

Chapter 12

Developing a Personalized, Educational Gaming Experience for Young Chinese DLI Learners: A Design-Based Approach

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ABSTRACT

In this chapter, a design-based approach was used to investigate the effectiveness of a story-driven game designed to improve elementary Chinese dual language immersion (DLI) learners reading strategies by fostering self-regulated learning. To facilitate reading comprehension and increase vocabulary development, learners are empowered with an in-game notebook which allows them look up and review new vocabulary words. The authors argue that game design features such as the in-game notebook and meaningful in-game choices have the potential to not only motivate learners to persist in reading a second language, but also provide them with the tools needed to regulate and promote their own vocabulary learning. Data were collected from Chinese DLI elementary students who played this game individually with a researcher. These data include log data, screen capture video of gameplay, and post-gameplay interviews. In the findings, successes and failures of the current game design are presented and suggestions for future designs aimed at supporting young Chinese DLI learners are provided.

INTRODUCTION

In 2008, Utah state legislation passed a bill allotting money for a statewide movement to establish dual language immersion (DLI) programs in public schools (Leite, 2013). Currently, there are over 130 schools offering a DLI program and this number is expected to continue growing (Utah State Office of Educa-

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tion, 2013). Students in these programs are taught academic content in the target language (Spanish, French, German, Chinese, or Portuguese) for half of the day, and then in their native language, typically English, for the other half (Utah Dual Language Immersion, 2014).

The primary goals of DLI programs include cultivating academic achievement, bilingualism/biliteracy, and cultural competence (Christian, 2011; Fortune & Tedick, 2008). It is important to note that learners in DLI programs are expected to not only become proficient oral communicators in the target language, but to also become adept readers in their second language (L2). Developing L2 reading skills in elementary is especially important for DLI students because unlike in world language programs, students in DLI programs are expected to learn through their target language, rather than simply produce and consume the language being taught. In addition, DLI students in the Utah model take advanced, college-level language courses when they reach 10th grade and such courses will undoubtedly require that learners possess proficient L2 reading skills.

It has been argued that since L1 readers rely on their oral abilities when learning to read, L2 readers should also first develop their oral skills before learning to read (Dew, 1994, Koda, 2007). Shu and Anderson (1999) state that “learning to read requires becoming aware of the basic units of spoken language, the basic units of the writing system, and the mapping of the two” (p.1). By first teaching basic math skills, which do not heavily rely on the written language, in the target language during the early elementary grades, and then teaching social studies in the target language in the later elementary grades, the Utah DLI model seems to follow the concept that oral skills should be taught first to facilitate the development of literacy skills.

However, for young DLI students learning Chinese, even after developing their oral skills, mapping oral knowledge onto the logographic script of the Chinese written language can be difficult, especially for learners with no previous experience with logographic scripts (Everson, 1998). Due to the difficulty of learning to read Chinese characters the Foreign Service Institute often ranks Chinese as one of the most difficult languages to learn for native speakers of English, requiring almost four times as much classroom instruction to achieve the same proficiency as learners studying a language that is closer to English, such as Spanish or French. The Utah State Office of Education seems to agree with this assessment by placing reading goals for the Chinese program a year behind the goals set for other languages (Utah Dual Language Immersion, 2014). Furthermore, in a recent study investigating Spanish, Japanese, and Chinese DLI students’ proficiency levels in Oregon, only 29% of Chinese DLI students scored above the intermediate low target level on the reading test compared to at least 75% of students in the Spanish and Japanese programs (Burkhauser et. al, 2016).

Although both the importance and difficulty of developing Chinese L2 reading skills in the DLI program is well understood, providing the individualized support that many learners need to overcome the challenge of reading in Chinese is neither practical nor cost effective. To address this issue, researchers in this study designed a story-driven game (SDG) to function as a personalized learning system for young Chinese DLI learners. A design-based approach was used to a) illustrate the genesis and evolution of the SDG design and b) evaluate both the effectiveness and potential for the SDG as a personalized learning environment. In the following section, we will review literature used to inform the design and evaluation of the SDG used in this study.

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