students' dictionary knowledge and skills. The pre-tutorial questionnaire covered the following topics: (1) dictionary-use habits; (2) attitudes to dictionaries for learning and communication; (3) awareness of dictionary knowledge and skills; (4) need for dictionary instruction. The questionnaire was in Chinese and was administered before they started the module via *www.wenjuanxing.com*, a well-known website in China that specializes in conducting questionnaires.

The real task was an English–Chinese translation exercise. Students were asked to translate two English sentences into Chinese with the help of dictionaries. They could use any dictionaries or tools they had (except translation apps, which could convert sections of text from one language to another directly, such as *DeepL*, and the camera translation feature of *Youdao* and *Baidufanyi*). They were also asked to answer the following questions:

- What dictionary/dictionaries/tools did you consult?
- Which word/words did you look up?
- How did you determine the meaning of the words you looked up?

During the tutorial: In the third and fifth classes, students were asked to translate two English sentences into Chinese. In the third class, students were asked to complete the task with the help of dictionaries, and to answer the three questions above. The task in the fifth class was the same as the previous one, and students were asked the extra question "What difficulty did you come across when determining the meaning of the words you've looked up?"

After the tutorial: In the last class, students were asked to summarize what they'd learned about dictionaries and to evaluate the tutorial. To ensure the objectivity of the evaluation, they were asked to hand in their comments anonymously.

Teaching arrangements and some teaching materials

The table below summarizes the contents of the dictionary training, divided into three parts across 8 sessions. The introduction to dictionary skills in part 3 was based largely on Nesi's (1999) classification of dictionary skills into six stages and used a question list as shown below.

Figure 1: contents of dictionary skills training

Topic	Content	Number of sessions
Part 1 Introduction to dictionary resources	1. What do we need to know about words? 2. Dictionary resources: Online dictionaries, dictionary apps 3. Examples to demonstrate dictionary consultation.	2
Part 2 Information offered by a dictionary entry	4. Learn about the labels in dictionaries. 5. Compare dictionaries 6. Examples to encourage students to consult different dictionaries	2
Part 3 Introduction to dictionary reference skills	7. Dictionary skills (see Nesi 1999) 8. Question lists to ask when looking up words in a dictionary 9. Examples to demonstrate the process of dictionary consultation (a think-aloud approach)	4 sessions for intensive instruction, and demonstration of dictionary consultation interspersed throughout the following weeks until the end of the tutorial.

Question list used to guide information seeking

1-3 planning, 4-6 monitoring, 7 evaluating, 8 information management, 9-10 debugging
查不查？查什么？哪里查？对不对？

1.我需要哪种类型信息？
What kinds of information do I need?

2.是否有必要查词典？
Is it necessary to consult a dictionary?

3.查阅的词典能提供所需信息吗？
Which dictionary is most likely to satisfy the purpose of the consultation?

4.所查单词是否正确？
Is the look-up item in the right form?

5.所需信息在词条中的大致位置在哪里？
Which part of the entry is most likely to contain the information I need?

6.是否为所需信息？
Is it the information I need?

7.复核（从词性、语法特征、用法、语用）
Verifying the information retrieved (form, meaning, context, usage).

8.是否需要加入单词表，方便后续学习？
Do I need to add it to my vocabulary list?

9.（若找不到）查找方向是否正确？
(If cannot find) Am I going in the right direction?

10.有无遗漏重要信息？重复上述过程。
Did I miss any important information? Repeat the process again.

Figure 2: an example of a translation exercise

Please translate the following sentences into Chinese.

1. An accident serious enough to total a car generally totals the occupants as well.

2. Yoga can also provide the same benefits as any well-designed exercise program, increasing general health and stamina, reducing stress, and improving those conditions brought about by a sedentary lifestyle.

3. Altman's return also caps a tumultuous weekend that saw him agree to head a new research team at Microsoft, which has invested billions of dollars in OpenAI and given it the computing power necessary for its technology.

4. Certain groups of employees, such as the Foreign Service of the State Department, are under special merit systems of their own.

5. Calgary's new high-rise banks and oil-company skyscrapers, sandwiching the tower of investment and insurance companies, are home base for a flamboyant collection of Canadian millionaires and big consortia and astronomical contracts.

6. Practically all substances expand when heated and contract when cooled.

3 RESULTS AND EVALUATION

The first cycle

What were the students' dictionary knowledge and skills like before the teaching? What were their dictionary needs?

The questionnaire and the real task showed that many students struggle with using dictionaries effectively.

1 Most students referred to dictionary apps (39.58%) and search engines (35.42%) for language problems. They usually relied on a single source when they were translating (81.25%), among which the Chinese dictionary-aggregator apps *Youdao* or *Baidu* were the major sources. This caused problems because the quality of the translation depended entirely

on which source they used. For example, when translating the sentence "*An accident serious enough to total a car generally totals the occupants as well*", those who consulted *Youdao* translated the sentence correctly while those who consulted *Baidu* could not. This was because the sense of "kill" of the polysemous word "total" was supplied in *Youdao* but missing in *Baidu*.

2 Most had no idea about or ignored the quality of the source dictionary. Both *Youdao* and *Baidu* are aggregate dictionaries, incorporating authoritative dictionaries like *Collins COBUILD Advanced Learner's English–Chinese Dictionary*, *Merriam-Webster's Collegiate Dictionary*, unspecified dictionaries like *Concise English–Chinese Dictionary* (*Jianming*, no information about the dictionary is provided), and other online sources. However, only 5 out of the 48 students reported they paid attention to the source dictionaries when using *Youdao* or *Baidu* (see Figures 3 and 4 below). Most of them (47 out of 48) didn't know the criteria for a good dictionary and had limited knowledge about which were from reputable publishers.

Figure 3: screenshot of *Youdao*

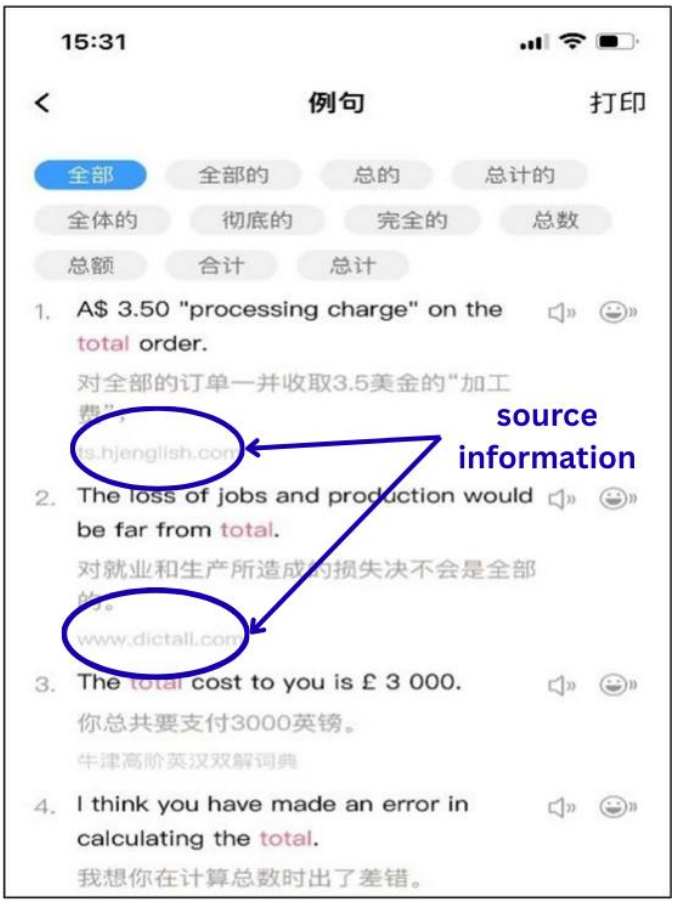

Figure 4: screenshot of *Baidu*

3 Focusing only on Chinese equivalents. When looking up words, most students only looked at the Chinese translation provided. They didn't check examples, usage notes, or other information in the dictionary entry that could have helped them choose the right meaning for the context.

4 To some extent, students' linguistic knowledge determined the success of dictionary consultation. Those who could identify the part of speech of the word were more likely to find the right equivalent.

5 Students often didn't bother looking up common words they thought they knew. They just used the first translation that came to mind, even if it didn't fit the specific situation.

When asked what they needed to know to use a dictionary effectively, students mentioned three main areas: dictionary skills (22 instances), dictionary resources (12 instances), and using dictionaries to assist language learning (14 instances). A further reading into their responses showed that most of them had limited knowledge of dictionary resources, and they expressed a desire to learn how to find information quickly and effectively within a dictionary entry. They were also interested in using dictionaries to support their vocabulary learning, translation, reading, and other language learning tasks. The following is a typical comment (All the comments were written in Chinese and translated).

"I want to know when to use a dictionary. For example, at which stage of reading should I stop to look up unfamiliar words? Which dictionaries should I use? How can I memorize the words looked up and understand the meanings of English words without relying on direct Chinese–English translation?"

What were the students' dictionary knowledge and skills like after two classes?

After two classes, the real task showed that most students had consulted a wider range of reputable dictionaries. In addition to *Baidu* and *Youdao*, online dictionaries such as *Cambridge Dictionaries*, *Oxford Learner's Dictionary*, *Collins English Dictionary*, *Longman Dictionary of Contemporary English*, and *Merriam-Webster Dictionary* were mentioned as their information sources. However, most students relied solely on bilingual or bilingualized dictionaries. Only some of them consulted the monolingual English dictionaries. *Baidu*, *Youdao*, *Cambridge Dictionaries*, and *Collins English Dictionary* were the most popular among students since they offered Chinese translations.

Instead of solely relying on Chinese equivalents, many students also referred to other dictionary information. When they were unsure of the meaning of the English words, they would first identify the part of speech of the words and then check and verify by reading the examples. However, some students just gave up after one consultation and turned to machine

translation features, including translations for longer sections of text, from which they got the translation easily.

What were the students' dictionary knowledge and skills like after five classes? What were their difficulties?

Students had made noticeable progress in dictionary consultation, as could be shown by the correctness of their translations, the variety of dictionary sources consulted, and their use of labels and examples to locate the meaning they needed. Many followed the step-by-step method as demonstrated by the teacher in class:

1. Guess the meaning,
2. Figure out if it's a noun, verb, etc. (part of speech),
3. Find it in the dictionary,
4. Check it fits the sentence.

Despite progress, some problems remained:

1 Struggling with proper nouns: Students weren't taught how to look these up in the previous lectures. Many couldn't figure out how to search for them or which dictionary to use, leading to mistakes.

2 Skipping common words: Students still often guessed the meaning of simple, everyday words based on what they thought they meant, without checking whether they fitted the specific sentence.

When asked about their main difficulties (based on 69 comments from the students), they reported: choosing the right meaning for words with multiple definitions (23 mentions); figuring out exactly which word or phrase to look up in the dictionary (22 mentions); finding the meaning of proper nouns (17 mentions); using the translation/meaning correctly once they found it (6 mentions); and remembering the meaning of common words (1 mention). These problems aren't just about dictionary skills, they're also linked to the students' overall language knowledge. They reported that because of their failure to understand the sentence structure or meaning, they couldn't correctly determine the part of speech of words, which in turn prevented them from locating the relevant entry. Even if they knew the part of speech, choosing the correct meaning from the dictionary list was hard if they didn't understand what the sentence was actually saying.

Students' perceived usefulness of the tutorial

At the end of the course, students were asked to write about what they had learned in the class and comment on the tutorial. I carefully read through the feedback from 51 students and

categorized it into three broad themes: attitudes toward the tutorial, dictionary knowledge, and dictionary skills. Generally, students held a positive attitude toward the tutorial, covering the themes of “general comment”, “good for language learning”, “improved autonomous learning”, and “improved dictionary knowledge and skills”. Students felt their dictionary knowledge, including dictionary awareness, knowledge about dictionary sources, and knowledge about information categories, had improved after the tutorial. Their dictionary skills had also improved in terms of planning, interpreting information, and recording entry information.

A further reading of the students’ feedback showed that they knew little about dictionaries before the training. After the training, they tended to consult more than one dictionary and choose a reliable dictionary source. The following comments are quite typical:

“I used to consult dictionaries whose sources may be unknown, such as Baidu, Youdao, etc., but after being recommended by my teacher, I now use more of the dictionaries of Longman, Oxford, Cambridge, etc.”

“It turns out that when I looked up the meaning of words, I didn't pay much attention to the source. But after the class, every time I use Youdao, I will check where it comes from and whether it is reliable.”

In addition to meaning, they felt they knew more about the information categories provided by a dictionary, which contributed to their understanding of a word and helped language learning. The following comment illustrates this point.

“The dictionary not only offers the meaning of words but also includes idioms, synonyms, antonyms, example sentences, collocations, etc. It can help me understand the meaning and usage of words more accurately.”

In terms of dictionary skills, students reported improvement in terms of planning, interpreting information, and recording information. In the tutorial, dictionary skills summarized by Nesi (1999) were first introduced. Students were then given a list of questions to guide their consultation, following the strategies of planning, monitoring, evaluating, debugging, and managing information. The whole process was demonstrated by examples in class using a think-aloud approach. After the training, their feedback revealed planning, monitoring, and evaluating search efforts. They clarified their purpose of consultation, paid attention to both English definitions and Chinese translations, derived information from collocations and examples, and verified and applied look-up information by incorporating it into contexts. Some typical comments are as follows:

"Before querying a word, you should know the purpose of your query, whether you want to know the meaning or usage of the word. It will be more efficient after you have clarified your purpose of consultation."

"We can refer to example sentences to determine whether the word fits in the context, follows grammar rules, and so on."

"When deciding on the meaning of words, we should consider the grammatical structure of the sentence and the context."

Two students also offered evidence of information management. *"I'll add the queried words into the notebook for easier review"*, as noted in their feedback.

Reflection

As previously mentioned, dictionary education is meaningful and necessary for this group of students. They showed a lot of interest in the tutorial, as revealed in the pre-tutorial questionnaire and during the tutorial. When shown the dictionary resources, many students took photos and notes. When they were shown that the Baidu Fanyi app (see figure 5 below) could link to different dictionary resources, they were quite surprised. Some of them commented: *"I didn't find that. I never scrolled to the bottom of the screen.*"

Figure 5: Links to dictionaries in the Baidu Fanyi app

Students' dictionary knowledge was largely improved through explicit instruction as could be seen from their after-task feedback. However, I also observed that students got bored if there was too much lecturing in a single lesson and that learning by doing may be more effective. Subsequently, in the second cycle of teaching, more time was allocated for the students to explore and discover the dictionary information for themselves.

As I observed, learning through real tasks was effective and think-aloud was a good way to demonstrate the whole consulting process. However, it took time to acquire new skills. As a result, the module was brought forward to the beginning of the course in the second cycle of teaching, giving students more practice in real tasks.

I noted that students' dictionary skills are significantly influenced by their extra-linguistic knowledge and linguistic knowledge. When searching for information in dictionaries, they need to apply both types of knowledge to make effective decisions. Their lack of extra-linguistic knowledge often resulted in some unnecessary dictionary consultation. For example, some of them reported their failure at finding "Altman" and "Open AI" in a dictionary, and some would consult common nouns such as "Microsoft". In the last translation exercise, over 30% of students failed to translate a sentence due to misunderstanding the grammatical structure of the sentence, even though they found the information about the word in the dictionaries. It could be said that using dictionaries boosts language knowledge, while better language knowledge improves dictionary effectiveness. Thus, dictionary use should be encouraged, but enough time for practice is also needed.

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At this stage, students raised the question of whether it was necessary to consult dictionaries when AI could provide translations and definitions quickly. I kept telling them that dictionaries remained valuable tools in providing accurate and detailed information about a word and encouraging understanding and thinking in the consultation. However, I noted that it would be useful to compare AI and dictionaries to show the students their respective advantages.

The second cycle

To address the questions raised in the first cycle of teaching, some measures were taken.

1 On the necessity of dictionary use in the age of AI

The second cycle of teaching began as AI was spreading everywhere, and more students were starting to use tools like ChatGPT and Kimi. (DeepSeek hadn't become popular yet, and it is likely that more students are using these tools now.) Because of this trend, and because students in the first cycle had asked if dictionaries were still needed when AI gave quick answers, we started the class with a discussion. Students were asked to translate a sentence using search engines, dictionaries, or AI tools, and then share how they did it. To get as many responses as possible, I posted the question on *Xuexitong*, a popular study app used in many Chinese universities. They could see others' feedback and commented on their opinions. 47 students responded. Here is what they preferred. 38.3% preferred search engines for their convenience and speed. 34% of the students chose dictionaries because they offered more detailed information. 23.4% of students used search engines for a quick search and dictionaries to verify the results. Only two students (4.3%) used AI tools. The reason for students' preference for search engines and dictionaries over AI was mainly due to the user's habits and needs for information, as can be shown from the following comments:

"I'm still not accustomed to using AI – my instinctive first recourse is always to consult a dictionary when needed."

"I would choose dictionaries because AI translations only give limited information about the word."

"When I was preparing for an exam (especially when doing passage reading exercises), I prefer AI translation due to its speed advantage. However, when working on routine translation exercises, I opt for dictionaries as they provide more comprehensive and detailed definitions, allowing for better contextual selection."

Still, convenience was the most decisive factor in students' choice of tools, as some typical comments showed*:*

"I prefer search engines; dictionaries are too slow and sometimes provide excessive explanations that can be confusing and make it hard to choose from."

"I choose search engines, because it is more efficient than dictionaries while offering richer content compared to AI."

To deal with the overemphasis on convenience, I warned students about the unreliability of unattributed online resources. I also demonstrated the whole process of information selection and showed how it was the process itself that benefited deep learning of vocabulary.

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2 Extend the class period and shorten the question list

In the second cycle, the dictionary teaching module started at the beginning of the translation course. Although the time for intensive instruction remained the same as in the first cycle of teaching, I had more opportunities to demonstrate the whole consulting process and students were able to practice more real tasks throughout the whole semester.

In an after-class communication with students, some of them reported the list of ten questions was a bit too long especially when they were still unfamiliar with the whole consulting process. Thus, a shorten version of 12 Chinese characters was offered, that is, "查不查？查什么？哪里查？对不对？" (which literally means "Need to consult? Which word/What's needed? Where to find? Is it right?"), while the detailed list was shown on the blackboard during the class. Or they could just follow the strategies of planning, monitoring, evaluating, debugging, and managing information if they thought the question list was too long to follow.

3 Discovering dictionary information and comparing dictionaries

Instead of just telling students what kinds of information a dictionary provides, I had them discover it themselves through exercises. Here's how it worked: they were given a group of words and were asked what information they could get from their dictionaries. Then they were shown a form listing the information categories, including definitions, grammatical patterns, collocations, usage, register information, and synonyms, and they were asked to fill in the form according to their dictionaries. After that, they were asked to compare their findings with their classmates who had used a different dictionary.

I saw a real difference. When students were actively discovering and comparing dictionary features themselves, they became much more engaged. They started asking questions about labels and examples and sometimes shared interesting or unexpected things they found. I did

this specific discovery exercise just once to introduce students to the wealth of information dictionaries offer. However, I kept having them compare different dictionaries throughout the whole semester whenever they used one for actual tasks.

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How was the second cycle of teaching received by the students?

46 Students commented on the tutorial and also showed a positive attitude toward the tutorial. Generally, students' responses were much the same as in the first cycle. Students' dictionary knowledge, including dictionary awareness, knowledge about dictionary sources, and knowledge about information categories, improved after the tutorial. Their dictionary skills also improved in terms of planning, interpreting information, and recording entry information. Below are some comments from the students.

"I have used several online dictionaries, which has broadened the scope of my searches in English translation compared to search engines. I have also learned that each word in a dictionary may carry different parts of speech and meanings. To determine the precise meaning, one must repeatedly cross-reference it with the context, rather than making an arbitrary selection. For me, this approach fosters a more rigorous and meticulous attitude toward translation."

"I have learned new methods for dictionary lookup, enhancing my information retrieval skills and acquiring knowledge on how to obtain word meanings and usages. Through example sentences and usage notes in dictionaries, I have come to know collocations and correct grammatical structures of words, which helps me understand and determine the meaning of the same word across different contexts."

How was the second cycle of teaching received compared with the first cycle of teaching?

I compared the two groups by looking at the number of references in the feedback to the usefulness of the tutorial. A chi-square test was performed to examine whether there was any difference in attitude, dictionary knowledge and dictionary skills between the two cycles of teaching. The two groups differed in dictionary knowledge, specifically in the topic of dictionary awareness (5.63% vs. 15.15%) and knowledge about dictionary sources (29.58% vs. 21.21%). Students in the first cycle paid more attention to dictionary sources, while students in the second cycle mentioned more about choosing the right dictionaries according to their needs. Here are two typical comments from the students:

"First, I know more dictionary websites for looking up words. I used to only use Youdao, but now I also use Cambridge, Longman, etc…." (student in the first cycle)

"In this semester's studies, I have learned how to choose appropriate dictionaries, as different translation tasks require support from different types of dictionaries..." (student in the second cycle)

This suggests that instead of just becoming familiar with dictionaries, students in the second cycle started to evaluate whether the tools were suitable for specific tasks. It shows progress, demonstrating a deepening of their dictionary learning.

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A further comparison is made in terms of word frequency. Students in the two cycles mostly looked up for meaning. Students in the first cycle focused more on basic lookup skills, while those in the second cycle stressed the use of dictionary in translation. Both groups emphasized authoritative sources, while students in the second cycle seemed more tightly integrated with technology by mentioning dictionary websites and apps.

In the second cycle of teaching, dictionary teaching started at the beginning of the course and students had more opportunities to practise dictionary use in translation. In this way, they came to develop the habit of using a dictionary in translation. During the teaching, students were guided to discover dictionary information and compare dictionaries. Thus, they paid more attention to comparing and checking the information in reliable sources.

4 OVERALL REFLECTIONS AND CONCLUDING REMARKS

Among further issues for consideration, the availability of online dictionaries was greatly affected by factors such as internet speed and connectivity. Sometimes, it took too long to link to the online dictionary, and students just gave up. Some dictionaries were not so user-friendly in design. For example, I needed to go to the “help” page when I wanted to show the students the meaning of different labels in the Cambridge dictionary. It is even less convenient in the app and most students would not bother to switch between webpages. It would be better if the meaning could be shown directly when the mouse hovers over it.

Dictionary training was not part of the curriculum, and it was integrated into the “information searching” module in my teaching. It happened that the class was always on a tight schedule, leaving little time for students to practise. I also found that some students would simply give up and delegate the translation exercises to AI. I expect that more students will turn to AI tools now with DeepSeek going viral in China.

Despite the limitations, from the two cycles of action research, I have come to realize that it is necessary and imperative to integrate dictionary teaching into foreign language teaching, especially now with so many AI translation tools popping up. The two cycles of teaching revealed students’ inadequate extra-linguistic and linguistic knowledge. Students tend to emphasize mechanical vocabulary accumulation, a kind of “false prosperity”, while missing the crucial exploration of cultural meanings and how words are actually used. This often results in stiff, unnatural language. Dictionary instruction, by guiding students to decode information from definitions, examples, collocations, usage notes, etc., fosters rigorous linguistic thinking and helps students to have a deeper understanding of vocabulary. In this process, it also cultivates students' capacity for autonomous learning.

> Students tend to emphasize mechanical vocabulary accumulation, a kind of “false prosperity”, while missing the crucial exploration of cultural meanings and how words are actually used. This often results in stiff, unnatural language.

It’s also crucial for teachers to rethink the dictionary’s role. Right now, there's a big push for teaching how to use AI in translation, while dictionaries are sometimes seen as outdated. (personal communication with some teachers). I believe that dictionaries are not competitors

to AI tools; rather, they can complement each other. The combination of AI's speed with a dictionary's accuracy and depth could not only produce more reliable translations but also build the critical linguistic analysis skills essential for students to become competent language users.

It has become clear to me through this study that the sooner students learn how to use dictionaries effectively, the better their language foundation will be. Not much has been known about dictionary teaching in high schools in China. It is hoped that my students will either implement this knowledge in future teaching or disseminate it to their students.

In terms of taking this project forward, I have taken part in the 9th International Symposium on Pedagogical Lexicography and L2 Teaching and Learning in China, to share my research with teachers and researchers from different universities. I am also planning to hold workshops or lecture series on dictionary training for students beyond my own courses, partly to address time constraints in course design and partly to disseminate dictionary knowledge to more students.

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Longman Dictionary of Contemporary English https://www.ldoceonline.com/

Merriam Webster Dictionary https://www.merriam-webster.com/

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Baidufanyi app

Netease Youdao app

Online course

Understanding English Dictionaries. Coventry University.
https://www.futurelearn.com/courses/understanding-dictionaries/4/todo/84773