Using Scaffolding Materials to Facilitate Autonomous Online Chinese as a Foreign Language Learning: A Study During the COVID-19 Pandemic

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Abstract
This study explores international Chinese as a foreign language students' use of embedded scaffolding materials to facilitate their learning in an autonomous online context during the COVID-19 pandemic. A total of 60 international students enrolled in a Chinese university participated in the study. Data were collected via participants' reflective reports, online tutorials, and individual interviews. This study found that scaffolding materials could be a good facilitator to enhance international students' autonomy regarding Chinese language skill learning online, which was not a linear process but a recursive changing one. In terms of cultural learning, scaffolding materials were less effective on promoting students' online learning autonomy. Students preferred teachers' assistance to their cultural element learning and problem-solving. These findings shed light on online Chinese education during and after the COVID-19 pandemic, when Learn From Home policy of Chinese universities will last for a long time. A longer process of investigation from both qualitative and quantitative perspectives for international students' autonomous online language learning is recommended for future studies.

Keywords
scaffolding, learner autonomy, Chinese as a foreign language, online learning, cultural learning

Introduction
Over the past 15 years, the number of Chinese as a foreign language (CFL) learners has been increasingly growing in and outside China (Gong, Gao, & Lyu, 2020). To echo the need, more than 820 educational institutions have set various degree courses and short-term immersion programs for more than 500,000 international students across China (Ministry of Education, China, 2018). The numbers are expected to increase in the future as the growing importance of Chinese. Affected by the COVID-19 pandemic across the world, international students are facing changes and challenges concerning their routine learning in China. Under the guidance of the Chinese government, universities in China have postponed the commencement of the Spring Semester of 2020. International students enrolled in Chinese universities are suggested to continue language learning in their home countries via the internet.

Online language learning is inherently linked to the development of autonomy, while scaffolding plays a role in language development (Stockwell & Reinders, 2019). Scaffolding is the assistance that helps language learners overcome obstacles and challenges in their learning process (Belland, 2014). With the integration of modern technologies, new dimensions of scaffolding have been added to foreign language learning. Embedded digital resources are effective scaffolding to enhance language learning (Luhach, 2016). They are usually presented in various forms, including notes, scripts, hints, video captions, references, answers to learning tasks, and other extending information (Han, 2018). Together with learning content and tasks, these scaffolding materials play a strategic cognitive role in facilitating students' foreign language learning (Opperman, 2016).

Scaffolding materials have been accepted as a means of instruction in learning as well as a source of support, as learners can leverage knowledge and skills through overcoming their limits in learning, and achieve meaningful learning outcomes (Levitt, 2017). Learning with scaffolding materials, learners are assisted in doing something that “he...
or she might not have been able to do otherwise” (Ohta, 2000, p. 52). These materials are a tool to bridge the gap between the “learning needs” and the “target needs” of language learners (Basturkmen, 2006, pp. 25–26). To date, the effectiveness of scaffolding materials on foreign language learning has been widely recognized in different contexts (Altin & Saracalolu, 2018; H. Lin & Chen, 2007).

Currently, many scaffolding materials in CFL learning and teaching are usually selected, scheduled, and assigned by teachers in the classroom (H. Xu, 2012). Students have limited autonomy in learning with scaffolding materials, but rely on teachers to organize their learning, and to address their language skill learning problems, like difficult words and sentences, syntax, and writing practices. It is common in a Chinese course classroom that students wait for teachers’ direct assistance to their problems with vocabulary, even though explanations have been provided in learning materials. Regarding cultural learning, like reading historical stories, students show to be limited autonomous as well. They are dependent on teachers or peers when learning with cultural elements, instead of seeking necessary information by themselves from embedded scaffolding materials. It is indicated that the widely-employed approaches in Chinese universities do not create a supportive context for international students’ autonomous CFL learning, while students are not prepared for autonomous learning either (L. C. C. Wang et al., 2019).

Being autonomous is one of the objectives of language education: learners are expected to become “autonomous objects” in future learning (Dunn & Lantolf, 1998, p. 428), who are more likely to seek learning resources that suit their own learning needs, instead of waiting for teacher’s assignments passively (Nosratinia & Zaker, 2014). In recent years, language learning has largely shifted away from exclusively teacher-centered models toward student-oriented and autonomous approaches. Particularly during the COVID-19 pandemic, international students are required to Learn From Home (Ministry of Education, China, 2020). With less supervision and instructions from teachers are provided, learning is largely autonomous contextualized in an online context. Given the COVID-19 pandemic is widely affecting many countries across the world, international students are supposed to learn CFL online for a long time. Figuring out effective ways to enhance their autonomous learning in the new context is practically necessary at this moment. The present study is conducted to examine the use of scaffolding materials in international students’ autonomous online CFL learning. It is of referential value to language education across the world during and after the COVID-19 pandemic. To achieve the goals, the two research questions addressed in the current study are:

**Research Question 1**: What are the effects of embedded scaffolding materials on promoting international students’ autonomy in online Chinese language skill learning?

**Research Question 2**: What are the effects of embedded scaffolding materials on facilitating international students’ autonomous online cultural learning?

### Literature Review

Embedded digital materials are a common form of scaffolding in foreign language learning, which is the “static support that can be anticipated and planned in advance” (Brush & Saye, 2002, p. 2). Digital scaffolding materials are presented in various forms for learners, like notes to provide meanings of difficult words and to help better understand the reading passages, scripts to provide texts of multimedia resources, and references to provide extending learning materials.

Studies have highlighted the integration of digital scaffolding materials, which help learners achieve productive outcomes in autonomous language development (Marzban, 2011; Yeh & Wan, 2019). In an online environment, scaffolding is accessible for all learners, and provides general support to their learning needs (Oliver & Hannafin, 2000). Meanwhile, it also leaves more thinking spaces for learners’ promotion of autonomy than teachers’ or peers’ on-demand responses (Brush & Saye, 2002). Through learning with scaffolding materials, a language learner makes a shift of the role from a passive receiver of language knowledge to an active seeker or a knowledge contributor, and engages in the whole learning process with an autonomous attitude with less supervision needed (Betts, 2004). In this respect, scaffolding provides necessary support for learners, and encourages them to gain increasing self-initiation and self-regulation (Adolphs et al., 2018). As Smith and Craig (2013) have put, scaffolding is essential to the exercise of learner autonomy in foreign language development.

On this train of thought, a number of studies have been conducted to investigate the use of scaffolding materials. As studies have confirmed, forms of digital scaffolding materials, including notes, references, scripts, extending reading materials and video captions, play a role in language skill development with the increase of learner autonomy. This development is achieved through students’ learning with scaffolding materials in problem-solving (Ahmadi Safi & Rozati, 2017; Chen, 2020), learning planning (Botero et al., 2019), self-monitoring, evaluating, and adjusting (Ge et al., 2016), and extending learning (Cheng & Chiu, 2018). In this autonomous learning process, students acquire new knowledge as their problems are solved (Wood et al., 2006). Using digital scaffolding materials, students’ foreign language skills are developed with their autonomy being promoted.

Language always carries cultural elements and cultural codes (Iscan et al., 2017). The cultural dimension is claimed to be “an essential component” in foreign language education and “more than language skill learning” (Sercu, 2002). Grammatical and lexical knowledge, from this aspect, are as important as cultural awareness in foreign language development (Dervin & Liddicoat, 2013). Researchers have confirmed
the importance of cultural learning in foreign language learning and investigated the use of scaffolding in facilitating cultural awareness development. These studies have stressed that scaffolding materials could help learners understand the cultural contexts of their language learning, provide a self-initiative and self-regulated cultural learning frame (Vurdien & Puranen, 2020), as well as self-evaluation and self-reflection in cultural learning process (O’Neill et al., 2019). Satisfying outcomes are achieved via using embedded scaffolding materials, particularly in an online learning context, where learning is conducted in an autonomous way.

Learning from previous studies, it hypothesizes that scaffolding materials could promote foreign language learning by helping learners’ language skill development and cultural learning, as well as elevating their autonomy in learning activities. Only a few studies have investigated the employment of scaffolding in CFL learning and teaching, with less focusing on an autonomous online context (L. C. C. Wang et al., 2019; Y. J. Xu et al., 2019). These studies have provided a perspective to look into scaffolding in autonomous language skill learning and cultural learning. This study, being illuminated by previous ones, focuses on the effects of scaffolding materials on facilitating autonomous online foreign language learning and cultural learning during the COVID-19 pandemic.

Methods
Research Participants and Context
A total of 60 international sophomore students enrolled in a university voluntarily participated in this study. As a center for Chinese language and culture education in Southwestern China, this university provides a wide range of courses and programs for international students with various current language levels. It was chosen for the findings could be generalized. Of all participants, 60% were male (n=36) and 40% were female (n=24). They were non-native speakers or heritage speakers of Chinese with different educational backgrounds and native cultures. In average, this group of participants had studied Chinese for at least four years (m=5.4). All participants had passed Hanyu Shuiping Kaoshi (HSK) Level 5, which is equivalent to Advanced-Mid to Advanced-High of American Council on the Teaching of Foreign Languages (ACTFL).

Before the COVID-19 pandemic, these students attended Comprehensive Chinese courses in the university for at least 6 hours per week. The courses consisted of two major parts: language skill learning part, including learning and practice of four language skills—listening, speaking, reading, and writing; and cultural learning part integrated Chinese cultural elements, like learning, analyzing, and understanding Chinese history, culture, and society. A traditional textbook-based approach with visual-audio resources was adopted in the classroom. Teachers were at the center of the courses. They planned, arranged, monitored, and adjusted all learning-related issues like content, progress, and evaluation. Students were required to follow orders in class.

During the pandemic, international students returned to their home countries and attended courses via the internet. Due to the time differences, traditional in-class teacher-centered methods were not applicable. Students’ learning experienced a change from the teacher-centered way to the student-centered. Online Chinese language and culture learning was largely autonomous during the COVID-19 pandemic.

Data Collection
Six weeks’ online Comprehensive Chinese courses for all 60 participants were investigated in this study from March 2 to April 10, 2020. An online platform, which was developed by Chinese language experts and language teachers with more than ten years’ teaching experience in the university, was adopted. A wide range of embedded scaffolding materials including notes, scripts, captions, extending reading materials, references, and answers, were provided to facilitate students’ text- and video-based online learning (see Appendix A for a sample). These materials were incorporated to help students’ understanding of learning, problem-solving, learning organizing, self-evaluation, and other autonomous learning-related issues.

After the accomplishment of every two weeks’ learning, an online tutorial was provided. All 60 participants engaged in the tutorials. Experienced Chinese language teachers led the tutorials. Students could find the information they need to solve their problems and to promote their online learning. All tutorials were note-taken. After the tutorials, all students provided their written reflective reports. The reports were designed to collect information about participants’ immediate reflections of online scaffolding materials and teachers’ assistance both in the learning and the tutorials.

After six weeks’ online learning, eight of these participants were interviewed online individually. These interviewees participated on a voluntary basis. They were selected as representatives for their various backgrounds and Chinese learning experience. It made the findings be generalized and valuable for Chinese learners across the world. Table 1 lists the eight interviewees.

Data Analysis
The semi-structured individual interviews provided in-depth descriptions about their experience of scaffolding materials regarding their autonomous online Chinese learning. The guiding questions were developed by referring to the literature (Lim et al., 2011), and were modified according to their reflective reports. The full list of questions is attached in
Appendix B. Each interview lasted for around 30 minutes. Considering students’ various backgrounds and native languages, Chinese mandarin was used in the interviews for the researcher’s better understanding. Notes were taken. All interviews were recorded. With information from the tutorials and students’ written reflective reports, the data were analyzed and interpreted through content analysis and triangulation. The transcriptions of the data were translated by professionals and checked with the participants. A back-translation approach was also used to validate the information.

Results

Language Skill Learning and Learner Autonomy

In terms of autonomous language skill learning, data from this study displayed a dynamic process of international students’ perceptions and employment of embedded scaffolding materials in six weeks. Table 2 lists some key comments from the eight interviewees regarding their perceptions and use of scaffolding in online language skill learning. Changing attitudes of three interviewees (Chen, Li, & Yang) toward scaffolding were noticed in their reflective reports and interviews.

This study noticed international CFL students changed their ways of seeking assistance regarding specific language questions. At the beginning of this study (W1-W2), seven out of all eight interviewees, and 50 out of all 60 participants in online tutorials relied on teachers in tutorials for learning assistance, instead of using provided scaffolding materials that could have solved their problems by themselves.

Hey Teacher, could you please tell me what does “莫名其妙” (be baffling) mean in the reading? (Li in Tutorial 1)

What did it mean by saying “千里之行始于足下” (A journey of a thousand miles begins with the first step) in the reading part? (Chen in Tutorial 1)

I do not fully understand the listening part in the test... There is a word sounds like jì lù (记录). Am I correct? (Qiu in Tutorial 1)

Note. HSK = Hanyu Shuiping Kaoshi.

| Name (Pseudonym) | Sex | Age | Nation | Chinese learning experience | Length of staying in China |
|------------------|-----|-----|--------|-----------------------------|---------------------------|
| Bai F            | F   | 22  | Korea  | 5 years                     | Less than 1 year          |
| Chen M           | M   | 25  | U.S.   | 6 years                     | 3 years                   |
| Gao M            | M   | 19  | Thailand | 4 years                   | 2 years                   |
| Jiang M          | M   | 20  | France | 4 years                     | 2 years                   |
| Li M             | M   | 21  | Egypt  | 7 years                     | 5 years                   |
| Qiu F            | F   | 26  | Russia | 8 years                     | 8 years                   |
| Yang F           | F   | 22  | Vietnam | 6 years                   | 2 years                   |
| Zhang F          | F   | 23  | South Africa | 4 years       | 3 years                   |
I still did not get the last sentence of this listening part ("那如果明天不下雨，我们去你刚提到的那个地方。"). Well, if it doesn’t rain tomorrow, we’ll go to the place you have just mentioned. It was too long and complex. (Bai in Tutorial 1)

In writing tasks, I was not sure about the use of "牵挂" (care about) in the sentence "在那时，妈妈始终牵挂着在国外读书的我" (My mother always cared about me while I was studying abroad) . . . Chinese words often have several meanings. (Yang in Tutorial 1)

Hi, when I was doing the reading part, I was wondering what is the difference between 大名 (a formal name) and 小名 (a nickname)? Why do Chinese people usually have two names? (Zhang in Tutorial 1)

As students progressed in the online learning, changes were found. For those specific learning problems, such as the meanings of a word and the structure of a sentence, almost all participants (55 out of 60) attempted to solve by using scaffolding materials on their own. This was largely different from their previous learning. Some interviewees described their experience of using scaffolding:

Scripts provided me with details in the listening part. I did not need to waste your time on explaining the listening materials to me. (Yang in Tutorial 2)

I was quite confused with the meanings of “协助” (assist) and “援助” (aid) in this week's reading task. But soon I found in Notes the learning had provided a very detailed comparison. (Gao in Tutorial 3)

When I was learning with this text, I found its sentences were long and difficult. I was considering ask you for help, until I noticed there were many analyses in the Notes part. (Zhang in Tutorial 3)

I used the Notes and Scripts parts to learn the polyphonic characters in this part. They were quite clear. And I feel I am much aware of them now. (Chen in Tutorial 3)

In addition to specific language skill learning problems, students changed in dealing with some more general learning issues in their self-initiative and self-regulated learning activities, such as initial motivation to learn, effortful learning behaviors with less teacher supervision, and planning, monitoring, and evaluating their autonomous learning. This can be found from three interviewees’ comments (Chen, Li, & Yang): At the early stage of the online learning, 50 out of all 60 students in Tutorial 1 and 47 in Tutorial 2 were expecting the teachers to solve all their problems, although many of these problems could have been addressed by referring to scaffolding by themselves. Participants did not have many ideas about autonomous learning. They were dependent on teachers’ instructions and assignments. Some interviewees admitted their passive learning at this stage:

Hi Teacher, could you please check my answers? (Gao in Tutorial 1)

Hey, what should I do for the next week? I want to improve my HSK-5 scores. (Bai in Tutorial 1)

I spent a lot of time on finishing the assignments . . . May I reduce that burden? (Zhang in Tutorial 1)

I did not know what part of these tasks I should finish for this week. May I get some hints? (Qiu in Tutorial 2)

With the increasing experience of autonomous online learning, international students were gradually more independent from relying on teachers. By the end of Week 6, all eight interviewees, and 57 out of all 60 participants attempted to plan, organize, or evaluate their individual online learning with autonomous attitudes by referring to embedded scaffolding materials. Some examples from interviewees display their autonomy:

After checking with the Timetable for HSK in the References part, I decided to complete a set of HSK-5 practices every week. Do you think that would be appropriate for me currently? (Gao in Tutorial 2)

Hi, this is my learning plan for the next week. It was done by referring to Suggestions provided in the online learning. Could you please help me better it by considering my current learning? (Bai in Tutorial 2)

I am planning to get more listening practices with the Extending Practices part as my listening skill is not good enough. But I have only limited time. May I have less reading assignments please? (Zhang in Tutorial 3)

Hi, these are the materials I found in addition to the online ones. I will use them to better my learning for the next two weeks. Do you think they will be good for me? (Qiu in Tutorial 3)

What is the next? After I pass HSK-5 or HSK-6, what should I do to improve my Chinese language abilities in the future? (Bai in Tutorial 3)

Cultural Learning and Learner Autonomy

In terms of cultural learning, participants were dependent on teachers’ assistance in online learning from W1 to W6, rather than using embedded digital scaffolding materials with autonomous attitudes. Not many changes were seen in the whole online learning process. These can be found from three interviewees’ comments (Chen, Li, & Yang) in Table 4:
In the online cultural element learning, scaffolding materials were largely abandoned by most learners (44 out of 60). According to eight interviewees, five reported not to use scaffolding materials, but preferred their teachers to solve their learning problems, although scaffolding materials could have helped them:

Why cannot we say “端午快乐” (Happy Dragon Boat Festival) in China? (Qiu in Tutorial 1)

The Great Wall seems to be a military installation in ancient China. Why does the person in the video say it brought about economic benefits for China? (Gao in Tutorial 1)

This reading shared a story about a famous poetess named 李清照 (Li Qingzhao). Who was her? (Zhang in Tutorial 2)

Qin Dynasty was considered as the first one in ancient China. Why? What happened to those before Qin? (Bai in Tutorial 2)

I went through the extensive reading and I knew that there is a monster called “夕” (Monster Xi) in China and it often comes to the world on New Year’s Eve. So “除夕” (killing Monster Xi) means New Year’s Eve in Chinese language. Am I correct? (Qiu in Tutorial 3)

In terms of the general cultural learning, international students were not autonomous either. Although scaffolding materials had provided some suggestions, most of them (44 out of 60) reported their failure in organizing cultural learning independently and individually but waited for teachers’ assignments. Some interviewees mentioned this in the tutorials:

I do not know what specific topic to learn. I mean, it is challenging and seems to be less effective on my Chinese language development. (Bai in Tutorial 1)

I prefer my teacher to assign the learning for me. Just tell me what to read, what write, and what to listen to. That will be more straightforward. (Gao in Tutorial 2)

Learning with these materials was quite demanding. There were so many materials and I did not know how to pick up the most useful and relevant ones . . . That was supposed to be my teachers’ job. (Zhang in Tutorial 3)

Discussion

Language Skill Learning and Learner Autonomy

By investigating international CFL students’ online learning during the COVID-19 pandemic, this study noticed that embedded digital scaffolding materials could promote their autonomy in Chinese language skill learning. This finding is partly consistent with previous indications (Mojarrabi Tabrizi et al., 2019; Stockwell & Reinders, 2019). It was noteworthy in this study that students’ knowledge and use of scaffolding in their autonomous learning was not a static status, but a dynamic process.

At the beginning stage, participants’ understanding and use of embedded scaffolding materials remained a simple way. They simply used scaffolding as a tool to “check answers” (Chen in W1-2, Table 2). Scaffolding materials, like Suggestions, Notes, and Scripts, were provided in the learning. These materials should have facilitated their autonomous learning: Suggestions provided timetables of online learning for students with different language levels; Notes targeted the difficult words in reading and listening by providing detailed explanations, and; Scripts helped students fully understand their listening tasks. However, as students believed these scaffolding materials “never increase my scores in HSK” (Yang in W1-2, Table 2), most were ignored. It showed that most students at this stage did not know how to make good use of embedded materials to scaffold their online Chinese learning. They did not realize the value of these scaffolding to support their general language development, rather than simply increasing their test scores or checking answers. As Hamad and Metwally (2019) have suggested, scaffolding could have facilitated foreign language skill learning by providing a larger pool of learning materials and more practice opportunities. Being influenced by the traditional in-class learning approach, online students focused exclusively on HSK and other language tests. Their understanding of these materials was primary and incomplete at this stage.

Under the academic pressure and teachers’ requirement, international students in a Chinese university context generally follow a test-oriented approach for Chinese language learning (Zhao et al., 2005). Students used scaffolding materials only when they could increase their performances in language tests. Otherwise, using scaffolding was treated as “useless” and “a waste of time” (Yang & Li in W1-2, Table 2). D the outbreak of the COVID-19 pandemic worldwide, pedagogical mode and instructional pace as well as content of CFL courses changed. A new online CFL learning and teaching context had been established and employed. According changes in students’ learning were expected. However, international students did not adapt to the new learning with scaffolding, but continued their traditional ways.

Participants were also largely dependent on teachers for problem-solving at the early stage of their online learning. Although scaffolding materials have been widely used in Chinese language courses for years, scaffolding was limited to a traditional teacher-centered context (Y. H. Wang, 2017), and was mostly selected, scheduled, and assigned by teachers in Chinese classrooms (H. Xu, 2012). Language learners were expected to be self-initiative and self-regulated in online learning (Adolphs et al., 2018). As shown in Tutorial 1, however, seven out of all eight interviewees, and 50 out of all 60 participants still expected their teachers to help, although most of their questions (莫名其妙, 千里之行始于
Table 3. Participants’ Perceptions of Scaffolding Materials in Autonomous Learning.

| W1—2 | W3—4 | W4—6 |
|------|------|------|
| “To be honest, I did not want to spend too much time on extending learning.” (Chen) | “Are those extending resources useless if I could accomplish all learning tasks correctly? After the online learning, I began to doubt that point.” (Chen) | “What do I learn Chinese for? For knowing about a bigger world. I find these extending resources, together with the texts and tasks, provided me a picture of the world . . . No reason to ignore them.” (Chen) |
| “Reference answers were a big challenge for me. I always used them before I actually worked on those tasks.” (Li) | “In the past, I had to bother my teachers when I had some problems with my learning. Now I could learn with these supportive materials.” (Li) | “I am not sure if my way of learning was correct, but I found that was suitable for my situation, though it was not the same with my peers.” (Li) |
| “Scripts were good for listening practice . . . But scripts often turned my listening practice into reading one . . . I read them before I listened to the audio.” (Yang) | “I was not good at autonomous learning. But I would like to try my best, as long as I could have assistance like these notes and answers.” (Yang) | “Compared with my first week’s learning, I believed I could better plan my online listening now . . . I was able to control myself for not turning to listening scripts before I finished the tasks.” (Yang) |

足下,记录,牵挂,大名和小名), had been addressed in Notes, Scripts, References, and Extending Reading. As for their general language skill learning issues, students also relied heavily on teachers (Gao, Bai, Yang in Tutorial 1; Chen in Tutorial 2). Simply introducing scaffolding into online learning could not successfully help international students become autonomous. They remained passive receivers as less autonomous language learners as they usually did in the classroom.

It did not take long before participants deepened the understanding of scaffolding to enhance their autonomy in language skill learning. In line with empirical studies (Altin & Saracaloğlu, 2018; H. Lin & Chen, 2007), by using scaffolding, students could accomplish the difficulty learning content they could not do before (Chen & Li in W3-4, Table 2; Chen in W5-6, Table 2). They did not focus exclusively on language test scores, but paid more attention to other aspects of language development, like more learning content (Chen & Li in W5-6, Table 2) and cultural and historical knowledge (Yang in W5-6, Table 2). By engaging with more scaffolding resources, participants gradually recognized it to bridge the gap between their current language levels and their learning goals of overall language development (Basturkmen, 2006). Scaffolding played an effective tool to facilitate students’ language development in an autonomous context.

This was different from their previous learning in the classroom or their early-stage online learning, when learning was usually scheduled, assigned, monitored, and adjusted by teachers (see Chen, Li, & Yang, Table 2). Embedded digital scaffolding materials, as reflected in this study, were acting a mediation role that was valuable to students’ learning (Ash & Levitt, 2003). Scaffolding could promote language learning to a higher level in students’ individual language development without teacher’s over-intervention (Khaliliqdad, 2014), and elevate their autonomy in the online context.

By using embedded scaffolding materials, international students were more self-initiative and self-regulated in the online learning. They gradually showed the sign as more autonomous language learners that they could independently evaluate their current learning, plan their future learning, and find assistance from a broader context, like setting their individual learning timetables by referring to Suggestions and finding themselves more learning resources from Extending Materials (Gao & Bai in Tutorial 2; Zhang, Qiu, & Bai in Tutorial 3). With embedded scaffolding materials, these learners could be characterized as “high autonomous learners” (Poole, 2005) in online Chinese language skill learning.

In addition to their self-initiative and self-regulated online learning, these students were also seen to become less dependent on teachers by using scaffolding materials (see Chen, Li, & Yang, Table 3). The use of scaffolding helped create a learning context that allowed for the promotion of learner autonomy (Lantolf & Appel, 1994), and helped students achieve the goal of autonomous learning that they could hardly do in a traditional classroom (Shi et al., 2019). Almost all students (57 out of 60, reported in Tutorial 3), with scaffolding materials, attempted to shift the role to active language learners, and engaged in the whole learning process with an autonomous attitude, rather than waiting for teacher’s assignments.

To wrap up, a dynamic process was found in the study that international students gradually realized the value of embedded scaffolding materials in CFL skill learning. With their employment of scaffolding, they elevated the autonomy and promoted the learning to a higher level. Learning with scaffolding materials catered for the overall development of Chinese language skills as well.

Cultural Learning and Learner Autonomy

Regarding cultural learning, it was found from this study that embedded scaffolding materials could not effectively enhance international students’ autonomy. Teachers’
planning, monitoring, and evaluation remained the key to promote both their cultural element learning and cultural learning problem-solving.

Found from the present study, participants considered cultural element learning challenging, since cultural shocks, stereotypes and unfamiliar cultural differences often interrupted their learning (Chen, Table 4; Li & Yang in W5-6, Table 4). Facing these obstacles, many students did not use embedded scaffolding materials. They treated these materials as “a burden” to their online learning activities (Chen in W3-4, Table 4). Scaffolding materials should have helped CFL students better conduct their learning, and reduced the learning burden to achieving satisfying learning outcomes (Ge et al., 2016). However, participants heavily relied on teachers’ assistance, rather than solving their problems on their own (five of eight interviewees, 44 out of all 60 participants). Compared with embedded scaffolding materials, as Li and Yang (in W5-6, Table 4) have put, students believed scaffolding materials were “far from enough” for their cultural element learning, while teachers were a better choice.

Furthermore, online students also failed to solve their learning problems in autonomous cultural learning. For many of their learning problems, students could have solved them by referring to embedded scaffolding materials: 端午 and 除夕 were introduced in detail in Extending Reading; Qin Dynasty and the Great Wall were briefly introduced in Notes; and References provided several latest studies on 李清照 (Qiu & Gao in Tutorial 1; Zhang & Bai in Tutorial 2; Qiu in Tutorial 3). Unlike the promotion of learner autonomy in language skill learning in W3-4 and W5-6, however, most students (44 out of 60) were dependent on teachers in the whole study. In this respect, this group of students showed a low degree of autonomy in cultural learning in an online context. They did not systematically consider or use scaffolding as a facilitator of cultural awareness development but followed a traditional way of cultural element learning in the classroom.

Student’ perceptions and uses of scaffolding materials in cultural learning as observable outcomes were not all correct but a reflection of their long-term CFL learning experience in China. Cultural learning in Chinese universities largely follows a traditional approach that teacher-centered, didactic pedagogic discourse is the norm. Learning in this way, students preferred to wait for teachers’ instructions, assignments, and assistance, instead of constructing their learning independently and individually. International students, as found from this study, were not fully prepared for the changes in online cultural learning. They continued their traditional ways of learning that was planned, assigned, monitored, and evaluated by teachers, although new autonomous online learning had been implemented.

Cultural awareness is a necessary part of foreign language learning. As Dervin and Liddicoat (2013) have put, grammatical and lexical learning is supposed to be conducted together with cultural learning to develop students’ foreign language abilities. Gong, Lai and Gao (2020) have noticed that appropriate cultural elements could motivate CFL students, making their Chinese learning autonomous, alongside the improvement of their language skills. Learning in a new online context, however, this group of international students showed low autonomy and remained passive in cultural element learning and cultural learning problem-solving.

By investigating international students’ online Chinese learning with scaffolding materials, this study hopefully reveals a picture of students’ autonomous language development during the COVID-19 pandemic. It is expected to help students, educators and researchers share some thinking on questions and challenges raised during this time. And it may contribute to the development of online language learning.

Table 4. Participants’ Use of Scaffolding Materials in Cultural Learning.

| WI—2       | W3—4       | W5—6       |
|------------|------------|------------|
| “Those materials contained a lot of cultural content and Chinese historical stories. These were too abstract and obscure, and different from what I knew, I did not like to waste my time on them.” (Chen) | “Extending reading, from my learning experience, increased my learning burden. They were too difficult for me.” (Chen) | “Learning with extending reading materials always brought me more questions.” (Chen) |
| “Cultural materials seemed not to be valuable since they could not increase my scores in language tests.” (Li) | “When I got some leisure time, I had a look at those cultural stories . . . They were quite interesting, but I did not see the reason for spending time on them.” (Li) | “From my experience, cultural learning could enhance my Chinese language abilities. But it was more demanding than listening or reading . . . Just those materials might be far from enough for my cultural learning.” (Li) |
| “Those stories and extending reading could be a good tool to improve my cultural knowledge. However, they seemed not to solve my learning problems directly . . . They were less instructive then my expectation.” (Yang) | “I preferred my teachers to help me rather than these materials . . . They were confusing. (Yang) | Cultural learning was very demanding. Learning with them often caused a lot of problems. Teachers should be there for us. (Yang) |

...
and teaching as well as the promotion of learner autonomy for students’ lifelong learning.

Conclusion

This study explored international students’ use of embedded digital scaffolding materials to promote their autonomy in online CFL learning. Findings showed that scaffolding materials helped international students autonomous and independent in language skill learning. Regarding cultural element learning, international students were less autonomous. They largely abandoned scaffolding materials, but heavily relied on teachers for learning and problem-solving.

The promotion of learner autonomy with scaffolding materials in international students’ language skill learning was a dynamic recursive process. In the new online learning context, students promoted their autonomy through frequent attempting, monitoring, and reviewing in the learning. They made many mistakes in the process, and then revised them by seeking assistance from scaffolding materials and teachers. As Eckerth and Tavakoli (2012) have put, learning in a new context is more like a complex process with revision and relearning, as well as opportunities to engage with the resources in the long term. It took time before participants could make full use of scaffolding as a new tool to support their language skill learning in a new environment. In this process, they should be allowed for the room to make errors and mistakes, and had access to teachers’ instructions (Barnard & Campbell, 2005). Besides, appropriate encouragement was also of importance for international students, particularly in a new autonomous learning context (Baz et al., 2018).

As for cultural learning, embedded scaffolding materials did not promote international students’ autonomy in online Chinese learning. Students preferred their teachers to help their cultural awareness development both in cultural element learning and cultural learning problem-solving. The online cultural learning process was less autonomous and scaffolding materials were largely abandoned in this area.

For international students, cultural learning is a multifaceted and long-term endeavor that requires consistent investment (Yassin et al., 2020). Cultural learning is supposed to be conducted in a supportive context, where students have access to scaffolding from both embedded materials and teachers. At the current stage, it might be too early for international students to learn in a teacher-free autonomous context, as they could hardly plan their cultural element learning. Neither could they solve cultural learning problems independently. Besides, student retention remains a challenge for online CFL education, which might be worse in an autonomous context. Scholars had noticed the seamless CFL learning supported by new online and mobile technologies (Gong, Lai, & Gao, 2020). It might be a way for international students to access effective integrated scaffolding in cultural learning, and to adapt to the new CFL learning context. Further exploration of effective ways for autonomous cultural learning in an technology-supported context is suggested.

The outbreak of the COVID-19 pandemic is a challenge for Chinese universities and CFL education as it forces teachers and students to change the traditional approaches before they are fully prepared. Due to the time limit, this study only investigated online learning from a qualitative perspective. Mixed methods for investigation are encouraged, which may obtain more empirical evidence to better the design and implementation of online CFL learning and teaching across the world before the COVID-19 is eliminated.

Appendix A

A sample of the online Chinese language skill learning during the COVID-19 pandemic:

Vocabulary learning tasks

| 问题 | 词汇测试 |
|------|---------|
| 1. (判断) “不由自主”意思是控制不住自己。 | 对 17/ 错 0 |
| 2. (判断) “言过其实”意思是说话不符合事实。 | 对 15/ 错 2 |
| 3. (判断) “咬耳朵”指的是用牙齿咬耳朵。 | 对 0/ 错 17 |
Listening tasks

Scaffolding materials: Scripts and Notes

### Appendix B

Guide questions for interviews:

1. For what purpose did you use scaffolding materials (notes, scripts, hints, video captions, references, answers to learning tasks and other extending information) in your online language skill learning?

2. What do you think of scaffolding materials in your online language skill learning?

3. What effects scaffolding materials had on your online language skill learning?

4. How did you use scaffolding materials had in your online language skill learning?

5. How did you solve your language skill learning problems in your online learning?

6. What do you think of scaffolding materials in your online cultural learning?

7. What do you think of scaffolding materials for problem-solving in your online cultural learning?
(8) Do you think that scaffolding materials could make your online language skill learning more autonomous?
(9) Do you think that scaffolding materials could make your online cultural learning more autonomous?
(10) Do you think that scaffolding materials could replace teachers in your online learning?
(11) Do you think that you can learn Chinese language autonomously online by using scaffolding materials?

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