Techniques and Methods Change, Methodology Remains the Same: Web Technology Use as Cosmetic Change in CFL Classrooms

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Abstract

Technology has been a staple in the language classroom for more than fifty years. From audio cassettes, to video tapes, to multimedia CD-ROMs, to static and interactive web technologies, language teachers have taken the time to learn these tools and integrate them into the classroom experience. Each new technology, each new app, creates an opportunity to alter the experience of teaching and learning—often supporting increased authentic interactions with the Chinese language. This potential however can go unrealized when the ways the technologies are used align with more traditional grammar and vocabulary-focused teaching methodologies and promote efficiency over communication. In this article we explore the way traditional methodologies (i.e. Structural/Cognitive approaches) influence the implementation of web technologies. We unpack the complex relationship between language teaching Methodologies/Approaches, Methods, and Techniques. We examine several popular Chinese as a foreign language [CFL] web technologies, along with descriptions of their use, as a way to consider the influence of teachers' educational values on technology integration decisions. We highlight the way design decisions made during the technology design and development process can constrain fit across methodologies. Next, as a way to outline what is possible when new technologies are informed by recent pedagogical developments, we briefly describe DaZiBao—a multimodal web application for learning characters via writing. Finally, we unpack findings and challenges from a pilot study of DaZiBao's integration in a somewhat traditional classroom setting and offer suggestions for teachers, researchers, and technology designers.

Keywords: Chinese, literacy acquisition, Chinese characters, writing, technology

Introduction

Over the last twenty-five years, internet-based technologies have significantly influenced both what is possible and what goes on in Chinese language classrooms (Yuan, 2017). In terms of technology support for learning Chinese characters, the flashcards of the 1980s and 1990s—available primarily in specialty catalogues or at bookstores in China—have been eclipsed, and often replaced, by thousands of multimedia flashcards available for free to anyone with an internet connection and a computer, tablet, or smartphone (Xu, 2018). Similarly, the worksheet-centric approaches to character practice of the 1960s through the 1990s have been augmented by thousands of animated gifs that show stroke order for most every character a novice or intermediate Chinese as a foreign language (CFL) student might be expected to learn. Furthermore character practice at the chalkboard—around since the 1800s—now can be done by

students via touch-sensitive tablet-based apps that allow learners to draw most characters directly on the screen and receive guidance and feedback on their execution.

In this article we explore the interplay between teaching methodology and existing learning technologies that support CFL students in acquiring literacy. While technologies continue to get introduced into language classrooms—both by teachers and students—the transformative potential they hold can go unrealized due to the influence of traditional teaching methodologies that privilege grammar and vocabulary learning over communication and expression.

We unpack these ideas, analyze descriptions of technology use in CFL classrooms, and report on research we have conducted in order to rethink the ways new technologies are used. Our inquiry is guided by several questions.

- Are we as CFL educators missing out on opportunities to use existing technologies in more robust ways? Put another way, in what ways might our teaching methodologies be limiting technology use?
- Are we as designers of CFL learning technologies limiting our designs based on implicit or explicit conceptions of learning contexts and teaching methodologies? Posed differently, in what ways might our designs embed traditional pedagogies within them and how is that embedding limiting their potential to support new ways of teaching and learning?

To address these questions we begin with a survey of traditional and contemporary CFL teaching methodologies/approaches. We then trace how traditional methodologies influence the selection and use of technology-supported Chinese literacy development activities (Xu, 2018). Subsequently, we examine how traditional conceptions of learning can also influence the design of new learning technologies. Next, we consider DaZiBao, a writing platform we developed, as an example of a learning technology designed to support communication and interaction. We describe the results of a study we conducted with DaZiBao in a CFL community college classroom. Finally, we discuss the potential for more recent language acquisition theories (i.e., interactional approach) to impact technology integration, design, and learning.

Approaches, Methods, and Techniques in Language Learning

Fifty five years ago in the field of language pedagogy, Edward Mason Anthony defined the terms: approach, method, and technique (Richards & Rodgers, 2001). His definitions and organization of their interplay are used by researchers to this day. In language learning and teaching an *approach,* or *methodology* (Kumaravadivelu, 2006) is the theoretical framework defining the nature of language and language learning. A framework guides the selection of methods and techniques. A *method* is an overall plan of the sequence and integration of materials suggested by a particular *approach*. A *technique* is the specific way a *method* is used in the classroom. The hierarchical organization then is one in which *techniques* are the way a *method* is carried out and an *approach* is the theoretical rationale for why a particular *method* would be used (Richards & Rodgers, 2001).

In the greater field of world language teaching and learning, there are generally three principal perspectives on language and language teaching (see Table 1). They are the Structural, Functional, and Interactional Views (Richards, & Rodgers, 2001). These align with the four views that are commonly discussed in CFL education, namely, the Cognitive, Function-Notional, Communicative, and Humanistic approaches (Richards & Rodgers, 2014; Xing, 2006). In the last

two centuries, a variety of methods and techniques have been developed based on these approaches (see Table 1).

Table 1
Describes each of the three primary approaches or methodologies of language teaching with their corresponding methods—synthesized from Richards & Rodgers (2001).

Approaches	Descriptions	Corresponding Methods
Structural View / Cognitive View	Language is "a system of structurally related elements for the coding of meaning." (Richards, & Rodgers, 2001, p. 17). Language learning is seen as mastery of its elements: esp. grammar & vocabulary.	Grammar-Translation, Audio-Lingual, Direct Method, Reading methods, Audio-visual method, Conscious practice, Situational language teaching, The Lexical Instruction, Computer-Assisted Language Learning.
Functional View	Language is "a vehicle for the expression of functional meaning." (Richards, & Rodgers, 2001, p. 17). Language teaching and learning emphasizes using language to accomplish meaningful tasks that rely on structure and grammar but are not the only important aspects of it.	Situational language teaching, Direct method, Suggestopedia, Natural Approach, Content-Based Instruction, Text-based Instruction, Computer-assisted Language Learning.
Interactional View / Communicative Language Teaching & Humanistic	Language is a vehicle for participation and maintenance in social interactions and personal relationships. Language learning and teaching focuses on fostering interaction, expression and different types of interpersonal exchange.	Problem-Based Learning, Communicative Instruction, Community Language Learning, Total Physical Response, Cooperative Language Learning, Content & Language Integrated Learning, Computer-Assisted Language Leaching.

Teacher Methodology in CFL Classrooms

Understanding CFL instruction in the present day may benefit from a brief outline of its history, which started after the Silk Road was established (between 103 BCE and 248 CE). The

development of CFL was influenced by the social, cultural, theistic, and political environment that shaped policy throughout the different dynasties (Ruan, Zhang, & Leung, 2015). According to Ruan, Zhang, & Leung, CFL went through three distinct stages of development that correspond with development in other areas of society delineated as: ancient China, the Republic of China, and the People's Republic of China. The professionalization of CFL as a concise field of study only emerged in a meaningful way in the 1990s as China's increased wealth and geopolitical gravitas garnered increased international attention.

While CFL classes for international students had been offered at universities across China throughout the twentieth century, CFL teacher preparation programs were only established in Chinese universities in 1993 and classified as part of Applied Linguistics. This was further amplified by programs like the Confucius Institute, which sent thousands of teachers from China abroad to teach Chinese as a foreign language, expanding the body of professional CFL teachers (Zhao, 2011).

Concurrently, in the United States CFL programs rapidly grew in the early 2000s (Ruan, Zhang, & Leung, 2015). Although these programs were informed by secondary language acquisition theories and empirical research, they remained intimately tied to the fields of sinology and linguistics (Wang & Wang, 2010; Wen, 2011). In the past decade, CFL teachers in the United States have benefited from a variety of professional development programs and are more immersed in contemporary teaching methods than teachers were in previous years (Wen, 2011). There remains, however, a great deal of variance among CFL teachers in terms of educational background, teacher preparation, teaching philosophies, and understanding of instructional approaches as the field has developed (Wen, 2011; Hustad, 2015). Finally, in reviewing the historical roots of contemporary sociocultural proclivities, Hu (2002) states that education in China prioritizes collectivity, effort, deference to established practices and hierarchies, memorization, and mastery of the basics.

A Directed Qualitative Content Analysis of CFL Teaching

In this section, we use directed qualitative content analysis (Hsieh & Shannon, 2005) as a way to understand the connections between foreign language teaching approaches, methods, and techniques and CFL teaching. Employing convenience sampling (Krippendorff, 2018), we highlight several published and one observed example of CFL teaching. We identified several example lesson activities published on popular CFL teaching websites and message boards, we translated these into English and coded them for teaching technique, method, and approach. We first outline the technique, then we describe the activity before situating it within a method and approach.

Induction is a technique that uses multiple examples to support students in discovering (by induction) the structure of the Chinese language. In an example provided by Xu & Wu (2013, p. 131) students work together—going through four sentences—to discover the sentence pattern: Subject + Verb 1 (+ Object 1) + Verb 2 (+ Object 2).

- 他们来参观。（They came to visit.)
- 小王去游泳。(Xiao Wang went to swim.)
- 丁大力来教室上课。（Ding Dali came to classroom to have class.)
- 我去图书馆借书。 (I went to the library to borrow some books.)

In this example, *induction* is a technique used as part of the *Grammar-Translation* method guided by the *Structural/Cognitive* approach. In this case, the approach, method, and technique all align as the approach values linguistic structure, the method focuses on grammar, and the technique requires students to consider language in order to identify syntactic rules and conventions via written Chinese.

Situated instruction is a technique that employs context-based dialogue as a way to support students in becoming accustomed to the patterns of language used within particular situations. For example, students might be grouped into pairs and asked to create a dialogue for tourists at a bus station in Dapaozhen (大堡镇) traveling to Beijing. In this example, *situated instruction* is a technique used under the *situational language teaching* method and guided by the *functional* approach. The approach values students knowing how to navigate specific language contexts. The method focuses on scenario and context-based language learning, and the technique requires students to build a dialog for actors in a particular situation.

In a CFL example of *situated instruction* published by Zhang and Yang (2006), they suggest that the teacher first select target vocabulary words to be learned and then provide a scenario. Students are then tasked with using the vocabulary words to make sentences. As it is used in this example, *situated instruction* is a technique that aligns with the *conscious practice* method and guided by the *structural* approach. The approach values mastery of vocabulary and structure. The method focuses on actively guiding learners as well as repetitive practice once they have learned the vocabulary and structure. The technique situates the vocabulary practice within the context of a teacher-designated situation.

Tasks/activities is a technique that places the focus on authentic language use via engaging learners in real-life tasks. For example students might be assigned to work in dyads to survey classmates about their hobbies and report on their findings in Chinese. In this example *tasks/activities* is a technique used under the *task-based learning* method and guided by the *interactional* approach. The approach values authentic student interaction in social situations. The method focuses on requiring students to carry out meaningful tasks in the target language, and the technique outlines a particular task and how it should be executed.

In a CFL example of *tasks/activities* described by 国际汉语教师 (2017), they state that the primary objective in their lesson is to practice sentence structures that include 把 (bǎ). The standard Chinese sentence structure is Subject-Verb-Object, however when 把 (bǎ) is included in the sentence the meaning remains the same but the structure becomes Subject-把-Object-Verb. They direct the teacher to print out an image of a tiger, a pig, and a basket of sweet potatoes. Students are given the following problem:

A farmer wants to take a tiger, a pig, and a basket of potatoes to the market. At the river bank, the farmer rents a small boat. The boat is so small that he can take only one thing with him to cross the river each time. If he takes the tiger, the pig would eat the potatoes. If he takes the potatoes, the tiger would eat the pig. How can the farmer take all the three across the river without losing any of them? (国际汉语教师, 2017)

Students are placed in groups and discuss how to solve the problem. Each group must solve the problem and write up their process using the Subject-把-Object-Verb sentence structure. The first group to both correctly solve the problem and successfully use the proper structure wins. Per this example, *tasks/activities* is a technique that aligns with the *conscious practice* method and is guided by the *structural* approach. The approach values mastery of grammar and syntax. The method focuses on modeling the language structure in the classroom

and then relies on student self-regulated repetitive practice. The technique situates sentence structure practice within a teacher-designated activity.

Information Gap is a technique wherein students are given different sets of incomplete information, thus only by working together can they fill in the missing information and complete the task. For example, each student in a four person group is given information that will help the group decide which of six restaurants two families should eat at based on allergies and preferences. Each member of the group is given information on either one of the two families or three of the six restaurants. They have to ask each other questions in order to collectively decide where the family should eat. In this example, *information gap* is a technique used under the *cooperative language learning* method and guided by the *interactional* approach. The approach values authentic student interaction in social situations. The method focuses on requiring students to work together in the target language, and the technique outlines a way that requires students to interact with materials and each other in order to solve the problem.

In a CFL example of *information gap* outlined by Zhang Laoshi (Zhang Laoshi, Private Conversation, December, 17, 2018), she states that the primary objective in the lesson is to practice vocabulary related to parts of the body and illnesses. Working in pairs, each student is given a different image, the images show pain in different areas of the body. Without revealing their images to each other, students ask each other questions about where the pain is located on their partner's image and use this information to ascertain the name of the illness. This CFL example of the *information gap* technique aligns with the *conscious practice* method and is guided by the *structural* approach. The approach values mastery of vocabulary. The method focuses on teacher modeling of the target structure followed by sustained student practice. The technique situates vocabulary practice within an activity that requires students to share information in a structured way.

In the above four examples we outline the way approaches, methods, and techniques align and work together. By comparing general use descriptions of each technique with select CFL use cases we also demonstrate how techniques most commonly employed under the *interactional approach* are often borrowed in CFL instruction to support grammar and vocabulary learning. This type of use aligns with methods that fall under the *structural approach*. How might we understand this methodological appropriation?

Teacher-centered approaches to instruction have a history of persistence, across disciplines and countries, despite reform pressures for learner centeredness. This resilience has been found to be a result of complex dynamics that go beyond a teacher's decision to try a new approach (Hernández-Ramos, 2005). In China, where English as a foreign language [EFL] teaching was the target of guidelines for compulsory education reform (Ministry of Education, 2001) – calling for communicative approaches to English language teaching – CFL teaching was not explicitly included in those reforms. Moreover, in spite of mandated EFL reforms, Hu (2002, 2005) suggests that significant cultural mismatches between interactional or communicative approaches to language teaching and the "Chinese culture of learning" (2002, p. 96) exist and impede methodological change. In short, Hu (2002) argues that a number of cultural pillars of Chinese education do not align well with the spirit of communicative approaches to language learning—namely learner-centered self-expression, spontaneity, autonomy, and light-hearted discovery.

In the next section we examine technology-supported Chinese literacy development techniques via a similar analysis.

The Impact of Traditional Methodologies on the Use of Learning Technologies

In CFL circles, the development of Chinese literacy learning is one of the biggest challenges for both Chinese language teachers and learners (Shei & Hsieh, 2012). From students' lack of experience with logosyllabic writing, the dearth of cognates between Chinese and languages like English, Spanish, and French, and no easily detectable alignment in terms of how words are pronounced and how they are written, literacy acquisition is not accomplished without considerable effort and often, substantial struggle (Olmanson, Liu, Heselton, & Srivastava, 2019). Given these circumstances, teachers have leveraged technologies in support of literacy development for decades.

In this section we again use directed qualitative content analysis (Hsieh & Shannon, 2005) as a way to understand the connections between foreign language teaching approaches, methods, and techniques and CFL teaching. We used purposive sampling (Krippendorff, 2018) wherein we collected examples of literacy teaching with technology published in the last two years [2017-2018] in the Journal of Technology and Chinese Language Teaching and the Journal of Chinese Language Teaching Methodology and Technology. Through these identified examples, we trace how methodologies influence the use of technology—specifically how traditional, teacher-centered approaches to language teaching impact the ways web technologies are used to support Chinese literacy learning.

Over the two year sampling span, we identified publications by several CFL educators and researchers (Liu, 2018; Wang & Teng, 2017; Xu, 2018). Regular readers of these journals may be aware of the work of these scholar-educators. Their teaching and willingness to freely share resources with fellow CFL teachers has made their contributions well known. For English as a Second or Foreign language educators, their standing may parallel that of EFL teacher John Higgins (1995).

Both in their design and use, technologies for Chinese literacy learning tend to focus on character learning. For example, in Xu Laoshi's first use case (2018, p. 46) he recommends a collection of 2500 character flashcards. Such a collection he says, enables CFL teachers to quickly and easily find the characters they want to show to their students. Each flashcard animates the stroke order sequence in a stepwise fashion while also providing pronunciation as well as compound word and phonemic radical examples. Xu (2018) points out the lack of learner interaction and the flashcards' optimal fit as a demonstration tool during direct instruction. While convenient, the nature of the flashcard design constrains its users, making them somewhat passive recipients who view characters within a decontextualized context—one character at a time. This focus on transmitted, individual vocabulary aligns with the *structural approach*.

The Character Writing Practice Tool, another tool highlighted by Xu (2018, p. 47), supports the creation of custom word lists with stroke animations, stroke orders, pinyin, and information about radicals embedded in the word. Teachers, Xu writes, need only to type in 1-15 Chinese characters and the website offers stroke order practice and guidance on a per-character basis. Again, for educators looking to save time assembling a vocabulary list that supports student memorization through repeated viewing and practice, this is a useful tool that fits under the *structural approach*.

Another tool for literacy development featured in Xu 2018 (p. 49) is Arch Chinese, a website that creates online activities around showing and practicing stroke order. It also offers translation, pronunciation, word segmentation, and allows the entry of entire sentences via

characters, pinyin, or English. Xu suggests that teachers might use Arch Chinese as a place to practice character stroke order. Like the Character Writing Practice Tool, Arch Chinese offers a highly scaffolded environment in which to interact with writing. The use case suggests this system is an effective way to support stroke order memorization—making it a resonant activity under the umbrella of the *structural approach*.

SmartTech's Smart Notebook has a character recognition system that converts student writing on a smart board into digital characters if they match. Xu (2018, p. 51) outlines an activity with a smart board wherein students write vocabulary words in the cells of a grid—each student writing each word once down their column. The system saves their work affording the teacher the opportunity to quickly check their work. Stroke order practice in this way allows teachers a chance to quickly look across students and vocabulary words to see how particular students and the entire class is doing. While students may interact with each other during the process, the primary activity taking place is vocabulary memorization via a tool that offers formative assessment—placing it squarely in the *structural approach*.

Xu (2018, p. 53) offers a vocabulary-learning activity involving a student-created color-coding system that can be facilitated either via a worksheet generated by a web app called the Chinese Characters Stroke Order Worksheet Creator or notebook paper. Students use crayons or colored pencils to delineate stroke order. Xu states that breaking the process into color-coded pieces does not support character memorization as well as other activities however it does enable stroke order memorization. The focus on vocabulary and character construction places this activity in the *structural approach* to language acquisition.

Liu (2017) outlines a technique that employs video clips from his *Authentic Video Library*, these movies and TV segments illustrate the meaning and usage of Chinese function words. For example, Liu describes using a scene from 爱情呼叫转移 (Call for Love), students watch as a character named Xu accidentally steps on Li Miao's dog's tail. Li Miao demands that Xu apologize to the dog. Xu uses the special phrase 听得懂 to ask if her dog *can understand*. The scene ends memorably with Xu apologizing to a dog. While students are passive viewers of each of the three scenes described by Liu (2017), the use of scenarios suggests that the method employed is that of situated language teaching. Additionally, it focuses on vocabulary learning and how phrases function in society—allowing it to be situated within the *structural approach*. Yet, the use of expressive video clips depicting authentic interaction suggests that it also draws upon the *interactional approach* as well.

In a study of a 300-level CSL course in the Midwest US, Wang and Teng (2017) examined microblogging via Twitter as a way to promote Chinese literacy and culture via social networking. Students were required to tweet twice per week with odd weeks being open-ended and even weeks based on teacher-created prompts related to aspects of Chinese culture and cultural differences. Learners were encouraged to respond to the tweets of their peers and check their tweets for responses. The teacher used direct messages to model tweeting, provide feedback, and point out the correct sentence structures either via explicit rewrites of their tweets or modeling the correct structure in a response. The fostering of interpersonal exchange in this activity positions it as within the *interactional approach*.

While the last example fit squarely within the *interactional* or *communicative language teaching methodology*, the instructional use cases designed for novice, lower proficiency, and younger CFL students are consistently focused on vocabulary memorization and language structures achieved through repetitive activities. This focus on structure brings up several questions. How are we to understand the impact of educator approach on classroom technology

use? Is learning to write Chinese inherently a character-focused, decontextualized, repetitive process centered on rote memorization? Do CFL technologies reflect what is possible or are they influenced by the ways Chinese literacy has been taught for decades, centuries, and millennia? Chinese literacy development remains influenced by traditional teaching methods and approaches. As seen in the above examples, whether students are using paper, smartboards, or apps, Chinese literacy acquisition is predominantly positioned as character learning which is most commonly associated with rote memorization, decontextualized repetition, semantic radical recognition, and character evolution (Huang, 2014; Xu, 2018; Zhao & Jiang, 2002). These avenues to literacy most readily fall within the *structural approach*.

In the next section we consider a technology that has been created expressly as a Computer Assisted Language Learning [CALL] technique that supports literacy acquisition via expression and interpersonal exchange—*interactional approach*—among novice and low proficiency CFL students.

A Web Technology Designed for Use within Contemporary Methodologies

Over several years, a research and design team at the University of Nebraska Lincoln has worked to design and develop a writing platform and tool that would support CFL teachers and students in the acquisition of Chinese literacy via pinyin input. The design of DaZiBao (Hellwege, Olmanson, & Liu, 2017), was guided by an interest in facilitating character learning via CALL techniques that afforded open-ended written expression in a way that allowed students to become familiar with written Chinese via their Chinese oral proficiency and knowledge of pinyin (Olmanson, Liu, Heselton, & Srivastava, 2019).

Within a use-case of writing a composition about student likes and dislikes, figures 1-5 below show the sequenced progression of the software in use as it supports student written expression anchored in oral proficiency. Via a web browser on a computer, tablet, or smartphone, and based on the words they already know how to say, students type untoned pinyin into the second oval field as a way to initiate an interaction with the software (http://chinesecharacterhelper.com/). The seven most common characters that correspond phonetically to the words typed appear below it (see Figure 1).

Figure 1. Screenshot of DaZiBao after the user enters the untoned pinyin "pingguo"—causing the top seven word/character matches to immediately appear.

If the learner recognizes the desired character she may click on it immediately. Should the learner be unable to identify the character by sight, additional supports are provided in a timed sequence. Figure 2 below shows the first level of supports, namely pronunciation support. We use a timed sequence as a way to support a focus on the character during the moment of

selection. This follows the work of Chung (2003, 2007) who found that character learning improved when supports were provided with built-in delays for student deliberation.

Figure 2. Screenshot of DaZiBao three seconds after the user enters the untoned pinyin "pingguo"—audio pronunciations for each word/character match appear.

Four seconds after the audio supports are offered, columns of up to ten images appear under each character (see Figure 3). Images are accessed from Flikr's image repository—which numbers in the billions—via an API search for the character and its English translation. Results are interwoven with every other image coming from the search of the character only and the next, its English equivalent.

Figure 3. Screenshot of DaZiBao seven seconds after the user enters the untoned pinyin "gou"—images appear in the column below each word/character.

Should another four seconds transpire after image support is offered, book-like icons appear under and to the right of each character. Clicking on the icon reveals the English translation (see Figure 4). The images appear before the translation so as to ensure that students give effort toward learning the character instead of simply focusing on the translation (Shen, 2004).

Figure 4. Screenshot of DaZiBao eleven seconds after the user enters the untoned pinyin "pingguo"—translation icons for each word/character match appear. This figure shows the result of clicking on the dictionary icons under the first, third, fourth and seventh words/characters.

Once the learner clicks on the character they have identified as their intended word, it is added to the composition in the field above it, this also removes the pinyin from the second field so as to make room for the next pinyin word in the learner's composition (see Figure 5).

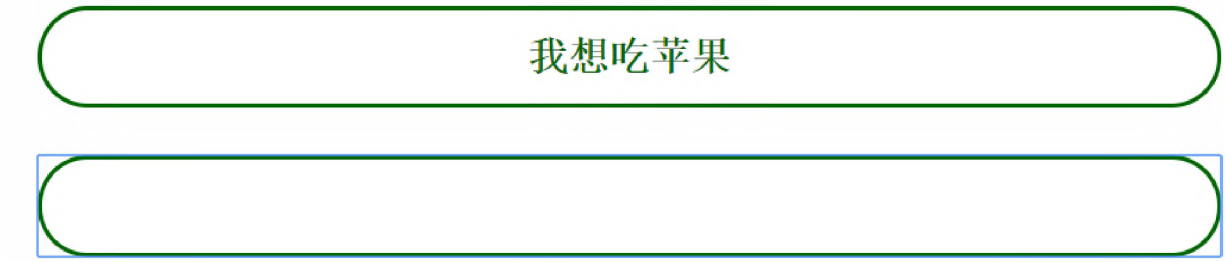

Figure 5. Screencast of DaZiBao after the first words/characters in Images 1-4 was selected—entering it at the end of the composition field—now 我想吃苹果。 [wǒ xiǎng chī píng guǒ. I want an apple.]—and clearing the pinyin field for a new entry.

The goal behind the design is to enable CFL students to express themselves via Chinese writing as soon as they can say a phrase and have a sense of how to use pinyin to spell it. Audio, visual, and first language scaffolds are introduced in a sequence so as to give learners and their teachers a way of noticing literacy growth all within the completion of holistic, potentially authentic communicative writing tasks. In the next section we use observational data and teacher interviews from two recent studies involving DaZiBao to explore interactions between technology design and teacher methodology.

When Interactional Methodologies Meet Teacher Methods

In the Spring and Fall of 2018, we implemented DaZiBao in three beginning-level CFL courses. In two Spring courses, the implementation involved a single writing task within a continuing education program. In the Fall community college course, the teacher was invited to use DaZiBao over multiple weeks for a range of writing tasks. In both cases the classes were located in the Midwest United States. Fourteen students across the continuing education courses and seven students in the community college course used DaZiBao as a platform for several writing tasks. In this article we focus on select portions of the collected classroom observations (Spradley, 2016) and teacher interview data regarding implementation. We use an iterative analytical approach involving base codes, chunking, and theming (Anfara, Brown, & Mangione, 2002).

After her students had used DaZiBao to complete a writing task toward the end of the semester, we interviewed Ru, the teacher of record for one of the continuing education courses. When we asked her if she planned on using the application with her students in the future she said she planned on using it as a tool to help students review characters they had already learned and to learn how to differentiate different characters that had the same pronunciation. Although she agreed that the audio (Figure 2) and image supports (Figure 3) were helpful, she stated that the built-in pauses between scaffolds made DaZiBao slow and inefficient. She suggested that it would be more helpful if translations (Figure 4) were displayed immediately. In interviews, students in Ru's class also stated that they planned to use the application as a way to practice their vocabulary.

In the first week of implementation, Yue, the teacher of record for the community college course, had students using the intervention to look up word meaning while she introduced new vocabulary. She then showed each vocabulary word with images and tasked students with making flashcards. In this example, DaZiBao was used as a reference tool. Students used the application to look up the characters and their English translations in order to copy both onto flashcards. As it took much longer for students to get the translations using our application than it did with online dictionaries, several students stopped using DaZiBao in favor of electronic dictionaries that did not have a built-in delay. Over time, student use of the intervention diminished as the tasks assigned by Yue were best supported via other technologies.

During our interview with Yue, we asked if she planned on using the intervention to introduce Chinese characters earlier in the semester than she would otherwise. She shook her head and said no. She explained that nothing would make her change her lesson plan, including technology tools such as DaZiBao. She described how she followed her textbook, going through it to see what kind of practice her students needed. Then, she said she would consider the available tools she had at hand and pick the one she thought would best provide sufficient practice for her students. This response aligned with our field notes from several classroom observations. For example, during the fourth week of implementation, the textbook theme for that week was family. Yue assigned students to create a booklet about their families. She prepared small paper booklets for the students to use for the project. She told students they needed to follow the example language found in their textbook about families and they could use DaZiBao to look up any characters they don't know. One of her seven students used DaZiBao to look up words to find the corresponding character, the other students used electronic dictionaries.

In both cases, the teachers and students were shown how the application worked and the ideas behind the features were explained as well. Yet task selection by the teachers and student

use indicated that DaZiBao was seen to best fit into the course as a dictionary-type tool for word look up. In the instances above and others, a tool designed to support communicative language teaching was used as a reference tool to demonstrate Chinese character shape, pronunciation, and meaning. Moreover, DaZiBao was deemed a less efficient tool for that designated purpose than others.

We didn't anticipate these methodological mismatches between in how we designed it to be used and how teachers and students actually used it. Instead of planning activities that allowed students to express themselves via written Chinese—with character familiarization and learning as a latent benefit—teachers used the platform as another reference tool, a multimodal flashcard with unfortunate delays in offering supports.

These findings suggest that designing a learning technology to fit within the *communicative language teaching approach* does not guarantee that it will be used in that way. If the sociocultural background and methodology espoused by the teacher remains rooted in a focus on grammar, vocabulary, and language features as outlined in a textbook, those elements exert a sort of gravitational pull—pedagogically speaking—away from learner-centered instruction. While learning technologies like DaZiBao are designed as techno-pedagogical pivots and sideways moves (Olmanson, Kennett, & Cope, 2015) to make new things possible within language education in general and CFL instruction in particular, multiple forces act before and during implementation to influence the technology to fit the approach.

Discussion, Implications, and Conclusion

The introduction of 21st century technologies into CFL classrooms is a testament to teacher dedication to innovation. Through their efforts, CFL educators have increased the range of supports that are available for beginning and intermediate CFL learners. To the casual observer, the integration of computers, tablets, websites, smartboards, and apps into the CFL classroom over the past 30 years creates a sense that much has changed. Yet, as we have documented in this article, the traditional Structural/Cognitive methodology—characterized by a focus on vocabulary learning and grammar instruction exerts a powerful influence on educators' technology choices and integration efforts. Privileging or adhering to traditional pedagogies that value repetition over relevance, decontextualized/rote memorization over interpersonal interaction, and step by step practice over holistic communication reduces the range of ways technologies can align with student expectations, learning proclivities, and past experiences.

It is useful to examine how approaches, methods, and techniques circulate within CFL teaching as this examination offers insight into the level of supports that may be necessary to support methodological shifts. The insights we gain by interpolating educators' guiding methodologies—given examples of their classroom CFL literacy development activities—allows us to better understand the dynamics between the exciting array of new technologies and the lived realities CFL teachers.

Arnold Pacey (1983) writes that while technologies influence the communities in which they are used, the cultural expectations and societal values of those communities also influence how technologies are designed and developed. Empathy in terms of user needs and expectations is a hallmark of human centered design [HCI]. Yet, some designs that have proven to be beneficial for most people (e.g., curb cuts) are not accessible to others. In the case of Chinese literacy development technologies, more work is required in order to make communicative language teaching methodologies accessible to CFL students.

This article is both an analysis of contemporary technology-supported language teaching as described in two different journals of Chinese language teaching, and a study of a multimodal web application's use in developing Chinese literacy and character recognition via open-ended writing within three different classrooms. Both the analysis of teacher practices found in recent journal issues and our own data suggest the persistent nature of methodological beliefs and pedagogical practices may constrain or reign in a learning technology. The challenge of how to better support and ensure the robust [and intended] use of applications such as DaZiBao within CFL classrooms remains a persistent and worthwhile question. What our work adds to the conversation in this regard is a pointed and multifaceted analysis of the dynamics at play between adult CFL education and the influence of methodological, sociocultural, and technological elements. In so doing, this work adds to the existing literature that has made similar observations in classrooms involving other disciplines/subjects (Chen, 2008; Ertmer et al., 2012; Hernández-Ramos, 2005; Tondeur et al., 2008), other countries (Schmid, 2008), other languages (Li & Ni, 2011), and other age groups (Sang et al., 2011).

This work aligns with findings from other fields and other languages and offers suggestions for teachers, researchers, and technology designers. Specifically, as technology designers, we must align ourselves with pedagogical and methodological change. As Ertmer and Ottenbreit-Leftwich (2010) suggest, we must focus on helping educators see the connection between learner-centered practices and learning outcomes. As researchers, we must take care in identifying classrooms for implementation based upon the alignment between the technology design and existing individual teacher beliefs. Finally, as teachers, we must understand what technologies fit with our pedagogical proclivities and, when there is a mismatch, pursue the question of learning outcomes and professional growth over methodological comfort (Ertmer & Ottenbreit-Leftwich, 2010).

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教学技巧更新教学理念依旧：网络技术在汉语课堂的运用换汤不换药？

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摘要

教育技术运用于汉语课堂教学已有超过五十年的历史。从最初的卡带、录像带到光盘，到静态的以致互动的网络技术，汉语教师们投入了时间和精力学习各种技术并将他们运用到课堂实践。每一项新的教育技术、每一个新的应用软件都给改进语言教学和改善语言学习经历带来了新的机会和新的发展可能 —— 通常可以促进学生使用汉语进行真实的交流。但是这些潜在可能在很大程度上依然无法在汉语教学中完全实现，因为在大多数情况下新的教育技术是根据传统的强调词汇和语法的教学方法开发并运用到教学中，注重语法词汇学习效率而忽视了真实语言交流。在这篇文章中，我们首先探究传统教学的教学理念（例

如结构主义/认知派）是如何影响网络技术在课堂中的应用效果。接下来，对教学流派，教学方法以及教学技巧进行了区分和解释。然后对几种当下流行的汉语教学网络技术进行了探究，介绍它们的使用方法，总结教师的教学观念是如何影响技术在教室中的整合。我们还强调了在教育技术设计和开发过程中的设计决策环节会对教育技术适用于何种教学法产生影响。在此基础上，我们通过对打字宝—— 一个通过交流式写作促进汉字学习的多模式网络平台为例，介绍在新的教学理念指导下，将教育技术运用于汉语教学的新前景。在此基础上，本文进一步分析探讨基于新教学理念设计的网络平台（打字宝）运用于传统课堂的先行研究成果以及相关挑战，并为汉语教师、研究人员以及教育技术设计开发者提供相关建议。

关键词：汉语，语言习得，汉字，写作，教育技术