Journal of Technology and Chinese Language Teaching

Volume 13 Number 1, June 2022
二〇二二年六月　第十三卷第一期

ISSN: 1949-260X
http://www.tclt.us/journal

科技与中文教学

Journal of Technology and Chinese Language Teaching

A peer-reviewed online publication with in-print supplement
ISSN: 1949-260X http://www.tclt.us/journal

Volume 13 Number 1, June 2022

Articles

Columns

科技与中文教学

Journal of Technology and Chinese Language Teaching

A peer-reviewed online publication with in-print supplement
ISSN: 1949-260X http://www.tclt.us/journal

Sponsor

Department of World Languages, Literatures, and Cultures, Middle Tennessee State University

Editorial board

Editorial staff

Contacts

URL: http://www.tclt.us/journal
Email: editor@tclt.us

Motivating Online Language Learners: From Theory to Design Strategies (提高在线语言学习动机: 从理论到策略)

Jiang, Zilu
(江子鹭)
The Ohio State University
(俄亥俄州立大学)
jiang.1665@buckeyemail.osu.edu

Xie, Kui
(谢魁)
The Ohio State University
(俄亥俄州立大学)
xie.359@osu.edu

Abstract: The development of online education has posed new opportunities to language learning, especially for learning a second language such as Chinese. However, challenges also exist. One of the major concerns is motivating students to learn in an isolated and independent learning environment. Research in online education has revealed that successful online learning depends mostly on learners' motivation and their ability to manage the learning process. However, motivation in online Chinese learning settings is an understudied area in the extant literature. This paper introduces the self-determination theory (SDT) as an appropriate theoretical framework for addressing learning and motivation challenges in online Chinese learning. This paper also explores the design of online Chinese learning environments from the perspective of SDT. It begins with a brief overview of the motivation issues in online Chinese learning and follows with the discussion of the application of the SDT theoretical framework in an online Chinese learning context. In addition, it reviews the findings in the literature of online Chinese learning and proposes instructional design strategies that can promote and support student motivation.

摘要：在线教育的发展为中文语言学习带来的新的机遇和挑战。如何激发并保持学生学习动机是在线学习中的一个重要问题之一。在线教育研究表明，学生的学习动机和管理学习过程的能力是影响在线学习的重要因素。然而，目前关于在线中文学习动机的研究尚少。 本文以自我决定学习理论为指导框架，讨论如何从学习环境设计的角度来支持中文在线学习动机的发展。本文先概述了中文在线学习中的学习动机问题，然后介绍了自我决定理论在中文学习环境中的应用，并基于目前文献研究提出相关的教学设计策略以支持学生学习动机的发展。

Keywords: Online Chinese learning, Motivation, Self-determination theory, Design strategies

关键词：中文在线教学、动机、自我决定论、教学设计策略

1. Current motivation issues in online Chinese learning

Motivation, as a necessary precursor for second language acquisition, has been recognized as an essential factor that influences engagement and achievement in online language learning (Ushida, 2013; White, 2017). However, motivation research has not been explored extensively in the field of Chinese learning (Wen & Piao, 2020). Current motivational issues in online Chinese learning have called for urgent attention to improving the quantity and quality of motivation.

Being part of the broader spectrum of distance language learning, online Chinese learning has inherited the motivational challenges in online language education. Generally speaking, students in online language courses exhibited low level of motivation (Lin et al., 2017), reported negative perceptions to online learning environments (Oliver et al., 2012), and had a lower online course pass rate compared to students learning other subjects online (Freidhoff, 2020). Another major concern is the quality of language learning motivation. While some students displayed genuine interest in the Chinese language and culture, some other students were reluctant to participate. They registered for online Chinese courses because of curriculum requirements, or were forced to do so by social-imposed and self-imposed pressures (Wen, 2011). Comanaru and Noels (2009) investigated the reason for Chinese learning in a study at a university. Most of the participants reported that they learned Chinese because of extrinsic reasons or external forces or, such as "achieving course credit", "obtaining lucrative employment", or "feeling of guilt and shame about disappointing others" (p.148).

Besides, students' motivation to engage in online Chinese classes was hard to maintain. The unique orthographic and pronunciation system makes Chinese language learning much more complicated than learning other languages (Guo & Möllering, 2016; Ruan et al., 2015). Students may expect a Chinese course to be less demanding at first and later realize it requires more commitment than expected (Sun, 2014; Wen, 1997). When learners have a low level of competence, they are less likely to exert effort to overcome the difficulties (Bandura, 1989); consequently, they may not continue to learn when the course fails to address their language competence development.

Distance Chinese learning entails additional challenges to the retention of the motivation. The lack of learner support has been identified as a major factor that exacerbates the issue, including inadequate support for students' agentic role in managing online studies (Wang & Qi, 2018; White, 2017) and pursuing diverse Chinese learning goals (White et al., 2020); incompatible online design for diverse Chinese competence levels (Stickler & Shi, 2014; Zhang, 2014); lack of immediate feedback and time for language practice (Qian & McCormick, 2014); limited interactions that result in low retention and the feeling of isolation (White, 2017). Insufficient support for students' need will inevitably inhibit their motivation to communicate and participate in the course, ultimately leading to inadequate development of language competency (White, 2017). Since effective online learning relies on the degree to which a learner accommodates the context into their own learning experience, rather than just the delivery of the course materials (White, 2015), creating a supportive and motivating environment should be the primary concern in online language course design.

Past design effort in Computer Assisted Language Learning (CALL) has explored the online language design from a technology-driven approach, affordance-drive approaches to pedagogical-driven approach (Colpaert, 2006). However, less attention has been paid to the motivational support. In attempting to facilitate the language learning process online, Colpaert (2010) suggested the design method should "draw from various disciplines involved, such as pedagogy, SLA, linguistics, software engineering, and psychology" (p.272). He pointed out that self-determination theory will be instrumental in guiding the design of CALL to identify students' personal characteristics. Draw upon the learner-centered emphasis, we will discuss motivational strategies for designing the online Chinese learning environment from the psychological perspective of self-determination theory.

2. SDT as an appropriate framework to address motivation in online language learning

There have been several influential frameworks to examine motivation in the language learning field, including the Motivational Orientation Theory (Gardner, 2010; Gardner et al., 1985), the L2 Motivational Self System (Dörnyei, 2009), and the Self-determination Theory (SDT; Ryan & Deci, 2000). Among them, SDT places emphasis on the quality of motivation. The focus of SDT specifically fits the needs of language teaching. As noted by Noels et al. (2019), one important question in language teaching is how we can support our learners to find language learning "intrinsically enjoyable", to "find meaning and satisfaction in the process", and to view language learning as "a personally relevant activity in itself" (p.95). In other words, the goal of language teaching is to help language learners develop high-quality motivation so that they can become more autonomous in learning without external forces (McEown & Oga-Baldwin, 2019). McEown and Oga-Baldwin (2019) have called for the implementation of SDT in formal language education and suggested that teachers who employ the SDT principles in the language classroom can positively influence students' motivation, well-being, and achievement.

SDT theorizes that motivation is situated on a continuum ranging from one end, which is fully autonomous to the other end that is fully controlled (see Figure 1). It highlights the dynamic motivation process underneath. It indicates that the quality of motivation can be improved through the satisfaction of basic psychological needs, which act as nutrients for "ongoing psychological growth, integrity, and well-being" (Deci & Ryan, 2000, p. 229). It not only depicts what motivation is, but also indicates ways to optimize the environment for the growth of motivation.

2.1 Autonomous motivation and controlled motivation

The central concept of SDT theory is the distinction between autonomous and controlled motivation (Ryan & Deci, 2000, 2017), which can be applied to evaluate the quality of motivation (Ratelle et al., 2007; Xie et al., 2020). Autonomous motivation is the force that emanates from the learner. When autonomous, learners engage in behavior that is self-determined. They may feel that they have the interest to participate in the activity,

or may have a sense of self-endorsement that recognizes the behavior as important. The behavior is supported by the innate needs for being a capable human agent managing life and making connections with the environment. Autonomous motivation includes both intrinsic and extrinsic forms of motivation, which are, intrinsic motivation, integrated regulation, and identified regulation. *Intrinsic motivation* is the most autonomous type of motivation which leads a person to pursue an activity based solely on interest and pleasure. Language learners with intrinsic motivation participate in language learning with curiosity, creativity, and enthusiasm (Comanaru & Noels, 2009). They learn the language not because of external forces, such as getting a job, but because of the pure enjoyment they experience during the learning process. *Integrated regulation* refers to the fullest internalized regulation of motivation. It occurs when learners integrate the behaviors into personal values and beliefs. In this situation, a heritage learner identifies themselves as the one that can master the heritage language, not just because of the importance of making ancestry connections. A somewhat less internalized regulation of motivation, while still self-determined, is *identified regulation*. Identified regulation is observed when one identifies the importance of the activity and see the activity as personally meaningful. At this point, learners carry out the activity because they relate the importance to their personal goals. For example, a heritage language learner who feels that heritage language is important to their ancestry connections will choose to learn the heritage language even if he does not enjoy the learning process.

On the other hand, behaviors characterized by controlled motivation are found in those learners who feel pressured or compelled to perform. Individuals with controlled motivation engage in behavior for external reasons. Learners act in ways that are incongruent to the person's sense of self. Since they are not genuinely willing to engage, they are only likely to maintain the behavior when the external source is present. A less controlled type of motivation is *introjected regulation.* It refers to behaviors that are performed to avoid feeling ashamed or guilty. It involves ego-enhancement, in which learners demonstrate their ability or avoid failure. The most controlled type of motivation is *external regulation*, meaning that the actions solely rely on the self-alien forces, such as getting rewards or avoiding punishment. If the external reinforcement is taken away, learners will not have the incentive to continue engagement. The difference between these two forms of regulation lies in the degree of independence when the external force is absent. While external regulation cannot support the behavior to continue, introjected regulation can still drive the actions due to its internal pressure (Ryan & Deci, 2017).

Contrasting to all autonomous and controlled motivation is Amotivation. Amotivation refers to the situation where learners are not motivated at all; they may not act or act without intent. They find the activity valueless, or do not feel competent, or anticipate undesired outcomes (Ryan & Deci, 2000). Consequently, they have no reason to perform the activity and will probably quit as soon as possible.

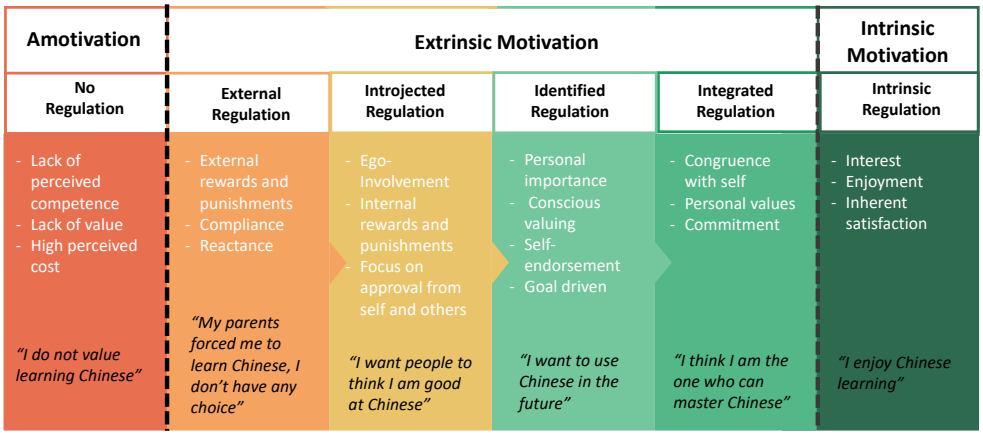

Figure 1: The SDT continuum for online Chinese learning, adapted from McEown & Oga-Baldwin, 2019; Ryan & Deci, 2000

Many studies have shown that motivation is changing all the time (Xie et al., 2006; Xie & Ke, 2011); it can be shifted from controlled to autonomous when students internalize the value activity (Oga-Baldwin & Fryer, 2018; Wen & Piao, 2020; Xie et al., 2022). The goal of the online language classroom is to foster the development of autonomous motivation so that students can learn without external control from teachers and more importantly, act on their will to interact with others. Students with adaptive motivation will be able to healthily sustain the language acquisition (Csizér & Dörnyei, 2005; Noels et al., 2000; Oga-Baldwin et al., 2017; Ushioda & Dörnyei, 2009; Winke, 2013), use more learning strategies (MacIntyre & Noels, 1996), have a good attitude toward language learning(Csizér & Dörnyei, 2005; Winke, 2013), possess a higher level of willingness to communicate in the target language (Maclntyre et al., 2001; Yashima, 2002), and achieve desirable L2 competency (McEown & Oga-Baldwin, 2019; Noels et al., 2000; Pae, 2008).

2.2 Three basic human psychological needs

Ryan and Deci (2017) suggested that when the social environment supports the learner's sense of autonomy, competence and relatedness, autonomous motivation will be best fostered. They conceptualize the three factors as essential human psychological needs, which are vital for improving human autonomous functioning regardless of time and context. The three basic human needs must be satisfied to sustain psychological interest, development, and wellness.

Autonomy refers to the feeling of something being volitional and congruent with one's interests and values. It is different from the concept of independence, as an independent individual can act in a way that is contrary to their volition. Thereby, autonomy emphasizes that an individual pursues the activity of their own will, without being pressured by external forces. *Competence* is often considered as a core factor in motivated actions (Bandura, 1989; Harter, 2012). It relates to the individual's perception

of their ability to perform the activity. It should be noted that competence is easily thwarted. The growth of efficacy may wane in the contexts that are with pervasive challenges, negative feedback, and criticism. *Relatedness* concerns the need to feel connected, secured, and cared for by others. Specifically, it pertains to the sense of being a significant member of the social groups. Needs-frustrating predicts motivational depletion while needs-satisfying optimizes motivation and nourishes human well-being. For example, a language learner will feel internally motivated when they perceive language learning as an integral part of themselves, feel welcomed by the target language community, and receive supportive interactions in the language learning process. The perspective of the three basic psychological needs has offered a lens for us to analyze the roots of motivational issues underneath.

Autonomy need and online Chinese learning. White et al. (2020) found that students were more involved when they were able to co-construct the online classroom with their Chinese teachers. While we recognize the independent role of online students, we shall notice that they also act as active agents to control and construct the learning experience in response to the online learning activities (Garrison, 2000). White (2005) explored the "learner-context interface" online language learning theory from the perspective of learners and placed learners' construction of response to the context as the core. Learners did not strictly follow what had been delivered, but instead actively constructed their own learning experience based on the environment affordances (Stickler & Shi, 2014). She also suggested that the pre-determined course design was not responsive to the diverse perspectives the learners had. Students are diversified in their goal of learning Chinese and their personal life experiences. Some students learn Chinese because of their interest in culture and the desire to become part of the Chinese-speaking cultural community; some others, being more pragmatic, value the utility perspective of Chinese language for travelling, job seeking, or communicating with people who speak Chinese (Noels et al., 2000; Sun, 2014; Wen & Piao, 2020). Therefore, using pre-packaged or over-controlling teaching content was not sufficient to embrace various viewpoints from diverse learners (Lamb, 2017).

Competence need and online Chinese learning. From past studies, students displayed great frustration when they perceived less support for their competence. Generally, students have found limited speaking opportunities as a challenge in an online setting (Qian & McCormick, 2014). They were more motivated when they were able to practice the language they learned and engaged in the negotiation of meaning (Sun, 2014). Specifically, students' competence levels varied, they showed various needs for adjustments to the learning content to fit their competency. Qian and McCormick (2014) examined a forum discussion in online Chinese learning. They found only advanced learners appreciated the activities that required them to freely express their experiences and feelings since beginners have less knowledge of complex structures. Another issue related to language competence is the overuse of corrective feedback. While corrective feedback have been used as a common technique to improve language competency, researchers have found students listed over-corrective feedback as one of the demotivating factors when learning a language (Lamb, 2017), for example, frequently correcting the tone and pronunciation of Chinese characters (Cai & Zhu, 2012).

Relatedness need and online Chinese learning. Inadequate connectivity may cause an alienating effect for students. Past studies found students felt motivated when they were connected with the community of learners as they were able to communicate and collaborate with other students, sharing their learning experiences and asking for help (Cai & Zhu, 2012; Qian & McCormick, 2014). Another issue that relates to relatedness is the need for response time in an online setting. Spontaneous speaking in online Chinese setting has been found to be the most difficult skill to acquire (Stickler & Shi, 2013). They need more time to prepare for communication. Students found themselves unsecure or embarrassed to learn when teachers displayed less patience and forced them to complete activities when they were not ready (Mkize & Chisoni, 2015).

SDT can serve as an appropriate theoretical framework that addresses the aforementioned motivational issues in online Chinese learning. Firstly, SDT can be applied as a guidance to the course design as it places the optimization of the environment design at the core. Secondly, since it posits the satisfaction of autonomy, competence, and relatedness as determinants of motivation, it has explained the reason why the lack of needs support has inhibited the development of motivation. Thirdly, it offers possible solutions to the improvement of quantity and quality of motivation from the perspective of needs satisfaction. It not only emphasizes the dialectical relationship between social context and motivation, but also specifies the necessary conditions in the social context for psychological growth. Hence, in order to address students' motivational issues in online Chinese learning, providing contextual support for the three psychological need is key.

3. Designing a motivating online Chinese language learning environment

The following sections will introduce contextual support strategies to enhance students' autonomous motivation from the perspective of the satisfaction of fundamental psychological needs. While these motivation-supportive strategies can be applied to both online and traditional classroom settings, we have contextualized the discussion within the scope of the online setting. We will explain the theories behind each strategy first and review related examples in previous online learning literature and practice.

3.1 Autonomy-supportive strategies

Ryan and Deci (2017) place "the feeling of volitional, congruent, and integrated" (p.10) as the core of autonomy. Learners are engaged wholeheartedly since they participate in the activity because of their choice. Ryan and Deci distinguish "autonomy" from "independence" as people can be either autonomously independent or be independent but doing activities that are contrary to their volition. In an online Chinese learning environment, the need for autonomy has become even more central to the online learning process as students are the ones who manage their studies most of the time. Students will be engaged in the self-endorsed activity that is personally meaningful and aligns with their own interests, while they exert self-regulation in the distance learning process.

Strategy 1 for Autonomy Support: Providing choices and limiting task imposition. Language instruction is prescriptive in that it sets the learning objectives and guidelines a

learner needs to follow (Little, 2007). However, when all the activities are externally imposed, learners tend to believe they have less ability to control the circumstances. If learners see no value or interest in the activity, they will only pursue it reluctantly. Nevertheless, if they perceive a "Bi-local" control of the events, that is, the perception of both personal locus of control and external control, they will be more responsible for the activity and interact with external resources (E. Lee & Hannafin, 2016). This concept of "Bi-local" control resonates with the collaborative control and learner involvement in White's (2005) and Garrison's (2000) online learning theory.

Course design in online language learning, while being structured, can still offer flexible options for learning activities. Instructors can incorporate learners' interests when designing the syllabus. Instead of having students learn what is provided, the instructor may ask students to decide what they are most interested in learning or add other contents that are not in the prescriptive syllabus. Ankan and Bakla(2011) designed online blogging activities in an online language learning class. They asked the students to brainstorm topics and activities that could be the blogging content without providing pre-determined blogging topics. Students found the blogging experience enjoyable and improved their ownership of learning as they had some control of the exercise. Similarly, Lee (2016) echoed that advanced students in an online language class felt more motivated when they were offered freedom for topic discussion.

Besides, instructors can offer a list of resources and activities to stimulate students' interests and ask them to work on the ones they prefer. Students tend to put in more time and effort when a choice is provided. Prince (2011) adopted a fiction reading in an online language class. To facilitate the support for choices, learners can choose from the accompanying reading activities and have easy access to the answers. He also suggested that students may only adopt an attitude of compliance when the design offered no choices but only compulsory tasks. Take learning Chinese characters as an example, students who prefer writing to typing will find penmanship more interesting; some other students who prioritize typing over writing may become more engaged when a typing exercise is offered. Instead of asking all students to print out the character writing sheet to write and submit, students can also choose to do the penmanship on the characters-learning app, practice typing characters in the class social group (e.g., Discussion board, WeChat), or with other social simulation tools (e.g., TextingStory[1]).

In a presentative project, students can have some choices of the tools they can use and the content they would like to present. The instructor provides a tool list on the assignment page and related tutorials. The technology tools for presentation may include Google slide, Explain Everything, Talking Photos, StoryBird (making an e-book), Pixton (making comics), etc. As the class's focus is not on technology but language learning, the course instructor will need to provide a tool list that students can find it easy to start.

Strategy 2 for Autonomy Support: Creating a personal meaningful environment. Facilitating an individual's volition experience does not necessarily equal unlimited

[1] https://textingstory.com/

freedom without constraints or demands (Benson, 2007). Students will perceive autonomy when they truly endorse the options available.

To facilitate endorsement, an autonomy-supportive environment should *provide meaningful rationales* that are related to their goals of learning (Alm, 2006; L. Lee, 2016; Martin et al., 2018; Reeve et al., 2004). This process supports not only autonomous motivation, but also the internalization of controlled motivation. Before asking the student to do the task, the instructor needs to explain why the activity is important to their learning and how it relates to language proficiency. Instead of using controlling languages in the tasks given, such as "you must", instructors may provide more information to arouse learners' awareness of the meaning of the task. For example, if the instructor asks students to read the text aloud and record their own voice by saying, "read the text and record", students may wonder why they need to make a recording. They may complete the task just for sake of completion. Even when they move their lips, it does not mean that they are engaged in the learning process. An informational version of the instruction will allow learners to consider the task value, and endorse the goal of instruction to their internal value system, such as "Chinese is a tonal language. Different tones indicate different meanings. The read-aloud technique will help you to improve the accuracy of the pronunciation. Listen to the demonstration in the VoiceThread first, read after the instructor, and pay attention to the pronunciation and tone. You can choose to practice on your own or to record your pronunciation on the VoiceThread. You will also receive feedback after your post the recording."

Students in the same class have different goals of Chinese learning, course designers need to *empathize with students' learning perspective* in the activity (Reeve & Jang, 2006). The task will be more intriguing if it invites students' input to class learning content. Figure 2 is a discussion activity in a synchronous session. The instructor asked students to draw their house during the asynchronous study and initiated a discussion about the house layout in the live session. Besides a presentative activity talking about the house, the instructor also adopted student-generated materials as the class learning materials for communication. White et al. (2020) also echoed the importance of students' input in a study on one-to-one online Chinese synchronous sessions. Students found the class useful when they activated their role of agents to change the focus of class from a pre-determined teaching plan to the discussion of their own life experiences. They suggested that personalization can be tailored from learner interests, current situations, past experiences and future plans. Emphasizing students' input to the class does not necessarily mean the teaching content will turn into casual topics or be distracted by students' questions. Instead, skilled teachers will adjust the teaching plan to address students' interests by using communicative discourse to stimulate the practice.

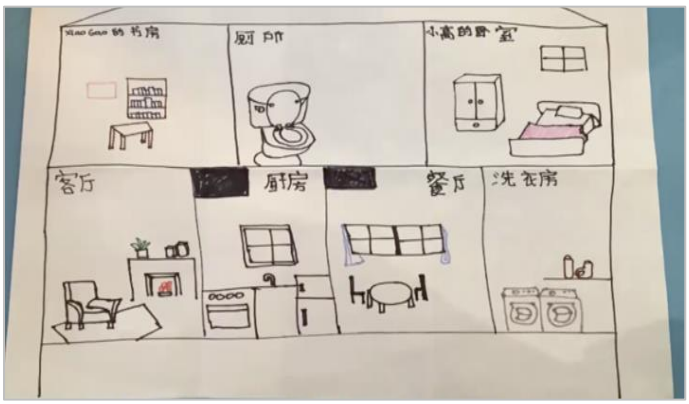

Figure 2: A synchronous activity in an intermediate Chinese class – designed by Yun Zhao

Strategy 3 for Autonomy Support: Encouraging self-regulation. Autonomy support includes more than the availability of choice, but also supports for self-regulation (Ryan and Deci, 2017). Self-regulation is essential to the success of online learning. It is a mindful process whereby students strategically monitor and control their own motivation, cognition, metacognition, behavior, and environment to achieve their academic goals (Pintrich & Zusho, 2007; Winne & Hadwin, 1998; Zimmerman, 2011). The cyclical process of planning, monitoring, controlling, and evaluating plays an essential role in the learning process.

Bang et al. (2014) adopted a design of a learning navigation map in an online English class to help learners plan and monitor their study progress. Setting up a clear course overview makes it clear to learners how to get started and find essential course components. Learners reported that they feel more in control of the course when the course structure was clearly stated and organized, as they were able to plan their learning schedules accordingly (Lee, 2016).

Many studies have shown that specific self-regulation strategies training, such as goal-setting, self-monitoring, have positively influenced academic achievements (Zimmerman, 2011; Brunstein & Glaser, 2011). Murphy (2005) integrated self-regulation training in an online French class. Students participated in a skill audit that listed the skills they needed to complete the assignment and identified their strengths and weaknesses. They completed a reflection sheet to summarize the feedback they received, the strategies they used, and identified questions they would like to discuss with the online tutors. In online language classes, Andrade and Bunker (2009) applied the reflection journal design and self-selected self-regulation training that covered multiple dimensions, including motivation, methods of learning, use of time, the physical and social environment. Teachers responded to students' reflective journals and provided feedback on their learning performance, strategies, and goal-setting. They reported that students found themselves becoming more responsible for study after the class.

In addition, supporting self-regulatory use of language-learning strategies is a crucial approach to the development of language competence. Learning strategy training can be explored from the skill-based areas (e.g., listening) and language subsystems (e.g., vocabulary and grammar). Each focus will entail a repertoire of specific strategies. For

example, prediction is used mostly in interpretive activities, as opposed to presentational activities; a grouping strategy is often used for internalization, such as memorizing new phrases. Instructors may integrate strategy training when students are doing a task. Figure 3 presents an example of the instruction in asynchronous study of a novice Chinese class. Figure 4 shows the slides captured in a synchronous session of an AP Chinese class. The instructor designed a speed-reading class activity and introduced corresponding strategies for the reading task. The instructor integrated association strategies to help students retrieve and organize the words before proceeding to a writing task.

Figure 3: An asynchronous activity in novice Chinese class – designed by Xiaoying Yuan

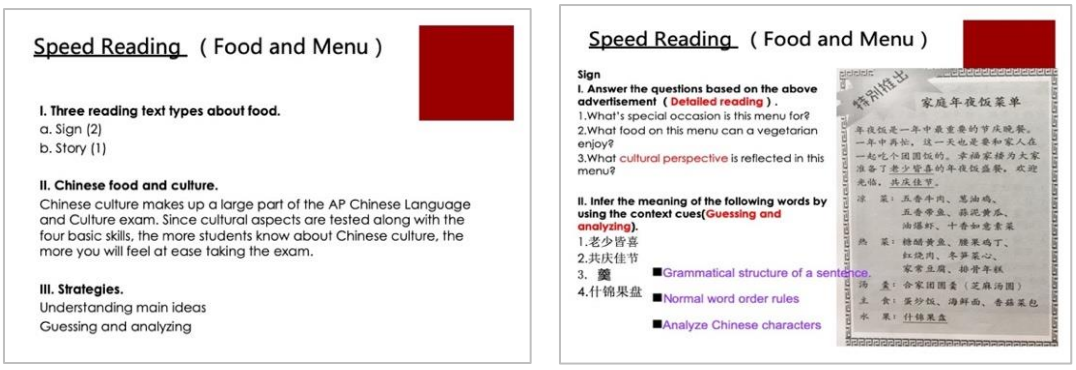

Figure 4: A synchronous activity in AP Chinese class – designed by Yu Chen

3.2 Competence-supportive strategies

It is worth noting that perceived competence stems from the activity that is autonomously endorsed by the learner. SDT highlighted "a distinction between competence at activities that originate from the self and those that are governed by introjects or by external demands" (Ryan & Deci, 2017, p.96). It denotes that even when the external environment has designed abundant language learning activities, learners do not necessarily perceive support of their competence. Learners will internalize a sense of competence when they feel autonomy is satisfied.

Research in competence needs satisfaction confirmed the positive link between perceived competence and autonomous motivations. Perceived competence was often found to be related to intrinsic motivation and identified regulation. Students who felt more competent during the language classroom were more self-determined. Joe et al. (2017) claimed that competence needs satisfaction predicted learners' willingness to communicate and L2 achievement directly. In terms of the impact on the learning process, Tanaka (2017) affirmed the decisive role of competence in predicting self-determined motivation for vocabulary learning. They identified autonomous motivation as a positive predictor for vocabulary size and improved learners' value belief and interest in vocabulary learning. However, students with lower perceived competence failed to recognize available strategies and felt helpless, which led to amotivation. They were easy to fall into a vicious cycle of low competence-low motivation since they were less able to regulate their affective states and experiment with different strategies when experiencing low motivation. Mills et al. (2007) extended the research of competence to their ability to use strategies. Students who perceived themselves as capable of using effective learning strategies to monitor their L2 learning process tended to experience academic success. Besides the use of strategies in the task, MacIntyre and Serroul (2015) also stressed that students 'motivation was based on students' perception of task difficulty and necessary vocabulary for task completion as well as grammar-related issues. In a web-based environment, researchers found computer self-efficacy and internet self-efficacy was positively relates to learning performance and learning satisfaction (Joo et al., 2000; Tsai & Tsai, 2003).

Strategy 1 for Competence Support: Balancing the design of input and output. First and foremost, an online language course needs to address how course activities support language competence development. We can draw some valuable perspectives from the design evaluation framework for computer-assisted language learning proposed by Chapelle (2001) and Jamieson et al. (2004). The evaluation principles have integrated principles in second language acquisition (SLA) theories: instruction in online language learning shall "(1) draw learner's attention to the specific aspects of linguistic input, (2) engage learners in interactions requiring negotiation and co-construction of meaning (3) prompt learners to produce comprehensible output." (Jamieson et al., 2004, p. 397). It aligns with the second language acquisition process of "Input-intake-development system-Output" (Ellis, 1997; VanPatten, 1996). Instructors will need to balance input, interaction, and output opportunities when designing online language courses. Input is necessary for acquisition to take place. However, not all language resources can be utilized by the learner. To increase the amount and quality of intake, the instructor needs to guide the learner to "notice" (Schmidt, 1990, 2010) the input and to raise consciousness (Smith, 1997). Input materials should be "rich" but not tedious, and need to be manipulated to be "comprehensible" (Krashen, 1982, 1985) by modification or other contextual technique, or through "structured input activities" (VanPatten, 1996). Moreover, according to the Interaction Hypothesis, Long (1985) suggested that acquisition is fostered when learners negotiate meaning through interaction. He argued that interaction adjustment, which includes paraphrasing, repeating, clarifying, modifying, or simplifying, can improve comprehension and lead to the acquisition. Learners need opportunities to produce comprehensible output (Swain, 1985). It pushes the learners to produce language beyond their current levels. When they are struggling to make themselves understood by others,

they will notice their linguistic ability, try to express meanings, and consciously reflect the output.

To address the insufficient opportunities for input process and output production in online setting, some online language classrooms have applied a flipped class model (Li & Jiang, 2017; Tseng et al., 2016). Students were asked to watch lecturing videos and take notes before the live session. Tseng (2016) reported the number of notes taken and the degree of engagement in video watching for input elaboration prior to live sessions were positively related to learning achievements. Li and Jiang (2016) indicated that students found synchronous sessions most engaging as they were able to interact with their peers and received feedback from the instructor. To preserve the precious time for output interaction, White et al. (2020) also designed a one-to-one SCOLT Chinese synchronous class model to personalize the meaning exchange interaction for a single student with supplemental asynchronous materials.

To create a space for negotiation of meaning, the instructor will need to make the online communication less controlling. Heins et al. (2007) reported that online teachers tended to place a more dominant role in communication than in face-to-face class, making communication to be one-way or only require "brief and formulaic learner contributions" (Little, 2007, p.21). It should be noted that the meaning negotiation will be effective when it covers deeper processing of messages that require more mental effort from students than concise responses to teachers' prompts. Therefore, less controlling classrooms can entail more meaning negotiation chances for students. Students will increase self-efficacy when they can apply the understanding of Chinese language and culture properly in meaning negotiations (Ruan et al., 2015).

Strategy 2 for Competence Support: Optimizing challenges. Doughty and Long (2003) stressed distance language instruction design need to take "Learner Syllabuses" into account (p.65). It refers to the developmental nature of language acquisition that learners follow certain sequences and stages in interlanguage development. They critiqued the idea that what has been taught will be what is learned. Learners decided the acquisition order of language structure, rather than following the orders determined by the textbooks. The acquisition sequence is, therefore, independent from the instructional sequence. Doughty and long suggested that online language courses should place the understanding of learners' stages of development as the primary focus instead of the language itself. Instructors in the online language course need to increase communication with students to understand students' current capacities and readiness for materials.

Optimal challenges tailor activities to students' current cognitive capacities, attuning the difficulty to be readily reachable while remaining challenging. Teachers will need to break down tasks into smaller subtasks in online Chinese learning. Stickler and Shi (2013) found students felt cognitively overloaded in the online Chinese class interaction when seeing multiple tasks on one slide, which led to a misunderstanding of the task.

In addition, students need to experience success in challenging but appropriate tasks. For students with lower self-efficacy, tasks with smaller achievable steps are conducive to improve perceived competence. Students who need challenges may find boredom in easily

mastered tasks. Stickler and Shi (2014) suggested that teachers be flexible when teaching Chinese online and "not withdraw Pinyin too early" (p.70). They conducted an eye-movements study to explore online students' attentions on Pinyin and Chinese characters on the reading of slides. They identified different patterns among learners. Advanced learners relied predominately on characters, whereas beginners relied mostly on Pinyin. Intermediate learners needed both Pinyin and Chinese characters for comprehension. Lee (2016) found that novice students prefer structured tasks to tasks with free topics. They felt less competent as they had limited second language skills than linguistically strong students. Students with better language skills reported they found "teacher-assigned topics somewhat repeated and bland." (p.90). They preferred to talk about self-selected topics that were related to the unit theme. Buang (2011) applied a tech tool to support extensive reading in online learner-centered activities. Learners received reading tasks that were assigned based on their abilities. The adaptive reading materials were differentiated based on the grader reading materials and the number of reading materials that they needed to completed. Students can read at their own pace and were encouraged to monitor their progression on their own.

Instead of giving pre-determined materials only, the instructor can integrate the design of optimal challenges with the design of choices. Take the design of reading materials as an example, the instructor can provide different versions of the same authentic reading content for students to choose. A challenging version is the one that retains most of the texts and cultural information; A modified version keeps the essential message while substitutes some words and phrases to make it comprehensible to students, Pinyin in this version can be only provided when needed (e.g., unfamiliar words); to facilitate students with low language competence, an easy version containing simplified information with Pinyin may help them lower the anxiety for the task.

Strategy 3 for Competence Support: Supporting progress monitoring. SDT suggested when the environment is autonomy-supportive, the learner can shift to an active role, observing and identifying the obstacles in *self-evaluation*. Murray et al. (2011) advocated explicit teaching on self-evaluation in distance language courses as students would be more engaged in noticing the gap between their goals and current capacities. For example, students can identify contents that they help in the asynchronous study; instructors then can prepare accordingly and address their questions in the synchronous classroom. However, research also showed that some students, especially novice students, had difficulties in monitoring progress and identifying weaknesses that need assistance (Lee & Hannafin, 2016).

Expert-monitoring has been found to be an effective technique in offering guidance. Teachers can help learners monitor the progress through frequent question prompts and step-by-step check for understanding (Lee & Hannafin, 2016). Bang (2014) designed a "schema place" in an online language class, where students can interact the exercises. The schema place was designed to help students diagnose the strategies and competence they used and activate the schema for upcoming tasks. With the help of external evaluation, students gained a better understanding of the learning task and were able to reflect the gap between what has been done and what was expected (Lee, 2016).

However, external evaluation with judgmental feedback (e.g., right, wrong) does not contribute to their growth of competence (Ryan & Deci, 2017). *Offering informative feedback* will be beneficial for learners to focus on what can be improved and to acknowledge their accomplishments and efforts, helping them to recognize that language competence is related to some factors they can control. White et al. (2020) provided a feedback form in synchronous learning to remind learners to revisit the learning content in the synchronous session. Based on the written records, the tutor followed up with further practice in the next session. The instructor also needs to decide the degree of corrective feedback (e.g., recast, repeat, metalinguistic). Being negative informative, it may decrease motivation when dominating the class as students may feel frustrated when they cannot see their progress.

3.3 Relatedness-supportive strategies

Empirical results in L2 research revealed that relatedness was positively related to intrinsic motivation, identified regulation (Carreira, 2012; Noels et al., 2000), or introjected regulation (Carreira, 2012). Akbari et al. (2015) discovered that relatedness was the strongest predictor of L2 learning outcomes in a study of using Facebook for a language class. They argued that communication with peers and teachers, or with native speakers is a key element in L2 learning. They highlighted that online community building is conducive to the development of relatedness and can sustain the interactions.

***Strategy 1 for Relatedness Support: Providing interaction opportunities*.** Language learners have at least two communities they need to relate to develop their sense of belongingness to target language learning: the learning community in the online classroom and the members in the target language community (Alm, 2006). Hence, an online language class should create interaction opportunities for both teacher-student and student-student communication in virtual classrooms, and encourage them to interact with native speakers and engage in collaborative activities.

Many studies have implemented task-based language learning (TBLT) to support the design of online language learning interactions. TBLT assumes that learners developed their linguistic abilities through communicative activities. TBLT focuses on having students experience meaningful tasks rather than studying decontextualized linguistic structures or text-based lessons (Doughty & Long, 2003).

Lai et al. (2011) implemented a pre-task, during task, and post-task cycle in the design of Chinese synchronous sessions. Various activities have been implemented in different phases, including information gaps, decision making, problem-solving. For example, a pre-task problem-solving was designed as finding out "illogic choices transportation means for different trips"; an on-task decision making activity asked students to plan a trip within a budget; in a post-task information gap activity, students worked together to figure out the cost for a trip with certain transportation means (p.102).

Guo and Möllering (2017) designed similar collaborative tasks in Chinese synchronous sessions that included information gaps, decision-making, and jigsaw tasks. Students in one of the jigsaw tasks participated in the discussion of maps and directions.

Using visual supports in Blackboard Collaborate, students were able to use the digital pen to show directions when telling their partners where a specific building was.

Sato et al. (2017) implemented the tasks in the asynchronous study with the use of VoiceThread and Google doc. For instance, students learned vocabulary through short dialogues in VoiceThread, and completed Guess and Try questions based on what they noticed in the dialogues. To establish task relevance and authenticity, the instructor asked students to post a picture of their rooms in VoiceThread and described them freely, such as "who they belonged to, where they were from, whether they were expensive, and what she thought of them" (p.762).

Strategy 2 for Relatedness Support: Improving authenticity of the communication. The approach of using authentic materials has drawn significant attention in language teaching. However, using authentic material does not necessarily carry the authenticity of the task. It's worth noting materials that are extracted from the authentic target language context does not promise the authentic communicative purpose when comprehension questions or vocabulary activities follow them, or could only bring "cosmetic authenticity" (Mishan & Strunz, 2003, p.239).

Herrington et al. (2009) summarized that an authentic e-learning task should be an ill-defined problem and provide opportunities for students to examine, investigate, and analyze the issue from different perspectives. Tasks need to enable learners to collaborate and reflect on the learning process. In language learning, it should focus on authentic aspects of language use (Ozverir & Herrington, 2011), and aim to mirror real-world communication process (Ramírez Ortiz & Artunduaga Cuéllar, 2018).

In other words, using authentic materials without communication purposes may not trigger the learner's potential agentic role to control the use of language in a real-world situation in an online learning context. Authenticity in an online learning environment needs to place communication as the core when using authentic materials rather than just reading or viewing materials. Ozverir and Herrignton (2011) remarked that learners might engage in "comparing, informing, persuading, analyzing, reporting or instructing" to practice communication when using authentic materials (p.1426).

In addition, learners will perceive the value of language learning online when they are engaged in controlling their language use to resolve real-world communication problems (Lee, 2016). To enhance the authenticity of online communication, Ankan and Bakla (2011) designed blog writing tasks and asked students to read and comment the blogs posted. Students reported that they were motivated by the blogging activities due to the authentic communication. They found writing in the target language meaningful because they knew their posts would be read by visitors. Similarly, Abdallah and Mansour (2015) designed communication tasks in 3D virtual world where students can practice target language in simulated real-life interaction. They invited strangers in the 3D virtual world to join the cooperative language tasks so that students can have a chance to practice the language with native speakers.

Strategy 3 for Relatedness Support: Improving "willingness to communicate". Many research studies in online learning have found that an interactive task by itself does not yield the improvement of relatedness, the relatedness development did not happen unless learners were willing to (Butz & Stupnisky, 2017; Lee, 2016). Therefore, how to improve "willingness to communicate (WTC)" remains a challenging question in online language learning.

WTC, as defined by MacIntyre et al. (1998), is a "readiness to enter into discourse at a particular time with a specific person or persons, using a L2"(p.457). Students' readiness to interact with others in the classrooms can impact the quality of community interactions. Unwillingness to communicate ultimately leads to ineffective language production. Perceived competence has been found to have a direct effect on WTC (Yashima, 2002). In addition to this, a number of factors were found to influence their WTC in digital context, including situational topics, psychological conditions and interlocutors (Kruk, 2019). Students' WTC decrease when they experience boredom in learning or feel anxious, unsecured, or unprepared. Teachers need to respect students' thoughts, display trust in students, and allow time for communication preparedness.

This is especially true for online WTC. The nature of online communication has impacted the time for communication. The lag time has been found to be a unique feature in online communication (Freiermuth & Jarrell, 2006), students may need at least "three to four seconds after the end of one turn before beginning their own" (Rodine et al., 1999, p. 58) Researchers have also called for a "tolerance for silence" (Stickler & Shi, 2013, p.15) in online Chines synchronous classrooms since they may need longer time to prepare the response or to solve technical problems. Besides, studies discovered that peer group factor influenced WTC. Students were found to be more willing to communicate in smaller group sizes and when they were familiar with interlocutors (Cao & Philp, 2006). Their WTC also decreased when they were paired with learners with low WTC. Some students even reported they were more willing to interact with teachers instead of participating in a pair-work (Aydın, 2017). Thus, to foster WTC, an online live session will need to limit the size to create more opportunities for students to participate. Before assigning students to a different breakout room, the instructor needs to consider each student's readiness for communication, and provide helpful resources (e.g., cue words) when needed.

4. Conclusion

Motivation has played a crucial role in online learning success and language competence development. Past literature has suggested SDT as an appropriate framework in understanding motivation in language learning and provided strong evidence of the relationship between needs-support and language learning engagement (Comanaru & Noels, 2009; McClelland, 2013; Oga-Baldwin et al., 2017). The paper has explored how design strategies can best provide learners' psychological needs satisfaction and support their growth of motivation in the online Chinese language learning environment from the perspective of SDT. Needs satisfaction is a significant predictor of autonomous motivation – a high-quality type of motivation. Students will experience disengagement and negative emotions when their needs were strongly thwarted in the context. However, they will be

able to move toward "thriving, wellness, and integrity" (Ryan & Deci, 2017, p. 9) when the context affords a basic-need-supportive learning environment. Therefore, the future motivational design should be the primary concern in an online language learning environment as it will influence the quality of students' participation and their language learning outcomes.

Acknowledgement: We thank Dr. Jiahang Li, Xiaoyuan Ying, Yu Chen and Yun Zhao at Michigan State University for providing images for instructional activities in online Chinese courses.

References

Abdallah, M. M. S., & Mansour, M. M. (2015). Virtual task-based situated language-learning with Second Life: Developing EFL pragmatic writing and technological self-efficacy. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2843987

Akbari, E., Pilot, A., & Robert-Jan Simons, P. (2015). Autonomy, competence, and relatedness in foreign language learning through Facebook. *Computers in Human Behavior*, *48*, 126–134. https://doi.org/10.1016/j.chb.2015.01.036

Alm, A. (2006). CALL for autonomy, competence and relatedness: Motivating language learning environments in Web 2.0. *The JALT CALL Journal*, *2*(3), 29–38. https://doi.org/10.29140/jaltcall.v2n3.30

Andrade, M. S., & Bunker, E. L. (2009). A model for self-regulated distance language learning. *Distance Education*, *30*(1), 47–61. https://doi.org/10.1080/01587910902845956

Ankan, A., & Bakla, A. (2011). Learner autonomy online: Stories from a blogging experiences. In D. Gardner (Ed.), *Fostering autonomy in language learning* (pp. 240-251). Zirve University.

Aydın, F. (2017). Willingness to Communicate (WTC) among Intermediate-level Adult Turkish EFL Learners: Underlying Factors. *Journal of Qualitative Research in Education*, *5*(3), 1–29. https://doi.org/10.14689/issn.2148-2624.1.5c3s5m

Bandura, A. (1989). Human agency in social cognitive theory. *The American Psychologist*, *44*(9), 1175–1184. https://doi.org/10.1037/0003-066x.44.9.1175

Bang, M., Wohn, K., & Shi, C. (2014). The establishment of an e-Learning system based on SDT. *International Journal of Emerging Technologies in Learning (IJET)*, *9*(4), 43. https://doi.org/10.3991/ijet.v9i4.3704

Benson, P. (2007). Autonomy in language teaching and learning. *Language Teaching*, *40*(1), 21–40. https://doi.org/10.1017/S0261444806003958

Brunstein, J. C., & Glaser, C. (2011). Testing a path-analytic mediation model of how self-regulated writing strategies improve fourth graders' composition skills: A randomized controlled trial. *Journal of Educational Psychology*, *103*(4), 922–938. https://doi.org/10.1037/a0024622

Buang, A. B. (2011). ICT-Based teacher-facilitated and self-directed learning for Mother Tongue Languages. In D. Gardner (Ed.), *Fostering autonomy in language learning* (pp. 233-239). Zirve University.

Butz, N. T., & Stupnisky, R. H. (2017). Improving student relatedness through an online discussion intervention: The application of self-determination theory in

synchronous hybrid programs. *Computers & Education*, *114*, 117–138. https://doi.org/10.1016/j.compedu.2017.06.006

Cai, S., & Zhu, W. (2012). The impact of an online learning community project on university Chinese as a foreign language students' motivation. *Foreign Language Annals*, *45*(3), 307–329. https://doi.org/10.1111/j.1944-9720.2012.01204.x

Cao, Y., & Philp, J. (2006). Interactional context and willingness to communicate: A comparison of behavior in whole class, group and dyadic interaction. *System*, *34*(4), 480–493. https://doi.org/10/dfz9bq

Carreira, J. M. (2012). Motivational orientations and psychological needs in EFL learning among elementary school students in Japan. *System*, *40*(2), 191–202. https://doi.org/10.1016/j.system.2012.02.001

Chapelle, C. (2001). *Computer applications in second language acquisition: Foundations for teaching, testing and research*. Cambridge University Press.

Colpaert, J. (2006). Pedagogy-driven design for online language teaching and learning. *CALICO Journal*, *23*(3), 477–497. JSTOR. https://doi.org/10.1558/cj.v23i3.477-497

Colpaert, J. (2010). Elicitation of language learners' personal goals as design concepts. *Innovation in Language Learning and Teaching*, *4*(3), 259–274. https://doi.org/10.1080/17501229.2010.513447

Comanaru, R., & Noels, K. A. (2009). Self-determination, motivation, and the learning of Chinese as a heritage language. *Canadian Modern Language Review*, *66*(1), 131–158.

Csizér, K., & Dörnyei, Z. (2005). The internal structure of language learning motivation and its relationship with language choice and learning effort. *The Modern Language Journal*, *89*(1), 19–36. https://doi.org/10.1111/j.0026-7902.2005.00263.x

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01

Dörnyei, Z. (2009). The L2 motivational self system. *Motivation, Language Identity and the L2 Self*, *36*(3), 9–11. https://doi.org/10.21832/9781847691293-003

Doughty, C. J., & Long, M. H. (2003). Optimal psycholinguistic environments for distance foreign language learning. *Language Learning & Technology*, *7*(3), 50–80.

Ellis, R. (1997). *SLA Research and Language Teaching.* Oxford University Press.

Freidhoff, J. R. (2020). *Michigan's K-12 virtual learning effectiveness report 2018-19.* Michigan Virtual University. https://michiganvirtual.org/research/publications/michigans-k-12-virtual-learning-effectiveness-report-2018-19/

Freiermuth, M., & Jarrell, D. (2006). Willingness to communicate: Can online chat help? *International Journal of Applied Linguistics*, *16*(2), 189–212. https://doi.org/10.1111/j.1473-4192.2006.00113.x

Gardner, R. C. (2010). *Motivation and second language acquisition: The socio-educational model* (Vol. 10). Peter Lang.

Gardner, R. C., Lalonde, R. N., & Moo. (1985). *Social psychology and second language learning: The role of attitudes and motivation.* Edward Arnold. https://doi.org/10.1037/h0083787

Garrison, R. (2000). Theoretical challenges for distance education in the 21st century: A shift from structural to transactional issues. *The International Review of Research in Open and Distributed Learning, 1*(1), 1–17. https://doi.org/10.19173/irrodl.v1i1.2

Guo, S., & Möllering, M. (2016). The implementation of task-based teaching in an online Chinese class through web conferencing. *System, 62*, 26–38. https://doi.org/10.1016/j.system.2016.07.003

Guo, S., & Möllering, M. (2017). Collaborative tasks in web conferencing: A case study on Chinese online. *JALT CALL Journal, 13*(1), 3–23.

Harter, S. (2012). *The construction of the self: Developmental and sociocultural foundations, 2nd ed* (pp. xxiii, 440). Guilford Press.

Heins, B., Duensing, A., Stickler, U., & Batstone, C. (2007). Spoken interaction in online and face-to-face language tutorials. *Computer Assisted Language Learning, 20*(3), 279–295. https://doi.org/10.1080/09588220701489440

Herrington, J., Reeves, T. C., & Oliver, R. (2009). *A practical guide to authentic e-learning*. Routledge. https://doi.org/10.4324/9780203864265

Hromalik, C. D., & Koszalka, T. A. (2018). Self-regulation of the use of digital resources in an online language learning course improves learning outcomes. *Distance Education, 39*(4), 528–547. https://doi.org/10.1080/01587919.2018.1520044

Jaggars, S. S. (2014). Choosing between online and face-to-face courses: Community college student voices. *American Journal of Distance Education, 28*(1), 27–38. https://doi.org/10.1080/08923647.2014.867697

Jamieson, J., Chapelle, C. A., & Preiss, S. (2004). Putting principles into practice. *ReCALL, 16*(2), 396–415. https://doi.org/10.1017/S0958344004001028

Joe, H.-K., Hiver, P., & Al-Hoorie, A. H. (2017). Classroom social climate, self-determined motivation, willingness to communicate, and achievement: A study of structural relationships in instructed second language settings. *Learning and Individual Differences, 53*, 133–144. https://doi.org/10.1016/j.lindif.2016.11.005

Joo, Y.-J., Bong, M., & Choi, H.-J. (2000). Self-efficacy for self-regulated learning, academic self-efficacy, and Internet self-efficacy in Web-based instruction. *Educational Technology Research and Development, 48*(2), 5–17. https://doi.org/10.1007/BF02313398

Krashen, S. D. (1982). *Principles and practice in second language acquisition* (1st ed). Pergamon.

Krashen, S. D. (1985). *The input hypothesis: Issues and implications*. Addison-Wesley Longman Ltd.

Kruk, M. (2019). Changes in self-perceived willingness to communicate during visits to Second Life: A case study. *The Language Learning Journal*, 1–11. https://doi.org/10.1080/09571736.2018.1554692

Lai, C., Zhao, Y., & Wang, J. (2011). Task-based language teaching in online ab initio foreign language classrooms. *The Modern Language Journal, 95*, 81–103. https://doi.org/10.1111/j.1540-4781.2011.01271.x

Lamb, M. (2017). The motivational dimension of language teaching. *Language Teaching*, *50*(3), 301–346. https://doi.org/10.1017/S0261444817000088

Lee, E., & Hannafin, M. (2016). A design framework for enhancing engagement in student-centered learning: Own it, learn it, and share it. *Educational Technology Research & Development*, *64*(4), 707–734. https://doi.org/10.1007/s11423-015-9422-5

Lee, L. (2016). Autonomous learning through task-based instruction in fully online language courses. *Language Learning & Technology*, *20*(2), 81–97.

Li, J., & Jiang, Z. (2017). Students' perceptions about a flipped online Chinese language course. *Journal of Technology and Chinese Language Teaching*, *8*(2), 25–38.

Lin, C.-H., Zheng, B., & Zhang, Y. (2017). Interactions and learning outcomes in online language courses: Online interactions and learning outcomes. *British Journal of Educational Technology*, *48*(3), 730–748. https://doi.org/10.1111/bjet.12457

Little, D. (2007). Language learner autonomy: Some fundamental considerations revisited. *Innovation in Language Learning and Teaching*, *1*(1), 14–29. https://doi.org/10.2167/illt040.0

Long, M. H. (1985). Input and second language acquisition theory. In S. Gass, & C. Madden (Eds.), *Input in second language acquisition* (pp. 377-393). Newbury House

MacIntyre, P. D., Clément, R., Dörnyei, Z., & Noels, K. A. (1998). Conceptualizing willingness to communicate in a L2: A situational model of L2 confidence and affiliation. *The Modern Language Journal*, *82*(4), 545–562. https://doi.org/10.1111/j.1540-4781.1998.tb05543.x

MacIntyre, P. D., & Noels, K. A. (1996). Using social-psychological variables to predict the use of language learning strategies. *Foreign Language Annals*, *29*(3), 373–386. https://doi.org/10.1111/j.1944-9720.1996.tb01249.x

MacIntyre, P. D., & Serroul, A. (2015). Motivation on a per-second timescale: Examining approach-avoidance motivation during L2 task performance. *Motivational Dynamics in Language Learning*, 109–138. https://doi.org/10.21832/9781783092574-013

Maclntyre, P. D., Clément, R., & Conrod, S. (2001). Willingness to communicate, social support, and language-learning orientations of immersion students. *Studies in Second Language Acquisition*, *23*(3), 369–388. https://doi.org/10.1017/S0272263101003035

Martin, N., Kelly, N., & Terry, P. (2018). A framework for self-determination in massive open online courses: Design for autonomy, competence, and relatedness. *Australasian Journal of Educational Technology*, *34*(2). https://doi.org/10.14742/ajet.3722

McClelland, N. (2013). Self-determination theory and L2-learning motivation in Japanese college students. *Studies in English Language and Literature*, *31*(1), 191–206.

McEown, M. S., & Oga-Baldwin, W. L. Q. (2019). Self-determination for all language learners: New applications for formal language education. *System*, *86*, 102124. https://doi.org/10.1016/j.system.2019.102124

Mills, N., Pajares, F., & Herron, C. (2007). Self-efficacy of college intermediate French students: Relation to achievement and motivation. *Language Learning*, *57*(3), 417–442. https://doi.org/10.1111/j.1467-9922.2007.00421.x

Mishan, F., & Strunz, B. (2003). An application of XML to the creation of an interactive resource for authentic language learning tasks. *ReCALL: The Journal of EUROCALL*, *15*(2), 237. https://doi.org/10.1017/S095834400300082X

Mkize, F., & Chisoni, G. (2015). The role of motivation in learning Chinese as a second language: A case study of Zimbabwean students learning Chinese as a second language. *International Journal of Language and Linguistics*, *3*(4), 252–257. https://doi.org/10.11648/j.ijll.20150304.19

Murphy, L. (2005). Critical reflection and autonomy: A study of distance learners of French, German and Spanish. *Distance Education and Languages: Evolution and Change*, 20–39.

Murray, G., Gao, X., & Lamb, T. (Eds.). (2011). *Identity, motivation and autonomy in language learning*. Multilingual Matters. https://doi.org/10.21832/9781847693747

Noels, K. A., Lou, N. M., Vargas Lascano, D. I., Chaffee, K. E., Dincer, A., Zhang, Y. S. D., & Zhang, X. (2019). Self-determination and Motivated Engagement in Language Learning. In M. Lamb, K. Csizér, A. Henry, & S. Ryan (Eds.), *The Palgrave Handbook of Motivation for Language Learning* (pp. 95–115). Springer International Publishing. https://doi.org/10.1007/978-3-030-28380-3_5

Noels, K. A., Pelletier, L. G., Clément, R., & Vallerand, R. J. (2000). Why are you learning a second language? Motivational orientations and self-determination theory. *Language Learning*, *50*(1), 57–85. https://doi.org/10.1111/0023-8333.00111

Oga-Baldwin, W. L. Q., & Fryer, L. K. (2018). Schools can improve motivational quality: Profile transitions across early foreign language learning experiences. *Motivation and Emotion*, *42*(4), 527–545. https://doi.org/10.1007/s11031-018-9681-7

Oga-Baldwin, W. L. Q., Nakata, Y., Parker, P., & Ryan, R. M. (2017). Motivating young language learners: A longitudinal model of self-determined motivation in elementary school foreign language classes. *Contemporary Educational Psychology*, *49*, 140–150. https://doi.org/10.1016/j.cedpsych.2017.01.010

Oliver, K., Kellogg, S., & Patel, R. (2012). An investigation into reported differences between online foreign language instruction and other subject areas in a virtual school. *CALICO Journal*, *29*(2), 269–296. https://www.jstor.org/stable/calicojournal.29.2.269

Ozverir, I., & Herrington, J. (2011). Authentic activities in language learning: Bringing real world relevance to classroom activities. In *EdMedia+ Innovate Learning* (pp. 1423-1428). Association for the Advancement of Computing in Education (AACE).

Pae, T.-I. (2008). Second language orientation and self-determination theory: A structural analysis of the factors affecting second language achievement. *Journal of Language and Social Psychology*, *27*(1), 5–27. https://doi.org/10.1177/0261927X07309509

Pintrich, P. R., & Zusho, A. (2007). Student motivation and self-regulated learning in the college classroom. In R. P. Perry & J. C. Smart (Eds.), *The Scholarship of Teaching and Learning in Higher Education: An Evidence-Based Perspective* (pp. 731–810). Springer Netherlands. https://doi.org/10.1007/1-4020-5742-3_16

Prince, P. (2011). What's the story? Motivating e-learners with fiction. In D. Gardner (Ed.), *Fostering autonomy in language learning* (pp. 225-232). Zirve University.

Qian, K., & McCormick, R. (2014). Building course cohesion: The use of online forums in distance Chinese language learning. *Computer Assisted Language Learning, 27*(1), 44–69. https://doi.org/10.1080/09588221.2012.695739

Ramírez Ortiz, S. M., & Artunduaga Cuéllar, M. T. (2018). Authentic tasks to foster oral production among English as a foreign language learners. *HOW, 25*(1), 51–68. https://doi.org/10.19183/how.25.1.362

Ratelle, C. F., Guay, F., Vallerand, R. J., Larose, S., & Senécal, C. (2007). Autonomous, controlled, and amotivated types of academic motivation: A person-oriented analysis. *Journal of Educational Psychology*, *99*(4), 734–746. https://doi.org/10.1037/0022-0663.99.4.734

Reeve, J., & Jang, H. (2006). What teachers say and do to support students' autonomy during a learning activity. *Journal of Educational Psychology, 98*(1), 209-218.

Reeve, J., Jang, H., Carrell, D., Jeon, S., & Barch, J. (2004). Enhancing students' engagement by increasing teachers' autonomy support. *Motivation and Emotion, 28*(2), 147–169.

Rodine, C., Shield, L., & Kötter, M. (1999). Voice Conferencing on the Internet: Creating richer on-line communities for distance learning. In *EdMedia+ Innovate Learning* (pp. 1056-1060). Association for the Advancement of Computing in Education (AACE). https://www.learntechlib.org/primary/p/7033/

Ruan, Y., Duan, X., & Du, X. Y. (2015). Tasks and learner motivation in learning Chinese as a foreign language. *Language, Culture and Curriculum*, *28*(2), 170–190. https://doi.org/10.1080/07908318.2015.1032303

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*(1), 68. https://doi.org/10.1037/0003-066X.55.1.68

Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford Press.

Sato, E., Chen, J. C. C., & Jourdain, S. (2017). Integrating digital technology in an intensive, fully online college course for Japanese beginning learners: A standards-based, performance-driven approach. *The Modern Language Journal*, *101*(4), 756-775.

Schmidt, R. (2010). Attention, awareness, and individual differences in language learning. *Proceedings of CLaSIC 2010*, 721–737.

Schmidt, R. W. (1990). The role of consciousness in second language learning. *Applied Linguistics*, *11*(2), 129–158. https://doi.org/10.1093/applin/11.2.129

Smith, M. S. (1997). Consciousness-raising "meets" language awareness. *Fremdsprachen Lehren Und Lernen*, *26*, 24–32.

Stickler, U., & Shi, L. (2013). Supporting Chinese speaking skills online. *System*, *41*(1), 50–69. https://doi.org/10.1016/j.system.2012.12.001

Stickler, U., & Shi, L. (2014). Eye movements of online Chinese learners. *CALICO Journal*, *32*(1), 52–81. https://doi.org/10.1558/calico.v32i1.25964

Sun, S. Y. H. (2014). Learner perspectives on fully online language learning. *Distance Education*, *35*(1), 18–42. https://doi.org/10.1080/01587919.2014.891428

Swain, M. (1985). Communicative competence: Some roles of comprehensible input and comprehensible output in its development. In S. Gass, & C. Madden (Eds.), *Input in second language acquisition* (pp. 235-253). Newbury House

Tanaka, M. (2017). Factors affecting motivation for short in-class extensive reading. *Journal of Asia TEFL*, *14*(1), 98–113.

Tsai, M.-J., & Tsai, C.-C. (2003). Information searching strategies in web-based science learning: The role of Internet self-efficacy. *Innovations in Education and Teaching International*, *40*(1), 43–50.

Tseng, M., Broadstock, M., & Chen, H. (2016). An investigation of the design of a four-stage flipped classroom in mandarin Chinese. *Journal of Technology and Chinese Language Teaching*, *7*(1), 15–42.

Ushida, E. (2013). The role of students' attitudes and motivation in second language learning in online language courses. *CALICO Journal*, *23*(1), 49–78. https://doi.org/10.1558/cj.v23i1.49-78

Ushioda, E., & Dörnyei, Z. (2009). Motivation, language identities and the L2 self: A theoretical overview. In Z. Dörnyei & E. Ushioda (Eds.), *Motivation, Language Identity and the L2 Self* (pp. 1-8). Multilingual Matters. https://doi.org/10.21832/9781847691293-002

VanPatten, B. (1996). *Input processing and grammar instruction in second language acquisition*. Greenwood Publishing Group.

Wang, Y., & Qi, G. Y. (2018). Mastery-based language learning outside class: Learning support in flipped classrooms. *Language Learning*, *22*(2), 50–41. https://doi.org/10125/44641

Wen, X. (1997). Motivation and language learning with students of Chinese. *Foreign Language Annals*, *30*(2), 235–251. https://doi.org/10.1111/j.1944-9720.1997.tb02345.x

Wen, X. (2011). Motivational orientations in Chinese learning—Heritage and non-heritage college students in the United States. *Heritage Language Journal*, *8*(3), 41–66.

Wen, X., & Piao, M. (2020). Motivational profiles and learning experience across Chinese language proficiency levels. *System*, *90*, 1–12. https://doi.org/10.1016/j.system.2020.102216

White, C. (2005). Towards a learner-based theory of distance language learning: The concept of the learner–context interface. In B. Holmberg, M. Shelley, & C. J. White (Eds.), *Distance Education and Languages* (pp. 55–71). Multilingual Matters. https://doi.org/10.21832/9781853597770-006

White, C. (2017). Distance language teaching with technology. In C.A. Chapelle & S. Sauro (Eds.),*The handbook of technology and second language teaching and learning* (pp. 134–148).https://doi.org/10.1002/9781118914069.ch10

White, C., Zheng, Y., & Skyrme, G. (2020). Developing a model for investigating one-to-one synchronous Chinese online language teaching via videoconferencing. *Computer Assisted Language Learning*, *34*(1–2), 92-113. https://doi.org/10.1080/09588221.2020.1770800

Winke, P. (2013). An investigation into second language aptitude for advanced Chinese language learning. *The Modern Language Journal*, *97*(1), 109–130. https://doi.org/10.1111/j.1540-4781.2013.01428.x

Winne, P. H., & Hadwin, A. F. (1998). Studying as self-regulated learning. In D. J. Hacker, J. Dunlosky, & A. C. Graesser (Eds.), *Metacognition in educational theory and practice* (pp. 277–304). Lawrence Erlbaum Associates Publishers.

Womble, J. C. (2007). *E-learning: The relationship among learner satisfaction, self-efficacy, and usefulness*. Alliant International University.

Xie, K., Debacker, T. K., & Ferguson, C. (2006). Extending the traditional classroom through online discussion: The role of student motivation. *Journal of Educational Computing Research*, *34*(1), 67–89. https://doi.org/10.2190/7BAK-EGAH-3MH1-K7C6

Xie, K., & Ke, F. (2011). The role of students' motivation in peer-moderated asynchronous online discussions. *British Journal of Educational Technology*, *42*(6), 916–930. https://doi.org/10.1111/j.1467-8535.2010.01140.x

Xie, K., Vongkulluksn, V. W., Cheng, S.-L., & Jiang, Z. (2022). Examining high-school students' motivation change through a person-centered approach. *Journal of Educational Psychology*, *114*(1), 89–107. https://doi.org/10.1037/edu0000507

Xie, K., Vongkulluksn, V. W., Lu, L., & Cheng, S.-L. (2020). A person-centered approach to examining high-school students' motivation, engagement and academic performance. *Contemporary Educational Psychology*, *62*, 101877. https://doi.org/10.1016/j.cedpsych.2020.101877

Yashima, T. (2002). Willingness to communicate in a second language: The Japanese EFL context. *The Modern Language Journal*, *86*(1), 54–66. https://doi.org/10.1111/1540-4781.00136

Zhang, S. (2014). An evidence-based practical guide to designing and developing Chinese-as-a-foreign-language (CFL) courses online. *International Journal of Technology in Teaching and Learning*, *10*(1), 52–71.

Zimmerman, B. J. (2011). Motivational sources and outcomes of self-regulated learning and performance. In B. J. Zimmerman & D. H. Schunk (Eds.), *Handbook of self-regulation of learning and performance* (pp. 49–64). Routledge/Taylor & Francis Group.

http://www.tclt.us/journal/2022v13n1/zhang.pdf pp. 26-45

Intermediate-Level Language Learners' Use of Online Accessible Resources to Supplement Learning: An Exploratory Study (中級外語學習者利用開放網絡資源輔助學習——一項探索性研究)

Zhang, Shenglan
(張勝蘭)
Iowa State University
(愛荷華州立大學)
shenglan@iastate.edu

Abstract: Language learning is a long process of honing different skills and of acquiring the elements that are essential for building these skills, such as grammar, vocabulary, and culture. While classroom learning is important for acquiring skills and knowledge, it is necessary that learners themselves make use of other resources to supplement their classroom learning. This study explores the use of Online Accessible Resources (OAR) by intermediate-level language learners to find out how they search for and use available online resources and what their perceptions are of the resources they find to supplement their learning. Fourteen college students participated in this study. Data were collected through 74 forms that students filled out, one for each resource they used, and through interviews asking them to reflect upon their completion of the task of locating and using the resources. Findings showed that students were able to take advantage of OAR to practice skills, increase knowledge, and improve learning strategies, but they needed more authentic, daily life video clips that utilize grammar and vocabulary at their proficiency level. The results shed light on what resources are available and what resources are urgently needed for Open Educational Resource creators to design and develop, and how teachers can help learners use the available resources effectively.

摘要： 外語學習是一個包括提高聽說讀寫各項語言技能、學習語法、詞彙和文化的漫長過程。在這一過程中，課堂學習固然重要，學習者課後利用不同資源補充所學也非常關鍵。本文旨在探討中級外語學習者如何針對自己的需求利用網絡資源進行補充。十四位以中文為外語的在校學習者參與了本項研究。遵循課程要求，學習者根據自己的學習弱點和興趣在網上找到免費資源，並利用這些資源幫助其學習，他們每利用一個資源都填寫一份表格記錄利用資源的情況及思考，並在課程結束時完成了調查採訪。對這些表格以及採訪調查數據的分析結果表明，學生能夠利用網絡上不同免費資源提高語言技能、增加目的語知識、並改善學習策略。但是他們很難找到適合自身語言水平、並

包含他們所學語法和詞彙的真實生活音像資料加強其自主學習。本項研究對於何種資源對外語學習者有幫助、何種資源仍然缺失、教師如何幫助學習者利用網上資源等方面提供了重要啟示。

Keywords: Online accessible resources; Open Educational Resources, Chinese-as-a-Foreign-Language; foreign language learning

关键词： 網絡免費資源；開放教育資源；中文為外語學習；外語學習

1. Introduction

As Dubreil and Thorne (2017) pointed out, "L2 learning is fundamentally a social and socially situated endeavor and … it ought not be limited to learning about language and culture *in the classroom*" (p. 1-2). Activities outside the classroom include interacting with people of the target linguistic and cultural community and using (freely) available resources on the internet to interact with and learn from. The focus of this study is on how students used Online Accessible Resources (OAR) to supplement their language learning.

In the field of education, what is frequently talked about is Open Educational Resources (OER), a term used in 2002 for the first time at a UNESCO Forum (Hewlett, 2013; UNESCO, 2002; Wiley, Bliss, & McEwen, 2014) to refer to the freely accessible, openly licensed digital materials that are useful for teaching, learning, and assessing as well as for research purposes. The purpose of OER is to encourage the creation of educational materials that are free of charge, universally accessible, and can be used by anyone in the world for educational purposes. With the almost omnipresence of internet connections and access to resources, students could use any accessible resources to supplement their learning. For language learning specifically, a vast variety of available resources could potentially be used to enhance learners' language skills, specifically reading and listening skills. Therefore, this article explores how second language learners use OAR, including OER and other available resources that were not necessarily openly licensed and/or free.

While there is few research on the use of OAR, many studies on instructors' use of OER have been conducted. Instructors have used OER in many contexts, and findings show that using OER has lowered costs for students and is as effective as using commercial textbooks (Hilton, 2016). Many believe that using OER has the potential to make higher education more accessible to disadvantaged groups as students anywhere in the world can access OER at any time. Other advantages, beyond reducing students' financial burdens, include creators' abilities to quickly improve and circulate new materials and innovative content and instructors' abilities to find, replace, tailor or supplement student learning. While there is OER-related research focusing on the adoption of OER materials for content learning in areas such as business (Feldstein, Martin, Hudson, Warren, Hilton, & Wiley, 2012; Fischer, Hilton, Robinson, & Wiley, 2016), psychology (Hilton & Laman, 2012; Fisher et al., 2016; Magro & Tabaei, 2020), statistics (Bowen, et al., 2012; Lovett, et al.,

2008; Phillips, et al., 2020), math (Fisher et al., 2016; Hilton, et al., 2013; Pawlyshyn, et al., 2013), critical inquiry (Pawlyshyn, et al., 2013), chemistry (Allen, et al., 2015; Fisher et al., 2016; Springer, 2019), biology, history, and education (Fisher et al., 2016), little research has been done examining the use of OER in foreign language education.

Furthermore, foreign language education has unique features compared to content learning. Effective teaching strategies and well-designed exercises or activities can often help students in a content course master core concepts and achieve satisfactory learning outcomes. However, the objectives of foreign language learning include increased proficiency in speaking, listening, reading, and writing in the target language, all while increasing students' knowledge of language structure, grammar, and vocabulary. Textbooks could make learning easier if points are clearly explained, well-sequenced, and well-integrated into meaningful and engaging topics, but an enormous amount of practice is still needed for language learners to improve their skills. Supplemental materials play a crucial role in this practice. Many times, mere exposure of good supplemental materials is beneficial to students' learning.

Therefore, it is important to find out what resources are available for improving what second language skills, whether students like or dislike using these materials, what kinds of materials they would prefer, how teachers can encourage and guide students to use them as learning supplements, and how teachers could integrate students' preferred resources into the curriculum. With this information, teachers will be able to offer high-quality OAR help to second language learners at different levels and give them instructions on using mandatory or supplementary OAR (including OER). In addition, this information will give OER creators concrete ideas about the resources that language learners need and the designs to attract more learners to use them. This study examines students' perceptions of the online resources they located and the types of materials they wanted to find but could not to supplement their learning of Chinese as a Foreign Language (CFL).

2. Literature Review

OAR, including OER, have the advantage of being flexible and diverse. They are heterogeneous and include materials with different goals and functions (Blyth, 2014), ranging from systematically designed courses to individually published materials. In the past two decades, even though no research has been done on the use of OAR in general, extensive research has been done on OER. There are two channels that produce OER: institutions, such as textbook companies or universities, and "peers" producing "commons-based" OER (Benkler, 2007; Wiley, et al., 2014). The is usually done by textbook companies or universities (e.g., most notably in the area of foreign language education, the Open Language Resource Center at the University of Kansas[1], the Center for Open Educational Resources and Language Learning at the University of Texas[2], and a digital repository at Humboldt State University[3].) The latter is produced by "a decentralized group of individuals" who might or might not have relevant credentials (Wiley, et al., 2014,

[1] https://olrc.ku.edu/
[2] https://www.coerll.utexas.edu/coerll/
[3] https://digitalcommons.humboldt.edu/

p.784). Methods of sharing OER, as summarized by Wiley, et al. (2014), include databases or repositories, platforms for collections of open-access textbooks, or collections of open-access courseware. In recent years, researchers started to investigate the adoption of OER textbooks, which, according to most studies, result in positive learning outcomes. Outside of foreign language learning, OER research mainly focuses on the methods of producing or sharing OER (Wiley, et al., 2014), the adoption of OER textbooks (Allen & Seaman, 2014; Hilton, 2016), and students' or instructors' perceptions of OER (Hilton, 2016).

2.1 Adoption of OER and perception of OER in higher education

Fischer, et al. (2016) analyzed six articles using a quantitative and quasi-experimental design to examine whether the adoption of no-cost, digital, OER textbooks had impact on students' completion of courses, class achievement, and enrollment intensity. Their findings show that students in courses using OER enrolled in a significantly higher number of credits in the subsequent semester than those in courses with commercial textbooks. Students' course completion rates, their final grades, and their enrollment intensity also seem to be positively correlated with the access to instructional materials.

Hilton (2016) synthesized the results of nine studies to examine the influence of OER and traditional textbooks on student learning outcomes, finding that students achieved the same learning outcomes regardless of the texts. Magro and Tabaei (2020) surveyed 66 students in eight different sections of a psychology course that used OER textbooks and found that students' grades in those sections were higher than those in the sections using traditional textbooks. Similar results were found in other studies in both face-to-face learning settings (Springer, 2019) and blended courses (Phillips, et al., 2020).

Researchers have also investigated student and instructor perceptions of OER, and though not all are positive, many are. For example, Hilton (2016) and Ikahihifo, Spring, Rosecrans, & Watson (2017) found that students favored OER's ease of use and reduced costs, trusted the quality, and considered OER as good or better in engagement than commercial texts; meanwhile, only one instructor in one of Hilton's nine reviewed studies believed that traditional resources had a more "trusted quality" than OER.

Past studies on the adoption of OER recognized that researchers did not examine how the students used OER in learning nor investigate whether the instructors revised their pedagogical approaches after they adopted OER (Fischer, et al., 2016; Hilton, 2016). In perception studies, researchers saw a need for "providing a context in which students and teachers evaluate traditional and open textbooks in less-biased settings" (Hilton, 2016, p. 588). Most importantly, no studies have examined how instructors used OER (and OAR) as supplemental materials or adapted OER either technically, linguistically, culturally, or pedagogically (Wiley, et al., 2014).

2.2 OER and foreign language learning

As early as 2012, Colpaert (2012) identified four challenges of the use of OER in foreign language learning: epistemological (i.e., What does "open" really mean?); technological (i.e., Is technology available for creating and sharing OER?), juridical (i.e.,

What happens to my rights?), and psychological (i.e., Why would/should I share materials?). While few studies have addressed the four challenges, a fifth challenge, the pedagogical challenge, is one that many researchers have taken up, specifically examining how teachers and students use OER to help with learning.

Recent research emphasizes the use of corpora, but a problem with OER corpora is the lack of dissemination. Vyatkina (2020) discussed the benefits of using corpora via Data-Driven Learning, but also expressed concerns that freely accessible corpora remain underutilized by language teachers, especially teachers of languages other than English. Over 90% of research in this area focuses on ESL or EFL at the intermediate and advanced levels. Pérez-Paredes, Ordoñana, and Aguado's (2018) survey study on teachers' familiarity with the Natural Language Processing Technologies (NLPTs) – one type of OER – show that most teachers do not know about NLPTs. A review article by Pérez-Paredes (2022), examined 32 studies on the OER corpora done in 2011-2015. Those findings show that syllabus integration is crucial when adopting OER, as suggested in Chambers & Bax (2006).

Others have researched how and why to utilize OER in language classrooms. Dixon & Hondo (2013) described how an OER was re-purposed and used as the primary learning material for college credit courses and provided a meaningful model for adopting OER for credit courses. They found that that the repurposed OER makes collaborative learning and community learning more focused and that foreign language instructors, especially experienced instructors, are less likely to adopt a whole OER course or textbooks for their classroom teaching than instructors in other subject areas. The experience language instructors are more likely to use OER to supplement their teaching to improve learners' language skills. To approach using OER from this perspective, it is important to find out what learners need, what available OAR (including OER) they can find based on their needs, their perception of using these resources they found on their own, and whether it is feasible to require learners to search out and locate OAR to fit into their own learning. An entire issue of the *Modern Language Journal* (2014) discussed the role that OER materials play in language learning and teaching. In that issue, Larsen-Freeman (2014) stressed the importance of looking at the learners in relation to the materials:

> An affordance for learning in a complex system is an emergent phenomenon, determined by the perception of the learner in relation to the context, not one autonomous in the context or resident intrinsically in the materials themselves… it is important to acknowledge that it is the learner in relation to the materials who will determine whether there are learning opportunities or not. (p. 655)

If they had this information, instructors could adopt and adapt OER, which allows for promoting a 4R pedagogy due to its being openly licensed: Reusing, Redistributing, Revising, and Remixing (Blyth, 2014; Wiley & Green, 2012).

3. Research Questions

This study aims to answer the following research questions:

- What aspects of language did intermediate-level CFL learners look for in online accessible resources to help them improve?

- What resources did they find and what did they wish to find to supplement their classroom language learning? Did these resources serve the learners' learning purposes?

- What are students' perceptions of the resources they located and used?

4. Methods

This study adopted an exploratory research method. Fourteen intermediate-level CFL learners participated in the study, including seven females and seven males from different majors including chemistry, engineering, psychology, political science, sociology, criminology, agriculture education, linguistics, and global resources at a comprehensive university in the United States. Five of them were seniors, four juniors, two sophomores, and three freshmen.

4.1 Procedure and data collection

Throughout the spring semester of 2020, students were asked to find and use at least six online resources that served their learning needs. They then filled out a form for each resource, which asked for the following information about the resources: (a) the URL; (b) the title; (c) the creator or author and their credentials; (d) what they learned from the resource; (e) their critique of the resource; and (f) their specific goals for seeking a resource and their search process. They were given specific criteria to consider in their critique, including whether the resource fits their proficiency level, needs, and interests; whether the presentation was clear; what feature(s) they liked or disliked; and what suggestion(s) they would give to the creators or authors.

At the end of the semester, the researcher conducted an informal interview with each participant asking (a) how they approached searching for OAR, including how much time they spent on searching for each resource, using it, and completing the form; (b) whether there were resources that they wished they could find but did not; and 3) what their future plans regarding using online resources are. The interviews were recorded and transcribed.

4.2 Data analysis

The form data were first grouped based on the formats (e.g., video, webpage, podcast, etc.) of the resources that the students found and used. Within each group, the OAR was further categorized based on the topics (e.g., grammar, culture, vocabulary, etc.). Within each group, the following was recorded: authors and credentials, types of information that students learned, reasons they liked or did not like the resource, and their

original purpose and search process for finding this resource. The data in each group and in the overall compilation of resources were further analyzed to detect patterns in students' intentions for searching, their views about the resources, how they used the resource, and what they learned by using the resource.

The data collected via the interviews were analyzed using an open coding method by close reading, which allows for the possibility of different themes to be identified (Corbin & Strauss, 2015). The themes were further examined to form reasonable and logical accounts of students' use of resources and their perception of them as supplemental materials for their language learning, which were then compared with the analyzed form data.

5. Findings

All participants appreciated and enjoyed the opportunity to find resources that they had not been aware of before. Of the 74 resources reported, students spent 35-40 minutes on average on each resource, including searching for it, using it, and filling out the form. For most of the resources located, the participants determined the credibility of the sources based on the respectability of the website or the creators' credentials, such as "having many years of teaching experience" or "having lived in China for a few years." These resources not only helped students learn the language, review their learning, and feel reassured and happy to see the content they had learned in the classroom being used in the authentic OAR, but also gave students new tips and methods of learning.

In the process of completing their searches, students were surprised to find that so many resources were available and easy to find. Those who had used the OAR before used this opportunity to "branch out," "look deeper," and find new resources that they "had never heard of" but were beneficial for their learning. Without this task of locating and using OAR to supplement their learning, they would not have taken the chance to diversify the resources they had used before. The students practiced using resources more systematically and got "a space to reflect on the resource." The questions on the required forms made them more conscious of their learning; as one student said, that "helped us determine … what was [*sic*] our thought process when we were trying to find the resource, and what do we think about it." Furthermore, using OAR was a good change from classroom learning. Most students liked the "open-ended" feature of the task. It was not like textbook or classroom learning. This change from normal classroom setting learning not only gave them an opportunity to explore what they were interested in, but also motivated them.

5.1 Purpose of searching for OAR

Students learned about 10% of the 74 resources through a recommendation from a teacher or a friend, because they had run across the material previously, or because a computer search algorithm presented the resource. For the rest of the resources, participants specified a purpose for their searches: To generally improve their Chinese or solidify and

review what they have learned (30%), or to learn about Chinese culture, locate idioms, improve particular skills (70%). See Figure 1 for an exact breakdown of these purposes.

Of these 70% of searches, students most commonly cited a personal interest in Chinese culture and society. For example, they specifically wanted to know more about college life in China, etiquette, use of popular idioms, and songs that their parents listened to when they were young and living in China, as they sought to understand their parents and their culture better. The second dominant purpose was to improve challenging language skills, such as character learning, vocabulary learning (e.g., slang), and listening skills. Even at the stage of intermediate Chinese, learning/memorizing characters still seems to be a great challenge. The third largest category included improving other language skills such as reading, speaking, clarifying grammar, learning more expressions for real-world use, and helping with coursework. For example, one student wanted to learn how to order food in a Chinese restaurant because her parent often asked her to do so. Another wanted to better understand how her Chinese friends speak on WeChat. Finally, their hobbies and plans to take HSK (the official Chinese Proficiency Test for non-natives) also drove them to find relevant resources. One student was seeking help for her writing skills.

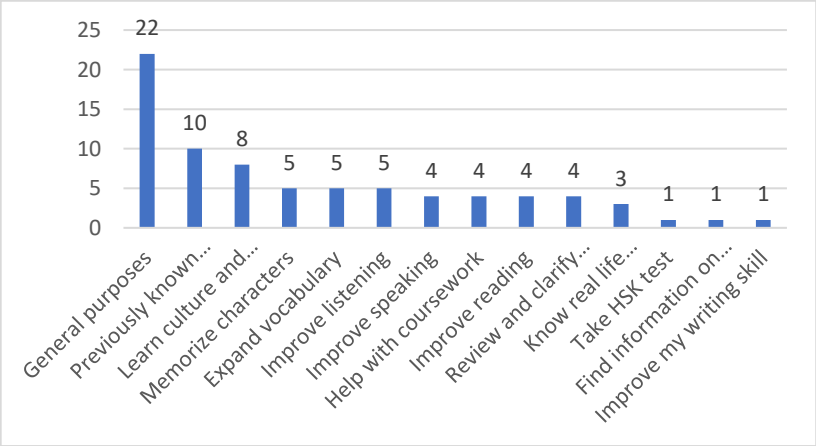

Figure 1 Students' original purposes when they started to look for resources

5.2 Resources located and used

Some students were able to find OAR in a variety of formats, containing different content, and were able to mix resources for their individual learning purposes. Other students only found resources with minimal variety of formats and similar content. Among the 74 listed resources, only *two* were openly licensed that can be defined as OER and these were from two university websites.

Of the 74 resources that students listed in their forms, some ones were utilized by different learners. After removing the same ones used by different learners, i.e., the duplicates, the majority of resources were from YouTube (35), blogs (7), language learning apps (6), and websites focusing on reading or on Chinese language learning (4 each). See Figure 2 for the complete breakdown of the resource formats used. Resources in different formats provided different kinds of help with student learning from various perspectives.

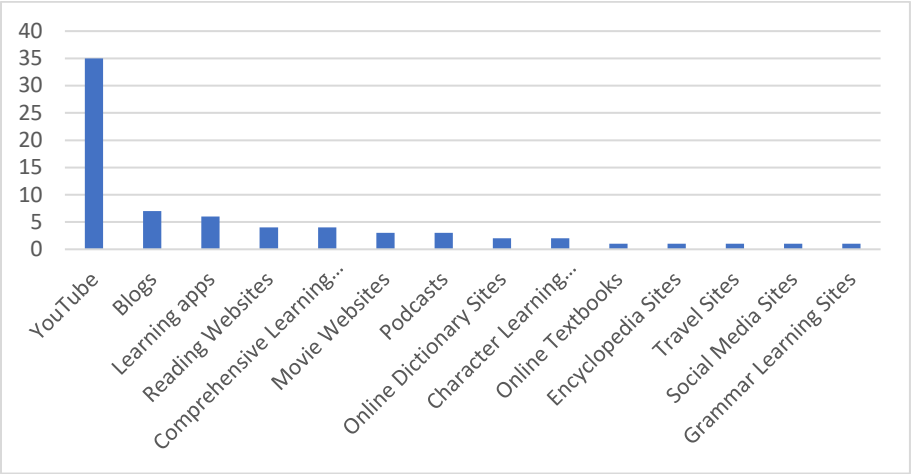

Figure 2 Formats of the resources located and used by the participants

5.2.1 YouTube videos

The 35 YouTube videos comprised language learning tutorials; Chinese movies, TV shows, or music videos; and videos and vlogs in Chinese about real life in China or the United States or on topics such as coin collecting and cooking. Figure 3 presents a breakdown of the video categories. Of the 17 YouTube videos created for CFL learners, nine focused on conversations in a variety of formats, such as using authentic TV shows to analyze the sentences in conversations, explaining a typical conversation a tourist could have with native speakers, and analyzing John Cena's WWE press conference speech in Chinese and explained what he should have said to express himself more accurately. The rest of the videos focused on teaching grammar or individual words and phrases.

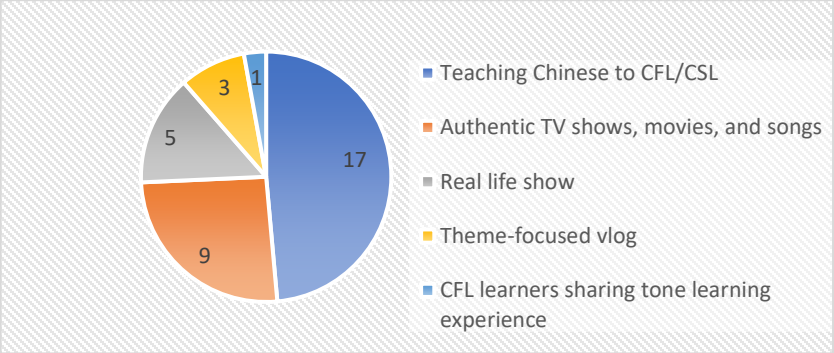

Figure 3 Categories of the 35 YouTube videos that students used

5.2.2 Apps and blogs

Students listed eight apps, with Duolingo appearing three times. The others were Loecsen[4], Memrise[5], Mondly[6], Quizlet[7], and Skritter[8]. Seven blogs were identified, one personal blog and six blogs produced by commercial language learning sites, including thelinguist, speechling, and fluentu. The student who used the personal blog learned the lyrics of a popular Chinese song with the assistance of subtitles in English, Chinese characters, and Pinyin. On the other blogs, students primarily read about tips for learning Chinese faster, memorizing Chinese characters, and learning to read Chinese newspapers. Most of the blogs were written by advanced CFL learners.

5.2.3 Other resources

Five resources focused on reading: Three focused on HSK reading, one presented reading collections developed by the University of Iowa, and the other offered reading practices created by a CFL learner who had lived in Beijing. Four resources were comprehensive Chinese learning websites: digmandarin.com, Chinese.remembr.it, Chinese-tools.com, and cchatty.com. These sites have many tools for learning Chinese such as courses, books, study abroad guides or programs, videos, and so on. Three were podcasts—spotify, popupchinese, and cslpod—and three were movie sites, with two of the students listing the same one, viki.com.

Students also used a variety of websites. Two focused on translation: the translation site at bing.com and wordreference.com. A character learning website (archchinese.com) was identified by two students who used it to learn characters that were covered concurrently in class. Five were different in format from any of the other resources: a travel website explaining Chinese etiquette, a social media website (Facebook) that has interactive sessions with Chinese teachers and learners from all over the world, an encyclopedia website (Wikipedia) on Chinese idioms, a website focusing on grammar learning, and a Google book site for a Chinese textbook.

5.3 Use and perception of the OAR

All participants reported that through these resources they reviewed aspects of the language that they had learned previously and learned new elements of the language, such as words, phrases, and usages. They listed new words and phrases that were useful for daily life in China and relevant to current events, such as the COVID-19 pandemic. Others were terms related to students' specific interests, such as coin collecting or cooking. One student learned the whole system of family trees in China. Some students commented that they learned not only new vocabulary words but also the contexts in which those words were used appropriately and "what words were derogatory for humor's sake or are considered

[4] https://www.loecsen.com/en
[5] https://www.memrise.com/
[6] https://www.mondly.com/
[7] https://quizlet.com/
[8] https://skritter.com/

pejorative." One student wrote that learning these new expressions "helps me understand some things my Chinese friends say on WeChat and will help with colloquial interactions. Oftentimes I feel like I sound very formal when using my Chinese because I am learning specific vocabulary. Branching out will help me interact with my Chinese friends."

In addition, students practiced different language skills, such as character writing, tone recognition and production, pronunciation, and listening skills. The resources helped them review what they had previously learned, such as words and expressions, grammar, and characters. Through these resources, the students discovered new learning strategies, became self-conscious about their learning, and felt "more motivation to learn Chinese." For example, resources on characters helped the participants realize that they need to "do a better job at thinking of the meaning of the components of characters."

The resources the students used helped expand their understanding of the culture and learn specific characters, including the stroke order, the names of the strokes, the stories about how some characters changed over time from their earliest known pictographic forms to the versions used today, the types of characters, and different methods of memorizing new characters. For example, one participant commented that he learned that "using colors to differentiate tones could be a very helpful tip." One student said using the resources helped "preview what we are going to learn so it makes learning less stressful"; in other words, they helped participants prepare for future class tasks.

Several students pointed out that what they wrote on the forms was far less than what they had actually learned. Many resources were meant to be used over time, not provide immediate results. The things students were required to write on the form were trivial compared to what the resource was meant to do and how the students would like to use them. Furthermore, one student spoke about learning from the process of searching for resources:

> I could click through different resources and I would still read them or listen to them even if they didn't pertain to what I was trying to find, because I was like, 'I mean, I have time to look and you know, it doesn't hurt, because what if I find something new that I didn't know before?' and so, if I did find something that I thought was useful but I didn't want it for my resource form, I have a Chinese notebook. And so, I would write it down in there, a new word that I learned, or a new sentence structure or new grammar.

5.3.1 The features of the resources liked

The participants' preferences can be categorized into content, content presentation, and format and are overviewed in Table 1. The most frequently reported reason for liking certain resources' content is that the topics were interesting either because they are closely related to real life or the resource is up-to-date and related to current events or to current classroom learning. For example, students liked videos in which the host went to real locations or showed real people talking and using slang. One student wrote, "It seems to me the conversation is very typical at the workplace, which is interesting, since I want to

know what the daily life conversation in Mandarin is like." Some wrote that the content was about college life, such as sporting events, which were similar to their college life in America.

Some students used the resources to prepare for challenging tasks they had to complete. For example, one student wrote, "I have a pocketbook of idioms that I have not gotten into, and I thought this summer I might spend some time with it. This Wiki article gave me some good background for a little prep work." Other materials were closely related to what they were learning. Some not only followed the book's organization with word sets and quizzes for every chapter to help them review what they were learning, but also taught other words on the same topic. In addition, the students liked a few other features, including, acclimating to different language proficiency levels, having a "good summary of what I know with some things beyond what I had learned," covering many different topics, helping expand their knowledge and "vocabulary in more obscure areas," offering learning tips that were "easy to apply to our own Chinese learning journey," and introducing new vocabulary with literal translations and cultural information.

The most frequently reported reason for students liking certain resources was the clear and clean presentation: No clutter or distraction and clear audio. The second favored feature was that the materials were easy to follow because they provided normal and slow speeds and the main characters were non-native speakers or children who speak more slowly than adult native speakers. The third feature that students appreciated was the effective approaches in teaching the language. For example, some materials displayed the language on screen or gave good explanations and examples of words. One student found a resource that "slowly teaches you new words and constantly brings them up in other lessons to keep teaching you." Others used CFL learners' common errors to help people realize how much that error impacted what they wanted to say. The fourth favored feature was that the resources used a combination of audio, Pinyin, tones, Chinese characters, and English descriptions for what was being taught, sometimes providing transcripts and vocabulary lists for what was said in the video. The fifth favored feature was that the length of some OAR was "just right," meaning "long enough to have meaning and interest and short enough to keep readers engaged." In addition, some students enjoyed the game-like setup of some materials because they were "fun to use" and "motivating." The use of interesting visuals, including animations and "cute images," was also noted as a positive feature. Students also liked the opportunity embedded in some materials for practice and interaction because it made them "feel part of a community of Chinese learner from all over the world."

While the above comments were about the OAR materials in general, students specifically noted things they liked about OAR reading materials. These included providing definitions, audio, or hover-over Pinyin of new words directly from the text, providing pre-quizzes and vocabulary study before the reading materials, and providing follow-up questions after the reading materials to check for understanding.

Besides the features in content and in presentation, some materials were found to have made learning convenient for learners. For example, students reported how much they appreciated that pre-recorded materials could be listened to many times. One said podcasts

are good for learning because they "fit my schedule when driving to my second job." Another student wrote, "I can watch the movies in Chinese whenever I want to watch TV shows. I do what I like but still learn Chinese." One student said they liked videos with user feedback sections because they provided opportunities "for me to learn from other people because there is an area for people to comment."

Table 1 Things that students liked

Content	Presentation	Accessibility
• Interesting • Relatable • Acclimating to everyone • A wide variety of topics • Offering learning tips • New vocabulary has both literal meaning and culture implication	• No clutter; clean and clear presentation; clear audio • Tempo and speed make it easy to follow • Different approaches in teaching the language • Providing audio, Pinyin/tone, and English for characters learning • Appropriate length and game-like setup • Interesting visuals	• Convenient for use in different life environments

5.3.2 The features of the resources disliked

Students had fewer dislikes, and they gave three suggestions for improving OAR content: Making the videos more in depth, making content more interesting to learn, and making sure English translations are accurate. In addressing the presentation of the materials, the main complaints were that the text font size was small, that people spoke quickly and quietly, and that English and Chinese subtitles did not sync well and were sometimes contradictory to each other. One student also suggested that the English translation not be provided at the same time as the Chinese subtitles because the overload of information made it hard to learn.

5.4 What they wished they could find

Because a lot of OAR were for beginner-level learners, most participants wished that they could find real life videos that catered to their intermediate proficiency level. Specifically, they were looking for materials that were different from what they were learning in the classroom; that is, not formal teaching of grammar or words, but an authentic application of what they have learned in a format showing how those words and grammar are used in an average, everyday setting. They would appreciate it if they could find more authentic videos, "native stuff," about real life, not about learning. For instance, one student said:

> [I wish that I could] find something in Chinese, but talking about real life, normal life things… because what I'm reading and listening to right now [from the websites] are just … the dialogue from the book … I would maybe be able to make the connection between … learning Chinese, normal life, and combine them together more.

Another student did not find an authentic video, a talk show, until the end of the semester. She was very excited about her discovery and happy to find "a real world" example:

> It only occurred to me at the end that maybe I should find … actual videos, like news or TV shows where it's less like textbook dialogue for learners, and it's more like native stuff, because if I wanted to go to China and I wanted to speak with … native speakers … that's a whole different experience from learning in the classroom, and so I think, going forward, I will probably look for more of those, more natural resources just so I can get used to hearing different types of accents and the speed at which they talk.

The students were aware that they needed to "have some level of learning before you can … do the things with daily life," but one also shared that if they had "more of those resources with daily life, that would also enhance my learning, and I could learn as I'm being a consumer of it."

Students also found it hard to locate websites to help with speaking or writing at their level. Some students wished that they could find English-language television shows that had been dubbed in Chinese or children's shows which they thought would have fit their proficiency level. One student said, "In the U.S., … we have a whole bunch of kid's channels where kids learn all day about counting, and they learn either English grammar or reading or like social skills." Other students would have liked to find resources that "put learning Chinese and music together." According to one student, there are a lot of basic raps for beginning Chinese teaching, but she could not find more resources at her level.

Finally, a few students expressed their frustration about paywalls. As one put it, "you can learn this information you want from this one page, but if you want to learn anything more or be more in-depth, then you need to join their language-learning service."

6. Discussion

As Larsen-Freeman (2014) stressed the importance of making students determine whether there is learning opportunities in the learning materials, this exploratory study focused on examining how students locate and use OAR to complement their learning and considering their perceptions of using those materials. The results show that even though some students were overwhelmed by the amount of OAR at the beginning of the task, they could approach the search task in a variety of ways, including starting with resources recommended by others, related to their personal interests, based on what they were learning in classroom, or tackling skills that they wanted to improve. They were also able

to locate good resources with a variety of formats and contents. Most importantly, this task has helped the students realize the broad availability of OAR, and the fact that they could use these resources to learn all aspects of the language, improve their language skills, increase their knowledge about the culture and develop their hobbies. An essential effect of completing this task is that the students have become more aware of their learning and have developed different yet critical learning methods.

The students enjoyed using materials of a moderate length that were relevant to real, daily life and that had clear presentation, especially when the Chinese characters, Pinyin, tones, meaning, and audio were available. In addition, they were able to use resources at their convenience to maximize advantages of the OAR features. Furthermore, using OAR to supplement their learning is a good change from classroom learning, an opportunity to find and use new resources that most were not previously aware of, a chance to review what they had learned in class, and an opportunity to see how vocabulary and structures were applied in the materials. However, they wished that there were more video materials that were designed at their level utilizing the challenging grammars they are learning, but showing grammar and vocabulary used in natural, daily life settings. They would also like having materials that cater to different learning styles, such as combining music with language learning. They are also in need of resources that could enhance their speaking skills.

6.1 Implications for teaching in general

These positive findings of students' learning and enjoyment of the OAR have several implications for teaching. First, requiring students to search for and use OAR to supplement language learners' learning is beneficial for the students. Asking students to find resources on their own might give teachers a feeling of being out of control, but this study has assured that students gained vocabulary and learning methods, reviewed what they had learned, and much more. Additionally, students were held responsible for their own learning, and they found time to sit down and dig deeper into their interests while improving their language learning. To make better use of this task, it would be best for teachers to provide a platform – either online forums or large group classroom time – for students to share the good resources that they find. In addition, teachers could give a few examples of OAR to help learners get started with their searches so they will not be too overwhelmed by the vast number of resources out there. It might be beneficial to students to have requirements for which aspects of language learning they should find in OAR, so that the resources located would be more diverse and would help them improve different aspects of language learning. It is also important to teach learners to strategically make good use of their time by selecting different types and contents of OAR on different occasions, for example, using podcast to listen to while walking or driving, using movies to relax when being tired.

Second, when requiring students to search and use OAR to supplement their learning, it is good practice to have students answer specific questions about the resources so they are more self-reflective and self-aware in their learning. For example, ask students to find out if they can find whether the creators have the right credentials, can learn something new, can improve what they intended to improve, and can employ the OAR in

their future goals. Asking students to write down what they have learned by using the OAR, however, may have mixed results: The question obligates students to think about what they learned and gives them an opportunity to reflect upon the learning, review what they learned, and enhance their memories, but at the same time restricts students to learning only things that can be written down at that moment. Learning is a long, inclusive process. Some things that students learn and appreciate in some respects, such as cultural knowledge, learning methods, and manners of speaking native speakers use, could be too intangible to be recognized until later.

6.2 Implications for designing and developing OER

Implications on designing and developing OER can be drawn from the findings about students' use of OAR. The fact that only two openly licensed resources, OER, were located and used shows that even though researchers and practitioners have spent time and energy creating OER to help students learn, these resources were not easy to find, or maybe did not catch learners' attention as the other resources did. Of Colpaert's (2012) four challenges, the technological challenge remains to be met, and OER designers and creators are facing an urgent task to make OER easier to locate and more attractive to get learners' attention. At the same time, Colpaert's (2012) epistemological challenge, what does "open" really mean, should be further discussed in the field of foreign language learning. As the findings of this study show, language learners benefit from the abundant resources available to improve their learning. However, "being openly licensed" is a condition for teachers to apply 4R (Reusing, Redistributing, Revising, and Remixing) to OER use (Blyth, 2014; Wiley & Green, 2012), and is not a condition that ultimately impacts learners' initiatives to learn from online resources. If researchers and practitioners only focus their attention on the use of OER, an opportunity might be missed to teach students to take advantage of vastly available and useful language learning materials that are not openly licensed. Along this line, the findings of the study shed light on designing and creating OER resources for language learners.

First, OER creators may consider creating materials that have the features that the students liked about OAR or wished that they could find, such as being relevant to real life; for example, ones that include challenging structures and expressions for intermediate level Chinese language learners in a daily life setting. For example, they could take the format of a skit or a movie that is nearly authentic to daily life. To achieve this, designers and teachers might need to collaborate with each other. In addition, OER could use innovative ways of teaching the target language, such as combing rhythm and melody with the language to create fun materials that fit different learning styles. Students learning the target language in a classroom setting tend to look for OER that has a different approach to language learning from what their instructors use. Therefore, OER that adopt innovative ways of using the language would likely be more widely used by this group of learners. In addition, OER designers need to make the materials' presentation accurate, clear, uncluttered, and if possible, make the whole set of Chinese transcription (Pinyin, tones, characters, and meaning) available.

Second, OER creators may take into consideration how the format and content of a resource impact the ways and time students spend using it. For example, the findings show

that podcasts were used on the way to work, and movies were watched when the learners were tired of traditional studying. Based on this finding, the creators of OER may want to put more entertaining content into the videos and use hosts that speak both the native and target language for students unable to look at transcriptions. This will make their learning more convenient and therefore will increase the possibility that these OER are adopted by the teacher.

Third, OER creators may consider creating materials that can help students improve their skills in the challenging aspects of the target language. For example, in the case of Chinese language learning, learning Chinese characters is a big challenge for students whose native language is an alphabetical language. A variety of OER materials should be available to help students of different learning styles with character learning. For French learners, one of the biggest challenges is the verb. Taking into consideration of the needs of language learners is very crucial.

7. Conclusion

As OER are becoming more widely adopted in content areas by instructors in higher education to reduce financial burdens for students, it is necessary to investigate how learners take control of their learning by exploring and using available resources on their own, especially in the field of language learning where a great amount of practice is needed to improve language skills and cultural knowledge. Since teaching in a classroom setting includes time constraints that limit study of the core language elements, it is necessary to give students the opportunity to utilize any available resources on the Internet that they could locate to expand their learning.

This study contributes to the field by showing how one group of foreign language learners used these resources to supplement their learning and how an instructor encouraged them to complete such tasks. Results show that the students were able to locate OARs, though not many OER, to successfully supplement their learning. In the process of searching and using the resources, students were in charge of and personalized their own learning by taking their needs into consideration and actively using available learning materials to meet those needs. Personalized learning, consisting of differentiation and individualization, is considered one major opportunity to improve education (U.S. Department of Education, 2010; Pane, Steiner, Baird, & Hamilton, 2015). While differentiation refers to teachers tailoring their methods of teaching to meet students' needs, individualization allows learners to "progress through the learning material in their own pace, skipping or repeating topics if necessary" (Melzer, 2017, p.4), which is what this OAR project offered to learners.

The assigned task of using OAR is a good approach to make learners aware of and take advantage of OAR. As called for in Larsen-Freeman (2014), the focus has become letting the learner "determine whether there are learning opportunities or not" in the materials (p. 655). This study shows what materials are needed for intermediate-level learners and what students like and dislike. This information can be especially useful to OER designers to help them create OER that is useful for teachers and students. In this

respect, the study shed light on how teachers and students meet the pedagogical challenge in adopting OAR (including OER) in teaching and learning.

This study has limitations. First, it adopted an exploratory approach to find out how language learners used OAR and what OAR they used to supplement their learning without examining what OAR they used before this study. A future experimental study can compare the learners' changes before and after completing the task, and therefore examine the effectiveness of the task on the quality and quantity of OAR searching. Second, the group of participants might have a unique feature that may not be fully representative of other second language learners, such as French intermediate-level learners or novice-level CFL learners. Further study is needed to find out how other groups of foreign language learners handle this assignment depending on the language they are learning, their level of proficiency, or their native language. Third, because this study used self-reported results, it is hard to validate how much learning happened by using the OAR. Further research can use an experimental design to find out how much learning happens when the students use OAR to supplement their learning. In addition, it would also be worthwhile to find out what strategies skillful OAR users utilize to maximize their learning.

Acknowledgement: I would like to thank those students who participated in this study. I thank Abbey Elder, the OER expert librarian at ISU for her support and her feedback on the study.

References

Allen, G., Guzman-Alvarez, A., Molinaro, M., & Larsen, D. (2015). Assessing the impact and efficacy of the open-access ChemWiki textbook project. *Educause Learning Initiative Brief*. https://library.educause.edu/-/media/files/library/2015/1/elib1501-pdf.pdf

Allen, E., & Seaman, J. (2014). *Opening the curriculum: Open educational resources in U.S.* (ED572730). ERIC. https://www.onlinelearningsurvey.com/reports/openingthecurriculum2014.pdf

Benkler, Y. (2007). *The wealth of networks: How social production transforms markets and freedom*. Yale University Press.

Blyth, C. (2014). Open educational resources and the new classroom ecology. *The Modern Language Journal, 98*(2), 662-664.

Bowen, W. G., Chingos, M. M., Lack, K. A., & Nygren, T. I. (2012). *Interactive learning online at public universities: Evidence from randomized trials*. Research Report. https://sr.ithaka.org/wp-content/uploads/2015/08/sr-ithaka-interactive-learning-online-at-public-universities.pdf

Chambers, A., & Bax, S. (2006). Making CALL work: Towards normalization. *System, 344*, 465–479.

Colpaert, J. (2012). Open language learning: How it should and why it won't work. *CALICO 2012 Conference*, Notre Dame University.

Corbin, J., & Strauss, A. (2015). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (4th ed.). Sage.

Dixon, E., & Hondo, J. (2013). Re-purposing an OER for the online language course: A case study of *Deutsch Interaktiv* by the Deutsche Welle. *Computer Assisted Language Learning, 27*(2), 109-121.

Dubreil, S., & Thorne, S. L. (2017). Introduction: Social pedagogies and entwining language with the world. In S. Dubreil, S. L. Thorne & S. K. Bourns (Eds.), *AAUSC 2017 Volume - Issues in language program direction: Social pedagogies and entwining language with the world* (pp. 1-11). Cengage.

Feldstein, A., Martin, M., Hudson, A., Warren, K., Hilton, J., & Wiley, D. (2012). Open textbooks and increased student access and outcomes (EJ992490). *ERIC.* https://files.eric.ed.gov/fulltext/EJ992490.pdf

Fischer, L., Hilton, J., III, Robinson, T. J., & Wiley, D. A. (2016). "A multi-institutional study of the impact of open textbook adoption on the learning outcomes of postsecondary students": Erratum. *Journal of Computing in Higher Education, 28*(1), 94–95.

Hewlett. (2013). *Open educational resources*. White paper from The Hewlett Foundation's Education. https://hewlett.org/wp-content/uploads/2016/08/OER%20White%20Paper%20Nov%2022%202013%20Final_0.pdf

Hilton, J. (2016) Open educational resources and college textbook choices: A review of research on efficacy and perceptions. *Education Technology Research and Development, 64*(4), 573-590.

Hilton, J., Gaudet, D., Clark, P., Robinson, J., & Wiley, D. (2013). The adoption of open educational resources by one community college math department. *The International Review of Research in Open and Distance Learning, 14*(4), 37-50.

Hilton, J. & Laman, C. (2012). One College's Use of an Open Psychology Textbook. *Open Learning, 27*(3), 265-272. https://www.learntechlib.org/p/167546/

Ikahihifo, T. K., Spring, K. J., Rosecrans, J., & Watson, J. (2017). Assessing the savings from open educational resources on student academic goals. *International Review of Research in Open and Distributed Learning, 18*(7), 126-140.

Larsen-Freeman, D. (2014). It's about time. *The Modern Language Journal, 98*(2), 665-666.

Lovett, M., Meyer, O., & Thille, C. (2008). The open learning initiative: Measuring the effectiveness of the OLI statistics course in accelerating student learning. *Journal of Interactive Media in Education, 2008*(1), 1-16.

Magro, J., & Tabaei, S. V. (2020). Results from a psychology OER pilot program: Faculty and student perceptions, cost savings, and academic outcomes. *Open Praxis, 12*(1), 83-99.

Melzer P. (2017). *A conceptual framework for personalized learning*. Springer. https://link.springer.com/content/pdf/10.1007/978-3-658-23095-1.pdf

Pane, J. F, Steiner, E. D., Baird, M. D., & Hamilton, L. S. (2015) *Continued progress: Promising evidence on personalized learning.* RAND Corporation. https://doi.org/10.7249/RR1365

Pawlyshyn, N., Braddlee, D., Casper, L., & Miller, H. (2013). Adopting OER: A case study of cross-institutional collaboration and innovation. *Educause Review*. https://er.educause.edu/articles/2013/11/adopting-oer-a-case-study-of-crossinstitutional-collaboration-and-innovation

Pérez-Paredes, P. (2022) A systematic review of the uses and spread of corpora and data-driven learning in CALL research during 2011–2015. *Computer Assisted Language Learning, 35*(1-2), 36-61.

Pérez-Paredes, P., Ordoñana, C, & Aguado, P. (2018). Language teachers' perceptions on the use of OER language processing technologies in MALL. *Computer Assisted Language Learning, 31*(5-6), 522-545.

Phillips, L. A., Gelety, L. S., & Hain, L. A. (2020). Evaluation of open educational resources among students in blended research methods sand statistics coursework. *International Journal of Open Educational Resources, 3*(2). https://www.ijoer.org/evaluation-of-open-educational-resources-among-students-in-blended-research-methods-and-statistics-coursework/

Springer, M. (2019). Adapting and adopting open educational resources: An analysis of student cost savings, use, performance, and perception. *The International Journal of Open Educational Resources, 1*(2). https://www.ijoer.org/adapting-and-adopting-open-educational-resources/

UNESCO. (2002). *Forum on the impact of open courseware for higher education in developing countries: Final report*. https://openedreader.org/chapter/unesco-forum-on-the-impact-of-open-courseware-for-higher-education-in-developing/

U.S. Department of Education. (2010). *Transforming American education: Learning powered by technology: National Educational Technology Plan 2010*. http://www.ed.gov/sites/default/files/NETP-2010-final-report.pdf

Vyatkina, N. (2020). Corpora as open educational resources for language teaching. *Foreign Language Annals, 53*(2) 359-370.

Wiley, D., Bliss, T. J., & McEwen, M. (2014). Open educational resources: A review of the literature. In J. M. Spector, M. D. Merrill, J. Elen, & M. J. Bishop (Eds.), *Handbook of research on educational communications and technology* (pp. 781-789). Springer.

Wiley, D., & Green, C. (2012). Why openness in education? In D. Oblinger (Ed.), *Game changers: Education and information technologies* (pp. 81-89). Educause.

Exploring the Affordances and Effectiveness of a Digital Game in the Chinese Dual Language Immersion Classroom (探索电子游戏在中文沉浸式课堂中的可用功能和有效性)

Poole, Frederick
Michigan State University
(密西根州立大学)
poolefre@msu.edu

Clarke-Midura, Jody
Utah State University
(犹他州立大学)
Jody.clarke@msu.edu

Ji, Siyu
(纪斯雨)
Utah State University
(犹他州立大学)
A02315460@aggies.usu.edu

Abstract: Recent studies have found that Chinese dual language immersion learners tend to lag behind their peers studying other languages in terms of literacy skills. Yet, teachers cannot simply prioritize literacy skills at the detriment of oral communicative skills. The present study explores how the integration of a digital game into the dual language immersion classroom affords opportunities for meaningful language use while also supporting learners' vocabulary and reading development. In this study two sixth-grade Chinese dual language immersion classes play a digital game in eight sessions across four weeks. Audio data of students interacting with the researcher were recorded and seven affordances that emerged through in-class gameplay were identified. Further, results indicate that after 4 weeks of gameplay, students had significant vocabulary and reading comprehension gains and their reading gains were significantly associated with completion of a workbook supplemental to the game.

摘要：最近一些研究发现中文沉浸式的学习者在读写能力方面落后于其他语言的学习者。教师不能简单地优先教授读写技能而不利于口语技能。此研究探索一个电子游戏在中文沉浸式课堂中如何在提高学习者词汇量和阅读能力的同时提供有意义地运用语言的机会。两个六年级的中文沉浸式班级在为期四周的研究中玩了八次同一个电子游戏。我们对学习者玩游戏过程中与研究者的互动进行了录音并编码音频数据，发现课堂游戏过程中出现的七个可用功能。而且，研究结果表示学习者在四周的游戏以后在词汇量和阅读理解方面有显著进步。他们的阅读进步与游戏的补充工作本的完成明显相关。

Keywords: Game-based language teaching; Dual language immersion; Chinese as a foreign language

关键词: 以游戏为中心的语言教学;双语沉浸式;对外汉语教学

1. Introduction

Two recent studies investigating student proficiencies according to the American Council on Teaching Foreign Languages (ACTFL) Scale (ACTFL, 2012) found that while students in Chinese dual language immersion (DLI) programs reported proficiency gains at each grade level, they tended to lag behind their peers who were learning other languages in similar programs (Burkhauser et al., 2016; Watzinger-Tharp et al., 2018). Specifically, Burkhauser et al. (2016) found that Chinese students on average received a Novice High skill in reading compared to learners studying Spanish and Japanese who achieved an Intermediate Low or higher on reading. Similarly, Watzinger-Tharp et al. (2018) found that students learning Chinese in the Utah DLI program received lower scores on reading and speaking assessments on average compared to French and Spanish students. Authors in both studies suggest that this may be due to the difficulties associated with learning the nonalphabetic script of Chinese.

Improving reading skills for students learning Chinese as a foreign language involves not only developing learner character knowledge (Shen, 2013), but also providing students with opportunities to read Chinese words in context (Shen, et al. 2020). This presents a challenge to many Chinese DLI teachers who must strike a balance between developing character recognition skills, vocabulary knowledge, reading comprehension skills, and communicative competencies in an already tight academic schedule (Poole, et al. 2019). As illustrated in several studies (e.g., Allen, 2008; Poole & Sung, 2015), there is concern that spending too much time on teaching characters and or vocabulary can hinder students' oral skills yet ignoring vocabulary instruction can severely impact students' literacy skills.

Integrating digital games into instruction may provide a solution to this challenge. Researchers investigating digital games for foreign/second language learning have argued that games can promote vocabulary learning (e.g., Ansteeg, 2015; Yudintseva, 2015), provide opportunities for meaningful interactions (Dalton & Devitt, 2016; Peterson, 2011), and provide an enjoyable environment for learners (Gee, 2007). In other words, digital games may provide an environment that promotes vocabulary knowledge and literacy skills while also allowing learners to develop their oral/communicative skills. Yet, studies using games to support learning Chinese as a foreign language have primarily investigated how games can be used to promote vocabulary learning (e.g. McGraw et al. 2009). Further, such studies are typically conducted outside of the classroom thus limiting the opportunity for teacher intervention and/or interaction with other peers while playing the game. In addition, given the focus of these studies on vocabulary development, it is unclear how the use of such games impact other proficiencies. This is similar to the digital game-based language learning (DGBLL) field as a whole, which has largely focused on digital games in second language (L2) learning as a challenge in design rather than as a classroom tool (York et al. 2021).

Recently, there has been a call to further explore how games can be integrated into the L2 classroom (e.g., deHaan, 2019; York, 2020). By integrating games into the classroom, teachers can design activities around the game, provide opportunities for

interaction, and support learners as they play the game (York, et al., 2021). This mediation provided by instructors may be even more important when considering the younger learners in DLI programs. To better understand how digital games can impact learning in DLI classrooms more research is needed. To address these needs, the present study explores the effectiveness of a digital game with support via supplementary material and teacher mediation as a means to promote Chinese vocabulary learning and reading comprehension in an elementary DLI classroom. We use an ecological framework (van Lier, 2004) in order to explore how integrating games into the L2 classroom affords additional opportunities for learning.

2. Literature Review

Early research on digital games used in L2 learning contexts focused on the potential learning benefits, challenges, and opportunities of games for L2 learning (e.g. Baltra, 1990; Hubbard, 1991). Recently, L2 studies involving digital games have investigated a wider range of areas including student perspectives (e.g. De Gove, et al, 2013), change in affect (e.g. Lim, 2008), vocabulary development (e.g. Cobb & Horst, 2011), and other more specific L2 proficiencies including listening, speaking, reading, and grammar. In this literature review we will first focus specifically on game designs and studies that have targeted vocabulary and readings skills. Next, we will discuss how an ecological framework impacts the way we evaluate and view games in a language learning context.

2.1 Vocabulary Learning with Digital Games

Studies exploring vocabulary learning via digital games tend to explore the impact of games that leverage a drill-and-kill game mechanic (Egenfeldt-Nielsen, 2007) in which students are asked to either translate vocabulary words or provide the correct answers to a problem multiple times (often at high speeds) and are subsequently awarded points for correct answers. Cobb and Horst (2011) explored the game *Word Coach* which leverages a series of word-based puzzles to promote vocabulary learning. The authors found that while students reported English vocabulary learning gains, the benefits waned after the novelty of the game dissipated. Müller (2012) explored the effect of a game in which students were given a patient with symptoms and then needed to pick the correct medication based on the English name and found that vocabulary learned in the game was recalled faster and more accurately than vocabulary learned outside of the game. Peng et al. (2016) compared vocabulary gains among different group orientations, specifically competitive, cooperative, and conjunctive. The authors define conjunctive groups as those whose results are determined by the lowest performing member of the group. They found that for low-achieving students, the conjunctive group orientation led to the highest gains in vocabulary. This study used a whack-a-mole game in which students had to identify the correct translation of a vocabulary word in a limited time frame. In another study exploring English vocabulary development, Wu and Huang (2017) found that students reported higher vocabulary gains when playing a word clearing game similar to *Candy Crush*. This study did integrate the game into the classroom, but rather than teach with the game, the game was used in lieu of traditional instruction. Finally, in a study examining Chinese

vocabulary learning, McGraw et al, (2009) designed and evaluated a game called *Word War*. In the game, learners orally manipulated flashcards to create matching pairs. While the authors found that playing the game resulted in significant vocabulary learning, the learning gains were similar to students who used a non-game flashcard system. The studies presented here focus on games as a motivational tool for rote memorization of vocabulary.

In contrast to games designed to explicitly teach vocabulary in a drill-and-kill format, some games have explored vocabulary learning that occurs implicitly as the result of playing a digital game. For example, Alyaz and Genc (2016) found that participants scored significantly higher on a post-vocabulary test after playing an educational role-playing game designed to teach German. While the participants played the game, they were asked to keep a journal to write down new vocabulary words, pragmatic phrases, and thoughts about the game. The authors mention that there was additional instructional material but did not report on how that material related to the learning outcomes. Similar to the game used in Alyaz and Genc, Dourda, et al. (2014), investigated incidental vocabulary learning that occurred as the result of playing a dialogue driven game in which students try to determine who committed a crime. They found that 45% of the words used in a reflection journal after playing a digital game were previously unknown vocabulary words (Dourda, et al., 2014). Finally, Franciosi et al. (2016) compared vocabulary gains among participants who used a flashcard system (Quizlet) while playing the game *3rd World Farmer* with those who only used Quizlet. They found that those who played the game with Quizlet reported better vocabulary gains on the post-test. The authors suggest that vocabulary learning is improved when students have an opportunity to engage with the vocabulary in multiple contexts.

Research on educational games has shown that vocabulary learning occurs as a result of playing digital games, both when it is explicitly and implicitly targeted. Findings also suggest that adding support while playing the game can further promote vocabulary learning. Adding external support was typically done when researchers were trying to draw attention to form when vocabulary learning was occurring incidentally as a result of reading in game texts. However, it is important to note that external support and in-class interventions are rarely discussed explicitly in these studies. Details on these factors have the potential to provide important information for contextualizing findings as well as implications for teachers interested in using games in the classroom.

2.2 Promoting L2 Readings Skills with Digital Games

Studies exploring the effect of digital games on L2 reading are rare. Poole et al. (2018) explored an interactive fiction game that was designed to promote Chinese reading skills in an elementary dual language immersion program. The authors found that students engaged in more metacognitive activity when they were prompted with a question in the game. Although the game in this study was designed around in-class material, the game itself was not integrated into a classroom setting. Suh et al. (2010) conducted a study using an educational Massive Multiplayer Online Role-Playing Game (MMORPG) called *Nori School*. The authors compared English proficiency gains between a control group that received traditional instruction in the classroom and a treatment group that learned via the

MMORPG in the school computer lab. The authors found that after two months of two 40-minute sessions per week, the treatment group scored significantly higher on a post-reading assessment than the control group. It was inferred that reading gains were the result of reading the in-game dialogue. In a study that examined reading strategies by students playing a digital game in a EFL content- and language-integrated learning classroom, Dourda, et al. (2014) found that students enjoyed the game, received opportunities to develop vocabulary words, and used several different reading strategies including skimming/scanning, translating and transferring, repeating, use of imagery, and association of information and concepts. Research on the impact of digital games on reading skills has found that learning via gaming environments is better than learning via non-gaming environments and that reading via a digital game can promote reading comprehension skills.

The studies reviewed up to this point have demonstrated how drill-and-kill mechanics can lead to vocabulary learning, how in-game dialogue can provide opportunities for students to learn vocabulary incidentally, and how researcher and/or teacher-designed support can promote vocabulary and reading gains. One aspect that is missing in this area of research is how bringing a digital game into the classroom affects the learning environment. Dourda et al. (2014) is one of the few studies that focuses on classroom instruction. It took place in a content and language integrated learning classroom, which shares many similarities to the DLI classroom in the present study. As mentioned above, the authors reported gains in both vocabulary knowledge and reading skills. They also note several instructional/design choices that were made for the in-class lesson that promoted meaningful interaction between the learners. In other words, this study exemplifies how teaching with games, rather than simply learning through games, can provide a dynamic learning environment in which multiple proficiencies are addressed. York, et al. (2021) argues for more studies like this by stating that the DGBLL field is too narrowly focused on game designs rather than on the teachers' role in leveraging games for in class instruction. In the present study, we argue that in order to explore the teachers' role in DGBLL it is necessary to take an ecological perspective towards the integration of digital games in the classroom. While we acknowledge that game design is important, and further that good game design can promote learning, we contend that opportunities for learning can emerge from both within and around the game when games are brought into the classroom. Further, by focusing on how teachers and students engage with games in the classroom the focus can shift from "what game should I use?" to "how can I teach with games?" This is even more imperative when one considers that most of the games reviewed in this section are no longer publicly available. In the next section, we look at what it means to take an ecological perspective to DGBLL and how such perspectives expand what it means to use games for language teaching, rather than simply language learning.

2.3 Ecological Framework

An ecological perspective on second language acquisition and teaching explores the relationship between the student and the environment and how opportunities for learning emerge from that relationship (van Lier, 2004). These views were derived from research in psychology that explores both how individuals are nested within several ecological levels (e.g., micro-level, meso-level, macro-level) that mutually interact

(Bronfenbrenner, 1979; Douglas Fir Group, 2016) and how environments provide individuals with opportunities to act through perceived affordances (van Lier, 2004; Thoms, 2014). Kramsch and Steffensen (2008) state that taking an ecological approach means acknowledging that language "is not studied as an isolated, self-contained system, but rather in its natural surroundings" (p. 18). They go on to highlight that language learning is interconnected, interdependent, and interactional, illustrating how the individual is part of several micro and macro-ecosystems that affect the learners and conversely are affected by the learner. Accordingly, researchers who take an ecological perspective place a stronger emphasis on the context of the study and often see themselves as a participant in the environment and thus part of the investigation (Kramsch & Steffensen, 2008).

Similarly, van Lier (2004) argues that capturing language learning in the classroom is incredibly complex, but also necessary. He further suggests that approaches that isolate variables as evidence for learning often fail to acknowledge this complexity and thus, many of the conclusions drawn from such approaches become less relevant to teacher practices (p.11-12). In contrast to these approaches, van Lier focuses on how individual perception of and interactions with the environment may lead to opportunities for learning. This approach not only acknowledges the role of the environment, but more importantly how the individual perceives and engages with the environment to create opportunities for learning. This perspective places a large emphasis on perception, as it is the perception of opportunities within an environment that lead to action and/or learning. Gibson (1979) called these opportunities to act *affordances*. He states that affordances are what the environment "offers the animal, what it provides or furnishes, either for good or ill" (p. 127). van Lier applies this concept of affordance to the L2 classroom to argue that learners are not simply passive recipients of language; rather, through their unique perceptions, they actively attend to and engage with language and resources in the classroom to make meaning. It is important to note that that these affordances are not simply present in the environment, but rather they emerge as a result of interaction with the environment (Thoms, 2014). For example, Thoms found that teacher reformulations of student utterances provided three types of affordances for student learning in a language classroom. These affordances emerged as a direct result of the teacher interacting with students to enhance the learning environment.

A few DGBLL studies have applied an ecological perspective to explore how online gaming environments afford opportunities for L2 use and learning. Rama et al. (2012) analyzed gameplay by two novice-Spanish learners playing *World of Warcraft*. The authors identified three unique affordances that emerged from gameplay, specifically that the environment created a safe space for using their language skills, promoted communicative competencies, and encouraged goal-directed actions. Zheng et al., (2012) reported similar affordances after analyzing English language learners' chat logs and gameplay in *World of Warcaft,* however they also noted the value of exploring player actions as a form of value realizing within these digital worlds. Thorne et al., (2012) illustrated through an ecological perspective how opportunities emerged not just from within the game, but also around the game. The authors found that Dutch learners of English engaged with *World of Warcraft* forums in which players from around the world discuss game knowledge and strategies. Further, they analyzed these interactions to

demonstrate the text complexity and subsequently the opportunities for learning and development that exist within these auxiliary environments.

Past DGBLL studies and other studies exploring affordances within learning environments have primarily focused on how the learner perceives the environment (e.g., Jin, 2018; Thoms & Poole, 2017). However, as Liu and Chao (2018) state, "learners and teachers may need to work together in order to perceive, take action, and bring about the best possible learning experience" (p. 3). In their study, Liu and Chao highlight several ways in which teachers can highlight and enhance potential affordances for language learners. However, teachers must first perceive and/or recognize the affordances to do this. This suggests that when exploring affordances of an environment or integrating a new technology into the environment, one should consider both teacher and student perceptions and further how those perceptions interact.

Taking an ecological perspective acknowledges that the environment affords opportunities to act. Typically, these affordances have been assumed to be only noticed by the learner in educational settings and indeed the learner must notice these affordances in order to leverage them for learning. However, such a narrow view ignores the role of the educator who, presumably, is also concerned with student learning. In classroom contexts, both the teacher and student examine the environment and look for opportunities that will benefit the learner. The teacher looks for meaningful ways to engage the learner, ways to make learning more salient, and ways to promote positive affect to encourage learning. Likewise, the learner is looking for ways to make meaning, ways to practice their emerging skills, and ways to regulate their own learning. Thus, with one common goal for the student to learn the language, the teacher and student are often acting in unison. In the present study, we attempt to illustrate how digital games, and more specifically the act of bringing digital games into the classroom, can act as a mediator for this common goal. The game itself can afford opportunities for action by both the teacher and student, action that can lead to and/or support positive language development.

Thus, in the present study we intend to provide a detailed account of the game design, the classroom implementation, and the teacher-student interactions around the game to illustrate the ecological affordances of bringing a digital game into the language classroom. In this study we do not explore the effect of individual game design mechanics on learning, rather we explore the impact of the intervention as a whole by exploring pre and post vocabulary and reading comprehension assessments as well as the opportunities that emerge for learning around the game. The present study is guided by the following research questions:

1. Do students who play the digital game show learning gains in vocabulary and/or reading comprehension, as measured by pre-and-post assessments?
2. Is completion of the supplemental material associated with learning gains?
3. What pedagogical affordances emerge when integrating the digital game into the classroom?

3. Methods

This study is part of a larger project that explores use of digital games as stealth assessments (Poole, 2020). It is important to note that this project is a collaboration between the first author and the primary teacher. The first author worked closely with the primary teacher in order to understand the learning needs of the DLI students. The first author then designed the game iteratively soliciting feedback from the teacher. The first author had spent a lot of time in the DLI classrooms and thus co-taught the class with the primary teacher. Both the first author and primary teacher introduced the intervention, helped troubleshoot technology problems, and provided support and feedback in Chinese while students played the game.

3.1 The Game: Legend of the Dragon

The game used in the present study is called *Legend of the Dragon (龙之传说)* and was designed and built by the lead author using *RPG Maker MV*. In this single-player role playing game, students take on the role of an adventurer who sets out on a quest to aid the last dragon in China. Along their quest, students meet non-player characters (NPCs) who provide information, present quests/tasks, and direct students towards the last dragon. The game world consists of five major Chinese cities (Beijing, Harbin, Shanghai, Chengdu, and Xi'an) and several fictional villages and dungeons placed in proximity to the cities. The game world was designed to resemble the geographic shape of China with cities located in their approximate real-world locations (see Figure 1).

All players start in Beijing and after completing the initial tutorial are given the quest to retrieve a book in Xi'an. Once players retrieve the book, they learn that the last dragon in China is sick and they need to find three components (dragon blood, dragon scales, and dragon bones) to concoct a potion that is believed to help the last dragon recover from the illness.

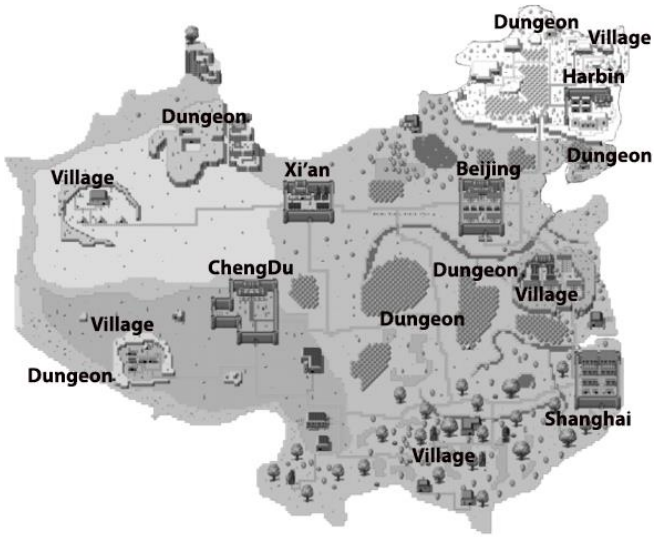

Figure 1. Over World Map of Legend of the Dragon

3.1.1 Dialogue

To complete quests and in-game tasks, players have a set of cards, items, and skills at their disposal. These in-game features include a language support mechanism in the form of a glossing system (W. Hong, 1997; Poole & Sung, 2016) that provides the Pinyin, a phonetic representation of Chinese characters. This particular DLI program had a strict policy against translating in the classroom and thus definitions were not provided in the glossing tool. Glossing tools have been shown to support reading fluency (Shen & Tsai, 2010; Xie & Tao, 2009) and improve reading comprehension (W. Hong 1997; J. Wang, 2009, 2012; J. Wang & Upton, 2012). The glossing system was implemented to support both vocabulary learning and reading comprehension. Further, past studies have shown that prompting learners to respond to in-game dialogue can promote positive metacognitive reading strategies (Poole et al, 2018).

Figure 2. Glossing Tool

3.1.2 Quests

The quests involve a variety of puzzles, pick-up/delivery tasks, and enemy battling/taming activities. For example, one of the first quests that a player is given (see figure 3) is to retrieve a sword for a weaponsmith. The sword is located in the weapon smith's home which is demarcated with a sign.

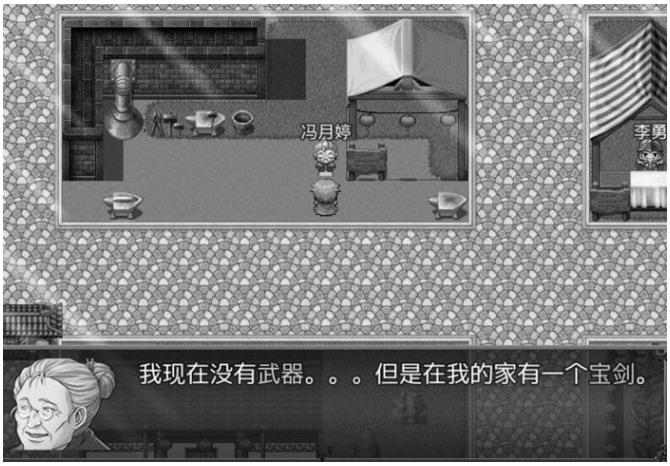

Figure 3. Sword Retrieval Quest

Players also must solve puzzles that utilize their language skills. For example, in the puzzle below students must read the text from a sign that indicates a sequence of colors and then activate the orbs in the correct order to open a gate.

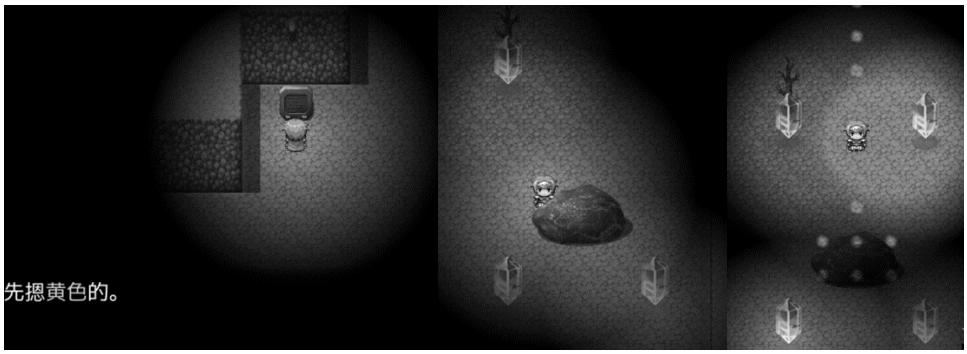

Figure 4. Sequencing Quest

In a similar puzzle the player must match the color of the boulder with the correct sign to open a gate to the final boss.

Figure 5. Matching Quest

Through a series of text-based dialogue that direct the players in the correct direction and mini-puzzles or language-based tasks, the player can complete the quest. These quests were designed to make the text meaningful and thus promote a learner's attention to what is being read.

3.1.3 Battle System

While exploring the game, players must navigate through several baddies spread throughout the fictional world. The baddies are one of 20 different animals, and each baddie has a special type of attack, strength, weakness, and preferred food. This information can be found on baddie cards that players collect by either defeating or taming a baddie. When players come into contact with a baddie, they have two options: battle or

tame. If they choose to tame a baddie, they can do so by giving the baddie it's preferred food. To battle a baddie, players again have two options: attack or summon a pet. All players have a base attack ability, but the base attack ability is very weak. Even when collecting swords, armor, and/or rings the players base attack is barely enough to defeat lower-level baddies. This was a conscious game design choice made to encourage the use of baddie cards which allow the player to summon a pet to fight by their side. However, it's important to note that players must collect at least five cards before they can learn the skills to summon a particular pet. Once the skill is learned they need a card each time they summon a pet. This was done to encourage the use of different pets. Rather than simply summon one pet every time, players would need to summon different pets as their cards became available. Further, certain pets' strengths are better when fighting baddies with similar weakness. This game mechanic was thought to encourage the students to read the information on the animals' cards to learn which pets should be summoned in certain battles. Thus, regardless of whether students engaged in battle or if they chose to tame a baddie, they would need information on the cards.

The design of this game relies heavily on principles associated with Focus on Form which suggests that L2 learners should be primarily focused on meaning while educators/designers use implicit strategies to draw attention to form (Long, 1997). To play the game, learners are required to process meaning to complete tasks, quests, and/or battle. However, the in-game glossing system, dialogue prompts, and input enhancements all help draw attention to targeted language forms.

3.2 Classroom Implementation

3.2.1 Supplemental Materials

Supplemental materials in the form of a paper-based workbook written in Chinese were specifically designed to promote character recognition, oral discussions around game items and places, and note-taking in terms of in-game exploits. The workbook provided two to three language activities for students to complete in the classroom. These language activities included a character writing task, which asked students to write commonly seen characters in the game three times. Past research has noted the positive effects of writing practice on character recognition skills (Guan, et al. 2011; Xu, Chang, Zhang, & Perfetti, 2013). A second task asked learners to match images to vocabulary words to further promote vocabulary learning. Finally, discussion questions asked learners to use the targeted vocabulary words to discuss features of the game (e.g., Where do you find the battle cards?), game items (e.g., What sword color does the most damage?), gameplay strategies (e.g., Which partner animal is best?), and quests (e.g., What quest does Sima qian give?). The workbook also contained a printed world map that students were encouraged to keep notes on. The workbooks were collected at the end of the project and were reviewed based on completion of exercises. Approximately 82% of the students completed the exercises in the workbook each day.

3.2.2 Teachers' Role and Classroom Implementation

During the integration of the game into the classroom, the researcher took on an instructor role, and the primary teacher of the class took on a support role during gaming sections. However, the primary teacher first introduced the project to their students then directed students into groups. This was done given the researcher's familiarity with the game and teaching with games. The primary teacher of this class was very much interested in teaching with games and thus also played an active role during the intervention. During gameplay both the researcher and teacher provided support while students played the game. On the day of the intervention, the researcher provided an overview of the tasks in the workbook. In the following weeks, students were able to complete most of the assigned workbook tasks without further support. In terms of gameplay, in the first week, the researcher and teacher both walked around the room, from group to group to provide technical and basic gameplay support while students played the game. In the following weeks, the researcher and teacher interacted with students while they played by answering student questions about the game, asking questions about player progress, providing hints, and reminding learners of quest tasks as they played. Due to IRB regulations, we were not able to use the teacher's data because we did not request consent as part of our original protocol. While the primary teacher did engage with the students, we were not able to use that data in this analysis. We also acknowledge the pedagogical implications of the researcher taking on an instructor role. As mentioned above, the researcher had already established a collaborative partnership with the primary teacher and the DLI program.

3.3 Research Design

3.3.1 Participants and Setting

This study took place in two sixth-grade Chinese DLI classrooms (19 and 21 students, respectively) located in a rural town in the western U.S. The school used stratified randomization with gender as a factor to assign students to each classroom at the beginning of the school year. Students ranged in age between 10 and 12 years old (mean = 11.05). There were complete data from 32 students. See Table 1.

Table 1. Students Included in Data Analysis

Class	$N_{students}$	Survey data
A	20 (10F, 10M)	20 Pre, 19 Post
B	16 (9F, 7M)	14 Pre, 15 Post
Total	36 (18F, 16M)	34 Pre, 34 Post

Note. Only 32 complete cases.

3.3.2 Procedures

On the Friday prior to gameplay, participants completed the paper-based pre-assessment. On the first day of gameplay, the participants were given a brief tutorial on how to play the game via whole-class demonstration. The classroom teacher then illustrated

how the game related to their current studies by telling the students that vocabulary in the game was primarily comprised of review words and that the game was similar to their current in-class readings about students who were traveling to China. Similarly, in the game the students would be going to China and could explore the same places that the characters in their books were visiting (e.g., Beijing, Xi'an, Chengdu).

Students played the game on MacBook laptops. In order to maintain a 1:1 computer to student ratio, the primary teacher divided the class into four groups of five students each. Each group contained a mixture of high and low proficiency learners (as identified by the primary teacher). Students played the game for 50 minutes (two 25-minute sessions) and completed supplemental materials for 50 minutes (two 25-minute sessions) per week over the course of a four-week period. Students were administered the paper-based post-assessment two days following the final game play session.

3.4 Data Collection

Data for the present study came from six sources: audio recordings of the classroom during gameplay, pre- and post-vocabulary assessments, and pre- and post-reading comprehension assessment, and student workbooks. While students played the game, audio recorders were used to capture in-class dialogue around the game. Audio recorders were placed at each of the four tables in both classes while students played the game and were collected for all eight sessions of game play. Informed consent was not obtained for the primary teacher of this class prior to the study; thus, only interactions between the researcher and learners were analyzed. This will be further discussed in the limitations section.

The pre- and post-vocabulary assessment consisted of 45 words out of 326 words that learners could potentially be exposed to via the glossing system while playing the game. These words were selected because they were both deemed important to the overall storyline in the game and relatively unknown to the students were added to the assessments. On the vocabulary assessments, learners were prompted to enter the pinyin and the English translation for a given word. These assessments were scored by awarding 1 point for correct pinyin, and 1 point for correct English definitions. Half points were awarded for partial answers. For example, if a learner correctly identified the correct pinyin or English for one of the characters but not both, half points were awarded. Awarding partial points for vocabulary knowledge was viewed as valuable given past research that has noted the non-linear trajectory and partial accumulation of vocabulary knowledge that occurs through incidental learning while reading L2 texts (Pigada & Schmitt, 2006).

The reading comprehension assessment was adapted from the Youth Chinese Test (YCT) (http://english.hanban.org/ node_8001.htm), an official Chinese proficiency assessment developed by the Confucius Institute and used regularly by the Chinese DLI program that served as the context for the present study. The assessment consisted of 10 items. Although the format of the assessment was adapted to reflect the YCT, the content was adapted to reflect text that the learners might see in the game. To reduce the priming effect on the reading comprehension assessments, items were randomized in both the pre-

and post-assessments. Further, although the sentence structures remained the same, key vocabulary words, and thus the answers, changed from pre- to post-assessments.

4. Data Analysis

4.1 Quantitative Data

To answer the first research question which investigates whether learning occurred during the intervention, paired samples *t* tests were used to compare pre- and post-vocabulary and reading comprehension scores. There were no outliers in the difference scores for the reading comprehension assessments or the vocabulary assessments. The distributions of the difference scores for both assessments also satisfied the normality assumption as assessed by the Shapiro-Wilk test. Cohen's d, a standardized measure of the differences between the means, was used to calculate the effect size.

The second research question investigates the role of the workbook as scaffolding to support learning. To do this, students were given a score from 0 to 2 to indicate if they completed the workbook tasks for each associated day. 0 was given for no work done, 1 was given for partial completion, and 2 was given for workbooks that were completed. A correlation coefficient was computed to determine if there was a relationship between workbook scores and the reading and vocabulary gain scores. To further explore this relationship and control for learner proficiency, a simple stepwise regression with student pre-scores as the covariate was conducted. Again, there were no violations of assumptions of normality, linearity, multicollinearity, and homoscedasticity.

4.2 Qualitative Data

The third research question explores the affordances that emerge during game play. Similar to Thoms (2014), *affordance* is defined as any "discursive move (or series of moves) involving a teacher and/or a student" (p.729) that emerges while students engage with the digital game. These are opportunities to act within the language classroom that are perceived and acted upon by either the teacher or student during gameplay.

To explore affordances that emerge during gameplay, multiple rounds of coding utterances involving discursive moves between the researcher and students were conducted. First, a round of open coding was conducted by the first two authors to identify patterns, themes, and categories in the data (Saldaña, 2015; Strauss & Corbin, 1998). In the second cycle of coding, axial coding was employed (Patton, 2014; Strauss & Corbin, 1998) to focus on organizing the codes into categories that best explained the types of affordances identified. This round of coding involved iterative cycles of review and revision to achieve saturation of categories. At the end of this second cycle, ten codes were organized into seven categories.

In order to conduct inter-coder reliability, an additional person, a native Chinese speaker who has worked with the primary teacher and participants and has taken graduate courses in qualitative methods, also coded the data. Prior to coding, the first author

provided this additional coder with the code book (see Table 2). Then, they discussed the data, codes, and definitions and how to code.

Table 2. Code Book: Description and Example of Affordances

Affordance	Description	Example
Quest Management	Direct learners towards to the next quest or next part of a quest.	但是你先得把地图还给那个人。 [[But you need to take the map back to this person first.]]
Battle strategy Discussion	Discuss strategies related to winning a battle.	你不应该用猴子，应该用蝙蝠。 [[You shouldn't use the monkey, you should use the bat.]]
Encouragement	Encourages a player to explore the game or read a text on their own.	这个书很重要，你必须看懂了，才知道下一步是什么 [[This book is really important, you have to understand to be able to move on to the next part.]]
Technology Support	Shows player how to play the game or helps with a technical problem related to the game.	你得保存. [[You must save the game.]]
Confirmations	Confirms a question or belief about the game.	猪，对，你要抓三只猪。 [[Pig, Right, You need to catch three.]]
Meaningful Communication	Discuss current status of the game, object in the game, and/or results of an event in the game.	他马上要赢了。他很快就赢了。 [[He's going to win, soon, he'll win!]]
Linguistic Support	Helps student read a text or provides a translation to a word.	战斗，战斗就是打仗。 [[Battle, battle is just like fighting.]]

After receiving training, the coder was provided with 20% of the utterances to code. Cohen's κ =.74, indicating a "moderate" level of agreement (McHugh, 2012). Any discrepancies between the codes were then discussed between the two coders and applied to the remaining utterances.

5. Results

To answer the first research question, pre- and post-assessment scores for both the vocabulary and reading comprehension measures were compared using *t* tests, see Table 5.

Students reported significantly higher vocabulary scores on the post-assessment (M = 27.95, SD = 17.97) than on the pre-assessment (M = 18.31, SD = 14.38), which indicated that significant growth did occur as a result of the intervention, $t(31) = 9.99$, $p < .001$).

Table 5. Learning Measures

	Pre				Post					
Measures	*M*	Med	*SD*	*n*	*M*	Med	*SD*	*n*	*t* test	Cohen's D
Vocabulary	18.31	16.00	14.38	32	27.95	23.50	17.97	32	9.99***	0.45
Reading comprehension	3.41	3.00	2.56	32	4.72	4.50	2.43	32	3.22**	0.54

Note. Vocabulary Scale from 0-90. Reading scale 1-10. Both effect sizes are medium.
** $p < .01$. *** $p < .001$.

The effect size was .45, a medium effect size for educational interventions such as this one. In other words, after eight 25-minute gaming sessions along with supplemental workbooks, the students in this sample gained, on average, about 10 points of vocabulary knowledge. This translates roughly into a five-word increase.

Similarly, students reported significantly higher reading comprehension scores on the post-assessment (M = 4.72, SD = 2.43) compared to the pre-assessment (M = 3.41, SD = 2.56), indicating that students' reading comprehension also increased significantly, $t(31)=3.22$, $p < .01$). The effect size was .54, a medium effect size. Students in this sample gained, on average, slightly more than 1 point on the reading comprehension assessment after the intervention. These findings will be further contextualized in the discussion section.

Next, to determine if completion of the workbook was associated with vocabulary learning or reading comprehension gains, scores derived from workbook completion were positively correlated with both gain scores. There was not a significant correlation between workbook completion and vocabulary gains R=0.28 (t=1.61, df=30, p-value = 0.12). Similarly, when controlling for pre-vocabulary test scores, the workbook was still not significantly associated with vocabulary gains.

However, workbook completion was significantly associated with gains on the reading comprehension test R=.40 (t=2.44, df=31, p-value=0.02). When controlling for pre-reading comprehension test scores, workbook completion was associated with higher gains on the reading comprehension test (See Table 6). A one-unit increase in workbook completion was associated with a .651 increase in reading comprehension scores.

Table 6. Stepwise Regression for Scaffolding Effect on Reading Comprehension Gains

	Reading Comprehension Gains	
Pre-Reading Comprehension Scores	-0.520** (-0.809,-0.232)	-0.637*** (-0.870,-0.404)
Scaffolding (Workbook)		0.615*** (0.345, 0.886)
Constant	2.932*** (1.711, 4.153)	-2.748 (-5.424, -0.071)
Model Fit (ChiSq		0.000***
Observations	33	33
R^2	0.287	0.571
Adjusted R^2	0.264	0.543
Residual Std. Error	2.103 (df = 31)	1.658 (df = 30)
F Statistic	12.483** (df = 1; 31)	19.976*** (df = 2; 30)

Note: * p <0.05; **p<0.01, ***p<0.001

Finally, the third research question was answered by analyzing the interactions between the researcher and students during gameplay sessions. After coding the data, seven types of affordances were identified during the four weeks of gameplay. Recall that affordances in the context of this study are discursive moves between the researcher and student that emerge as a result of playing the digital game in a classroom setting. Table 7 provides an overview of the frequency and percentages of the categories identified in this study. A description of the affordances and examples are provided below.

Table 7. Types of Support Provided during Gameplay

Affordances	Frequency	%
Quest Management	98	28.1
Battle Strategy Discussion	71	20.3
Meaningful Communication	70	20.1
Encouragement	53	15.2
Technology Support	53	15.2
Confirmations	23	6.6
Linguistic Support	13	3.7
Total Utterances	348	

Note. Some utterances contained multiple codes and thus the total utterances do not reflect the total number of codes.

5.1 Quest Management

The most frequent type of affordances was *Quest Management*. This affordance involved the researcher prompting students to start a quest, directing them to the next part

of a quest, or reminding them of their progress in a quest. It emerged either by the student asking what they should do next or by the researcher noticing that a student was struggling. In the example below, a student was collecting items in the starting city and picked up a flower. This student wanted to know what the flower did.

Student: 它会做什么？ [[What does this do?]]

Researcher: 你问这个人在下面，你问这个人她会告诉你它会做什么. [[Ask this person down here, you ask this person, and she will tell you what it does.]]

The researcher took this opportunity to direct the student towards the start of a quest in the tutorial. The flower that was being collected by the student was an item that was required to complete a quest. Note that because the game was brought into the classroom, this afforded an opportunity for both the student to request support and for the researcher to direct the learner towards the student's in-game goal.

5.2 Battle Strategy Discussion

The second most frequent affordance came in the form of *Battle Strategy Discussions*. These were instances when the students either wanted to discuss strategies for winning a battle, or if the student was about to lose a battle and the researcher provided a hint or insight. For example, when walking by a student, the researcher noticed that the student was about to lose a battle to a spider that was a much higher level than the student's character.

Researcher: 你死了？[[Did you die?]]

Student: Yeah.

Researcher: 他喜欢吃虫子。你有虫子吗？[[He likes to eat bugs. Do you have bugs?]]

Student: 没有 [[No, I don't have any.]]

Researcher：他很厉害，你不应该跟他打 [[He's strong. You shouldn't fight with that one yet.]]

Here the researcher leveraged this opportunity and provided a hint that spiders like to eat bugs, so that next time when the student encounters the spider, she can feed it bugs rather than engage in battle. The researcher reminded the student that she should fight with lower-level baddies. This affordance provided an opportunity for meaningful exchanges around the game as these discussions targeted the common goal between teacher and learner within the game.

5.3 Talk Around the Game

This affordance included moments when the researcher was asking about either current progress or activities that a student was engaging in while playing the game or comments about the status of the game. Comments about the game included talking about items that the learners acquired, character levels, or the results of battles (e.g., 你真厉害 [[You're awesome!]]. For example, on the last day of the study, one student figured out that purple items were the best items in the game, but this particular student was unable to find the purple sword. While searching in Chengdu, this student loudly notified the researcher that the purple sword was not there.

> Student: 他们没有 [[They don't have it here.]]
>
> Researcher：这个就关门了， 你去西安。 西安应该有。[[That one is closed. Go to Xi'an. Xi'an should have it.]]
>
> Student：但是他们没有紫色的 [[But they don't have the purple one.]]
>
> Researcher：就是那儿，应该有。对不起，哈尔滨有， 我忘了。 [[It is there, they should have it. Oh sorry, it's in Harbin, I forgot.]]

As the student continued to search for the sword, the researcher started making suggestions on where the sword might be and first suggests Xi'an. The student remembered that it was not there, this prompted the researcher to suggest Harbin. Again, similar to the first two affordances, discussions around the game provided opportunities for meaningful communication that is contextualized within the game.

5.4 Encouragement

The *Encouragement* affordance occurred when the researcher simply suggested that the students carefully read a text or explore a part of the game. This happened when the researcher felt that a particular text was really important. For example, one student was confused about what she should do next and asked the researcher for help. Upon further investigation, the researcher discovered that the student had acquired the Dragon book, which sets up much of the story, but had not opened it. So, the researcher helped the student open the book and then encouraged her to carefully read what was inside.

> Researcher: 所以你现在，你看这，你有龙之书，你要看他，好好看。 [[So now, you have to read this, you have the Dragon Book, you have to read it. Carefully read it.]]

It is not uncommon for some players to skip text in order to progress more quickly through games. Bringing a game into the classroom and using it as part of instruction creates opportunities to encourage closer reading of in-game texts.

5.5 Technology Support

The technology affordance involved moments when either the student had a problem with the user interface or a student needed help with the game controls. For example, in the first few game sessions there were questions about saving the game, how to use the cards, access the control menu, how to "put on" equipment in game, and how to look up vocabulary with the glossing system. This led to the researcher showing students how to restart the game, point out where things were in the menu, or simply telling the student to use the "control" key to look up an unknown word.

5.6 Confirmations

This affordance includes moments when students wanted confirmation about what they were doing. For example, one of the quests in the game has students rearrange a set of tombstones to collect a prize. In the dialogue the word tombstone is glossed, thus provides pinyin for the student. The student did not know this word before playing, but given the context of the game, wanted to confirm that the three tombstones in the game were in fact tombstones. The student first asked his classmates, and then confirmed with the researcher.

> Student: 这个是墓碑？ [[This is a tombstone?]]
>
> Researcher: 是的，这三个都是墓碑 [[Yes, those three are all tombstones.]]

This is another example of an affordance associated with bringing games into the classroom. Here the student leverages multiple support features (e.g., peers and teacher) from within the classroom to confirm a hunch.

5.7 Linguistic

The linguistic affordance was the least frequent affordance identified. This came when students had direct questions about unknown words. These were usually words that were a part of the game rather than part of the students' in-class vocabulary. For example, one student asked what 战斗 [[*Battle*]] meant, to which the researcher said, 战斗，战斗就是打仗。 [[Battle, battle is the same as fight]]. Similarly, another student wanted to know what 蝎子 [[scorpion]] was, to which the researcher said, 蝎子是，看，它的尾巴。 [[Scorpion is, here look, it's tail is …]] while mimicking a scorpion's tail with his hands. The implications for these findings will be further discussed in the following section.

6. Discussion

While the L2 field has seen an increase in studies on games and L2 learning, there are very few studies that focus on what it means to integrate games into L2 classroom instruction. There are even fewer studies that look at L2 games that target Chinese in

elementary classrooms. In the present study, the lead author first designed a game to promote Chinese reading comprehension and vocabulary learning in sixth grade DLI classrooms and then integrated it into the classroom in collaboration with the primary teacher.

The first research question explored whether or not students learned by interacting with the game and supplemental activities in the classroom. The results indicated that students had significant gains in vocabulary after participating in the project. On average, students gained approximately 10 points on the vocabulary knowledge assessment which roughly translates to five words. While five new words in this study may not seem like a large gain over the course of four weeks, these were similar to other studies exploring vocabulary gains in an educational game. For example, Chen and Yang (2013) found a significant increase in vocabulary knowledge after 1.5 hours of gameplay and notetaking. The significant difference was equivalent to a gain of two new words. In another example, Alyaz and Genc (2016) allowed preservice teachers to play an educational game for the last part of class for 8 weeks. They also reported significant vocabulary gains equivalent to 5 learned words over the 8-week period. It should be noted that both of these studies were working with adult learners of English as a second language. In addition, students in the present study were only assessed on 45 vocabulary words. Given that students were potentially exposed to 326 new words in the glossing system during the 4-week intervention, they may have learned words that were not among the 45 assessed.

Additionally, students in the present study were not specifically told to focus on vocabulary learning while playing the game as was done in other studies investigating Chinese vocabulary learning in a digital environment (e.g., Hsiao et al., 2017; Lan et al., 2015). Thus, the increases in vocabulary knowledge can be seen as being learned incidentally, or as "a by-product, not the target, of the main cognitive activity" (Huckin & Coady, 1999, p. 182). Incidental vocabulary learning that occurs in reading has been argued to be a better approach for increasing vocabulary knowledge because the words are contextualized in text and learners have the opportunity to improve reading skills while learning vocabulary (Huckin & Coady, 1999; Krashen, 2004). However, tracking incidental vocabulary learning while students read a text can be difficult given that learners often report gains in partial knowledge of a word (Horst, 2005; Pigada & Schmitt, 2006), much like in the present study.

In addition to increases in vocabulary, the present study also found significant increases in reading comprehension scores. On average, students scored approximately 1.3 points higher on the post-assessment than on the pre-assessment and a medium effect (Cohen's D) was found for this increase. This is likely due to the sheer amount of exposure to texts that students had during this intervention. On average, students were exposed to 549.5 texts in eight 25-minute gaming sessions (Poole, 2020). Dourda et al. (2014) also integrated a game into the classroom context and while they did not measure reading comprehension on pre- and post-assessments, they did conduct classroom observations and noted that repeated exposure to large amounts of in-game texts led students to employ a variety of reading strategies, which improved their reading skills over the course of the 8-week project.

The second research question explored the effect of completing a workbook that was designed to complement gameplay. Results indicated that workbook completion was not associated with vocabulary learning in the game but was associated with reading comprehension gains. In terms of vocabulary gains, this finding is different from other studies that found that additional support outside of the game was beneficial for vocabulary learning (Franciosi, et al., 2016; Hitosugi, et al., 2014). A possible reason why the present study did not find a relationship between complementary activities and vocabulary gains may be because the game itself provides vocabulary support via glossing system. In other words, learners who did not complete the workbook may have similar vocabulary gains with those who did, because they took advantage of the glossing system in the game. The workbook may have promoted reading comprehension gains because it provided learners with a space to record their progress on quests. These opportunities to reflect and journal about their gaming experiences may have led to more interest and motivation to read dialogue in the main quest, however more research is needed to confirm these conjectures.

Finally, the third research question explored affordances that emerged when integrating a digital game into a DLI classroom. By exploring the integration of a digital game into a classroom context from an ecological perspective, the focus shifts towards how the introduction of a game into the classroom setting provides opportunities to act that support and/or promote learning. It is not enough to simply report on learning in games, instead the goal is to understand what affordances, or opportunities to act and engage in the content, emerge when the game is integrated into the environment. Further this perspective provides an expanded view on the potential use of games in L2 education. Rather than viewing games as a challenge in design, an ecological perspective explores how both instructors and learners leverage the game to provide opportunities to engage in teaching and learning.

The present study identified seven affordances that emerged while students played a digital game in the classroom. These affordances can be broadly parsed into two categories: game literacy and language support. Students who demonstrate strong game literacy "are able to recognize the game's rules and generate strategies to meet the goal of the game" (Hsu & Wang, 2010, p. 407). This first category includes *Quest Management*, *Battle Strategies*, and *Technical* affordances which involve help and discussion around learning game mechanics. On one hand, these affordances could indicate a lack of gaming experience by the players. In a review on using games for vocabulary learning, Yudintseva (2015) argues that players need scaffolding to learn new game mechanics and cultural norms in-games. On the other hand, for game designers, these affordances could indicate poor game design that did not allow players to learn on their own through in-game scaffolding. However, from an ecological perspective, it can be argued that these affordances provided opportunities for meaningful discussions around the game in Chinese. In other words, by playing the game in the classroom, students were afforded an authentic context for meaningful L2 speaking practice. Not captured in this study were the conversations between peers around the game as well. If games are designed to be stand-alone learning tools, in which players do not need support or simply engage in solo-play, these opportunities for rich L2 interactions will be lost.

The second category of affordances refer to generic L2 supports and includes *encouragement, confirmations, talk around the game, and linguistic affordances.* The encouragement affordance pushed learners to read on their own and focus on important texts. Confirmations allowed for quick reassurances that a player was on a correct path or understood a text. Similarly, linguistic affordances allowed players to gain quick access to vocabulary knowledge and then to return to the text and in some cases linguistic affordances allowed for additional discussion around a word. Finally, the *talk around the game* allowed learners and teachers to use the game as a mediator for discussion (Poole et al., 2019). Teachers were able to point to different parts of the game or the student's character in the game and make a simple comment that sometimes led to a further discussion. Likewise, learners often pointed to their own characters and games to highlight a new item or place that they found. In summary, these affordances provided further opportunities for L2 vocabulary, reading, and oral language learning.

There are several limitations that are associated with this study. First, although both the researcher and teacher engaged with students during this intervention, only support from the researcher was transcribed and analyzed. As noted above, the researcher functioned as an instructor who is very familiar with the game given his role as designer and developer of the game. Future research should explore how teachers, who may not be gamers or have insider knowledge of the game, interact with learners when playing L2 games and how such interactions afford new opportunities for learning and engaging with the L2. Second, only audio data was collected and thus it was difficult to identify specific students associated with each teacher support utterance. Thus, it may be that certain affordances only emerged as a result of student differences. For instance, there were some students that never requested help within the game. Additionally, it should also be noted that some audio was incomprehensible. When this occurred, a second audio recorder was checked for clarity. However, there were some researcher-student interactions that were not captured. Finally, there was no control group or delayed-post assessment in this study, thus the generalizability of the results is limited, and it is unclear how long the learning gains were retained.

7. Conclusion

Research on games in L2 contexts has suggested that learners need additional support to develop their language knowledge and skills via gaming. However, few studies have explored how educators can/should integrate games into a classroom context where this support may be given. For digital games to reach their full potential as an educational tool, it is imperative that researchers continue to explore ways to integrate them into the classroom and further how teachers can leverage games to enhance L2 instruction. In the present study, we do not attempt to parse out the specific role of the game in relation to learning. Instead, we explore how integrating the game into the classroom allows for the teacher to design activities and interact with the students around the game in unique ways. It is likely a combination of the game design and the affordances that emerged within the classroom that led to learning gains in this study. The affordances that emerged were coded into seven categories and then more broadly into gaming literacy and linguistic supports. These affordances further provided Chinese language learners with an opportunity to use

their oral language skills in a meaningful way while also continuing to develop their vocabulary and literacy skills in a contextualized, task driven approach within the game. These dynamic and integrated learning environments are imperative for Chinese DLI learners who are expected to develop both subject content knowledge as well as language skills. By providing details on the game, in-class tasks, and instructor-student interactions, this study provides a model for how teachers may use games to create rich learning environments for Chinese DLI learners.

Further, studies should explore how positioning games within a curriculum or leveraging in-game content to reinforce content taught outside of the game affects learning. Finally, from an ecological perspective it should be explored how affordances identified in this study differ from the integration of another media source. In other words, were these affordances simply the result of teacher mediation or is there something inherently different about digital games that allow for the interactions that were identified in this study.

References

ACTFL. (2012). *ACTFL performance descriptors for language learners 2012 edition*. American Council on the Teaching of Foreign Languages

Allen, J. R. (2008). Why learning to write Chinese is a waste of time: A modest proposal. *Foreign Language Annals*, *41*(2), 237-251.

Alyaz, Y., & Genc, Z. S. (2016). Digital game-based language learning in foreign language teacher education. *Turkish Online Journal of Distance Education, 17*(4). 130-146.

Ang, C. S., & Zaphiris, P. (2006). Developing enjoyable second language learning software tools: A computer game paradigm. In P. Zaphiris & G. Zacharia (Eds.), *User-centered computer aided language learning* (pp. 1-22). Idea Group.

Ansteeg, L. W. (2015). Incidental lexicon acquisition through playful interaction. *International Journal of Emerging Technologies in Learning (iJET), 10*(1). 4-10.

Baltra, A. (1990). Language learning through computer adventure games. *Simulation & Gaming*, *21*(4), 445-452.

Bronfenbrenner, U. (1979). *The ecology of human development*. Harvard University Press.

Burkhauser, S., Steele, J. L., Li, J., Slater, R. O., Bacon, M., & Miller, T. (2016). Partner-language learning trajectories in dual-language immersion: Evidence from an urban district. *Foreign Language Annals*, *49*(3), 415-433.

deHaan, J. (2019). Teaching language and literacy with games: What? How? Why? *Ludic Language Pedagogy* (1), 1-57.

Cobb, T., & Horst, M. (2011). Does word coach coach words? *CALICO Journal, 28*(3), 639-661.

Dalton, G., & Devitt, A. (2016). Irish in 3D world: Engaging primary school children. *Language Learning & Technology, 20*(1), 21-33.

De Grove, F., Van Looy, J., & Mechant, P. (2013). Learning to Play, Playing to Learn: Comparing the Experiences of Adult Foreign Language Learners with Off-the-

Shelf and Specialized Games for Learning German. *International Journal of Game-Based Learning (IJGBL)*, *3*(2), 22-35.

Douglas Fir Group. (2016). A transdisciplinary framework for SLA in a multilingual world. *The Modern Language Journal*, *100*(S1), 19-47.

Dourda, K., Bratitsis, T., Griva, E., & Papadopoulou, P. (2014). Content and language integrated learning through an online game in primary school: A case study. *Electronic Journal of e-Learning*, *12*(3), 243-258.

Egenfeldt-Nielsen, S. (2007). *Beyond edutainment: The educational potential of computer games.* Continuum Press.

Franciosi, S. J., Yagi, J., Tomoshige, Y., & Ye, S. (2016). The effect of a simple simulation game on long-term vocabulary retention. *CALICO Journal*, *33*(3), 355-379.

Gee, J. P. (2007). *Good video games and good learning: Collected essays on video games, learning, and literacy.* Peter Lang International Academic Publishers.

Gibson, J. (1979). *The ecological approach to visual perception*. Lawrence Erlbaum.

Guan, C. Q., Liu, Y., Chan, D. H. L., Ye, F., & Perfetti, C. A. (2011). Writing strengthens orthography and alphabetic-coding strengthens phonology in learning to read Chinese. *Journal of Educational Psychology*, *103*(3), 509-522.

Hitosugi, C. I., Schmidt, M., & Hayashi, K. (2014). Digital game-based learning (DGBL) in the L2 classroom: The impact of the UN's off-the-shelf videogame, Food Force, on learner affect and vocabulary retention. *CALICO Journal*, *31*(1), 19-39.

Hong, W. (1997). Multimedia computer-assisted reading in business Chinese. *Foreign Language Annals*, 30(3), 335-344.

Horst, M. (2005). Learning L2 vocabulary through extensive reading: A measurement study. *Canadian Modern Language Review*, *61*(3), 355-382.

Hsiao, I. Y. T., Lan, Y.-J., & Kao C.-L., & Li, P. (2017). Visualization analytics for second language vocabulary learning in virtual worlds. *Educational Technology & Society*, 20 (2), 161–175.

Hubbard, P. (1991). Evaluating computer games for language learning. *Simulation & Gaming*, *22*(2), 220-223.

Huckin, T., & Coady, J. (1999). Incidental vocabulary acquisition in a second language. *Studies in Second Language Acquisition*, *21*(2), 181-193.

Hsu, H. Y., & Wang, S. K. (2010). Using gaming literacies to cultivate new literacies. *Simulation & Gaming*, *41*(3), 400-417.

Ibrahim, K. (2017). The impact of ecological factors on game-based L2 practice and learning. *Foreign Language Annals*, *50*(3), 533-546.

Jin, L. (2018). Digital affordances on WeChat: Learning Chinese as a second language. *Computer Assisted Language Learning*, *31*(1-2), 27-52.

Kramsch, C. (2003) Identity, role and voice in cross-cultural (mis)communication. In J. House, G. Kasper, & S. Ross (Eds.), Misunderstandings in *Social life: Discourse approaches to problematic Talk* (pp. 129-153). Longman.

Kramsch, C., & Steffensen, S. V. (2008). Ecological perspectives on second language acquisition and socialization. *Encyclopedia of language and education*, *8*, 17-28.

Krashen, S. D. (2004). *The power of reading: Insights from the research: Insights from the research*. ABC-CLIO.

Lan, Y. J., Fang, S. Y., Legault, J., & Li, P. (2015). Second language acquisition of Mandarin Chinese vocabulary: Context of learning effects. *Educational Technology Research and Development, 63*(5), 671-690.

Lim, C. P. (2008). Global citizenship education, school curriculum and games: Learning Mathematics, English and Science as a global citizen. *Computers & Education, 51*(3), 1073-1093.

Liu, Q., & Chao, C. C. (2018). CALL from an ecological perspective: How a teacher perceives affordance and fosters learner agency in a technology-mediated language classroom. *ReCALL, 30*(1), 68-87.

Long, M. (1997). *Focus on form in task-based teaching*. McGraw Hill. https://woucentral.weebly.com/uploads/7/4/6/9/7469707/long_1997_intro_focus_on_form.pdf

McGraw, I., Yoshimoto, B., & Seneff, S. (2009). Speech-enabled card games for incidental vocabulary acquisition in a foreign language. *Speech Communication, 51*(10), 1006-1023.

McHugh, M. L. (2012). Interrater reliability: the kappa statistic. *Biochemia Medica, 22*(3), 276-282.

Müller, A. (2012). Improving the identification of medication names by increasing phonological awareness via a language-teaching computer game (Medicina). In S. Arnab, I. Dunwell & K. Debattista (Eds.), *Serious games for healthcare: Applications and implications* (pp. 283-295). ICI Global.

Patton, M. Q. (2014). *Qualitative research & evaluation methods: Integrating theory and practice*. Sage.

Peterson, M. (2011). Digital gaming and second language development: Japanese learners interactions in a MMORPG. *Digital Culture & Educ*ation, *3*(1), 56-73.

Pigada, M., & Schmitt, N. (2006). Vocabulary acquisition from extensive reading: A case study. *Reading in a Foreign Language,* 18(1), 1-28.

Peng, W., Song, H., Kim, J., & Day, T. (2016). The influence of task demand and social categorization diversity on performance and enjoyment in a language learning game. *Computers & Education, 95*, 285-295.

Poole, F. J. (2020). *Developing and validating stealth assessments for an educational game to assess young dual language immersion learners' reading comprehensi*on. All Graduate Theses and Dissertations. https://digitalcommons.usu.edu/etd/7900

Poole, F., Clarke-Midura, J., Sun, C., & Lam, K. (2019). Exploring the pedagogical affordances of a collaborative board game in a dual language immersion classroom. *Foreign Language Annals, 52*(4), 753-775.

Poole, F., Franco, J., & Clarke-Midura, J. (2018). Developing a personalized, educational gaming experience for young Chinese DLI learners: A design-based approach. In R. Zheng (Ed.), *Digital technologies and instructional design for personalized learning* (pp. 253-274). IGI Global

Poole, F., & Sung, K. (2015). Three approaches to beginning Chinese instruction and their effects on oral development and character recognition. *Eurasian Journal of Applied Linguistics, 1*(1), 59-75.

Poole, F., & Sung, K. (2016). A preliminary study on the effects of an E-gloss tool on incidental vocabulary learning when reading Chinese as a foreign language. *Journal of Chinese Language Teachers Association*. 51(3), 266–285.

Rama, P. S., Black, R. W., Van Es, E., & Warschauer, M. (2012). Affordances for second language learning in World of Warcraft. *ReCALL. 24*(3), 322.

Saldaña, J. (2015). *The coding manual for qualitative researchers*. Sage.

Shen, H. (2013). Chinese L2 literacy development: Cognitive characteristics, learning strategies, and pedagogical interventions. *Language and Linguistics Compass, 7*(7), 371-387.

Shen, H., & Tsai, C. H. (2010). A web-based extensive reading program and its assessment system. *Journal of the Chinese Language Teachers Association.* 4*5*(2), 19-47.

Shen, H. H., Zhou, Y., & Gao, G. (2020). Oral Reading Miscues and Reading Comprehension by Chinese L2 Learners. *Reading in a Foreign Language, 32*(2). 143-168.

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research techniques*. Sage.

Suh, S., Kim, S. W., & Kim, N. J. (2010). Effectiveness of MMORPG-based instruction in elementary English education in Korea. *Journal of Computer Assisted Learning, 26*(5), 370-378.

The R Foundation. (2017) *R: A language and environment for statistical computing*. https://www.R-project.org/

Thoms, J. J. (2014). An ecological view of whole-class discussions in a second language literature classroom: Teacher reformulations as affordances for learning. *The Modern Language Journal, 98*(3), 724-741.

Thoms, J. J., & Poole, F. (2017). Investigating linguistic, literary, and social affordances of L2 collaborative reading. *Language Learning & Technology, 21*(2), 139-156.

Thorne, S. L., Fischer, I., & Lu, X. (2012). The semiotic ecology and linguistic complexity of an online game world. *ReCALL*. 3, 279-301.

van Lier, L. (2004). *The ecology and semiotics of language learning: A sociocultural perspective*. Kluwer Academic Publishers.

Wang, J. (2009). Electronic strategies to improve Chinese reading skills. In R. D. C. V. Marriott & P. L. Torres (Eds). *Handbook of research on e-learning methodologies for language acquisition* (pp. 237-252). Information Science Reference.

Wang, J., & Upton, T. (2012). The impact of using a pop-up dictionary on the reading process of beginning learners of Chinese. *Journal of Chinese Language Teachers Association, 41*(1), 23-41.

Watzinger-Tharp, J., Rubio, F., & Tharp, D. S. (2018). Linguistic performance of dual language immersion students. *Foreign Language Annals, 51*(3), 575-595.

Wu, T. T., & Huang, Y. M. (2017). A Mobile Game-Based English Vocabulary Practice System Based on Portfolio Analysis. *Journal of Educational Technology & Society*, 20(2), 265-277.

Xie, T., & Yao, T. (2009). Technology in Chinese language teaching and learning. In M. Everson & Y. Xiao (Eds.), *Teaching Chinese as a foreign language* (pp. 151-172). Cheng & Tsui.

Xu, Y., Chang, L. Y., Zhang, J., & Perfetti, C. A. (2013). Reading, writing, and animation in character learning in Chinese as a foreign language. *Foreign Language Annals, 46*(3), 423-444.

Yudintseva, A. (2015). Synthesis of research on video games for the four second language skills and vocabulary practice. *Open Journal of Social Sciences*, *3,* 81-98.

York, J. (2020). Pedagogical considerations for teaching with games: Improving oral proficiency with self-transcription, task repetition, and online video analysis. *Ludic Language Pedagogy,* (2), 225-255.

York, J., Poole, F. J., & DeHaan, J. W. (2021). Playing a new game—An argument for a teacher-focused field around games and play in language education. *Foreign Language Annals, 54*(4), 1164-1188.

Zheng, D., Newgarden, K, & Young, M.F. (2012). Multimodal analysis of language learning in World of Warcraft play: Languaging as values-realizing. *ReCALL*, *24*(3), 339-360.

STARTALK eTower: 一个有效提高学习者能力以及学习自主性的开放式教育资源
(STARTALK eTower: An Effective OER to Promote Chinese Language Proficiency and Learner Autonomy)

谭大立
(Tan, Dali)
北弗吉尼亚社区学院
(Northern Virginia Community College)
dtan@nvcc.edu

吴雷
(Wu, Lei)
佛罗里达国际大学
(Florida International University)
lwu020@fiu.edu

黄瑞
(Huang, Rui)
斯坦福大学
(Stanford University)
hr022190@stanford.edu

王真
(Wang, Zhen)
布兰迪斯大学
(Brandeis University)
zhenw@brandeis.edu

摘要：本文以 STARTALK eTower 为例，介绍了开放式教育资源的概念。STARTALK eTower 具有多种优势：多终端学习体验，基于美国外语教学委员会“面向世界的语言学习标准”的设计，致力于语用能力与文化素养的发展，有意识加强学习者学习策略以及自主性等等。学习者只要有电子设备和英特网，就可以随时随地登录 eTower 网站学习中文，体验中国文化，提升读写能力。本文介绍了在美国不同地区 K-16 任教的四位一线教师使用 STARTALK eTower 设计的线上线下教学活动、学习任务、评估方式，并分享了一些学生作品样本。另外，本文还给师生们提供了充分使用 eTower 的建议和注意事项。

Abstract: This paper introduces the concept of Open Educational Resources (OER), taking STARTALK eTower as an example. STARTALK eTower has unique advantages such as accessibility via multiple kinds of devices, a design based on ACTFL “World-Readiness Standards for Learning Languages”, a commitment to language proficiency and cultural competency development, and a conscious effort to strengthen learners' learning autonomy. As long as learners have an electronic device and access to the Internet, they can use the eTower website to learn Chinese, experience Chinese culture, and improve their Chinese literacy anytime and anywhere. This article introduces the online and offline eTower-based teaching activities, learning tasks, and assessments designed by four classroom teachers who teach Chinese at K-16 levels in different regions of

the United States. Additionally, the article shares some student work samples, provides advice and offers suggestions for teachers and students to fully utilize the STARTALK eTower.

关键词：开放教育资源、中文水平、远程教学、学习自主性

Keywords: OER (Open Educational Resources), Chinese proficiency, remote instruction, learner autonomy

2020 年伊始，一场席卷全球的疫情改变了无数人的生活方式，教育行业也受到了很大影响。联合国儿童基金会 2021 年 3 月 3 日发布的数据显示，由于新冠肺炎疫情的封锁，全球超过 1.68 亿儿童的学校已经完全关闭了近一整年。此外，全球约有 2.14 亿儿童（即七分之一）错过了超过四分之三的面对面学习（UNICEF，2021）。远程教育、线上教学等变成了近三年教育界的流行词汇。如何帮助学生进行线上学习，如何更加有效地安排线上教学计划，如何提供丰富多彩的线上教学内容，这些都成为了教育工作者们热衷探讨的新话题。

STARTALK eTower 网站（http://etower.nvcc.edu[1]）正是这样一个可用于线上教学的工具，它通过真实语料建构的互动式语言文化课程提供网络开放式教育资源（Open Educational Resources，简称 OER）。联合国教科文组织（UNESCO， 2019，p. 51）对“开放式教育资源”的定义为：“开放式教育资源是以各种媒介为载体的任何形式的学习、教学和研究资料，这些资料在公有领域提供，或以开放许可授权的形式提供，允许他人免费获取（No-cost access）、再利用（Re-use）、转用（Re-purpose）、改编（Adaptation）和重新发布（Redistribution）”。除此之外，很多组织和个人也对“开放式教育资源”的定义做出了界定。例如经济合作与发展协会（The Organisation for Economic Co-operation and Development，2007，p. 30）认为“开放式教育资源免费和公开地为教育者、学生和自学者提供数字化材料，以供教学、学习和研究使用和重用”。Wiley (n.d.)提出“开放式教育资源”的 5R 特征，即允许课程设计者“保留”（Retain）、“重复使用”（Reuse）、“修改”（Revise）、“重新混合”（Remix）和“重新分配”（Redistribute）学习内容。

Hewlett Foundation[2] (2020) 在此基础上进行了丰富：

> 使用“开放教育”一词来涵盖学习资源、教学实践和教育政策，这些资源利用开放式教育资源的灵活性为学习者提供高质量的教育体验。知识共享将开放式教育资源定义为（1）处于公有领域，或（2）以向每个人提供免费和永久许可的方式进行许可的教学、学习和研究材料，参

[1] 因某些不可控原因，一些国家和地区可能无法打开此网站。

[2] Hewlett Foundation，私人慈善基金会，是美国最大的慈善机构之一，2020 年向全球组织提供超过 4.65 亿美元的赠款，以帮助人们改善生活。

与 5R 活动——保留（Retaining）、重新混合（Remixing）、修改（Revising）、重用（Reusing）和重新分配资源（Redistributing）。

eTower 是 STARTALK[1] 资助的一个项目，该项目利用网络技术手段，让《清明上河图》“动起来”，在激发学生学习动机的同时，提高他们的语言熟练度和对中国文化的理解。设计团队包括北弗吉尼亚社区学院的课程设计专家、网络设计师、一线中文教育者等。eTower 通过将真实语料与美国“面向世界的语言学习标准”（ACTFL，2015）、STARTALK 六个高效语言教与学原则[2]，以及 Quality Matters（QM）的评价标准[3]相结合，建构了互动式的语言课程。学习者可以采用电脑和各种移动联网设备登陆练习和学习。结合《清明上河图》中丰富的历史文化内容，eTower 团队合作完成了样本模块（AP[4]水平）和三个为零起点学习者设计的模块，以及整个网站的设计框架、教学策略和实施计划（Tan et al.，2020）。它具有免费使用和永久许可、多种媒介综合互动、可修改且重新分配并使用等特点。在远程教育的大环境下，eTower 作为一个完全免费开放的教育资源，尽力为那些曾参加过中文入门学习，但发现自己没有其他机会继续学习语言的学生，为没有良好在线学习平台的教师，为思考如何安排在线学习的中文教师们提供了一个选项。在目前市场上开放式教育资源可获得的中文学习材料中，满足学习者根据自己的学习特性继续中文学习的材料比较有限，甚至有很大一部分中文学习网站在设置网络课程时并没有将学习者的个性化特征这一因素纳入考虑范围准备（张一菡，2021）。根据调查问卷显示：当前中文二语教育网络学习资源的接受程度和满意程度较低，仍有需要改进的地方（王瓠羽，2021）。

1. 网站设计起源

学习动机（motivation）是引发和维持学生行为、使之达到一定学习目标的一种力量，它是推动学生进行学习的内部动力。在影响第二语言学习的诸因素中，动机占 33%，学能占 33%，智力占 20%，其他占 14%（刘珣，2000，p. 102）。“动机是第二语言学习中最有影响的学习者个体差异因素之一”（戴运财，何琼，2003，p. 8）。“动机提供了启动第二语言学习的主要动力，是维持长期且通常乏味的学习过程的驱动力；实际上，第二语言习得中涉及的所有其他因素在某种程度上都以

[1] STARTALK 是一项由美国国家安全局资助的联邦拨款计划，致力于发展幼儿教育阶段到中等教育阶段学生的语言学习，以实现美国对关键需求语言的目标状态。STARTALK 目前支持阿拉伯语、汉语、韩语、波斯语和俄语。

[2] STARTALK 的六个高效语言教学原则详细内容参见：https://www.startalk.info/educators-principles/

[3] Quality Matters（QM）评价标准详细内容参见：https://www.qualitymatters.org/qa-resources/rubric-standards?utm_source=a.+Quality+Matters+Digital+Communications&utm_campaign=9eedd01192-EMAIL_toc_webinar_invite_june_2022&utm_medium=email&utm_term=0_355a0627da-9eedd01192-33569241&goal=0_355a0627da-9eedd01192-33569241 (Retrieved on 6/8/2022)

[4] AP（Advanced Placement ）：The College Board（美国大学理事会）提供的美国大学预修课程。AP 汉语考试难度相当于《国际中文教育中文水平等级标准》的 HSK 五级水平，对应美国外语教学委员会（ACTFL）的 intermediate high level，对应《欧洲语言共同框架》（CEFR）的中阶级 B1-高阶级 B2 的中间水平。AP 汉语考试参考网址为：https://apcentral.collegeboard.org/courses/ap-chinese-language-and-culture/course

动机为前提。如果没有足够的动机，即使是能力最出色的人也无法实现长期目标，而仅靠适当的课程和良好的教学也不足以确保学生取得成就。另一方面，高积极性可以弥补一个人在语言能力和学习条件方面的相当大的不足”（Dörnyei，2005，p. 65)。对于语言学习者来说，课程本身是否有吸引力，教学任务是否生动有趣对激发学习者的学习动机起着很大的作用。eTower 团队由此决定利用动态《清明上河图》吸引更多学习者学习中文，提高学习者学习中文的动机和热情。选择《清明上河图》既因为其画面内容极其丰富，有助于教学内容的设计，也因为其备受喜欢，比如“世博会博物馆相关负责人介绍说，动态版《清明上河图》作为最受欢迎的中国馆展项之一，中国馆闭馆后，许多参观者都依依不舍”（中国新闻网，2011），同时还因为其在中国绘画史上的代表性地位：

> 宋人张择端的神品名作《清明上河图》是中国绘画史上的敦煌巨作，是我国及世界绘画艺术的瑰宝。
>
> 从绘画角度讲，《清明上河图》是长卷创作，画面徐徐展开，一一展示了汴京河道与街道繁忙的交通运输、市肆买卖盛况、房屋城墙建筑。
>
> 将表现普通市民生活与城市景象的风俗画推向高潮，艺术价值无法估量。（连静，2011，p. 1）

eTower 力求创建环环相扣的系列学习单元，帮助学习者从各个语言水平阶段开始学习。在结构设计上，从易到难，从词汇到句子，环环相扣，并且菜单式的设计可以让教师们在使用过程中有选择地使用素材。比如：教师可以根据教学目标单独选择使用 modules 下面的“量词的使用”“疑问代词的训练”等部分，而不必使用所有章节。网站在设计上还提供了“帮助”功能（如图 1.1-图 1.2）。对于一些继承语学习者（heritage learners），他们可以选择阅读汉字。对于需要更多支持来理解目标语言的学生，他们可以使用“帮助”功能，这也为教师差异化教学提供了可能。

图 1. 1

图 1. 2

此外，贯穿整个 eTower 的主题是“对话人生——古代中华智慧点滴和当今世界”，希望学习者可以通过 eTower，激发对中国语言文化的兴趣，掌握高效能的学习策略，战胜中文读写难的“拦路虎”，达到事半功倍的学习效果。并且 eTower 的评量系统采用了美国最佳语言文化评估方法综合性语言实践评估（Integrated Performance Assessment，简称 IPA），以期对中文教学领域起到抛砖引玉的作用（本文第四部分将详细介绍 IPA）。

2. eTower 的操作使用

2.1 如何浏览 eTower？

登录 http://etower.nvcc.edu，用户可以看到 5 个板块：Welcome（欢迎使用）、Getting Started（即将开始）、Modules（单元板块）、Resources（资源库）和 About us（关于我们）。图 2.1 的这一页即为 Welcome（欢迎使用），墨绿色的背景为《清明上河图》的局部图。

在第一页，用户可以看到预览以及网页使用说明（如图 2.1）。

点击“Getting Started（即将开始）”，用户可以看到 eTower 简介。包括：第一，单元板块是怎样的。只要用户有网络，就可以使用 eTower 进行学习，其中的教学活动互动性强。同时，用户也可以根据学习活动，进行三个模式的沟通学习，即理解诠释性沟通、人际交流性沟通和表达演示性沟通。第二，用户需要知道什么。每个单元板块都有引航栏，用户可以根据需要一步步学习。第三，用户应该怎么做。每个板块中都有不同的文化亮点、语言知识等内容，用户只需要点击“Next（下一个）”和“Previous（上一个）”即可切换学习内容。

第三个板块是“Modules（单元板块）”：Modules 1-4：Greetings，第一至第三单元是给零起点学习者设计的“问候”话题；Module 12：Transportation，第十二单元是“交通”话题，可供中高级学习者和 AP 学习者使用，这一板块包括综合性语言实践评估 IPA。其他显示 Locked 的单元是 eTower 团队尚未开发的[1]（如下图 2.2）。

其中，Module 1：Greetings!（问候）、Module 2：Nice to Meet You（很高兴认识你）、Module 3：Getting to Know You（开始了解你）、Module 4：Families（家庭和家人）尚未开发，如下图 2.3：

[1] Locked 的模块将在获得新的资助以后继续开发完善。

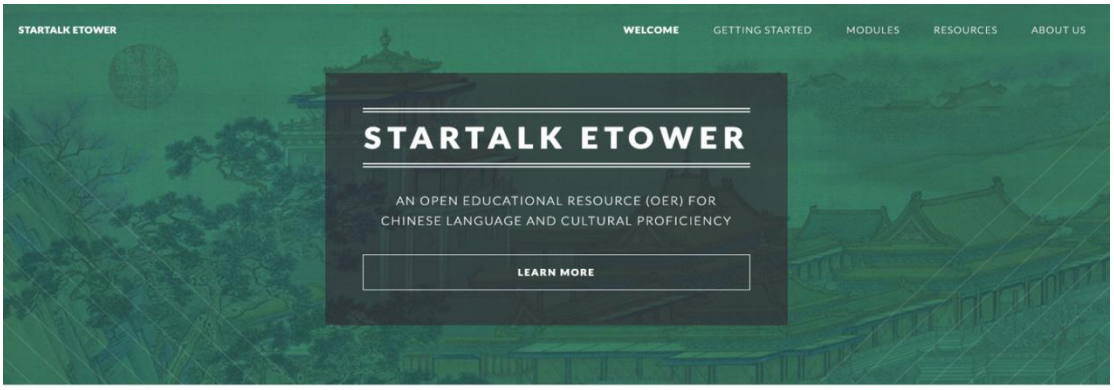

图 2.1

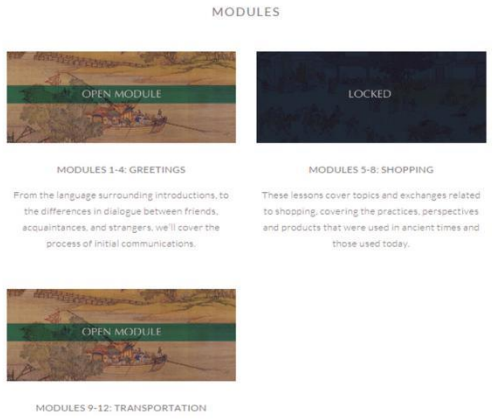

图 2.2

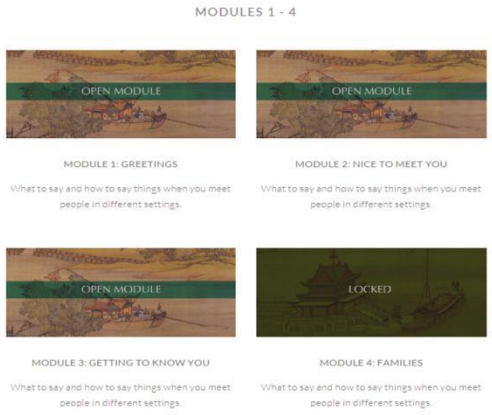

图 2.3

第四板块是 Resources（资源库），学习者在学习完 eTower 的所有板块之后，如果仍兴致未减或游刃有余，可以参考相关资源，探索更多学习资源。

最后一个板块：About Us（关于我们）。学习者可以了解 eTower 的项目由来、课程设计和团队介绍。

2.2 如何使用 eTower 进行网上教学/自主学习？

本部分分别以 Module 1：Greetings 为例讲述“自我介绍”为主题的网上教学、以及以 Module 12：Transportation 为例讲述语言学习中的生词介绍和学习。其中，Module 1：Greetings 为初级水平学习者使用，Module 12：Transportation 为中高级水平学习者使用。

案例 1：Module 1：Greetings

学习者：零基础、初学者

Module 1：Greetings（问候）中的“你好”和“您好”。

（1） 中文学习活动：

① 学生自主学习相关字词。
② 学生与同伴合作讨论问题：中国和美国问好的区别。
③ 师生互动巩固：打招呼。

（2） 文化学习活动：

在学生自学或者教师播放教学资源之后，可引导学生做以下教学活动：

活动一，学习汉字“你”和“您”，并分析两者的异同点；比如，“您”比“你”多了“心”，而且“你”在“心”上；

活动二，了解中西方文化关于“您好”和“你好”使用的相同或不同场景。如中国社会对长辈或社会身份较高的人使用“您好”以示尊敬，而对晚辈或者平辈的熟人、朋友和陌生人使用“你好”。而西方文化，对于任何人都可以用 Hello；

活动三，即使在中国，古今语言表达形式也是大有不同。比如，在《清明上河图》所在的宋代，大臣之间相互作揖，以示友好互敬，男子和女子对长辈的问候方式也不相同，男子可抱拳相敬，女子可能需要两手合抱放于一侧，身体微微下蹲。而现今点头招手致敬则较为常见。因此，教师或学生可以学习相关资料，并通过模仿、角色扮演等加深了解。

案例 2：Module 12：Transportation

学习者：中高级学习者

（1） 中文学习活动：
① 复习词汇和生词介绍 （部分图片展示，如图 2.4-图 2.6）：

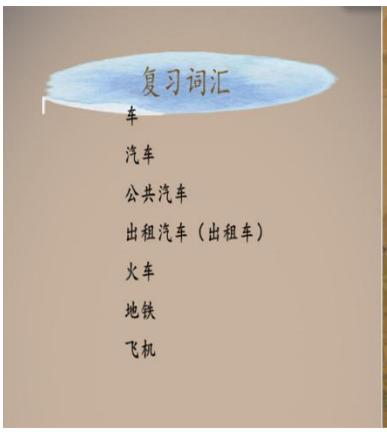

图 2.4

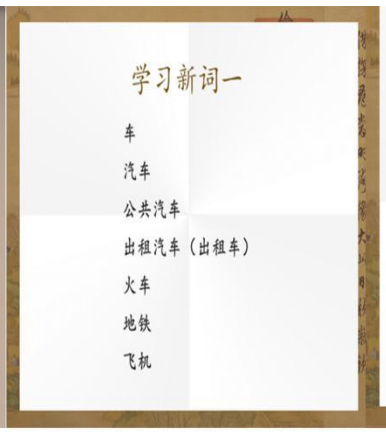

图 2.5

图 2.6

② 量词复习及新词学习（部分图片展示，如图 2.7-图 2.9）：

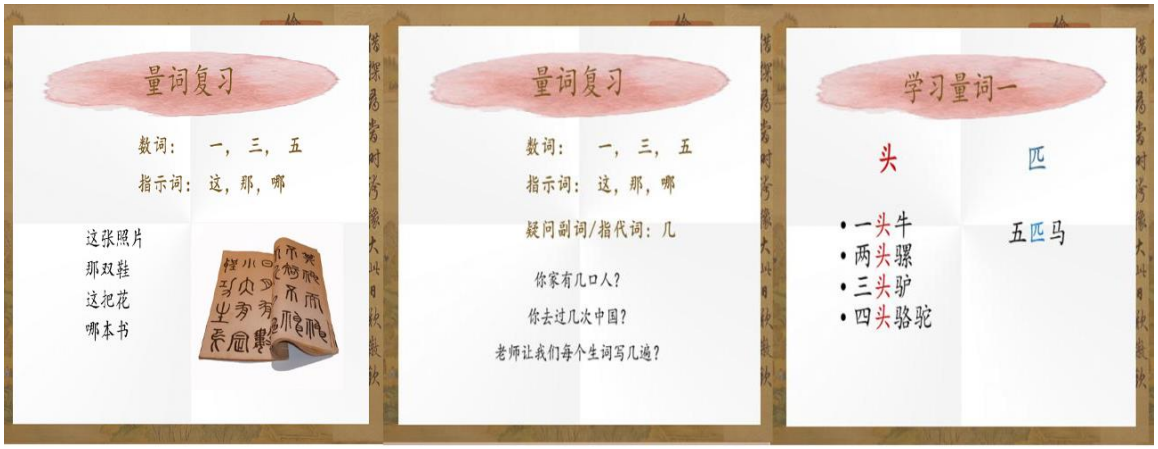

图 2.7 图 2. 8 图 2.9

③ 偏旁部首学习（部分图片展示，如图 2.10-图 2.11）：

如以上图片所展示，每个模块学习均有复习、导入学习以及练习巩固环节，较好地为学生自主学习和教师线上教学提供素材。

图 2.10 图 2.11

（2） 文化学习活动：

观看象形文字动画，了解象形文字演变，加深对偏旁“马”“舟”“扌”“车”“贝”等的识记。

2.3 eTower 与可理解性输入教学活动

Krashen（1983）提出的可理解性输入（Comprehensible Input，简称 CI）假说认为：

> 如果 i 是他或她的当前发展阶段，他或她通过包含 i+1 的可理解性输入进入下一个结构的 i+1。我们通过可理解的方式，通过听或读来获

> 取意思。我们不是通过练习说话来获得的。说话现在被认为是习得的结果，而不是原因。真正的语言产出只有在习得者建立了输入能力之后才会发生。（p. 43）

因此，教师应当通过多种方式帮助学生接触语言、熟悉语言，最终习得语言。在语言教学中，常见的可理解性输入教学活动包括 Movie Talk（电影解说）、Movie Theater（影视学习）、TPR/Total Physical Response（全身反应法）、TPRS/Teaching Proficiency Through Reading and Storytelling（阅读故事学习能力培养法）等。

以 Module 12：Transportation（交通/旅行方式）为例，可灵活使用一种或几种可理解性输入教学法，具体如下：

活动一：TPR 全身反应法

让学生在《清明上河图》中尽可能多地罗列出宋朝人的交通方式（如图 2.12-图 2.15），比如坐马车、坐轿子、坐船、骑驴等，都可以用 TPR 形式引导学生个人或分组表演出对应的交通方式。


图 2.12


图 2.13


图 2.14


图 2.15

活动二：Movie Talk（电影解说）和 TPRS（阅读故事学习能力培养法）

在有教学视频或资源的情况下，教师可引导学生观看视频，边看边停，以重复性问答的形式，引导学生在语境下学习文化和语言。比如：

师：中国人喜欢去旅行吗？
生：中国人喜欢/不喜欢去旅行。
师：中国人怎样去旅行？
生：中国人坐马车/坐轿子/坐船/骑驴去旅行。
师：中国人和谁一起去旅行？
生：中国人和家人一起去旅行。
……

在没有教学视频或资源，或者无法使用教学资源的情况下，教师可采用 TPRS 教学法和学生一起探索《清明上河图》的学习之旅。同样，教师采用问答形式（封闭性和开放性问题）引导学生自己编故事。

师：中国人喜欢去旅行吗？

生：中国人喜欢/不喜欢去旅行。
师：Peter 喜欢去旅行吗？
Peter：我喜欢去旅行。
师：Lisa 喜欢去旅行吗？
Lisa：我不喜欢去旅行。
师：Mary，中国人怎样去旅行？
Mary：中国人坐马车去旅行。
师：Mary 你喜欢坐马车还是坐飞机去旅行？
Mary：我喜欢坐飞机去旅行。
师：John，你喜欢坐轿子，坐船还是骑驴去旅行？
John：我星期一坐轿子去旅行，星期二坐船去旅行，星期三骑驴去旅行。
师：John，你和谁一起去旅行？
John：我和家人还有中国朋友一起去旅行。我喜欢去中国。
……

如此循环往复，学生可以不断操练学习的词汇和句型，增加语言的可理解性输入。

2.4 基于《清明上河图》的项目任务学习

基于任务的学习，可以帮助学生更好地解决“听说读写难”的问题；帮助学生在自主、合作、探究的学习模式中习得中文；帮助学生在提升中文运用能力的同时，促进思维的发展。

以“写”为例，eTower 帮助学生降低写汉字的恐惧，并发展多元智能与批判性思维。基于《清明上河图》的学习，可采取三种课堂活动：

活动一：基于想象的“我和家人去宋朝的中国”（如图 2.16–图 2.21）

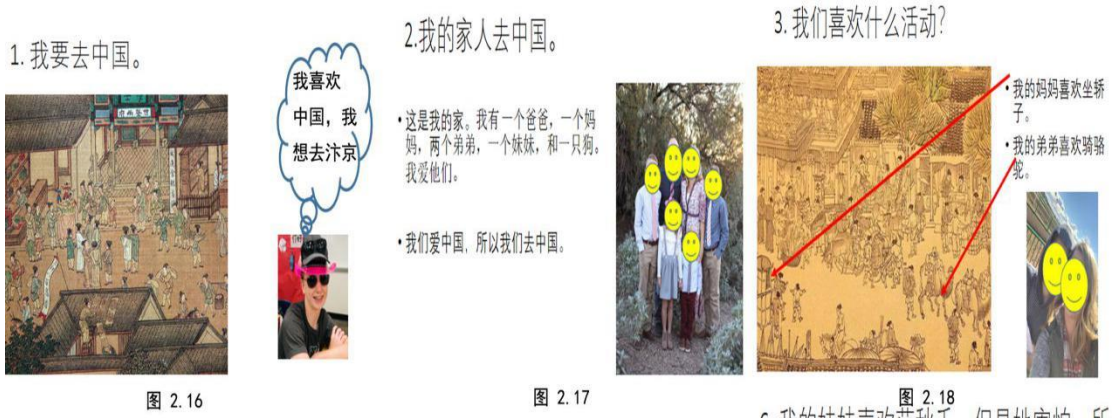

图 2.16　图 2.17　图 2.18

图 2.19　图 2.20　图 2.21

活动二：基于创意的《清明上河图》趣味配图（如图 2.22–图 2.25）

图 2.22

图 2.23

图 2.24

图 2.25

活动三：基于对比的《清明上河图》中的文化差异（如下页图 2.26–图 2.27）

1.中国人买雨伞。美国人不用雨伞。

图 2.26

2. 中国人会功夫，美国人不会功夫。我喜欢功夫熊猫。

图 2.27

2.5 给师生的使用建议

基于 eTower 本身的特点，教师可灵活用于课堂线下教学或者线上教学，基于笔者的教学经验，温馨提醒以下几点：

明确教学目标。不能为了让学生感受新鲜，直接让学生去学 eTower，而是需要明确教学目标（例如，目标是学生可以说五种以上的交通工具）。再通过 eTower，引导学生学习动态视频或图画中的交通工具，并通过形成性或者总结性评价来检测学生的学习能力。

注意教学对象。对于从事 K-8 年级教学的教师来说，会发现幼儿园的学生喜欢更加夸张趣味的视频，而初中生更倾向于文化差异的探索。所以，教师在选取教学素材时，要考虑教学对象的特点。

合理选取教学内容。eTower 中有很多丰富的教学板块，但是针对教学目标和教学对象，需要教师选取适合学生的教学板块。

是否需要检测学生学习能力。根据学生所学，教师可选取 eTower 板块来考察学生能力，例如将汉字板块作为家庭作业等。

通过 Google Classroom 来辅助学生使用 eTower。例如学生可在 Google Classroom 上传自己的家庭作业、学生互评、师生互评等。

完成了词汇与短语的学习，便过渡到了句子的学习。句子学习可以帮助学生更好地理解词汇、短语的使用，并且为有效地口语交际和文章写作打下基础。

3. 利用《清明上河图》学习句式的内容

《清明上河图》中的句子学习部分坚持了三个基本原则：第一，根据《清明上河图》的内容设计句子；第二，结合学生的真实生活情境扩展句子；第三，力求尽可能多地覆盖不同句式。

3.1 以学生学习情况为基础，学习不同话题的相关句式

对于零起点的初学者，eTower 设计了基础的中文句子，帮助学习者学习最基础的交流句子，从而提高学习的效果和交流表达的可能性。

对于中高级学习者，eTower 则增加了句子学习的难度，让学生在更综合、更复杂的学习材料中学习句子。第十二模块除了上文提到的量词和偏旁部首的复习和学习以外，还包括了描述功能和比较功能的复习和学习。这里呈现一些 eTower 为学习者提供的相关语言聚焦练习。

“比”字句的学习。首先呈现“A+比+B+形容词”的“比”字句句式结构。然后提供例句：*今年的小明比去年的小明高；现在的火车比以前的火车快；北京的秋天比北京的冬天美*。接着再复习“A+比+B+一点儿/多了/得多”，例句为：*姐姐比妹妹高一点儿；坐船比开车去慢得多；坐飞机去比坐火车去快多了；今年的小明比去年的小明高一点儿；现在的火车比以前的火车快得多；北京的秋天比北京的冬天美多了。*

请注意，虽然上面复习的“A+比+B+形容词+一点儿/得多/多了”的“比”字句格式表示 A 跟 B 之间的差别的某种程度，可是这种“比”字句格式并不能具体说明 A 跟 B 之间到底有多少差别（比如，差别的数量）。如果要表示具体的差别数量，要用“A+比+B+形容词+数词+量词（+名词）”格式的“比”字句。例如，*要是姐姐今年二十五岁，妹妹今年二十岁，*可以说：*姐姐比妹妹大五岁。或者妹妹比姐姐小五岁。*

“不得了”的学习。即：“形容词+得+不得了”。比如：*清明节的时候去汴京旅行的人多得不得了；汴京城里人山人海，热闹得不得了；汴京城里各种各样的商店多得不得了。*

3.2 利用《清明上河图》学习句式的方法

3.2.1 灵活利用多种学习材料

第一，结合《清明上河图》学习句式。

《清明上河图》是学习者使用 eTower 的最基础、最原始、最直接的材料。有一点必须要在使用《清明上河图》之前着重强调一下，即学习的句子是结合《清明上河图》上的人物、事物、情景，并结合问候、交通、旅行等话题提炼总结出来的。这就意味着这些句子是通过联想与想象，结合学生学习情况、表达交流目的、中文语言特点等归纳整理出来的，在某种程度上也因此具有了灵活性与不确定性。在使用时候可以进行很多活动。

活动一：让学生观察《清明上河图》，利用学习的句式进行描述。比如，在学习“有的……，有的……，还有的……”的时候，可以让学生描述看到的人物、

事物和情景。例如：《清明上河图》上有的人骑马旅行，有的人坐船旅行，有的人乘轿旅行。《清明上河图》上画了很多人，有的在工作，有的在休息，有的在买东西。《清明上河图》上画了各种各样的人，有的是书生，有的是官员，还有的是商人。

活动二：学生设计对话。《清明上河图》上人物各异，在不同的场景下他们会产生哪些对话呢？让学生选择某一组人物，结合人物所处的场景，用所学句子完成一段对话。

活动三：补全对话。教师选择某一组人物，结合人物所处场景设计几个问题或回答，学生补全其他部分。这里分享一个为大学中文 2 设计的教学活动：

活动要求：

任务 1：用中文标注人物、动物、衣物、树木、商店、交通工具、不同的建筑物。

任务 2：描述绘画中的场景和人们的活动。

学生作业展示：

任务 1：岛、河、鸟、田、树林、人们、船、马、马车、轮船、牛、房子、桥、水、茶馆、劳作、农民、摊位、骑马、吃饭。

任务 2：

今天天气很暖和，我们都可以去茶馆喝茶。

这个桥很漂亮也很旧，你跟我去桥上玩一下。

我要快点回家，因为我要做晚饭。

有的学生则直接在图片上设计了对话（如下页图 3.1-图 3.2）：

第二，结合实际生活练习句式。

使用 eTower 学习的句子来自于《清明上河图》，但句子的应用一定是为了现实世界真实的表达，因此，要帮助学生完成知识的迁移，举一反三、触类旁通。在设计的时候，已经为学习者提供了一些可以用在生活中的句子。比如：*那家中国饭馆的中国菜好吃得不得了；那个地方的冬天冷得不得了；我今天一天到晚忙得不得了。*“A+比+B+数词+量词+（名词）”的句式结构举例有：*姐姐比妹妹大五岁；妹妹比姐姐小五岁；哥哥比弟弟高两英寸；弟弟比哥哥矮两英寸；苹果比梨便宜三块钱；梨比苹果贵三块钱。*学习这些句子的时候，可以采用的活动有很多。比如：造句，学生根据教师提供的句式结构完成造句；看图写句子，学生利用所学句式描

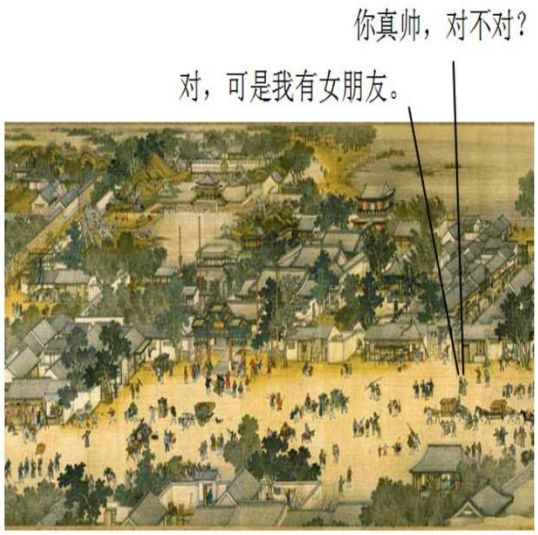

图 3.1

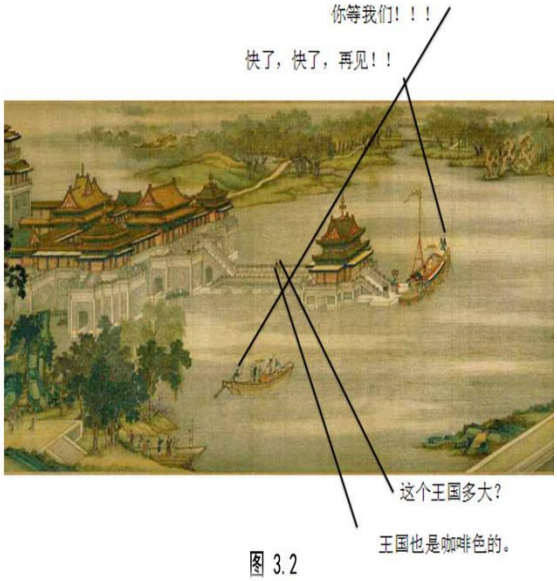

图 3.2

写看到的图片；看文绘图，教师用所学句式提供一段文字，学生结合文字用绘图形式重现相应内容。这里，可以让学生使用短视频软件（如 TikTok）等，录制一段自己利用所学句型讲中文的视频（学生可以选择露脸或者不露脸），并将视频发布出去。如果参与学生多，还可以组织一次点赞比赛，看谁的视频点赞次数最多。

第三，利用 eTower 学练结合。

为了更好地帮助学习者掌握提供的句子，网站提供了练习题。因此，学习者在使用的时候要运用刚刚学习过的句子，完成配套练习，达到巩固复习的作用。练习题包括两种形式。第一种是口语表达，通过录音[1]的方式，按照要求完成对话，录音结束后可以回放，以便学习者检查表达完整度与发音正确度（如图 3.3）。第二种是书面表达，要求学习者通过打字的方式，按照要求完成句子练习，提交以后会得到参考答案，以便学习者检查表达完整度、汉字书写正确度等（如下页图 3.4）。

3.2.2 通过“身临其境”的方式学习句式

Larsen & Long（2014）说过：“既然语言是如此复杂，就不可能期望语言习得过程会简单一些”（p. 149）。因此，教师要通过情景设计、情景模拟等方式，帮助学生在情境中“身临其境”地学习语言、感受语言、使用语言。可以使用的活动有很多，比如：让学生互相配合，通过故事表演的方式练习学习的句子；让学生模仿解说员或导游，用学习的句子介绍《清明上河图》中的人物、事物与情景；利用手机、平板电脑等设备，使用视频制作软件中的“绿幕”背景替换功能“走入”《清明上河图》中，作为“画中人”进行句子练习。

[1] 网站的录音（record）和上传（upload）功能暂时无法使用。

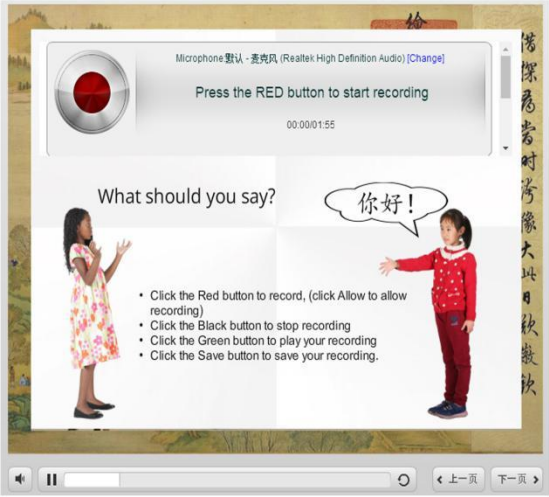

图 3.3

图 3.4

3.2.2 通过“身临其境”的方式学习句式

Larsen & Long（2014）说过：“既然语言是如此复杂，就不可能期望语言习得过程会简单一些”（p. 149）。因此，教师要通过情景设计、情景模拟等方式，帮助学生在情境中“身临其境”地学习语言、感受语言、使用语言。可以使用的活动有很多，比如：让学生互相配合，通过故事表演的方式练习学习的句子；让学生模仿解说员或导游，用学习的句子介绍《清明上河图》中的人物、事物与情景；利用手机、平板电脑等设备，使用视频制作软件中的“绿幕”背景替换功能“走入”《清明上河图》中，作为“画中人”进行句子练习。

3.2.3 使用多种句子表达的方式进行练习

教师应当帮助学生从多个角度进行句子练习。第一，复述。这是最基础的句子学习方式，在学习过句子之后，要求学生能够完整、清晰、准确地复述出所学句子。第二，概括。为学生呈现一段文字或者图片，要求学生用学习过的句式总结概括出相应的内容（如下页图 3.5-图 3.8）。第三，扩写。为学生提供一些词语与信息，学生使用学习过的句式扩写出一段文字。第四，缩写。为学生提供一段文字，学生按照句式要求进行缩写。第五，续写。为学生提供部分文字，学生利用所学句式补全文章。总之，就是要让学生通过多种形式进行学习、复习、练习，从而加深对相应句子的掌握情况。这里，为大家呈现一个 7 年级中文 2 学生的作业。学生可以选择将《清明上河图》打印下来，在纸上回答问题，也可以选择用平板或电脑直接编辑。

活动要求：根据《清明上河图》的内容，写出 10 个字词；根据《清明上河图》的内容，想象一组对话；根据《清明上河图》的内容，想象并补全对话：这幅画有……，有……，还有……。这里是……，那里是……和……。介绍《清明上河图》中涉及的一处文化（可使用英语）。结合《清明上河图》，作一处中美文化对比（初级水平的学生可使用英语）。

图 3.5 图 3.6

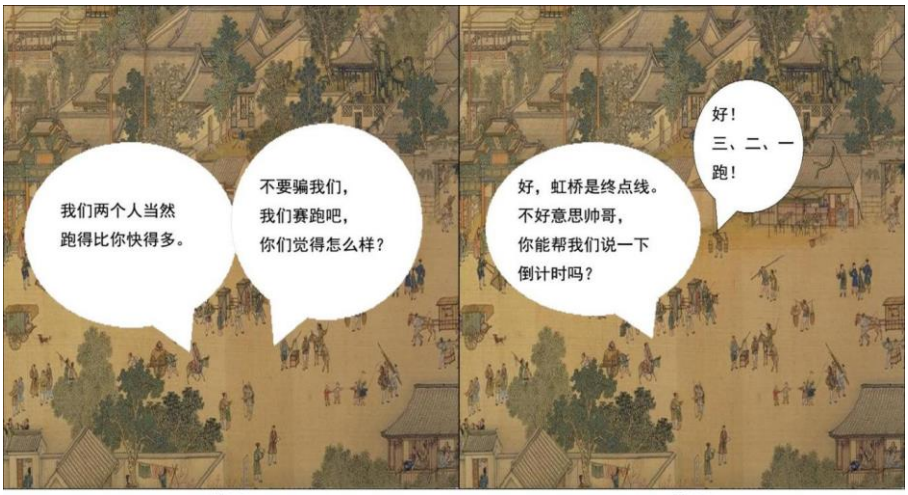

图 3.7 图 3.8

学生作业如图 3.9-图 3.10：

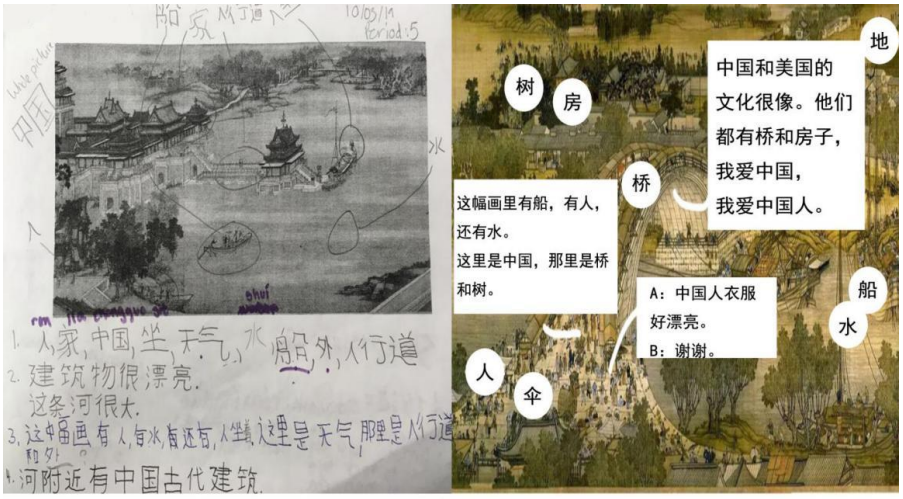

图 3.9 图 3.10

3.2.4 利用语言规律搭建学习“鹰架（Scaffolding）[1]”

eTower 为初级学习者和中级学习者提供不同的句子学习方式。初级学习者大多为零基础，需要增加他们学习的兴趣、成就感和积极性。因此，通过听、说、读，以及少量的书写来学习句子。在学习时候，注重呈现大量相似或相同句子，并且不断重复，从而帮助学生掌握。每一个课时都在重复已学句子的基础上增加新的句子，实现“鹰架”的搭建，最后在“语言聚焦”中简单点明语法点。对于中高级学习者，要重视培养语言学习的规范性、系统性、完整性。因此，较多时候首先提供语言知识点作为“鹰架”，然后提供大量例句帮助学生掌握相应句式。另外，在学习新词汇的时候，也注重使用已经学习过的句子作为“鹰架”，帮助学生在可理解的基础上快速掌握难懂的新词汇。比如在学习较为复杂的量词时，要为学习者提供相应句子作为“鹰架”：*你家有几口人？你去过几次中国？这是一顶轿子，那边有三顶轿子。*

4. IPA 与 eTower

在 eTower 第十二模块“交通”话题部分，除了上文提到的“词汇学习”“语言聚焦”和“文化亮点”以外，还设计了一整套 AP 水平的综合性语言实践评估（IPA：Integrated Performance Assessment）。eTower IPA 的人际交流参照了 AP 中文考试。

4.1 IPA 的概念

IPA 指的是综合性语言实践评估。在谈到 IPA 结构的合理性时， Adair-Hauck 等人（2013）解释说：“考虑到交流的互连性，综合性语言实践评估（IPA）的原型是一项多重任务或具有三个任务的结合性评估，每个任务都反映了三种沟通方式中的一种”（p. 9）。它与传统的考试不同，传统的考试常常只是对学习成果的检测，关注学生的学习结果，也就是学生是否掌握了应该掌握的内容。IPA 则要求学生阅读真实语料，在真实的生活或者类似真实生活的情境中使用学过的语言，同时，也有机会学习新的语言和文化内容。IPA 考量学生三种沟通模式的能力：理解诠释（Interpretive Mode）、人际交流（Interpersonal Mode）、表达演示（Presentational Mode）。

下面，将重点以三种沟通模式为切入点，展示 eTower 是如何解决学生“听说读写难”的问题，并在过程中发展学生的学习能力与思维能力。

4.2 IPA 与三种沟通模式的关系

4.2.1 理解诠释

理解诠释指的是学习者可以理解、解释和分析在各种主题上听到、阅读或查看

[1] 又称“搭建教学脚手架”，或“支架式教学”。

的内容。阅读，作为输入的重要途径，给许多学生带来了词汇、句式、使用习惯、文化差异等方面的挑战。

结合《清明上河图》呈现的内容，教师可以选择历史书籍、新闻报刊、杂志画报、科学论文等材料作为学生阅读的文本，也可以自行结合教学内容和学生学习情况编写阅读文本。无论选择哪种阅读文本，都应当保证阅读文本符合学生中文学习情况和认知水平，保证文本具有可读性和针对性。同时在学生可以理解大部分内容的情况下适当加入挑战性内容帮助学生在“最近发展区”中进步。在学生阅读过程中，教师应当帮助学生理清文本逻辑，找到不理解的字词和句子，培养学生的阅读技巧和阅读习惯，同时还要保证学生阅读的速度和质量。

理解诠释包括三个类别九个方面。一是“字面意义理解”，包括：关键词识别、中心思想辨认、重要细节辨认；二是“诠释性理解任务”，包括：文章结构组织特色、通过上下文猜测词义、从字里行间推测作者意图、作者视角与观点、文化视角与观点；三是学习者（用户）个人感想。

现在对“理解诠释”的九个方面的问题设置进行举例：

关键词识别（如下页图 4.1）。请找出每个段落的关键词；请找出描述《清明上河图》特点的关键词；请找出表达作者观点与态度的关键词；请在文中找到下列英语关键词（此处省略）对应的中文关键词，等等。

中心思想辨认（如下页图 4.2）。请指出每个段落的思想；请指出全文的中心思想；请指出每个段落思想与中心思想的关系，等等。

重要细节辨认（如下页图 4.3）。教师写出几个有关阅读文本重要细节的陈述句子，其中包括几个正确的句子和几个错误的句子，要求学生判断所给句子陈述的细节，哪些是文章中提到的以及在文章中的出处。

文章结构组织特色（如下页图 4.4）。请说出文章是按照哪种结构展开的：总-分、分-总、总-分-总？请说出第一段/第二段/最后一段在文章中的作用；请将所给段落按照文章结构插入到原文中去。

通过上下文猜测词义（如下页图 4.5）。请解释“XX”词的意思；请判断所给词汇（此处省略）中哪个与“XX”词意义相同？请判断所给词汇（此处省略）哪个不可以替换掉文中的“XX”词？

从字里行间推理出作者意图（如下页图 4.6）。作者为什么在文中说道“XX”？作者在文中举例“XX”的目的是什么？作者写第一段的意义是什么？

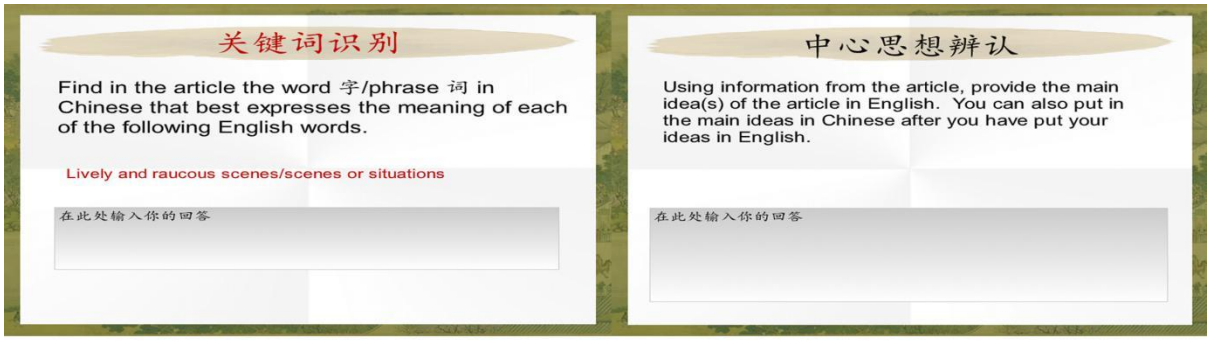

图. 4. 1

图 4. 2

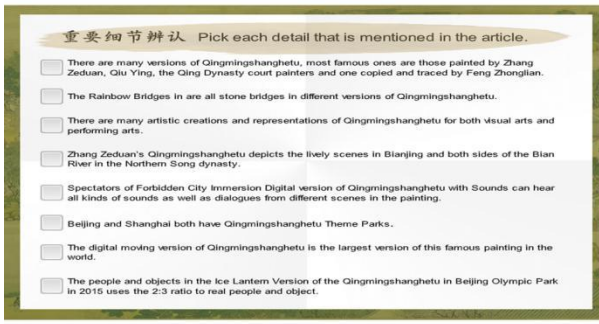

图 4. 3

图 4. 4

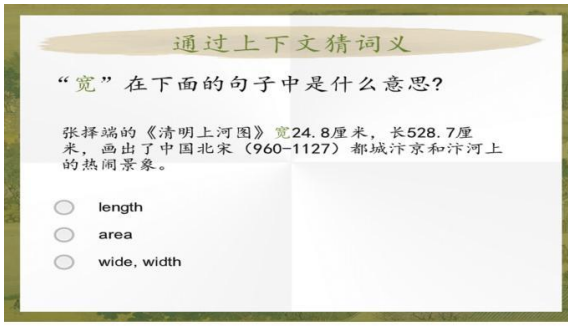

图. 4. 5

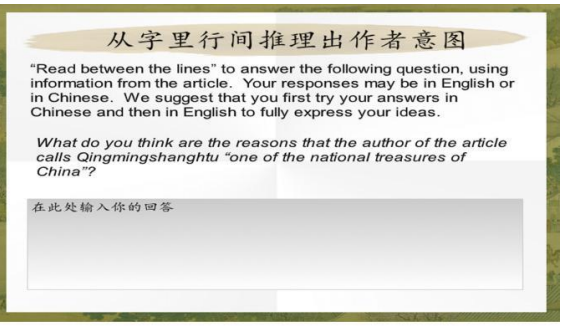

图 4. 6

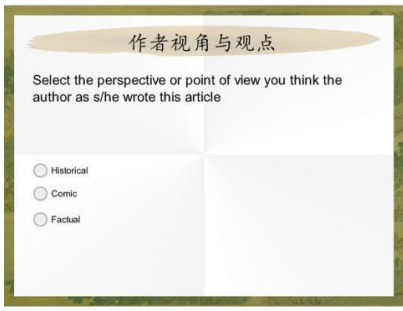

图 4. 7

图 4. 8

图 4. 9

作者视角与观点（如图 4.7）。作者在文中持有哪种态度，赞美、批评、肯定还是否定？

文化视角与观点（如图 4.8）。请说说文中体现了哪些中国文化特点？请比较分析文中的中国文化与美国文化的异同点。在这篇文章中你学习到了哪些中国文化习俗和文化观念？你对文中的文化观点认可吗，为什么？

学习者（用户）个人感想（如上页图 4.9）。读了这篇文章你有什么想法？你认可文中的观点吗，为什么？

4.2.2 人际交流

人际交流指的是学习者通过口头或书面对话进行交互和协商，以共享信息、反应、感受、观点。在交流过程中，既要保证学生交流的内容围绕着所学内容，又要保证学生能够在语用能力和思维层面得到一定提升。这就要求教师基于 eTower，为学生提供交流的可能，包括话题、内容、形式、结构等方面的支持。

在 IPA 指导下的人际交流旨在帮助学生主动、准确、灵活地交流，提高学生的口语表达能力和交际能力，以及学生的中文语言意识。所谓语言意识，指的是一个人对语言特点、功能的敏感性和主动认识的能力（Carter，2003，p. 64）。要求学生能够运用学习过的中文知识，根据交流话题与他人完成对话交流活动。人际交流大多是即时发生的、无准备的、有意义的、信息交换的过程。人际交流活动可以有很多形式，比如：对话（包括师生对话和生生对话）、小组讨论、演讲与辩论、即兴讲故事与角色扮演、报道与解说等。其中，最常见的就是师生对话和生生对话。

比如，学生可以通过微信的视频或语音功能，利用学过的词汇和句式与中国笔友讨论与《清明上河图》有关的中文知识与中国文化，当然也可以回答教师在该部分提出的问题。

这里分享几组大学学习者师生间的对话：

师：你能不能和我说一说，你第一次看到《清明上河图》时候的感觉？
生：我第一次看到《清明上河图》的时候，我觉得这幅画太有意思了，画上的人多得不得了，画上的景象热闹得不得了，画上的风景漂亮得不得了。
师：你看到《清明上河图》有各种各样的人，可以告诉我他们都在做什么吗？
生：《清明上河图》有各种各样的人，有的是男人，有的是女人，还有的是小孩儿。有的是商人，有的是书生，还有的是游客。有的在走路，有的在骑马，还有的在坐船。
师：你在《清明上河图》看到哪些交通工具？
生：《清明上河图》上画了各种各样的交通工具，画上有很多头牛、骡和骆驼，好几头驴，好几匹马，好几只羊，二十多辆车，八顶轿子，二十八条客船、货船等大大小小各种各样的船。
师：《清明上河图》上各种各样的交通工具都有一些长处和不足，你能不能说一说每一种交通工具的长处和不足，并进行比较？
生：乘轿子的长处是很方便，不足是很贵。骑驴的长处是很便宜，不足是走得很慢。我们可以说乘轿子比骑驴舒服一点儿，可是骑驴比乘轿子便宜得多。坐船的长处是舒服，不足是很慢，骑马的长处是跑得很快，不足是骑马不太舒服。我们可以说坐船比骑马舒服

多了，可是骑马比坐船快多了。从这里去汴京骑马要比坐船快三天。

4.2.3 表达演示

表达演示指的是学习者使用适当的媒体并适应听众，能够提供信息、概念和思想，以对各种主题进行宣传、解释、说服和叙述。作为输出的环节，这既是检测学生学习情况、教师教学情况的重要参考，也是学生通过输出为输入服务的重要环节。有效地输出可以成为学生自己语言学习元认知的环节，也可以成为其他人接收信息输入的真实来源，从而解决“听说读写难”的问题。

在学生通过口头或书面的形式进行表达的时候，应当要求学生正确使用中文进行表达，结合阅读材料进行表达，通过多种形式进行表达（仿写、写故事、写对话、写说明文、任务型写作、自由表达写作等），从而培养学生的中文语用能力。Leech（1983）认为语用能力分为语用语言能力和社会语用能力。在表达演示的过程中，需要为学生提供表达演示的目的、场景设定，学生需要关注听众或者读者期待，学生需要联系真实的世界进行表达演示，学生在正式演讲或者提交定稿之前一般需要有很多机会修改和练习。

在阅读《清明上河图》相关文本以后，学生可以通过如下活动来进行表达演示。

活动一：你笔友的学校下一期校刊的主题之一是“我眼中的《清明上河图》”，她希望你写一篇题为“我眼中的《清明上河图》”的评论。请尽量用所学字词和句型，充分表现出你的中文能力和中国文化知识储备。

活动二：你的学校将进行一次世界文化展览会，你负责中国文化展区。你和你的团队将要用中文和英文介绍《清明上河图》，请你为你的团队发言人写一篇中文讲解词。

活动三：你的班级学习过《清明上河图》以后准备进行一次海报设计比赛，你的团队已经绘制好相关图案，请写一段文字在海报上，为你们的海报增加文化亮点。

活动四：如果你回到了中国的宋代，而且你还是张择端的好朋友，他让你欣赏他刚刚画成的《清明上河图》，并邀请作为好朋友的你为这幅画写一段话，结合你学习过的字词和句型为你好朋友的作品增加一份亮点。

活动五：你是《鉴宝》、《国宝档案》或者《中华瑰宝》栏目组的评委，节目组将要在绘画组中评选一份中国绘画典范，请作为评委的你为《清明上河图》写一份推荐词或颁奖词。

活动六：请通过想象和联想，结合《清明上河图》中的信息设计一段情景对话表演，并通过动画制作或视频剪辑的方式表现出来。为了增加趣味性和互动性，教师也可以带着学生在 Zoom 上表演自己设计的台词，尤其是使用 Zoom 的背景替换

功能，将真实的背景替换成《清明上河图》中的情景，可以增加趣味性和真实性。这里，为大家提供一份北弗吉尼亚社区学院第四个学期荣誉班（ Honors Section ）学生设计的穿越剧中开场和结尾部分的情景对话台词（节选），如下所示：

Three students A, B and C walk into the museum, stopping in front of the Qingming scroll. Below the scroll a sign is displayed saying “Do Not Touch”.

A: 喂，你们快来看这幅画！
B: 这幅画画的是什么啊？看起来很眼熟哦。
C: 你们看，这个牌子上说这是《清明上河图》。是宋代非常有名的一幅画。这是表现汴京生活的一幅画，现在这个地方是开封。
A: 看起来很古老哦，现在离宋朝有多久啊？
C: 好像是 900 年前的。
B: 这么古老和有文化价值的画为什么没有受到保护呢？

A jokingly leans his hand towards the painting.

A: 大家快看，我可以摸到这幅古老的世界闻名的画了。
B: 这幅图百年难遇，你敢不敢碰它？谁让他们不好好保护这幅画呢。也许以后我们永远都不会有摸到这幅画的机会了。
C: 千万别碰，这幅画很有艺术价值哦。而且画下面写着“严禁触摸”。
B: 就像我说的那样，这幅画应该受到更好地保护。

其中的一个学生碰了一下《清明上河图》，然后就不见了，其他三位同学也跟着“掉进”了画里，穿越到画中所描写的时代，与当时的人物进行了很多有趣搞笑的对话。比如，“画中人”问学生是哪国人，得知是“美国人”以后，就说“美国人？我怎么从来没有听说过这个国家呀？！”等等。

SCENE 4:

A, B and C all walk back through the door, now wearing the normal clothes from modern times.

C: 我们回来了！回到博物馆了。我一直担心我们会永远地困在《清明上河图》里面呢。
B: 我们变回正常的衣服了。哎呀！好怀念那些五颜六色的衣服啊。
A: 大家快看！是 D！

Student D enters, wearing modern clothes.（D 就是学生们在画中遇到的北宋汴京人。）

A: 我不敢相信你也过来了！欢迎来到美国！

D: 你们在说些什么啊？这里当然是美国啦，但是我根本不知道你们是谁。我只知道你们碰了那幅画，所以，我有责任请你们马上离开博物馆。

4.3 小贴士

第一，注重听说读写的结合。

线上教学由于形式限制，很多教师选择以布置作业的形式进行教学，学生很少或基本没有机会与教师面对面交流。有的教师发布一些视频，但是学生也只是单向地接收信息，并不能锻炼表达能力。有的教师布置的作业大多是书面作业，学生的听说能力也因为教学方式的改变而搁置了。eTower 在网站设计上就力求做到帮助学生实现听说读写的全面综合发展，这就要求教师在使用的时候能够有效利用多种活动，帮助学生在听说读写活动中提高中文水平。比如：

请学生阅读关于《清明上河图》的文化介绍（阅读文本略），并完成下列任务。

任务一：文中介绍《清明上河图》特点的内容有哪些？请用概念图（树状图、表格、思维导图）的方式简洁、直观地呈现出来。（本活动为理解诠释活动，培养信息筛选、整合能力）

任务二：作者对《清明上河图》的态度是怎样的？从哪里可以看得出来？请写出至少 3 点原因支持你的结论。（本活动为理解诠释活动，培养归纳、推理能力）

任务三：请向你中文班的朋友发送语音信息，向他/她介绍你在第（1）题、第（2）题得出的观点，你们在交流中可以检查自己的答案是否正确，如果你认为你的朋友观点是错误的，请继续用语音信息说服他/她。如果你的答案是错误的，听了你的朋友的语音信息以后，你可以修改第（1）题、第（2）的答案。（本活动为人际交流活动，培养听说能力、交际能力）

任务四：请设计一份关于《清明上河图》的电子期刊。期刊上需要你写出一段文字，可以是关于《清明上河图》的介绍性文字，可以是你对《清明上河图》的鉴赏心得，也可以是你向其他用户推荐《清明上河图》的引言，等等。同时，需要在电子期刊中插入至少一份语音文件，语音内容可以表达你对《清明上河图》的喜爱，也可以是你演唱的《清明上河图》歌曲，等等。

第二，活动设计符合网络教学特点。

网络教学与课堂教学有着很多区别，最大的区别之一应当是师生交流方式的不同。教师无法面对面地演示、解释、交流、评价，距离感让教学活动的难度增加。但是，网络教学也有自身独特的魅力，能够让教学在科技的帮助下有效进行。因此，在使用 eTower 的时候，应当充分利用其网络教学的特点，比如：可以循环播放学习内容，可以影音图文结合调动多感官，可以点击链接扩展学习内容，可以记录学习行为与结果，等等。同时，教师在使用过程中还应该结合其他现代科技手段帮助

学生学习。比如：通过制作定格动画来讲故事，通过录歌软件学唱《清明上河图》，通过公众号软件制作《清明上河图》文化推文，等等。

第三，重视学生自主学习行为。

因为学生大多是在家里使用网络学习，有的学生可能家长因为工作原因不能在家时刻监督学生学习。因此，在使用网络平台教学的时候，要保证学生能够独立、自主、高效地完成任务。比如，设计一些需要同伴合作完成的作业，如：调查报告、对话练习、采访问答等活动。同样，在布置作业的时候教师也可以提出一些要求，比如教师可以通过以下方式保证学生学习任务的完成：

任务一：请在第一天学习 eTower 第十二模块“旅行”中“词汇学习”部分，学习期限：3 天。

任务二：请在第一天发送一封邮件，告诉教师你学习了什么内容，有哪些疑惑或收获。

任务三：请在第二天发送一条短信给你的好朋友，告诉他们你在第一天发送给教师的邮件中提到了哪些疑惑或者收获。

任务四：请根据学习内容，回答问题（问题根据学习内容设置，此处略）。请在第三天将以上任务截图放在一份文档里发送给教师。

5. 未来改进

eTower 项目的设计和开发是基于每个学习者都应获得免费、平等、多元世界语言学习机会的理念。因此，我们将继续寻求开发经费，争取多方合作机会，在网站已经开发建构出来的框架、设计逻辑和理念的基础上，融入新的话题，从而灵活、科学地开发出新的模块，进而为零起点到 AP 阶段学习者提供支持。这样，才能更好地服务中文二语教育，帮助更多人开阔国际视野，增加升学和求职竞争力，讲好中国故事。未来，我们将在以下几个方面对网站进行完善：

适当开放权限。开放式教育资源的特点之一就是允许用户共同参与到设计、更新的环节。目前 eTower 的《清明上河图》权限只属于开发团队，这在某种程度上影响了我们内容的更新。因此，我们将在网站中增加与用户互动的板块，来了解他们的建议和意见，从而修改现有内容。在这之后，在一定程度上放开权限，使学习者可以上传、修改相关内容，从而提高网站的使用体验。

加入 AR（Augmented Reality）技术。虽然《清明上河图》动了起来，但是学习者能够感受到的依旧是屏幕上的动画效果。未来 eTower 团队将增加虚拟体验技术，学习者可以使用手机来扫描《清明上河图》中的人物、景物、动物等。扫描以后就能够获取相应的语言和文化知识，甚至与画中人物互动。

完成所有板块设计，并增加更多话题。正如前文所介绍，现有 eTower 学习的板块只建成了部分，还有一部分等待“解锁”。现阶段，eTower 团队将利用获得的学习者反馈，对还未“解锁”的板块进行修改和完善，从而提高学习者的使用体验和学习效果。

增加实时互动功能。现有学习界面是学生单向获得信息的过程，eTower 团队计划在网站上增加在线用户即时互动功能，以及增加留言等功能。这样，学习者可以实时对话，从而提高学习效果。

增加影音信息。目前的学习内容依旧以图文为主，而使用视频等媒介可以提高学习者的学习体验。除了可以通过网站看视频、听音乐以外，学生也可以上传自己的视频等资料。长久以往，网站的内容越来越丰富。

6. 结语

这次新冠疫情让教育界在很短的时间内再次重视开放式教育资源的优势所在。eTower 凭借免费开放式教育资源的使用、多终端学习体验、基于多元智能的设计、致力于语用能力的发展、有意识加强学习者学习自主性等独特优势，帮助线上和线下教育工作者推动零起点到中高级学习者学习中文，体验中国文化，培养他们跨文化互动和理解的文化素养。同时，也让更多人体会到差异化教学的意义所在，让更多人走入并了解《清明上河图》这一中华文化瑰宝的魅力所在，更打开了学习者探索《清明上河图》、中国语言和中国文化的兴趣之路。

参考文献

American Council on the Teaching of Foreign Languages. (2015). *World-readiness standards for learning languages*. ACTFL.

Adair-Hauck, B., Glisan, E. W., & Troyan, F. J. (2013). *Implementing integrated performance assessment*. American Council on the Teaching of Foreign Languages.

Carter, R. (2003). Language awareness. *ELT Journal*, 57(1), 64-65.

Chinanews. (2011, October 11). *The ‘reemergence’ of the Riverside Scene at Qingming Festival in animation at World Expo China Pavilion*. https://www.chinanews.com.cn/cul/2011/10-11/3381541.shtml. [中国新闻网. (2011, 10 月 11 日). *世博会中国馆动态《清明上河图》“复出”*. https://www.chinanews.com.cn/cul/2011/10-11/3381541.shtml]

Dai, Y., & He, Q. (2003). Research on motivation in second language learning: Existing issues and future development. *Foreign Language Learning Theory and Practice*, 2, 8-12. [戴运财, 何琼. (2003). 第二语言学习动机研究:存在的问题及发展趋势. *国外外语教学*, 2, 8-12.]

Dörnyei. Z. (2005). *The psychology of the language learner: individual differences in second language acquisition*. L. Erlbaum Associates.

Hewlett Foundation (2020). *Open education*. https://hewlett.org/strategy/open-education/

Krashen, S. D. (1983). The din in the head, input, and the language acquisition device. *Foreign Language Annals, 16*(1), 41–44.

Larsen-Freeman, D., & Long, M. H. (2014). *An introduction to second language acquisition research*. Routledge.

Leech, G. (1983). *Principles of pragmatics*. Longman Inc.

Lian, J. (2011). *The artistic style and historical status of Zhang Zeduan's the Riverside Scene at Qingming Festival* [Unpublished master's thesis]. Henan University. [连静. (2011). *张择端《清明上河图》的艺术风格及其历史地位研究* [未出版硕士论文]. 河南大学.]

Liu, X. (2000). *Introduction to teaching Chinese as a foreign language*. Beijing Language and Culture University Press. [刘珣. (2000). *对外汉语教育学引论*. 北京语言大学出版社.]

Organisation for Economic Co-operation and Development (2007). *Giving knowledge for free: The emergence of open educational resources.* https://www.oecd.org/education/ceri/38654317.pdf

Quality Matters. (n.d). https://www.qualitymatters.org/qa-resources/rubric-standards?utm_source=a.+Quality+Matters+Digital+Communications&utm_campaign=9eedd01192-EMAIL_toc_webinar_invite_june_2022&utm_medium=email&utm_term=0_355a0627da-9eedd01192-33569241&goal=0_355a0627da-9eedd01192-33569241

STARTALK. (n.d). *STARTALK principles for effective teaching & learning.* https://www.startalk.info/educators-principles/

Tan, D., Gunder, A., Chi, S., & Picard, S. (2020). STARTALK eTower: Increasing Chinese Language and Cultural Proficiency Through Open Access Online Technology. In Ko-Yin Sung. (Ed.), *Teaching and learning Chinese as a second or foreign language: Emerging trends* (pp.1-16). Lexington Books.

UNESCO. (2019). *Recommendation on Open Educational Resources (OER).* https://unesdoc.unesco.org/ark:/48223/pf0000373755/PDF/373755eng.pdf.multi.page=40

UNICEF. (2021). *COVID-19: Schools for more than 168 million children globally have been completely closed for almost a full year, says UNICEF*. https://www.unicef.org/press-releases/schools-more-168-million-children-globally-have-been-completely-closed

Wang, L. (2021). *An investigation of the current use of online educational resources for international Chinese language education* [Unpublished master's thesis]. Shenyang Normal University. [王翎羽. (2021). *汉语国际教育网络学习资源使用现状调查研究*[未出版硕士学位论文]. 沈阳师范大学.]

Wiley, D. (n.d.). *Defining the "open" in open content and open educational resources*. http://opencontent.org/definition/

Zhang, Y. (2021). *Investigation on the construction of web-based course for learning Chinese as a foreign language—Take "Online Beiyu" as an example* [Unpublished master's thesis]. Inner Mongolia Normal University. [张一菡. (2021). *对外汉语学习网站网络课程建设考察——以"网上北语"为例* [未出版硕士学位论文]. 内蒙古师范大学.]

URL (网址): http://www.tclt.us/journal
Email (电子邮件): editor@tclt.us