The Dilemmas of Teaching Dilemmas in a Foreign Language Classroom

By: Ai-Chu Elisha Ding[1], Pengtong Qu[2], Krista Glazewski[2], Haesol Bae[2], Fatih Ergulec[2], Hamid Nadir[3], & Thomas Brush[2]

[1]Ball State University; [2]Indiana University, Bloomington; [3]University of Virginia

Abstract:

Problem-based learning (PBL) has been widely incorporated in STEM classrooms. Unfortunately, its effectiveness for foreign language teaching is less explored. This design case describes the design and implementation process of a Chinese PBL unit in a US elementary school along with the design considerations of teaching dilemma-centered instruction. We provide detailed accounts of our process of developing this PBL curriculum, learning materials, and the two rounds of implementations. We also reflected on the design process and examined the design dilemmas faced by this interdisciplinary design team. Findings show multiple design tensions, which include balancing the language and PBL teaching goals, balancing L1 and L2 use, and the communication challenges within a collaborative design project.

Keywords: Problem-based learning | foreign language teaching | instruction | instructional design

Article:

***Note: Full text of article below

THE DILEMMAS OF TEACHING DILEMMAS IN A FOREIGN LANGUAGE CLASSROOM

Ai-Chu Elisha Ding[1], Pengtong Qu[2], Krista Glazewski[2], Haesol Bae[2], Fatih Ergulec[2], Hamid Nadir[3], & Thomas Brush[2]

[1]*Ball State University;* [2]*Indiana University, Bloomington;* [3]*University of Virginia*

Problem-based learning (PBL) has been widely incorporated in STEM classrooms. Unfortunately, its effectiveness for foreign language teaching is less explored. This design case describes the design and implementation process of a Chinese PBL unit in a US elementary school along with the design considerations of teaching dilemma-centered instruction. We provide detailed accounts of our process of developing this PBL curriculum, learning materials, and the two rounds of implementations. We also reflected on the design process and examined the design dilemmas faced by this interdisciplinary design team. Findings show multiple design tensions, which include balancing the language and PBL teaching goals, balancing L1 and L2 use, and the communication challenges within a collaborative design project.

Ai-Chu Elisha Ding is an Assistant Professor of Educational Technology for the Department of Educational Studies, Ball State University.

Pengtong Qu is a Doctoral Candidate in Curriculum and Instruction, Indian University, Bloomington.

Krista Glazewski is a Professor for the Department of Instructional Systems Technology, Indiana University, Bloomington.

Haesol Bae is a Postdoctoral Fellow at the Center For Research on Learning and Technology, Indiana University, Bloomington.

Fatih Ergulec is a Doctoral Candidate in Instructional Systems Technology, Indiana University, Bloomington.

Hamid Nadir is a Postdoctoral Research Associate at the University of Virginia.

Thomas Brush is the Barbara B Jacobs Chair of Education and Technology and a Professor of Instructional Systems Technology at Indiana University, Bloomington.

INTRODUCTION

Problem-based learning (PBL) represents a student-centered instructional approach that engages learners in solving ill-structured problems (Jonassen, 1997). Although PBL has been widely adopted in STEM subjects, it has been used less in language education (e.g., Liu, 2012; Luke, 2006). In this design case, a Chinese PBL unit was created and taught in a locally-chartered elementary school. Aligning with the school's annual learning focus on "perspective taking," the goal of this unit was not only to teach basic language knowledge, but also to engage the students in investigating an authentic social problem, examine the problem and solutions from different perspectives, and improve students' Chinese communication skills during the investigation process. This design case describes the process we went through for creating this unit. It highlights the dilemmas we encountered as we were integrating language learning and inquiry learning to teach young learners. We will discuss our reflections on the effectiveness and challenges of this PBL Chinese class and offer suggestions for adopting PBL in language education contexts.

DESIGN CONTEXT

Our Chinese PBL unit was implemented at The Project School (TPS), a locally-chartered public school located in Bloomington, Indiana. TPS adopts the P3 curricular framework, *problem, project, and place-based learning* (P3) (Wallace et al., 2017). As part of the P3 model, the school offers extra-curricular learning activities to students four times weekly. The mission of this school is to "uncover,

recover and discover the unique gifts and talents that each child brings to school every day" (The Project School, n.d., para. 1). The school serves kindergarten through 8th grade students and has a 95%+ annual enrollment retention rate. All the classes in the school are a mix of ages. The school is a 1:1 technology environment where 3rd to 8th grade students receive a school-issued iPad/Chromebook to use. Google Classroom is the official learning management system at TPS. Thus, students possess basic computer skills and are familiar with Google Classroom. Students here also have plenty of experiences with learning through inquiry projects. Yet, foreign language education was somewhat absent in this school. Spanish is the only option available in TPS and the languages offered at this school did not reflect the multilingualism present in the surrounding community. In Bloomington, 8% of the total population are Asians, composing the largest minority group in this community (US Census Bureau, 2010). In addition, around 2300 people speak Mandarin Chinese as their first language in this community. Polisca (2011) suggests that learning a second or foreign language promotes cultural awareness and sensitivity for people of other cultures. As such, our team designed this Chinese inquiry learning unit with the goal of providing students with more opportunities to immerse themselves in the language and culture of one of the largest minority groups in their community.

The team consisted of two professors and five doctoral students from the School of Education at Indiana University. The design team had been focusing on designing and researching the best practices of integrating PBL in K-12 education. Two doctoral students, Ai-Chu and Pengtong, also had some experience tutoring and teaching Chinese as Foreign language to college students. We also received training in second/foreign language teaching methods. However, the design team's experience with elementary students was rather limited. Knowing that there were not many cases and examples describing the use of PBL in language education, the design team decided to let Ai-Chu and Pengtong take the lead and initiate this design project. All team members contributed to the curriculum design. Ai-Chu and Pengtong developed lesson plans and learning materials for teaching both Chinese and the inquiry project. When Ai-Chu and Pengtong taught, other team members videotaped and observed the lessons and provided feedback to the two instructors right after class or during research group meetings. From September 2016 to May 2017, the team met on a biweekly basis to design, develop, and revise this unit collaboratively.

Our class was hosted during TPS's scheduled "*Passions*" time. Passions was a special design of the school that consisted of elective course options offered by schoolteachers or community members. Students chose from an array of *Passions* options, which were based on their own interests. As their regular classes, all options allow a mix of ages. In the

course enrollment information sheet, the course instructors would indicate the grade levels the courses were opened to. Each *Passions* cycle lasted a month. Students attend the class four times a week for 40 minutes. With the assistance and sponsorship of a TPS teacher, Ai-Chu and Pengtong, the lead designers and instructors, set up this elective course for 3rd to 8th grade students at TPS. Ai-Chu and Pengtong taught the class twice in two consecutive cycles in Spring 2017. There were ten students enrolled in the first cycle and seven in the second cycle. However, two students enrolled in both cycles, so we had fourteen students in total. All fourteen students were English native speakers with zero Chinese proficiency. Twelve of them were female and two were male. Four of them were middle school level (7th/8th grade) and the rest were elementary school level (3rd to 6th). Ai-Chu and Pengtong provided the same instruction and learning materials for all students. The students were involved in a variety of small group activities. We intentionally grouped students in 7th/8th grade with the younger students so that the students received support when they needed it.

PROBLEM-BASED LEARNING

Problem-based learning (PBL) is a student-centered approach, in which student learning is driven by an authentic problem that does not have a fixed solution or a correct answer (Barrow & Tamblyn, 1980). In order to address this type of problem, students are commonly engaged in activities such as group discussions, collaborative tasks, and self-directed research (Hmelo-Silver, 2004; Savery, 2006). Scholars suggest that language teachers can introduce PBL to language classrooms (e.g., Larsson, 2001; Othman & Shah, 2013) because in PBL, students are exposed to an authentic learning situation and learn vocabulary that can be used in the real world. Moreover, as PBL is featured with interactions and collaborations between students, the approach will not only increase the students' content knowledge, but also their communicative and critical thinking skills while evaluating the problem and discussing the issue with each other (Othman & Shah, 2013).

Designing the driving problem is essentially critical in PBL (Jonassen, 2011). In 2017, TPS' annual school theme happened to be "perspective taking." As such, as we were developing the Chinese PBL unit, we decided that the type of problem the students would solve in the lesson would be a "dilemma." Jonassen (2011) described dilemmas as "the most ill-structured kind of problem" (p. 99) because dilemmas stem from complex and unpredictable situations and involve conflicting perspectives.

Eventually, the design team picked the controversy of the Three Gorges Dam (TGD) project in China as the central topic and devised the driving problem: "Is the construction of TGD justified in the interest of the community?" Centered around the driving problem, a series of language learning and

		Planning Stage	Develop Instructional Materials	The First Implementation	The Second Implementation
	Timeline	Sept.2016-Nov.2016	Dec.2016-March.2017	March.2017-April.2017	April.2017-May.2017
	Design and Instructional Activities	1. Decided the topic and the instructional approach 2. Consider PBL design components and develop the overall curriculum 3. Discussed in team and revised the curriculum	1. Developed the version 1 instructional materials 2. Discussed in team and made complete do-over 3. Developed the version 2 instructional materials (the current version): slides, picture books, culminating activity scaffolds.	1. Developed scaffolds. 2. Revised slides 3. Considered how to integrate technology and develop guides for students.	1. Based on the first iteration experience and the new students' characteristics, we revised our instructional materials (including the picture book, slides, worksheets, technology integration strategies)

TABLE 1. Chinese PBL Design and Implementation Timeline.

inquiry learning activities were developed and incorporated in our month-long unit. We also set to address a number of learning objectives for this unit.

Language learning objectives included the following:

- Students will be able to read and pronounce pinyin and tones [NOTE: "pinyin" is the romanized phonetics system for Chinese words; Chinese is a tonal language where each sound has four tones]
- Students will be able to apply the vocabulary words and basic sentence structures they learn to do basic self-introductions and comprehend the simplified readings (see samples under Developing Instructional Materials).

Inquiry learning objectives:

- Students will be able to consider a controversial issue from different perspectives.
- Students will be able to critically evaluate an argument through identifying claims and justifications and conducting online research.

Based on Indiana Academic Standards for World Languages (2019), the language learning objectives map 1C. 1I. NL. a, 1C. 2I. NL. a, b, and c, 1C. P. NL. a, b, and c, and 4C. LC. N.a. The inquiry learning objectives align with 4.1.16, 5.2.9, 7.3.3, 7.3.4, and 7.3.11 in Indiana Academic Standards for Social Studies (2019).

DESIGN PROCESS

Nelson and Stolterman (2014) pointed out that instructional design and the materials would constantly evolve during the design process. In our project, our design and instruction

did not always go as planned because of various contextual constraints such as time, student attendance, technology resources, and the conflicting pedagogical considerations among the stakeholders. We constantly changed or made modifications to our plans and designs to accommodate those contextual constraints. Table 1 shows the design and implementation process of our Chinese PBL project over nine months.

Planning Stage

Designing the Driving Problem

We started our project by choosing the central inquiry topic. At first, Ai-Chu and Pengtong came up with topics such as "The Lunar New Year and the Lucky Money" for teaching students the merit of saving and "The One Child Policy" for exploring its sociocultural impact on Chinese society. From our points of view as language teachers, we cared about exposing students to the cultural aspect of the target language by exploring the traditions, cultural values, or policy issues. We did not consider whether the topics had actual affordances for PBL instruction, especially for engaging students in perspective-taking.

During one design team meeting, other team members pointed out that it is important for the topic to be controversial and to represent the cultural and social dilemmas within a community. The topic also has to be somewhat relevant to student's lives, so that the students would feel motivated to learn the topic. This posed a design dilemma and puzzled Ai-Chu and Pengtong at first. *How can we teach about the cultural aspect, while making it relevant to the students*? The
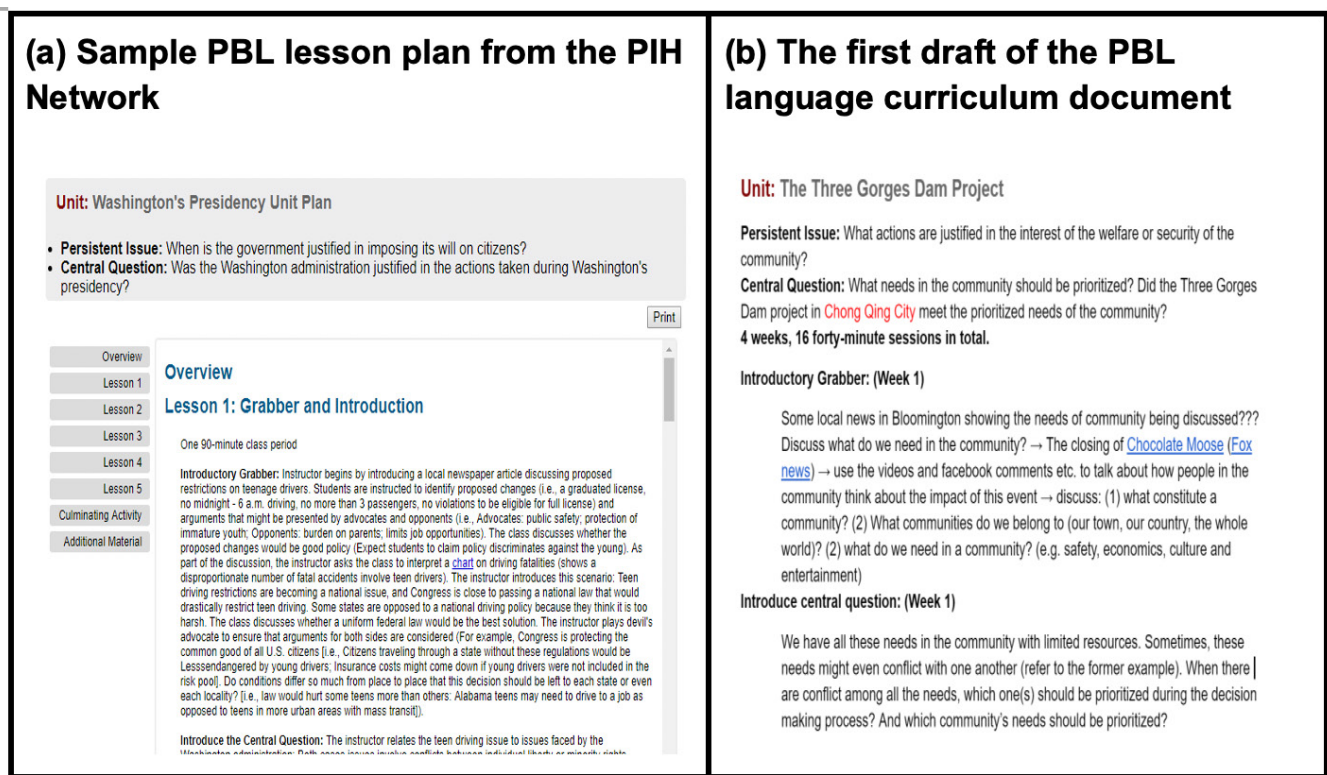
(a) Sample PBL lesson plan from the PIH Network

Unit: Washington's Presidency Unit Plan

- **Persistent Issue:** When is the government justified in imposing its will on citizens?
- **Central Question:** Was the Washington administration justified in the actions taken during Washington's presidency?

Print

Overview
Lesson 1
Lesson 2
Lesson 3
Lesson 4
Lesson 5
Culminating Activity
Additional Material

Overview

Lesson 1: Grabber and Introduction

One 90-minute class period

Introductory Grabber: Instructor begins by introducing a local newspaper article discussing proposed restrictions on teenage drivers. Students are instructed to identify proposed changes (i.e., a graduated license, no midnight - 6 a.m. driving, no more than 3 passengers, no violations to be eligible for full license) and arguments that might be presented by advocates and opponents (i.e., Advocates: public safety; protection of immature youth; Opponents: burden on parents; limits job opportunities). The class discusses whether the proposed changes would be good policy (Expect students to claim policy discriminates against the young). As part of the discussion, the instructor asks the class to interpret a chart on driving fatalities (shows a disproportionate number of fatal accidents involve teen drivers). The instructor introduces this scenario: Teen driving restrictions are becoming a national issue, and Congress is close to passing a national law that would drastically restrict teen driving. Some states are opposed to a national driving policy because they think it is too harsh. The class discusses whether a uniform federal law would be the best solution. The instructor plays devil's advocate to ensure that arguments for both sides are considered (For example, Congress is protecting the common good of all U.S. citizens [i.e., Citizens traveling through a state without these regulations would be Lessendangered by young drivers; Insurance costs might come down if young drivers were not included in the risk pool]. Do conditions differ so much from place to place that this decision should be left to each state or even each locality? [i.e., law would hurt some teens more than others: Alabama teens may need to drive to a job as opposed to teens in more urban areas with mass transit]).

Introduce the Central Question: The instructor relates the teen driving issue to issues faced by the

(b) The first draft of the PBL language curriculum document

Unit: The Three Gorges Dam Project

Persistent Issue: What actions are justified in the interest of the welfare or security of the community?
Central Question: What needs in the community should be prioritized? Did the Three Gorges Dam project in Chong Qing City meet the prioritized needs of the community?
4 weeks, 16 forty-minute sessions in total.

Introductory Grabber: (Week 1)

Some local news in Bloomington showing the needs of community being discussed??? Discuss what do we need in the community? → The closing of Chocolate Moose (Fox news) → use the videos and facebook comments etc. to talk about how people in the community think about the impact of this event → discuss: (1) what constitute a community? (2) What communities do we belong to (our town, our country, the whole world)? (2) what do we need in a community? (e.g. safety, economics, culture and entertainment)

Introduce central question: (Week 1)

We have all these needs in the community with limited resources. Sometimes, these needs might even conflict with one another (refer to the former example). When there are conflict among all the needs, which one(s) should be prioritized during the decision making process? And which community's needs should be prioritized?

FIGURE 1. Sample PBL lesson plan from the PIH Network (left) v.s. The first draft of the PBL language curriculum document (right). Our curriculum design followed the logic of the sample PBL lesson plan.

students are Americans, so issues pertaining to Chinese society would be foreign and less relevant to them!

The design team brainstormed possible topics and driving questions. Finally, we landed on the controversy of the Three Gorges Dam (TGD). This topic was chosen because (1) the US also had a similar controversy with the Hoover Dam project, and (2) the construction of TGD can be easily connected to a local construction controversy in Bloomington that had a direct impact on TPS students. In addition to these considerations, we also considered the feasibility of the inquiry topic. We considered questions such as the following: *Are there relevant materials available (both in English and in Chinese)? Is it possible for us to teach Chinese with this topic (e.g., does discussing this topic require high-level language proficiency? Will we be able to simplify the language demands?) Is this topic too big or too small for a one-month learning unit?*

Designing the Curriculum

Once the topic had been determined, Ai-Chu and Pengtong started brainstorming the curriculum and activities on a Google Doc. We considered both the language-teaching approaches and the problem-based learning approaches when they developed the curriculum. Like many novice instructional designers, Ai-Chu and Pengtong's initial attempt of designing the PBL language curriculum was too ambitious and unfeasible. On top of the problem-based

learning process and language learning, we and the other design team members also imagined having the kids create board games and captioned movies as the student production tasks. Although these ideas were legitimate and had empirical evidence on their effectiveness in fostering language learners' second language acquisition (e.g., Toohey et al., 2012; Wu et al., 2014), putting all these ideas into a one-month-long PBL language curriculum was a seemingly unfeasible execution plan.

Thus, in the following design team meeting, we were advised to keep the instructional design simple and we could use the *Persistent Issues in History* (PIH) curriculum framework as a reference (see Figure 1) for designing and writing up the curriculum document.

The PIH Net was a web-based tool dedicated to PBL teacher professional development and lesson planning. The sample PBL lesson plan from the PIH Net was extremely helpful for communicating, designing, and considering the essential components of a PBL curriculum.

Following the structure of the PIH curriculum framework, Ai-Chu and Pengtong planned the PBL language curriculum by first writing out the persistent issue, the driving inquiry question, the culminating activities, and then by deciding the learning objectives, language learning content, and activities, as well as the lectures and the instructional

PERSISTENT ISSUE *What actions are justified in the interest of the welfare or security of the community?*	

Central inquiry question (Driving problem) *Is the construction of the TGD justified in the interests of the community?*

LESSON 1: PRE-LESSON LANGUAGE LEARNING
Build up students' basic Chinese proficiency and knowledge before they engage in PBL learning. In this lesson, the teachers taught the following: • Introduction to Chinese language and culture • Basic classroom expressions (e.g., hello teacher, thank you, good job) • Pinyin and tones (The Chinese pronunciation and spelling system)

LESSON 2: INTRODUCTORY GRABBER AND INTRODUCTIONS TO KEY CONCEPTS
Grab the students' attention and interest in the inquiry topic and build up their basic understanding on the key concepts involved in the PBL learning. In this lesson, the teacher taught the following: • Using a local construction controversy that has a direct impact on students' lives, the teachers introduced the importance of perspective taking and made connection to the controversy of TGD to show the students the relevance of the topic. • Defined community and what constituted a community. • Brief introduction to the inquiry project and the controversy of TGD. • Chinese vocabulary for describing different communities and community members.

LESSON 3: UNDERSTAND THE PERSISTENT ISSUE
Consolidate students' understanding of the persistent issue through reading a Chinese picture book created by the teachers. Two opposing positions regarding the construction of TGD were presented through the narratives of the two protagonists in the picture book. • Introduced the two opposing positions and arguments regarding the TGD. • Reading, speaking, listening and writing simple sentences in Chinese (e.g., I am….; I like….) • Vocabulary for describing colors and for describing and discussing the TGD issue (e.g., dam, electricity, Yangtze River, good, bad)

LESSON 4: PERSPECTIVE READING AND DECISION MAKING
• Engage students in taking perspectives, arguing for their positions towards the persistent issue and making informed decisions. • In groups, read an article (partial English/partial Chinese) that discussed the TGD issue from one of the three expert perspectives: the mayor, the environmentalist, and the historian. • In groups, students identified the claims and justifications in the articles, and conducted online research to find additional evidence to support the claims. • As a class, students synthesized their findings and decided their position towards the inquiry question.

LESSON 5: SCRIPT WRITING AND PUPPET SHOW (CULMINATING ACTIVITY)
As a class, students wrote an English/Chinese puppet show script with teachers' facilitation to demonstrate their understanding and position towards the driving inquiry question.

TABLE 2. PBL Language Curriculum Overview.

procedure (see Figure 1). Table 2 gives you an overview of the final PBL language curriculum.

Reflection on the Planning Stage

As shown in the curriculum overview (Table 2), we needed to consider both the PBL learning objectives and the language learning objectives and how to integrate them seamlessly when developing the PBL language curriculum. The biggest challenge in our context was that there was a huge gap in terms of what students could do in their first language (L1) and what they could do in the target language (TL), i.e., Chinese. The topic itself (TGD), as well as the inquiry-based learning, were cognitively demanding for learners

of young ages. On top of that, inquiry into this sociopolitical topic also required the learners' sophisticated language competence. Yet, our learners had zero proficiency in the TL. Unlike Spanish, which belongs to the same language family as the students' L1 (English), the TL (Mandarin Chinese) is very different from English in terms of phonics, intonations, grammar, and the writing system. Specifically, English is a phonetic, inflected language whereas Mandarin Chinese is a tonal language that uses four different tones of the phonemes to denote word meanings. These factors all made the design process extremely difficult and complex.

Because of students' limited TL proficiency, Ai-Chu and Pengtong were uncertain about the TGD topic at first. As language teachers, we were trained to use the TL as much as we could, and we could not see how we would be able to use the TL 100% with this topic. Yet, from the PBL perspective, having a good driving problem and engaging students in critical thinking were the top priorities. This again posed a design dilemma for us and the design team. After several brainstorming sessions, the design team decided that we would not use Chinese 100% in this lesson and would incorporate more than 50% of English in both our instructional language and the instructional materials. It felt like the compromise we had to make to engage the students in PBL and investigating a meaningful topic.

In addition to that, during the planning stage, we and the other design team members also struggled with meeting both the language learning objectives and the inquiry learning objectives. With basic level language learners, Ai-Chu and Pengtong felt there had to be a certain amount of language drill practices in order to consolidate the learners' basic language competence. However, those tasks would also take away the time needed for the inquiry activities. Ai-Chu and Pengtong struggled a lot with balancing the time spent on language drills and the inquiry activities, which often incorporated partial English and partial Chinese. We grappled with the following tensions: *To what extent should we incorporate language drills? To what extent should we use English in class? With the limited time we have, should we prioritize language learning or inquiry learning objectives?* Those questions became some of the most essential and persistent dilemmas that puzzled us, which occasionally triggered tensions among us, and influenced the iterative process of developing materials and incorporating scaffolds into instruction.

Developing Instructional Materials

Once the curriculum was planned, Ai-Chu and Pengtong started developing the major instructional materials. The design and development of the instructional materials went through at least two major iterations within a four-month period. At this stage, Ai-Chu and Pengtong created (1) the persistent issue reading materials, (2) the perspective reading materials and scaffolds, (3) the lecture PowerPoint Slides, and (4) the culminating activity instructions and scaffolds.

Designing the Persistent Issue Reading Materials

Designs are often inspired by their precedents (Boling, 2010; Oxman, 1994). Our design was also influenced by our past Chinese teaching experiences. I (Ai-Chu) took the lead on designing the persistent issue reading materials. With this first set of reading materials, I still held the belief that I should use 100% Chinese in the reading text. As long as multiple scaffolds were incorporated, students would still be able to comprehend the reading.

In terms of the visual and message design of this material, it was clear that when developing the version 1 persistent issue reading materials, I was influenced by my past experiences as a Chinese language tutor and instructor for undergraduate students. In my own reflection notes, I wrote that two specific types of reading materials popped up in my mind when I was developing the version 1 reading materials (see Figure 2): the first one was an article that discussed China's global competition with the US and the second one was a short story called "The Lady in the Painting" that was used as first-year Chinese basal reading. Those two mental images became my references when I was arranging text, the word bank, and the images of the reading materials.

In the initial design, I made sure to provide the pinyin of each word and annotated new or unfamiliar words (the green text in Figure 2). Additionally, I used repeated vocabulary and sentence patterns in the reading, incorporated visuals, widened spaces and segmented text (GuoDong, 2005), and included mini-lessons to facilitate reading comprehension. I was proud of my design. Thus, I was also extremely frustrated when I received comments from the other 6 team members that this version of reading materials was *"too boring," "too challenging"* and *"without enough scaffolds"* for young students during the design team meeting. Those comments were confusing at the beginning because I thought I had already incorporated a sufficient number of scaffolds. How was that still not enough? Plus, TGD was a serious topic. How could one possibly make a TGD reading interesting? Linking back to the design dilemma mentioned earlier, I also wondered: "If I make the text even simpler or even use some English in the text, are the students learning enough Chinese to be able to discuss TGD in Chinese?"

Ai-Chu continued to struggle with those dilemmas until later, when Ai-Chu and Pengtong taught Chinese to a group of kindergarteners in February. With the kindergarteners, we were fully aware that the task and text complexity must be minimal. We brainstormed ideas and searched for existing Chinese teaching materials designed for young learners. We found an animated Chinese picture book (Figure 3) that discussed environmental issues using simple and accessible language. We thought it would be perfect for teaching

二、美国步步紧逼，中国需要全球新战略

http://phtv.ifeng.com/program/sslld/detail_2011_11/22/10824328_0.shtml (7.16min)

凤凰卫视 2011年11月21日《时事亮亮点》

背景提示与思考：

当前美国和中国在世界舞台上各自扮演着什么角色？两国之间是一种什么关系？

核心提示：美国总统奥巴马和国务卿希拉里·克林顿近期在亚太地区的一系列言论和动作被指美国在重返亚太，并试图主导新的世界格局。何亮亮认为，这是美国战略的重大转变，从政治、经济、军事、外交各个方面来看，美国都已经做好了部署来抗衡中国。这是历史给中国的挑战也是机遇，需要中国有一个全球性的战略。

美国战略的重大转变

美国战略调整到这次，我们说就是在11月上旬和中旬这段时间，看来已经基本是部署完成了。这个就由美国的总统奥巴马、美国的国务卿希拉里一系列讲话可以看得出来，这个讲话是有行动作为它的铺垫。我们看到其实当前的世界形势、整个世界政治、经济的格局正在发生一个大的变动，这个变动最后会导向什么样的结局，我们不知道。

世界经济将处于一种长期的不稳定的萧条的状态，这是一个大前提。然后我们看到美国现在似乎想要追回失去的10年，就是从2001年9·11之后美国开始反恐战争，反恐战争给美国到底带来了什么，这个美国各界现在也在讨论，但是可以肯定的就是这

1. 步步紧逼　bùbù jǐnbī　with every step pressing harder and harder
2. 战略　zhànlüè　strategy
3. 国务卿　guówùqīng　(卿: 政府里的高官) Secretary of State
4. 格局　géjú　setup, structure
5. 部署　bùshǔ　deployment, strategic arrangements

Design Precedent (1). This article was used in an advanced-level Chinese course. The article discusses China's global competition with the US in terms of politics, economics, military and diplomacy.

Resource: Introduction to Three Gorges Dam

Print

sān xiá dà bà　shì　shì jiè　shàng　zuì dà　de　shuǐ bà
三峡 大坝 是 世界 上 最大 的 水坝。

tā　wèi zài　zhōng guó　de　cháng jiāng　sān xiá。
它 位于 中国 的 长江 三峡。

cháng jiāng　shì　zhōng guó　zuì　cháng　de　hé,
长江 是 中国 最 长 的 河，

cháng jiāng　yě　shì　shì jiè　shàng　dì sān　cháng　de　hé。
长江 也 是 世界 上 第三 长 的 河。

Version 1 Reading Material (1). This was the introductory reading designed by Ai-Chu. This article mentions some basic facts about the Three Gorges Dam and the Yan-Tzu River.

一张画儿，送给他。他给张大明画了一张很好看的美人。他画那张画儿的时候常想，张大明的屋子里有这样一张画儿，也许他晚上回家以后，可以觉得家里有一个人。他把画儿画完了，就叫张大明到他家来拿。有几个人跟张大明一块儿来看那张画儿。

他们都是张大明的朋友，有一个认识高老先生的，就跟张大明一块儿进去了。还有几个人，不认识高老先生，就站在门外头看。他们都说画得真好。高老先生看见他们都喜欢他画的画儿，他也很高兴。

张大明谢了谢高老先生，拿着画儿就回家了。

Design Precedent (2). This is a folk tale called "The Lady in the Painting." It was the basal reading material used in the first-year Chinese class Ai-Chu taught. (Imaged adopted from: https://bit.ly/3h7wze6)

Resource: Perspective Reading- Safety (2)

Print

yīn wèi　sān xiá　dà bà　néng　chǎn shēng　hěn duō de　diàn
因为 三峡 大坝 能 产生 很多的 电，

suǒ yǐ　zhōng guó　bù xū yào　yòng　méi　fā diàn
所以 中国 不需要 用 煤 发电。

Source: unknown.

Version 1 Reading Material (2). This was the perspective reading material designed by AI-Chu. Using repeated setence patterns, this article lists some of the pros and cons of the TGD.

FIGURE 2. The design precedents (left) v.s. The version 1 reading materials (right).

Design Precedent (3). The storybook we used in the Kindergarten Chinese class. It was retrieved from the storybook database created by the Taiwanese Government. This book is called "There is a Hole in the Sky." It talks about how Miss Sky was hurt by different kinds of human pollutions and how human made amends to bring back the blue sky. (image adopted from: https://bit.ly/2SJe4Dy; National Library of Public Information, Taiwan; Book author: Zhi-Han Guo)

Version 2 Reading Material. This is the revised introductory reading material. Instead of an article, we turned the reading into a story book. Each page contains only 1 to 2 sentences with drawings. This is the Page 1 of the book where the two protagonists introduced themselves (I am Da Bai. I am Xiao Hong).

FIGURE 3. The design precedent (left) v.s. the version 2 reading materials (right).

Chinese, while engaging the kindergarteners in discussing an important topic. The picture book worked really well with kindergarteners who had no prior knowledge of Chinese, and this experience gave Ai-Chu and Pengtong an idea: *why don't we also create a picture book for the TGD project?* With the new design precedent in mind, everything began to make sense for us. Storytelling and visualization became tools that made the text accessible and the narratives coherent. The two protagonists, Da Bai and Xiao Hong, allowed us to present the central issue and the opposing positions toward the TGD project with children-friendly language. The story also became the "nodes" in the unit with which we connected to the other learning tasks and reading materials.

Designing the Perspective Reading Materials

After learning about the persistent issue through the storybook, it was important that the students considered the TGD controversy from multiple perspectives and engaged in perspective taking. In this unit, we had chosen to present the pros and cons of the TGD from the economic, social, and environmental perspectives. We created three versions of perspective reading to introduce the three perspectives, respectively. Echoing the story of Da Bai and Xiao Hong, we set up three additional "experts" that Da Bai and Xiao Hong met to narrate the perspectives: (1) the mayor, (2) the environmentalist, and (3) the historian. Then, during the perspective reading task, students would each choose one expert perspective to read and research, and then exchange

their understandings with other group members who read another two perspectives.

All three versions followed the same four-part design shown in Figure 4: (1) a brief introduction of the task, (2) a brief profile of the expert who explained the pros and cons in the reading, (3) the reading content, and (4) a post-reading task that guided students to summarize the major claim, the pros and cons in the reading, and to conduct additional research online. In terms of the reading content, about half of the vocabulary and sentence patterns used in this reading were new and the other half were recycled from the picture book. All Chinese characters were accompanied by their pinyin and a hyperlink to an audio file that teaches the pronunciation of the characters. Also, about 80% of the Chinese words and sentence patterns were the same in all three versions. The rest differed, due to the differences of the perspectives and also because we wanted to expose the students to different words and let them teach each other.

Designing the perspective reading did not take as long as designing the picture book. At this point, the design team had reached shared understanding about some of the persistent design dilemmas. With perspective reading, we did not hesitate to use more English than Chinese, because we knew the content contained argumentations, abstract and complex concepts, and a cognitively demanding post-reading task. It would be unrealistic and even harmful to even try

Part 1: Task introduction

Task 1: Exploring an expert perspective
- All students will work together as one group.
- Assign 2-3 group members to one of the expert perspectives: *mayor, environmentalist, historian*
- Each student will read one assigned perspective article and conduct additional research on their assigned perspective
- In the expert group, pick a recorder who will use his/her laptop to complete the handout entitled *Task 1: exploring an expert perspective*

Part 2: The expert profile

Zhuān jiā 一: shì zhǎng	
Wáng tíng ting	The mayor of Chong Qing City in China

Tingting is the mayor of Chong Qing City in China. She also has a doctoral degree in Economics. She is a patriot who loves her country very much. Chong Qing is very close to the Three Gorges area. It is the last stop of the whole Three Gorges Dam construction. As the mayor and a patriot, she cares about the wealth of both Chong Qing city and China.

Part 3: Main reading Text

As a 市长(shì zhǎng), 我 想要 (wǒ xiǎng yào) talk about the 三峡大坝(sān xiá dà bà) from my perspective. 一方面（yì fāng miàn), 我 觉得 三峡大坝 是 好的 (wǒ juéde sān xiá dà bà shì hǎode). As China develops its urban centers, new 工厂 (gōng chǎng), offices and homes create increased power demands. 三峡大坝(sān xiá dà bà) can produce 18,000 megawatts of 电(diàn). This is equivalent to 15 nuclear power plants or fifty million tons of 煤 (méi). This amounts to 11% of China's 电 (diàn). This is a massive amount of 电 (diàn) that is

Part 4: Post reading task

Pros-三峡大坝 是 好的 （sān xiá dà bà shì hǎo de）

Claim: (type down the claim here)	
Justifications (in English)	The evidence (What evidence did you find online that supports the justifications in the reading? Copy and paste the links here.)
1.	
2.	
(Are there additional justifications the expert can make to support the claim? Add more rows to include additional justifications)	

FIGURE 4. The four main parts of the instructional material used to scaffold students' perspective reading. It demonstrates the mixure of English and Chinese we strategically used to make the learning tasks more accessible for students. The brief instruction of the task and the expert profile were completely in English. The reading content was partially in Chinese and partially in English. The post reading task was guided mostly in English as well. Students were instructed to write out the major claim in Chinese but they could write the justifications and find the evidence in English or they could use partial Chinese.

and ask students to accomplish these higher-order thinking tasks in Chinese in a short amount of time.

Consequently, as you can see in Figure 4, the brief instruction of the task and the expert profile were completely in English. The reading content was partially in Chinese and partially in English. The post-reading task was guided mostly in English as well. Students were instructed to write out the major claim in Chinese but could write the justifications and find the evidence in English or only use partial Chinese.

Creating Lecture Slides

Designing the curriculum, as well as developing the previous two reading materials, allowed the team to set up the overarching learning goals and instructional sequencing. Creating the lecture slides further allowed us to think about how to manage our instructional flow and time deliberately. At this point, we also began to think about what technology tools could be utilized to enhance learning.

Although creating lecture slides seemed like an ordinary and mundane task, to us, it served as an incredibly important venue for instructional design and collaborative decision making. By creating lecture slides, we were able to better articulate and communicate our visions regarding how to teach the lesson with one another. Ai-Chu and Pengtong planned to co-teach the lesson together. Every week, Ai-Chu would teach the first two sessions and Pengtong the latter two sessions. We were aware that this was a co-teaching situation, so the lectures had to be carefully planned and coordinated to avoid gaps in knowledge.

To avoid gaps in knowledge and assure the wise use of instructional time in a co-teaching situation when creating lecture slides, we did not divide the work based on who was in charge of which session. Instead, Ai-Chu was in charge of Weeks 1 and 3 and Pengtong was in charge of creating the lecture slides for Weeks 2 and 4. Dividing the work this way forced Ai-Chu and Pengtong to engage in constant discussions of the instructional activities and language scaffolding when teaching the lesson. During those discussions, we explained to each other how to lead a certain instructional activity one designed or to brainstorm some possible strategies or technology tools to scaffold the students' language.

For example, during one of the weeks, we introduced words representing different communities such as family, church, school, and country. In the original design presented in the slides, we asked the students to use one of the technology tools, Google Translate or Pleco (an English and Chinese Dictionary App) to figure out the words in Chinese by themselves. (see Figure 5).

After going through the slides together, we felt that the direct translation was not helpful. Thus, instead of simply

FIGURE 5. The original pre-reading activity design. Technology was only for vocabulary lookup.
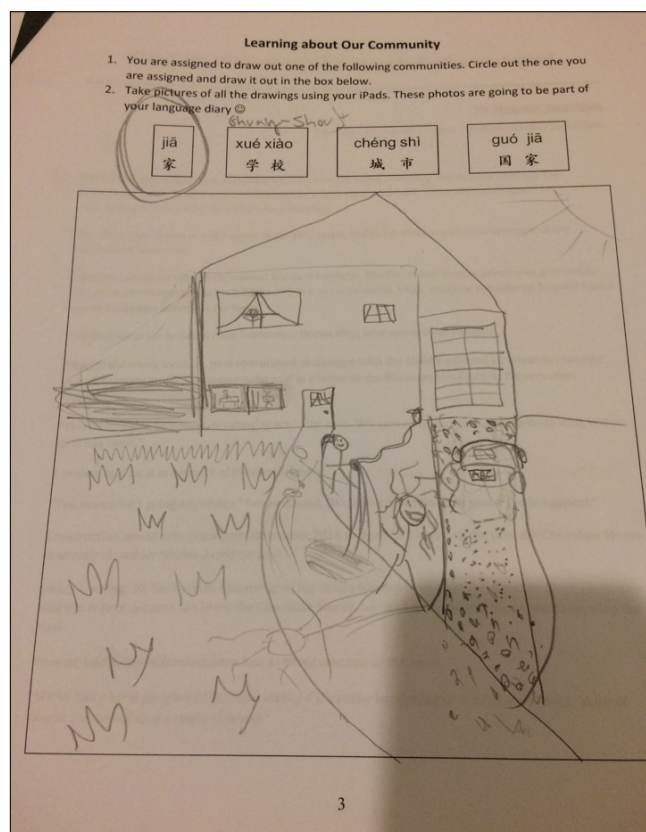

FIGURE 6. Sample student work from the revised pre-reading activity design. Technology played a more significant role in student learning, allowing multimodal and collaborative learning.

using online applications such as Google Translate or Pleco to look up the words, students learned those words by researching and creating visualizations of those words as a team (see Figure 6). Since each student had an iPad, we asked the students to take pictures of the drawings and save them in the camera roll as their language diary.

Designing the Culminating Activity

The culminating activity, the final class project where the students synthesized all they learned and presented their perspectives, was also a design dilemma. The challenge lay in the fact that there were so many possibilities and so many things we wanted to try. Due to the importance of the culminating activity, the design team took the time to brainstorm ideas and go through the ideas carefully before making the decision. The team brought three major ideas to the table: making a board game, hosting a talk show, or performing a puppet show. After deliberate discussion and rationalization, we chose the puppet show as our final decision.

Engaging students in making a TGD board game was the first idea eliminated during the process. Even though the design team felt making a board game could yield many learning benefits, we and the other design team members also came to the conclusion that making a board game added an extra layer of complexity to the design project, thus making the scope of the project unfeasible and unteachable. If a board game was chosen to be the culminating activity, then in addition to the knowledge about the Chinese language and knowledge about persistent issues, the students also needed to know how to design the game rules, the game board, and the pawns, etc. With the various topics we had to cover, we found it impossible to spare extra time to teach about game design. In addition, we were also concerned about the levels of cognitive demand of this lesson. Designing a game itself is a high cognitive demand task. As we had already incorporated problem-based learning in the TGD lesson, we felt that there were already enough challenging tasks for the students to solve. Adding the board game component to the project was too much for the students. Finally, we knew that if we were going to let students make a board game together, it was inevitable that they would use English to discuss the game design. That was something Ai-Chu and Pengtong definitely did not want to see happen. For these reasons, we and the other design team members decided that making a board game should not be the culminating activity.

We then talked about the possibility of engaging students in a Chinese talk show so that they could have a debate about the TGD project with different positions and different perspectives. It would be a great opportunity for the students to present what they had learned and researched during the previous activity. It would also be a great way to engage the students in authentic communication tasks. In addition, Ai-Chu and Pengtong had seen an example of using talk show as the culminating activity in one of the sample PBL lessons in the PIH Net. Thus, we knew that this activity at least worked in a L1 learning environment. However, the students' language proficiency became a major concern that influenced the design decision for the team. With a talk show, the students would need sophisticated language competence to engage in non-scripted interactions. The

design team and us went back to the persisting design dilemma: should this talk show be done mainly in Chinese or English? If we allowed the students to carry out the talk show mainly in English with only a few Chinese words, the debate would have been more authentic, and the critical thinking would likely be more sophisticated as well. However, if students were going to speak mainly in English during the culminating activity, then what was the point of teaching them Chinese? On the other hand, if we had demanded that the students speak mainly in Chinese during the talk show, the chances were that the students would have had to script everything and memorize the script. That would have defeated the intention of having an authentic communication task. Also, what if there had been students who were too shy to speak a foreign language in a debate and in front of people? We felt that the nature of this activity could pose some limitations to completing a basic level foreign language course.

Eventually, we and the other design team members decided against the talk show idea and came up with the puppet show instead. The puppet show idea was inspired by both the talk show idea and our picture book. During the design team meetings, we and the other design team members thought that we would make puppets based on the characters in the story and engage students in collaborative scriptwriting for the show. Prior to writing the script, the students would have debated and reached a consensus about their position toward the TGD under the facilitation of the instructors. During writing, the students were divided into two small groups; Ai-Chu and Pengtong helped each group with their brainstorming and writing. The two groups wrote the script through a shared Google Doc. Each group member was assigned a role and was in charge of one of the scenes (there were six scenes in the puppet show). One student was assigned to be the technology leader who was responsible for typing out the script while the other group members narrate to them. The students then were to be guided to write the puppet show script mainly in Chinese, where they presented their position and arguments through the characters in their play. Although a puppet show could not enable non-scripted authentic communications, we felt that it would at least allow the students to construct sophisticated narratives that demonstrated both their critical thinking and their ability to speak in Chinese. In addition, since this would be a puppet show, students would be able to tell the story behind the puppet show stage (see Figure 7). This would help reduce the anxiety of speaking in a foreign language in front of people. A final determining factor for selecting the puppet show idea was because of our sponsor teacher at the school, Miss Emily. At the time, Miss Emily was also guiding a group of kindergarten students to learn Chinese. Since a puppet show would be more kid-friendly than a talk show, we also invited the kindergarteners as the audience of the puppet show, allowing our students to have a real audience for their performance.

FIGURE 7. The puppets students created and the puppet show stage.

Reflection on the Instructional Material Development Stage

In this design case, we showed how design precedents could be the anchors, as well as the obstacles of developing instructional materials at the same time. We concurred with previous studies that personal experiences played a critical role in influencing design (Boling, 2010; Oxman, 1994). Different individuals have different prior experiences. With those experiences, individuals established images of design precedents in their minds that influenced their design and their interpretation of a design principle. In Ai-Chu's case, her past experience as a college Chinese instructor exposed her to foreign language reading materials fit for college students. The design precedents imprinted in her mind later influenced how she interpreted the abstract instructional design principles such as incorporating visuals or segmenting texts. Clearly, her interpretations based on prior college teaching experience were different from other team members, who might have been influenced by other design precedents. Consequently, even though those were the design principles the team agreed on before Ai-Chu developed the initial

version, the team felt she failed to address those design principles with the initial version. In the context of collaborative design, this design failure showed how gaps in communication could have stemmed from the fact that different individuals held different design precedents that affected how they understood or interpreted a certain instructional design principle.

The design dilemma regarding L1 and L2 use continued to create tensions and struggles among the team members during the instructional material development stage. As different members of the design team might have set different priorities on the learning objectives, our ideas for using L1 and L2 were different, too. As language teachers, Ai-Chu and Pengtong certainly felt uncomfortable using that much L1 in class and letting students use L1 more than TL as well. Yet, we also felt it was important that the students were cognitively challenged by the topic and the learning tasks. Trapped in those two sets of considerations, each decision related to L1 and L2 use was a difficult one to make, one that the team often had to debate and find an optimal solution.

While designing the instructional materials, oftentimes the team encountered design problems with multiple possible solutions (e.g., choosing the culminating activity). In this design case, we elaborated on how we reasoned and chose from the possible design solutions for a language PBL lesson. During the design process, we chose the culminating activity by considering the level of cognitive demand, the amount of target language use, the authenticity of the task, and the students' affective states. We were mostly happy about our decision, and the students seemed to enjoy making and performing a puppet show in front of a real audience. However, in reflection, we did feel that even though the activity was chosen with good reason, we did have to do better in providing the students with the scaffolds they needed to be more successful with the skit, especially in terms of their language skills. Due to the time limitations, we did not incorporate many language drills in our lesson, so the students lacked familiarity with the key vocabulary words and sentence patterns. They were able to recognize the key vocabulary words when they saw them, but it was hard for them to recall the words without any help. As such, the students struggled a lot when they were developing the script for their puppet show. They could easily think of what they wanted to argue, but it was difficult for them to put down their thoughts in Chinese. Consequently, the script-writing took longer than we had expected, and the students did not have the time to rehearse their skit beforehand.

The First and Second Implementations

In this project, we implemented the Chinese PBL lesson twice in two separate cycles. In the following sections, we will describe the challenges we faced during the first lesson

ā	á	ǎ	à
First tone	Second tone	Third tone	Fourth tone

FIGURE 8. Pengtong used gestures to teach the four tones in Chinese

implementations and how we revised our instruction to deal with the challenges during the second iteration.

Technology Integration

Because The Project School had a 1:1 computing program we attempted to use technology as much as we could in their project. For example, we envisioned using apps such as Doodle to engage the students in creating a language diary; NearPod, to increase interactivity during lectures; Google Classroom for classroom management and sharing class assignments; and Pleco as a Chinese-English dictionary. Prior to the first implementation, we contacted school technology support to make sure that all the iPads used for *Chinese Passions* had the applications installed that were required in the instruction. However, in the first week of the course, we quickly found out that there were students claiming that they lost their iPads or were missing certain applications in their devices. Also, students often forgot to bring their iPads to class. In addition, accessing Google Classroom was frustrating because of the school's network firewalls. Consequently, the use of technology during the first implementation caused more problems than it solved.

Thus, in the second iteration, we reduced the amount of technology used, and also changed from a 1:1 to a 1:3 device-to-student ratio. We asked three senior students to be the technology leaders of three small groups instead of asking every student to bring their own electronic devices. Using the device as a group would save time for doing classroom activities. Also, we felt that if everyone had their own device, there would be fewer conversations and less collaboration. We not only assigned the role of technology leader to the students, other students had a role as a time-keeper or a notetaker as well, so that they were participating and taking responsibility for the group work.

We decided not to use Google Classroom, not only because of the technical difficulty but also for pedagogical reasons. The Google Classroom was originally designed for doing assignments. However, doing assignments was not a traditional practice of any extra-curricular activities in this school. In order to encourage students to review the language they learned every day, we created a reward system in the first iteration. If the students finished the assignments in Google Classroom after class, they could receive a sticker. However, our partner teacher, Miss Emily, objected to this approach:

I was thinking we should leave out the stickers and prizes this round. As a school, we tend to shy away from incentives like these because the children focus more on the prize rather than on the learning itself. There are a few younger children who will be joining us this round who really struggle with measuring their worth and success with stuff, rather than with hard work. Thanks for understanding.

We completely agreed with what Miss Emily said. Therefore, we decided not to connect learning with rewards and dropped the reward system immediately.

Teaching Strategies

During the first iteration, we realized that the hard scaffolding embedded in our instructional materials, such as picture book or worksheets, were not enough. Hard scaffolding refers to the "static supports that can be anticipated and planned in advance based upon typical student difficulties with a task" (Brush & Saye, 2002, p.2). In our biweekly design team meetings, other members who observed our teaching noticed we engaged the students in a lot of drills and translation practices. Thus, we suggested increasing the use of other teaching strategies, such as body language, flashcards, games, communicative activities, and modeling during instruction.

As such, during the second iteration, we intentionally revised their teaching strategies and some of the class activities. For example, as shown in Figure 8, Pengtong used gestures to show tones and encouraged the students to use gestures to distinguish and help pronounce the four tones in Chinese.

The use of gestures successfully helped students understand the four tones. The gestures we used also became students' mnemonics. We noticed that when students were pronouncing words, we also used the gestures to help them sound out the word.

We also revised some activities in the second iteration to make the tasks better scaffolded and more engaging. For instance, when we taught the sentence structure 因为 (yin wei, because)……所以 (suo yi, so)…… we first explained its pragmatic difference in English, then asked the students to find out all the "because…so…" sentences in the picture book, and then asked students to use "because…so…" to make sentences in Chinese. With the revision, students picked up the sentence pattern really fast and were able to use the sentence pattern during the culminating activity. In another example, instead of teaching and lecturing by herself, Pengtong assigned each student a new word, taught them how to look up the word using pinyin, and had them teach the pronunciations to each other.

During teaching inquiry, instead of inviting the students to express and explain their personal viewpoints toward the TGD project, Ai-Chu played the devil's advocate to encourage students to consider alternative perspectives and to justify their claims during discussions. This strategy worked well; soon, all the students jumped into the discussion and expressed a variety of reasons why they were against the TGD project. We also noticed that, because of Ai-Chu's skeptical approach, one of the students changed her positionality and encouraged her peers to think from the opposite perspective. See the excerpt below. The discussion was conducted mostly in English. Although Ai-Chu and Pengtong wanted the students to practice Chinese as much as possible, we realized that the students' Chinese level would not support brainstorming and expressing their authentic perspectives in the construction of the TGD, and the students may not be able to critically evaluate their arguments.

> *Ai-Chu: From my perspective, I think human beings are the most important thing in a community you guys were talking about animals, buildings. I don't care about those stuff!! I only care about us, human beings!*
>
> *Sarah: You don't care about your country's cultural heritage?*
>
> *Ai-Chu: Well, in comparison to making money, I think making money is even more important.*
>
> *Scott: I care about all the people and their life stuff, but I'm more for the dolphins. Dolphins for life!! (peace gesture)*
>
> *Sarah: Wait, before we make our decision one hundred percent, maybe we should think about the other perspective, all that she's [Ai-Chu] been saying. It saves lives; maybe that's the most important thing.*

Time Management

Another challenge we encountered in the first iteration was that we could not finish the entire inquiry project. We designed a strict timeline for the course to cover the instruction of both language learning and inquiry exploring. We carefully planned the content, activities, and tasks for each week and left two days as the flexible time. However, we still could not finish the inquiry project. Some possible reasons were that (1) we spent too much time reviewing, (2) each activity/game took a longer time than expected because we underestimated the time students needed to react, (3) students came late or missed classes because of other school activities and doctor appointments, etc., and (4) school was closed or the *Passions* class was occasionally canceled.

During the second iteration, in order to use the time productively, we decided to drop some tasks that we saw as not very helpful in the first iteration. For example, the task of writing a language diary was eliminated. In the first iteration, we asked students to keep a language diary to track the vocabulary they had learned. Ideally, students would write down Chinese characters, pinyin, English meaning and draw or write for any images or words that helped them recognize the characters or memorize the meanings. However, the language diary was extremely time consuming and we also noticed that some students were not engaged in the task. As such, we decided to drop this task during the second iteration.

We also shortened the time of learning pinyin, the pronunciation/spelling system. In the first iteration, we spent more than a week in teaching and practicing pinyin. During the second iteration, we quickly went through the sounds shared in both Chinese and English and focused on teaching the four tones and the unique sounds in Chinese. It did not mean that we ignored the importance of practicing pinyin. Pinyin was taught and practiced in every lesson when the students were learning new vocabulary and content.

Reflection on the Two Implementation Stages

Given that the lack of time was one of the biggest limitations of this PBL Chinese instruction, we had to consider how to teach each class period effectively. Per the challenges faced in the first iteration, we had to adopt various coping strategies to resolve the issue of technology integration in the second iteration, including assigning technology leaders in small groups. Although this approach solved some of the aforementioned challenges, it also caused other problems. Mainly, we observed that the students who did not hold a device were less engaged. We noticed that it was usually the technology leader who contributed more to small group activities. For example, during the expert reading activity, the students who were not typing on the laptop rarely talked, while the technology leaders often expressed opinions and

cued other team members. The results of the two iterations also created a dilemmatic situation regarding technology integration for us. Because both approaches seemed to have some drawbacks, we felt we could not decide which approach to adopt in the future if we wanted to continue to integrate technology in the classroom.

In terms of revising teaching strategies, we felt that one of the best benefits of doing a collaborative instructional design project was that we had critical friends that would give them immediate feedback on our teaching practices, and we were able to adjust our teaching strategies and class activities immediately. As novice instructors, we felt such a relationship was extremely beneficial to our own professional growth. Because of other team members' observations and critiques during the process, we were able to notice what was missing in our practice and quickly attended to the issues during the second iteration.

Finally, in order to complete the inquiry project instruction in the second iteration, we chose to reduce the amount of language review and practice to allow for more time for the inquiry activities. However, by comparing the language learning outcomes of the two groups, we thought the students of the first iteration seemed to have a better performance in Chinese language acquisition, while the second group was better able to articulate their opinions about the persistence issue with rationale. Through observation, we noticed the students in the first iteration seemed to have a better performance in Chinese language acquisition. They were more confident in speaking Chinese and mastered more Chinese vocabulary. This, again, connected back to the dilemma regarding finding the balance between language teaching and inquiry learning, and the results of different time management strategies in the two iterations seemed to have proven our concerns. As instructors, we were thus caught in the dilemma of prioritizing language learning vs. inquiry learning because of the limited instructional time.

CONCLUSION AND IMPLICATIONS

This design case described in detail the process of designing a language PBL unit and highlighted the dilemmas the designers encountered during the design and implementation phase. Although we emphasized the dilemmas we faced, with this project, we still saw the value and benefits of adopting PBL in teaching languages. To begin with, we did feel the PBL design gave the students the opportunity to explore an authentic cultural issue in depth. This, in return, also made the students more motivated to learn. Second, because the nature of PBL involved perspective-taking, the students were also engaged in expressing and confronting different viewpoints during authentic communication tasks that were essential to language learning. Finally, with the design of this PBL language lesson, we also felt the students

had more collaborative writing opportunities than in a regular language classroom.

Yet, the major design dilemmas we discussed earlier must also be addressed in order to make the adoption of PBL in language classrooms work better. Finding the balance between language learning and inquiry learning as well as the balance between L1 and L2 use, were two persistent dilemmas the design team faced throughout the entire process. We felt there was no better choice or better solutions to resolve these two issues and were making decisions that would compromise certain aspects of learning one way or another. Upon reflecting on the process and the outcomes, we would suggest that, in order to avoid being entrenched in these dilemmas, in the entry-level language classes, a PBL language lesson should wait until students have developed some basic language skills. Students should at least have the ability to engage in sentence-level communications before they participate in a PBL language lesson. Teaching basic language skills and inquiry learning at the same time may not be the best idea. In addition, in the entry-level language classes, we would recommend at least 2 to 3 months should be given to a comprehensive PBL language lesson, so that enough metacognitive and language scaffolding can be properly provided to students.

Finally, in a collaborative instructional design project, different team members hold different beliefs and priorities. Being able to communicate the design ideas with one another is, therefore, critical to the success of the design collaboration. In our case, the design team went through challenges and tensions in attempting to understand each other's design ideas at the initial stage. Reflecting on our design process, we realized that the miscommunications were potentially caused by the fact that different individuals had different prior experiences and that they would use different design precedents as frames of reference. To that end, we recommend that in a collaborative instructional design project, members could better communicate their design ideas if they could be more reflective of how they formed their design ideas and shared the design precedents they based off with other collaborators.

REFERENCES

Barrows, H. S., & Tamblyn, R. (1980). *Problem-based learning: An approach to medical education*. New York, NY: Springer.

Boling, E. (2010). The need for design cases: Disseminating design knowledge. *International Journal of Designs for Learning, 1*(1), 1–8. https://doi.org/10.14434/ijdl.v1i1.919

Brush, T. A., & Saye, J. W. (2002). A summary of research exploring hard and soft scaffolding for teachers and students using a multimedia supported learning environment. *The Journal of Interactive Online Learning, 1*(2), 1–12.

GuoDong, Z. (2005). A chunking strategy towards unknown word detection in Chinese word segmentation. In R. Dale, K.F. Wong, J. Su, & O. Y. Kwong (Eds), *Natural language processing* (pp. 530-541). Springer, Berlin, Heidelberg. https://doi.org/10.1007/11562214_47

Hmelo-Silver, C. E. (2004). Problem-based learning: What and how do students learn?. *Educational psychology review, 16*(3), 235-266. http://www.jstor.org/stable/23363859

Jonassen, D. H. (1997). Instructional design models for well-structured and ill-structured problem-solving learning outcomes. *ETR & D, 45*(1), 1042–1629.

Jonassen, D. H. (2011). Supporting problem solving in PBL. *Interdisciplinary Journal of Problem-Based Learning, 5*(2), 9–27. https://doi.org/10.7771/1541-5015.1256

Larsson, J. (2001). *Problem-Based Learning: A possible approach to language education*. Polonia Institute, Jagiellonian University. http://www.nada.kth.se/~jla/docs/PBL.pdf

Liu, M. (2012). Discussing teaching videocases online: Perspectives of preservice and in-service EFL teachers in Taiwan. *Computers & Education, 59*(1), 120–133. https://doi.org/http://dx.doi.org/10.1016/j.compedu.2011.09.004

Luke, C. L. (2006). Fostering learner autonomy in a technology-enhanced, inquiry-based foreign language classroom. *Foreign Language Annals, 39*(1), 71–86.

Nelson, H. G., & Stolterman, E. (2014). *The design way: Intentional change in an unpredictable world*. MIT press.

Othman, N., & Shah, M. I. A. (2013). Problem-based learning in the English language classroom. *English Language Teaching, 6*(3), 125. https://doi:10.5539/elt.v6n3p125

Oxman, R. E. (1994). Precedents in design: A computational model for the organization of precedent knowledge. *Design Studies, 15*(2), 141-157. https://doi.org/10.1016/0142-694X(94)90021-3

Polisca, E. (2011). Language learning and the raising of cultural awareness through internet telephony: a case study. *The Language Learning Journal, 39*(3), 329–343.

Savery, J. R. (2006). Overview of problem-based learning: Definitions and distinctions. Interdisciplinary Journal of Problem-based Learning, 1(1), 3. http://dx.doi.org/10.7771/1541-5015.1002

The Project School. (n.d.). The Project School Mission, Vision & Values. https://www.theprojectschool.org/site/Default.aspx?PageID=178

Toohey, K., Dagenais, D., & Schulze, E. (2012). Second language learners making video in three contexts. *Language and Literacy, 14*(2), 75-96.

US Census Bureau. (2010). *Profile of General Population and Housing Characteristics*: 2010. https://bloomington.in.gov/sites/default/files/2017-05/demographic_profile.pdf

Wallace, S., Banks, T., Sedas, M., Glazewski, K., Brush, T. A., & McKay, C. (2017). What will keep the fish alive? Exploring intersections of designing, making, and inquiry among middle school learners. *International Journal of Designs for Learning, 8*(1), 11–21. https://doi.org/10.14434/ijdl.v8i1.22668

Wu, C. J., Chen, G. D., & Huang, C. W. (2014). Using digital board games for genuine communication in EFL classrooms. *Educational Technology Research and Development, 62*(2), 209-226. https://doi:10.1007/s11423-013-9329