Technology as Enabler of Learner Autonomy and Authentic Learning in Chinese Language Acquisition: A Case Study in Higher Education
(利用科技推动中文习得的自主性和真实性 ——高等教育个案研究)

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Abstract: Based on the Constructivist approach, meaningful learning only occurs when learners have agency to construct meaning through social interactions. The ability to self-direct, communicate, collaborate, and transfer learning to real-life situations are crucial skills for the 21st century. These skills allow new generations to adapt to this new information era in any field and/or disciplines they pursue; foreign language acquisition is not an exception. In this article, the authors argue that language learning can help learners cultivate such abilities with the aid of a holistic curriculum design and the effective use of technology. The authors also explore how using tools, such as Google MyMaps, WordPress, and Adobe Spark, in a semester-long "Food Project" may promote learner autonomy and authentic learning, as well as improve the acquisition of 21st century skills. Technology-based curricular strategies, work progression, and student feedback are presented in the article. Through qualitative analysis, the authors conclude that by focusing on authentic learning and learner autonomy using instructional scaffolding students can enhance linguistic literacy, create a sense of ownership, sharpen cultural awareness, transform interdisciplinary skills, and establish a supportive learning community in the process.

摘要：建构主义学派认为，学习是学习者透过社会文化互动，将知识经验内化并从中建构意义的过程。在二十一世纪的信息时代中，自主学习、沟通合作、知识迁移和转化都是在各个领域中不可或缺的素养。作者认为，这些技能不但在语言学习中扮演重要角色，另一方面，完善的课程设计和有效的科技应用亦能加强这些能力的培养。本文介绍如何将"食物与文化"的课程设计与科技媒体相互搭配，以提高中文学习过程中的自主性和真实性。透过质性分析，从学生的表现和反馈中可以看出，支架式教学设计以及多媒体工具的辅助能有效提升学生的语言能力，提高学生的学习自主权和文化敏感度，并提升跨领域和知识转移的能力，同时在学习过程中建立起相互支持的学习社群。

Keywords: Language and technology, Constructivism, scaffolding, ZPD (zone of proximal development), learner autonomy, authentic learning

关键词：科技与语言、建构主义、支架式教学、近侧发展区、学习自主性，真实性学习

1. Introduction

With the arrival of computers and the internet, access to information has increased worldwide, starting the information era. As a response to this new phenomenon, many organizations have attempted to inform society of new needs brought about by this change. Among them, the International Society for Technology in Education (ISTE) has made a major contribution to this conversation by creating the ISTE standards (ISTE, 2019), initially known as 21st-century skills. These standards are essential abilities that individuals should strive to achieve in order to properly adapt to new world needs. At the same time, constructivism has emerged as a teaching and learning philosophy due to its focus on social and active learning. Constructivism can enable authentic learning experiences since its core lies within social interactions. Furthermore, many researchers (Phillips, 1995; Airasian & Walsh 1997; Tam 2000) have reported that a certain level of learner autonomy is needed to transform the learning experience. This paper aims to report back on using a constructivist approach to implement technology in curriculum design, and how it promotes learner autonomy and authentic learning.

2. Literature Review

2.1 Learner Autonomy

In constructivism, knowledge is not a set of "facts" but integrated information that is actively constructed and is constantly evolving in a learner's mind (Phillips, 1995; Airasian & Walsh 1997; Tam 2000). In other words, instructors cannot directly "give" knowledge to learners, but learners play a central role in processing old and new information, along with their experiences, to construct evolving knowledge. As Bada and Olusegun (2015) concluded, "this constructivist view of learning considers the learner as an active agent in the process of knowledge acquisition" (p. 66). To apply this approach to language learning, Little (2007) defined the essence of learner autonomy as "the ability to take charge of one's own learning" (p. 15). He emphasized that "the development of learner autonomy and the growth of target language proficiency are not only mutually supporting each other but are fully integrated with one another." In other words, when language learners are fully in charge of their own learning, not only is the target language proficiency effectively enhanced, but also is their positive identity as autonomous learners.

Little (2007) also applied three important teaching principles to enhance learner autonomy, namely "learner involvement," "learner reflection," and "target language use." Learner involvement "requires that the teacher draws her learners into their own learning process, making them share responsibility for setting the learning agenda, selecting learning activities and materials, managing classroom interactions, and evaluating learning outcomes (Little, 2007). It is clear that learner involvement is not a spontaneous and one-time teaching moment, but a process that requires thorough proactive planning, careful and adjustable implementing, and reflective and mindful evaluation. By doing so, the instructors "provide suggestions and procedures that lie beyond their (the learners) experience, cultivating a classroom dynamic that constantly lifts them to new levels of effort and achievement" (Little, 2007, p. 24). This view resembles the core concept of zone of proximal development (ZPD) and scaffolding in the constructivist learning approach (Vygotsky, 1980).

When talking about "learner involvement," it is inevitable to include "learner reflection," which refers to the state of mind when learners are deeply engaged in the learning process (Little, 2007; Little & Legenhausen, 2017). It is suggested by Little that structured and planned "reflective interventions" should also be addressed in the teaching-learning process to encourage students to engage reflectively with the process and content of their learning. Enhancing learners' capacity to reflect on content and the learning process can also increase the sense of ownership in their overall learning experience. As has been discussed by many language acquisition theorists (e.g., Ellis, 2003), the principle of "target language use" is especially crucial for language learning. Based on the constructivist learning approach, a second language is best acquired when it is practiced as part of social interactions (Marlowe & Page, 2005) and when it is used as a metacognitive tool to reflect on and process the learned information (Little, 2007). In other words, only when the learners see the target language as a medium for communication and reflection can they truly become autonomous producers of the target language.

2.2 Authentic Learning

It is generally acknowledged that language acquisition is not an independent activity of learning words and grammar structures; rather, it is a process of enculturation in which authentic activities and social interactions are the central components of learning (Brown, Collins, & Duguid, 1989). In addition, the constructivist approach illuminates that learning is an active and social process in which learners construct new knowledge with prior experiences and newly encountered ideas. Therefore, an authentic learning environment encourages learners to make connections between learned information and the real world. However, it is widely recognized that current textbooks are often a poor representation of the real world (Gilmore, 2007). Yet, having authentic materials does not instantly make an authentic environment if they are only followed by memorization and comprehension activities (Ozverir & Herrington, 2011). Instead, the original purpose of the authentic materials should be realized by exchanging information between the author and reader, and by constructing meaning that is relevant to real life. Hence, Gilmore (2007) suggests that to create an authentic learning environment, a holistic curriculum design will

be needed. To help connect the classroom to the world, Herrington, Oliver, and Reeves (2003) identified ten characteristics of authentic activities:

> (1) have real-world relevance; (2) are ill-defined, requiring students to define the tasks and sub-tasks needed to complete the activity; (3) comprise complex tasks to be investigated by students over a sustained period of time; (4) provide the opportunity for students to examine the task from different perspectives, using a variety of resources; (5) provide the opportunity to collaborate; (6) provide the opportunity to reflect; (7) can be integrated and applied across different subject areas and lead beyond domain-specific outcomes; (8) are seamlessly integrated with assessment; (9) create polished products valuable in their own right rather than as preparation for something else; and, (10) allow competing solutions and diversity of outcomes (p. 4-5).

To apply these characteristics to language learning, learners create work based on their own interests and real-world relevance through a sustainable process of collaboration, reflection, use of multiple resources, and drawing on interdisciplinary skills. Through this process, learners have an opportunity to investigate topics that matter to them and to acquire skills and knowledge beyond language learning.

2.3 Technology in Education

Technology has become an integral part of our lives and, consequently, an unavoidable part of the educational system. Technology allows us not only to access a wide array of information, but also enables us to share knowledge with others. The mere action of sharing information online can transform learners into active co-producers of content. This can help students become motivated and empowered in the creation of sustainable knowledge networks, enabling desired learning outcomes, and augmenting the learning experience (Blumenfeld et al., 1991; Dabbagh & Kitsantas, 2012). In their influential book, *How People Learn*, (Bransford, Brown, & Cocking, 2000) went even further and concluded that there are five ways to establish effective learning environments using technology. These five ways are described as: "bringing real-world problems into the classroom setting, providing scaffolding support throughout the learning process, increasing feedback opportunities, building communities (locally and globally), and expanding teacher's learning opportunities" (p. 243).

As an engaging tool, technology encourages students to shift from passive learners to active learners by allowing them to create their personal materials (Suwantarathip & Wichadee, 2014). While participating in technologically supported activities, students think about themselves as active contributors to knowledge instead of passive recipients of information. In addition, by participating in interdisciplinary projects using technology, students can not only achieve collaborative skills but other important 21st century skills, such as problem solving, creativity, data management, and communication as well (Moeller & Reitzes, 2011). The use of technology can also enhance critical thinking, conceptual connections, and mastery of knowledge and skills (Moeller & Reitzes, 2011).

Such skills align with many of the International Society for Technology in Education (ISTE) standards: empowered learner, digital citizen, knowledge constructor, computational thinker, innovative designer, creative communicator, and global collaborator (ISTE, 2019). These standards aim to guide the development of curriculum around technology, implying that technology can have a certain importance in enhancing the learning process. At the very least, as Scardamalia and Bereiter (1993) mentioned, technology has the potential to alter educational discourse by adding variety and dynamism to the teaching and learning process. As to the field of language teaching and learning, there have been multiple reports that analyze and recognize the positive effects of instructional technology use. Video development (Ariew, 1987; Gardner, 1994; Nikitina, 2009, 2010), map visualizations (Lamb & Johnson, 2010; Patterson, 2007), and online blogging (Elola & Oskoz, 2008; Miyazoe & Anderson, 2010) are a few examples of the widely discussed tools that we will be using in our project.

To ensure the effective incorporation of technology and pedagogy, researchers have studied the implementation of several conceptual frameworks, one being the SAMR (substitution, augmentation, modification, redefinition) model (Hamilton, Rosenberg, & Akcaoglu, 2016). This model creates an opportunity to evaluate the use of technological tools and the impact that they may have in the learning process. As part of this evaluation, modification (technology enabling a significant task redesign) and redefinition (technology enabling the creation of new tasks that before were inconceivable) appear as the two higher levels on the model. They are described as levels that transform the educational experience. As other research and studies have reported, the empirical evidence leads us to believe that technology plays a role in supporting the learning process. We believe technology is here not to replace pedagogy but rather to support it. With this in mind, this paper will use the social constructivist approach as the groundwork to develop strategies with implications for cognitive development. Furthermore, we will use the SAMR model to show how technology enables students to work on new tasks that best engage them in constructing knowledge in community.

3. Theoretical Framework

3.1 Zone of Proximal Development and Scaffolding

Constructivist theory proposes that knowledge and understanding occurs first at a socio-cultural level and then at an individual level (Vygotsky, 1980). Vygotsky also pointed out that "the most significant moment in the course of intellectual development, which gives birth to the purely human forms of practical and abstract intelligence, occurs when speech and practical activity, two previously completely independent lines of development, converge" (Vygotsky, 1980, p. 24). This constructivist approach illustrates how problem solving and collaboration are key to improving learners' cognitive development. In his analysis of the interactions between learning and development, Vygotsky specifies that the zone of proximal development (ZPD) is a formula to enable "good learning," in which there is progress in the individual's cognitive development. This

conceptual approach has the capability to converge efforts and guide curricular enactments in second language learner environments (Schwieter, 2010).

ZPD is understood as the developmental area that can be achieved with the assistance of a mentor or teacher. It is an area that a given person is unable to achieve by their own means (Vygotsky, 1980). As Vygotsky noted, "what is in the zone of proximal development today, will be the actual developmental level tomorrow" (p. 87). This constitutes the foundation of what researchers understand by scaffolding. The concept of scaffolding introduced by Wood, Bruner, and Ross (1976) attempts to guide cognitive development by creating consciousness of the need to break down learning goals into stages that, although challenging to learners, are within a reachable distance in their ZPD. In addition to instructional guidance, peer collaboration and support are important to achieve a positive learning experience. As Wass and Golding (2014) remarked, "scaffolds might include offering the opportunity for peer support where students can observe and copy how a peer solves similar problems, getting peer feedback about the effectiveness of their strategies, or collaboratively inventing new strategies." Wass and Golding (2014) also highlighted in their conceptual analysis that the use of ZPD is not widespread in higher education. Nevertheless, that is not to say there is no value in applying its criteria in the development of a given curriculum at this level.

We have discussed how learner autonomy and authentic learning are crucial for positive language learning experiences and how scaffolding can help learners reach their ZPD. To apply this theoretical position to a practical situation, this project aimed to help students to: (1) creatively apply their language skills to authentic settings; (2) deepen their cultural and linguistic literacies by putting language use into real-world contexts; (3) encourage student autonomy through choosing their topics as well as developing a digital product; (4) foster a collaborative learning community; and (5) encourage students to develop and express multi-literacy through the use of different technologies. In this paper, we will report on the implementation plan and the selected tools we used throughout the learning process of carrying out the Food Project. The project was introduced to an intermediate Chinese course at a higher education institution. There were 33 participants in a period lasting one semester. We will share student feedback and authors' reflections to provide a deeper understanding of how this curriculum design with technological implications impacts learning and teaching.

3.2 Scaffolding the Learning Experience

As can be seen in Figure 1, the Chinese Food Project had an implementation plan that required an entire semester. The project was presented on the first day of class, and it was followed by an Adobe Spark workshops week 3. At mid-semester (weeks 6 and 7), students started reading sessions to review previous lessons, which also prepared them to write their proposal. Between weeks 9 and 12, students wrote their first draft and completed three revisions. Google MyMaps and WordPress workshops were also held during this time. After written drafts were completed, students had two weeks (weeks 13 and 14) to create digital narratives before the screening and discussion in the final week. The authors will illustrate the details of how each phase was implemented in the following section.
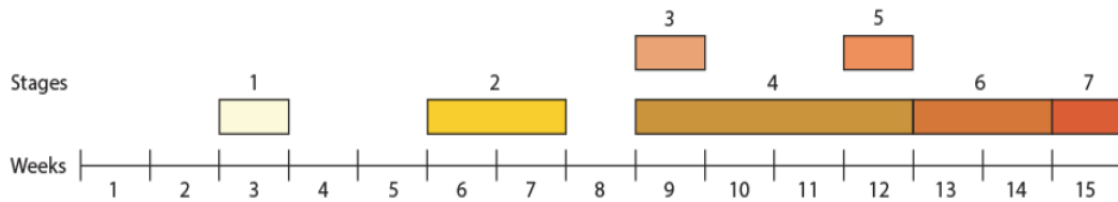
Figure 1 A breakdown of the semester-long plan for the Food Project

Stage 1. Week 3: Video tool workshop (Adobe Spark)

Shortly after explaining the Food Project on the first day of class, Adobe Spark, the video making application, was introduced. In addition to practicing how to make videos, students also learned about how to locate and legally use digital resources such as images and videos. As a follow-up assignment, students were asked to produce a short video about traditional foods for Chinese New Year corresponding to the current lesson topic "Chinese Spring Festival." This also served as the first step for students to familiarize themselves with the technology through a micro-task related to the Food Project. Throughout the semester, students had other video presentation opportunities to practice using the tool before the final project was due.

Stage 2. Weeks 6 and 7: Mid-semester review

During this stage, the textbooks were put aside and replaced with food-related reading materials. The narratives are designed to review previous topics and preview upcoming lessons. There were two types of narratives used: instructor-created narratives and essays from former students. The following are some examples:

(1) "素食天堂-台湾" (c.f. Appendix A and B): This instructor narrative talks about the religious and cultural background of traditional vegetarian food in Taiwan and how it evolved to become a versatile cuisine and an indication of social and lifestyle changes in modern times. Students learned about traditions, culture, and social changes through reading text, watching videos, doing reading exercises, discussing questions, reflecting on their own culture and personal experiences, and developing a similar narrative as preparation for the final project.

(2) "The Lobster in Maine" (c.f. Appendix C): This student narrative talks about changes in social perspective toward lobsters in Maine, which is intertwined with the history and economy of the local community. The goal of assigning former students' essays was to provide potential topics and perspectives, and also to motivate current students to develop a polished end product, as referenced in the student feedback below.

> *I really liked the chance to read other [former] students' essays. It gave me inspiration to write my own and helped me see how much I had learned so far this semester.*
> *Discussing previous students' work is one of the most helpful activities. It helps us have a general idea of what our projects should look like and learn*

from some mistakes/things we disliked about theirs. By doing this, it helped me realize I wanted to change my proposal.

After exploring and brainstorming potential themes, students decided on the food topic based on their own interests. The review week aimed to scaffold students' linguistic knowledge and cultural literacy, and paved the way for the final food essay through guided reading and writing exercises as well as small group discussions.

Stage 3. Week 9: Google MyMaps workshop

After students had their topic and outline ready, a Google MyMaps workshop was conducted to help students visualize the context of their writing by marking the region(s) related to their food topic. Having a different way to present their topic also gave students an opportunity to reflect on their ideas. Additionally, working on a shared map allowed the students to see each other's work and set the tone for a collaborative learning environment.

Stage 4. Week 9 to 12: Writing sessions and draft revisions

After receiving feedback on their proposals at the end of the review week, students started a three-draft writing process. Proofreading groups were formed to create a sense of an authentic audience and writing community. Students submitted each draft through Google Docs, where exchanges of comments and documentation of the writing process took place. In addition to receiving instructor and peer feedback on each draft, writing sessions and small group meetings were held during class time to provide more guidance and assistance.

Stage 5. Week 12: WordPress workshop

After students completed their final draft, a WordPress workshop introduced students to the blog site where they would post their final essay and video at the end of the semester. WordPress allowed students to document their progress and to showcase their work, this time with the addition of multi-module media such as text, images, and videos. The workshop also reinforced the adequate use of digital resources, gave students a glimpse of what the end product would look like, and signified that the project had moved towards the final stages.

Stage 6. Weeks 13-14: Video production

Before the final screening week, students had two weeks to polish their writing and create a digital narrative video using Adobe Spark or any other video making tools of their choice. In addition to paying attention to their linguistic proficiency, such as pronunciation and tones, students also exercised their digital literacy by being allowed decision-making over multimedia choices (i.e. music and image) to present their ideas. They also practiced their information literacy by properly locating and using digital resources. Additionally, the process of making digital narratives allowed students to reflect on their written work and document their learning outcomes.

Stage 7. Week 15: Screening and discussion

During the final week, students took turns sharing their final video and answered peers' questions. In addition to verbal exchanges, written feedback and questions were submitted through a shared Google Doc. These questions were used as part of the final exam.

As illustrated above, the development of the project took a whole semester. All the phases and workshops were put together like jigsaw pieces to best scaffold students' learning experiences in order to achieve the project learning goals.

4. Achieving Learning Objectives with the Assistance of Technology

In order to establish effective learning through the use of technology, we followed the previously mentioned five principles created by Bransford et al. (2000) and introduced several tools to the class to develop the project. Though Google Docs was also used as part of this project, the authors will focus on the technologies that fall under the modification and redefinition categories in the SAMR model. These categories are believed to be capable of enabling a transformation of the educational experience. Furthermore, although we understand there are many tools that could work for the teaching purposes of this project, the authors chose to make use of three tools supported by the instructional technologists at the college. These tools were: Google MyMaps, WordPress, and Adobe Spark.

A. Google MyMaps

Google MyMaps is an application in the Google suite that allows users to create pins, shapes, and lines on a custom map. These elements could also include descriptions, images, and videos. This tool enables a space for synchronous and asynchronous collaboration. The students' task was to share their work using this tool; for that purpose, a single class map was provided.

Google MyMaps provides an authentic learning environment in which students apply their cultural literacies to a real-world map and examine food culture through geographical context. It also encourages students to reflect on their thinking and creating process through making the connections between food and its geographical distribution. Working on the collaborative map can also strengthen the learning community by allowing students to observe how individuals' food topics connect with each other. Student feedback revealed a positive impact of using Google MyMaps for this project:

> *"I liked being able to see the map with everyone's pins on it, to observe the geographical distribution of the foods we were learning about."*

Figure 2 A screenshot of the pins and areas of interest on the shared Google MyMaps

B. WordPress

WordPress is an open source content management system that enables the publication of websites and the creation of web content with the aid of a user friendly WYSIWYG (what you see is what you get) editor. In this project, a private website was developed by both the faculty and the instructional technologist. Enjoying an "editor" role on the site, students focused on the development of two blog entries, including a proposal and final product.

The WordPress site served as a collaborative platform where students were allowed to share progress on their work and ideas with their peers. It hence established an authentic readership. It also documented and highlighted the progress students made throughout the semester. Furthermore, through choosing and integrating multi-module media on their own blog posts, students improved multimodal literacy and digital literacy while reinforcing their learner autonomy. At the end of the semester, the outstanding products were also posted on a public Food Project site to connect with a wider global audience. Student feedback revealed how WordPress gave students a sense of achievement, ownership, and learning community. Feedback inlcuded the following remarks:

> *"Seeing the progress on the wordpress* [sic] *was super great!"*

> *"I really like WordPress and Google MyMaps so that I could see geographically where everyone's food came from and could see their project in blog form."*

WordPress served as the host of the class final project. This included their project narratives, the Google MyMaps pins, and their final videos. At the end of the semester, using selected student projects, a public website was created: http://sophia.smith.edu/chinese-food-project (Figure 3).
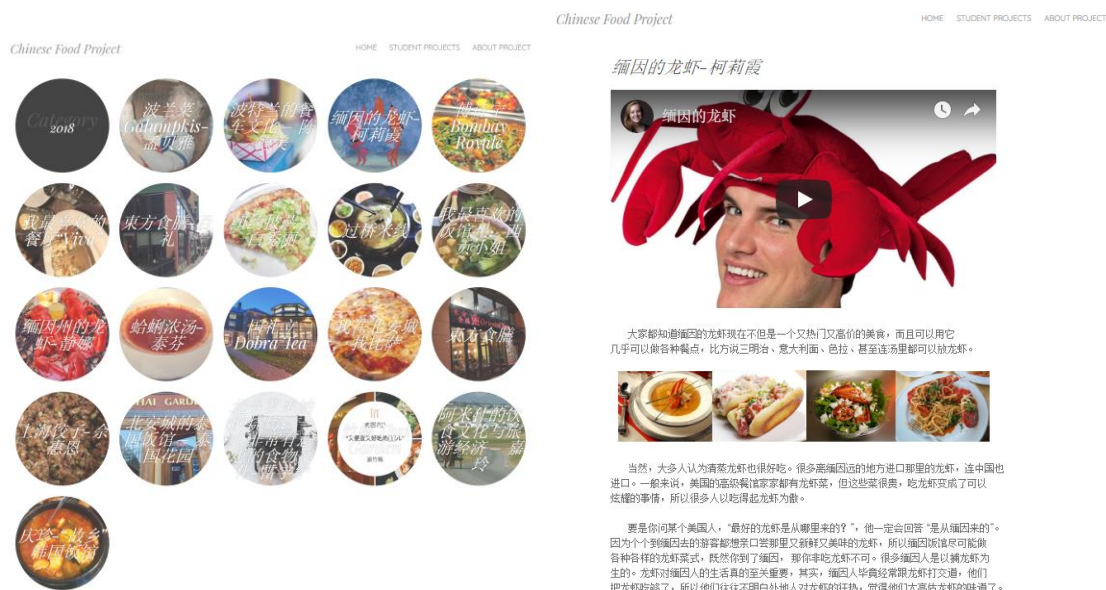
Figure 3 Screenshots of the Chinese Food Project WordPress site
The left side depicts featured images from each project. The right side shows a single project view, including video, images and narrative.

C. Adobe Spark

Several video editing tools were available to students. Many of them had experience using tools such as Explain Everything and/or WeVideo. Students were welcomed to use those tools on their final project. The curricular plan had, however, Adobe Spark as the preferred tool for the project. Adobe Spark is a free web-based application that enables the development of video stories (or digital narratives) within a user-friendly interface.

Making digital narratives encouraged students to practice and evaluate their pronunciation when reading the script out loud. The process of recording also encouraged students to reflect on their writing, reading, and speaking skills. Besides documenting the learning process, students exercised digital literacies by implementing proper multimodal media to deliver their ideas. Sharing and discussing the videos during the screening sessions strengthened the learning community and enhanced students' cultural and linguistic literacy. Student feedback revealed how making videos helped them improve their linguistic, cultural, and digital literacy skills:

> *"Making videos and having to listen back to the pronunciation definitely helped me to see what mistakes I was making."*

> *"Having to read the whole narrative out loud forced me to review the pronunciations for many words that I had overlooked before or hadn't taken the time to practice speaking."*

"The viewing party on the last day of class allowed me to watch others videos and not only learn about my fellow classmate(s) but also practice listening and learning about culture as well"

5. From Theory to Practice: The Impact on Learners

5.1 Language Proficiency

One of the core objectives of this project was to enhance students' language proficiency. Through the reading sessions, writing exercises, and video making process, students enlarged their linguistic capacity in reading, writing, and speaking skills.

"The food project taught me how to properly write essays in Chinese and improved my writing skills. Also, my vocabulary has expanded along with my knowledge on grammar structures."

"I think the assignment was effective because it allowed me to practice my speaking skills as I created my own video, and my listening skills as I watched my classmates' videos."

Furthermore, the project helped students gain a deeper understanding about Chinese food and develop their cultural awareness, which is a crucial element in foreign language acquisition. It also encouraged students to explore and learn more about the culture.

"I learned about Taiwanese vegetarian food culture, which was something I was completely unaware of."

"This was a great way to learn more deeply about Chinese culture. Utilizing sources that weren't necessarily for a language learner made me excited to travel and utilize language skills."

From the mini video draft in week three to the final food essay at the end of the semester, students made impressive progress in terms of the complexity of sentence structures, the maturity of the narrative development, and the depth of their culture awareness (see Figure 4). These results resonate with Vygotsky's zone of proximal development theory, in which students were able to achieve these desired results with appropriate scaffolding.

(Spring Festival Food Writing Exercise)
饺子是一个最重要的春节吃的食物。在除夕的时候，你能看到很多中国人忙着做饺子，因为中国年夜饭，人人都吃饺子。饺子常常里有肉，但是如果你吃素，可以以菜代肉。因为饺子看起来像金块，所以饺子象征幸福，发财。

(Extracts of the Food Final Essay)
虽然中国和以色列很不一样，但也有些相似的节日，毕竟逾越节跟春节有相似的传统。比如，节日之前人人都忙着做饭，中国人做年夜饭，犹太人做家人团圆饭. 可见这两个文化都以食为天！还有，这两个节日都有古老的故事，在中国有生气的怪兽叫"年"，对犹太人来说，他们有妥拉。这两个传说不但有相同的来源，而且逾越节和春节都是每年第一个节日。在春节中国人打扫房间，这跟犹太人的逾越节一样，因为逾越节象征自由和新的生活，所以干净的空间很重要。另外，在逾越节的时候，犹太人只可以吃无酵面包，虽然中国人没有这个规定，但是他们也常吃没有发酵的面食，比如说饺子、汤圆、年糕。还有，中国老人给孩子放着钱的红包，而犹太人孩子玩 "藏无酵饼"的游戏，如果孩子找得到，老人就给他们用巧克力做的钱。没想到中国人和犹太人有很多相同的传统！

Figure 4 A comparison between two written assignments from the same student: One writing assignment at the beginning of the semester (left) and an excerpt of the final essay (right)

5.2 Learner Autonomy

As addressed in the literature review, increasing student learner autonomy can not only enhance their target language proficiency but also their positive identity as successful learners. Choosing a project topic based on personal interests encouraged learner autonomy and personalized learning.

> *"I definitely explored a food that had personal significance to me and my family history, and I think many other students did so as well."*

> *"I think it was nice that we had so much freedom in choosing the food we wanted to focus on and also the content we wanted to focus on in the essay."*

Additionally, when producing their videos and blog posts, students needed to evaluate and select multimedia to best deliver their narratives. Through using tools such as Google MyMaps, WordPress, and Adobe Spark, students could observe their own progress and reflect on the work that had been done. Moreover, the project was broken down into a step-by-step process, which helped students manage the challenging tasks. It also scaffolded their learning experiences while allowing them to gain a sense of success and confidence.

> *"This project really pushed me to work on my writing skills in other ways classes before hadn't. I really liked this project and I feel like I learned a lot."*

> *"I definitely improved my ability to write essays in mandarin in this project and my writing was more complex then [sic] I had ever done before."*

By providing opportunities for students to create and reflect on a product that is personal to them, students' learner autonomy flourished. By scaffolding the project as a step-by-step process, positive and empowered learner identity was formed.

5.3 Authentic Learning

Authentic learning sets up an environment in which students can apply learned knowledge and skills to a real world context. When choosing a food topic that is dear to themselves and exploring its relationship with culture, students had an opportunity to work with materials that are closely woven into their lives.

> *"It was very interesting to write about my culture in Chinese, sometimes it was hard to express what I mean, but this activity improved my writing skills a lot."*

> *"*(The Food Project impacted my Chinese learning by) *applying knowledge to concrete manifestation, going beyond textbook comprehension."*

The following tools were used to enhance authenticity: Google MyMaps provided the geographical and spatial contexts of food; peer-editing on Google Docs encouraged purposeful writing to effectively communicate their thoughts with the readers; WordPress showcased students' work to authentic audiences potentially beyond their peers. The peer-review process, MyMaps marking, and video discussion activities also fostered collaboration among peers, which is identified as one of the characteristics of authentic learning. Subsequently, consistent collaboration helped students form a tight-knit learning community.

> *"The peer–editing process was painful, but it was helpful in gauging the sort of audience interest and level of understanding to make our own work relatable."*

> *"I liked the sense of learning community that came from seeing all the other videos and learning about the importance of all the other foods. It was really fun."*

> *"It was great for building a sense of learning community because we all helped each other outside of class."*

Authentic learning also encouraged interdisciplinary perspectives and provided opportunities to reflect. From student feedback, we could see how this project promoted integrative knowledge from different fields as well as soft skills such as communication and task management.

> *"Not only was it good practice for my Chinese skills, it was also a great way to learn more about the cultural, historical, and personal significance of a food."*

"My biggest takeaway is in structuring time and breaking down larger work into smaller work."

Furthermore, the project fostered students' critical thinking and stimulated reflection on their own culture as well as learning experiences. The feedback below from the first student revealed how this project made students rethink the culture they took for granted. In the feedback from the second student, who took first-year Chinese, the student shared how the video making process helped her see the growth and progress from the previous year.

"It made me question my culture what changes occur and how we should respect each other's cultures, because they are important."

"(The reward) is the permanence of the videos in documenting my progress in Chinese [sic]. I get to hear my first year and now second year Chinese [sic] videos"

Lastly but most importantly, developing the Food Project with interdisciplinary perspectives guided students to move beyond the textbook to conceptualize the world around them using the target language. As referenced in the first student's feedback, students enjoyed working outside of textbooks. The following statements are quoted from the Food Project final essay, which shows how this project brought out what was of personal significance and how they conceptualized food culture closely associated with their lives.

"It was really nice to not use the textbook, I felt like I could think and write more on my own."

"我喜欢路边的小吃馆，不是因为他们的食物，而是为它们热闹的气氛。它们的饭很简单，也让我想起来我爱的家庭。还有，路边小吃馆欢迎每个顾客，不同背景的人一起吃饭表现出美国文化里对不同背景的尊重。" (I like the diners off the streets, not because of their food, but their vibrant atmosphere. The food is very simple, and reminds me of my beloved family. The diners welcome every customer. People from different backgrounds eating together shows how U.S. culture embraces and respects different cultures.)

"對那些從台灣移民到別的國家的人來說，珍珠奶茶可能是一種讓他們懷念故鄉的飲料，而我們這些第二代的年輕人以喝珍珠奶茶來聯繫我們與亞洲背景的聯繫。" (For those Taiwanese people who immigrated to other countries, bubble tea might be a drink that reminds them of their hometown; for us the second generation, drinking bubble tea connects us to our Asian heritage.)

6. Conclusions

The Food Project aimed to create a holistic curricular design with a special focus on enabling the 10 characteristics presented by Herrington et al. (2003). The process described in this paper and the work towards public-scholarship are some examples of the different instances where authentic learning took place. The use of multiple publication tools (Google MyMaps, WordPress, and Adobe Spark) provided extensive opportunities for students to visualize their project using different lenses. The sustained length of this project was also a critical factor in allowing students to have time not only to reflect on their learning experience but also to create a polished product for their public audience. Although difficult to measure, based on the research and our class observations we believe the learning experience created personal significance. Another key factor in this process was enabling opportunities to discuss and present different real-world situations beyond the classroom. This correlates with what Scardamalia and Bereiter (1993) said decades ago, since students were active contributors to creating knowledge. That made the project align with the constructivist approach. As part of this experience, students were empowered to bring their personal ideas and experiences to the project, and play an active role in creating new information. This resulted in a constant transformation of their project as well as an improvement in their Chinese proficiency. This resonates with what was reported by Phillips (1995) and conforms with the essential characteristic of the constructivist approach. Furthermore, as part of this class project, students were able to practice some 21st century skills such as collaboration, communication, problem-solving, and critical thinking (Moeller & Reitzes, 2011; ISTE, 2019).

In addition to those skills, students learned about different online publication platforms and video editing tools. This project aimed to create a holistic approach to curriculum design, as suggested by Gilmore (2007). In the end, qualitative results show a positive impact on the students' learning experience. Within the setting of this course, students were able to move beyond a standard language class into an environment where they were owners of their own learning. As a result, students transformed their language proficiency alongside acquiring multiple 21st century skills.

7. Future Studies

Several items were not covered in this paper. One aspect that may require further exploration is the use of the Google Drive suite for class collaboration, class discussions, formative assessment, and as a channel for feedback on student projects. Google Drive was not included in this paper as the authors believe this tool falls under the augmentation category of the SAMR model (Hamilton et al., 2016). Augmentation is considered an enhancement of a given educational practice, hence, it is not as critical as the modification and redefinition categories. Regardless, we believe it is worthwhile exploring the contribution of online collaboration spaces such as Google Drive in higher education. Another aspect that requires further exploration is the dynamic and relationship between instructional technologist and course instructor. Discussing learning objectives and developing curriculum with an instructional technologist is an area that has not yet been

discussed in second language learning classes. This article does not provide in-depth analysis of this area. We encourage others in the learning community to add to this conversation.

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Appendix A

Screenshot of instructor's video

素食天堂
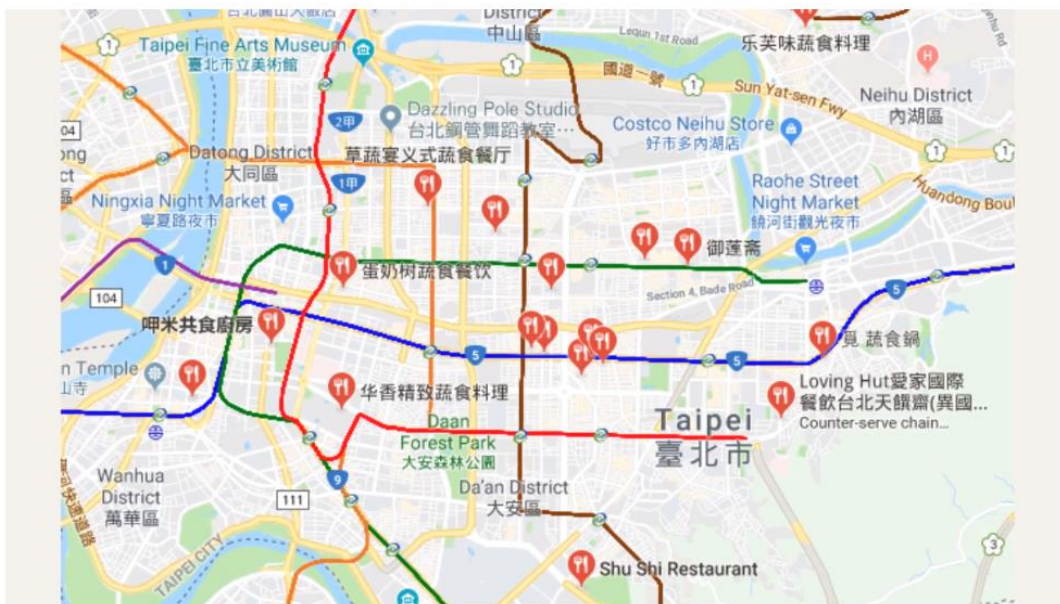
Created by
Yalin Geiger

♡ Appreciate   🐦 Tweet   📘 Share   </> Embed

Appendix B

Screenshot of instructor's narrative

This narrative will serve as a mid-semester review for L14. Blue marks the grammar points of L14, red the new vocabulary, and purple the vocabulary you will learn in the following lessons.

1. *Before you read, pay attention to the following words:* 素食、佛教、保护、高级、变化
2. *As you read, look for the general ideas of each paragraph*
3. *After you read, identify the main idea and guess the words you don't know from context*

文章（一）

如果你吃素，或是对吃素有兴趣，千万别错过有"素食天堂"美名的台湾! 只要在这儿的街上随便走走，就能看到一家家林立的素食餐厅。即使你不吃素，台湾的素食特色肯定也会让你留下非常深刻的印象。今天我就来简单地介绍一下台湾的素食文化。

台湾早期的素食文化是受到佛教、道教和传统风俗习惯的影响，除了佛教徒以外，一般老百姓也会在初一十五吃素 (或叫"吃斋")。他们吃的素，不只是不吃肉，也不吃"五辛"，比如葱和蒜。他们吃素是为了感谢佛神庇佑，不杀害其他生命。为了让这些平常不吃素的人也习惯吃素，素菜里常常有用豆子做成的素肉，比如素鸡和素鸭等等。但是从1990年以来，吃素的文化发生了很大的变化。越来越多人开始吃素，是因为注意自己的身体健康，或是为了保护环境、保护动物而开始吃素。这些人有的吃"全素"，除了青菜水果以外什么都不吃，有的吃"方便素"，只要有机会就尽可能吃素，但是偶尔也吃一点肉。同时，台湾政府也鼓励老百姓一个星期选一天不吃肉，除了使更多人知道吃素对环境保护的好处，也改变了很多人＂吃素等于没营养＂的想法。

由于吃素人口的改变，素食餐厅在素菜的做法上有了新的变化，多蒸卤少油炸，以少盐少油来保留最自然的味道，在食材方面也多了很多不同的选择，以最新鲜的青菜水果取代加工食品，不只注意营养，甚至连每盘菜的颜色和摆盘都非常重视。另外，餐厅里的设计也有了很大的改变，以前的素食餐厅经常是又旧又挤的，墙上还挂着跟佛教有关的画像; 而现在则有很多高级的素食餐厅，看起来干净舒适，墙上挂着诗词，桌边摆着花草，显得特别有禅意和诗意的气氛。这样的素食餐厅其实并不便宜，但是已经成了家人朋友约好一起吃饭聊天的地方，就是为了享受一下这种健康放松的饮食方式。即使你不想花那么多钱在高级餐厅吃素食，路边也有许多素食小吃，在便利商店也能买到素食产品，连在网路上都能轻轻松松地叫素食外卖。可见，不管饮食习惯怎么变，＂民以食为天＂的文化还是一点都没变。

从老百姓饮食态度的改变，到素食餐厅的变化，我们可以看到素食已成了台湾饮食文化中特别的"风景"。"吃素"已经不完全是传统习俗里"吃斋"的意思，而是一种新的饮食习惯和生活态度。要是你有机会到台湾玩，千万别忘了亲身体验这个"素食天堂"的活力与特色!

Appendix C

Screenshot of the student blog post