

A Three-Step Model for Designing Initial Second Life-Based Foreign Language Learning Activities

Feihong Wang

Post-Doctoral Research Associate
Center for Instructional Technology Solutions in Industry and Education
Virginia Polytechnic Institute and State University
Blacksburg, VA 24060 USA
fwang06@vt.edu

John K. Burton

Professor
Instructional Design and Technology Program
Virginia Polytechnic Institute and State University
Blacksburg, VA 24060 USA
jburton@vt.edu

Jane Falls

Coordinator, Educational Technology Laboratory (Retired)
School of Education
Virginia Polytechnic Institute and State University
Blacksburg, VA 24060 USA
jfalls@vt.edu

Abstract

The use of three-dimensional virtual worlds such as Second Life (SL) to support foreign language learning and teaching has been receiving increasing attention over the last decade. A review of the literature revealed a lack of activity design models for SL-based foreign language learning. This paper proposes a model that may be used by foreign language educators to design initial SL-based learning activities for their students. The suggested model integrates three language-learning features to contribute to effective language learning, to satisfy students' preference for working in groups, and to reduce SL's chances of crashing. The model also provides a mechanism for moderating SL's steep learning curve.

Keywords: Second Life, foreign language learning, computer-assisted language learning (CALL), learning design

Introduction

The use of technology in language teaching and learning has been the focus of much scholarly discourse and research for a considerable number of years (Felix, 1999; [Zhao, 2003](#)). Computer-assisted language learning (CALL) researchers and advocates believe that new and emerging technologies have the potential to support and enhance pedagogy (Felix, 1999; [Garrett, 1991](#)). As defined by Levy (1997), CALL is the search for and study of applications of the computer in language teaching and learning, which embraces a wide range of information and communication technology applications and approaches. Current studies in CALL have identified potential advantages of using virtual worlds such as [Second Life \(SL\)](#) for language teaching and learning (e.g., [Deutschmann, Panichi, & Molka-Danielsen, 2009](#); [Peterson, 2006, 2010](#)). SL is an online, three-dimensional (3D) virtual environment in which the user assumes an alternate representation known as an avatar and uses it to interact with other avatars in the synthetic environment ([Inman, Wright, & Hartman, 2010](#)). Ever since SL was launched by [Linden Lab](#) in 2003, it has been attracting educators' attention. While conceptual discussions have pointed to much promise in the use of SL for foreign language teaching, empirical explorations have revealed obstacles and issues in using SL for educational purposes (e.g., Hislope, 2008; [Sanchez, 2007](#); [Wang, Song, Xia, &](#)

[Yan, 2009](#)). In addition, many educators who have adopted the technology tend to expect their students to undertake learning activities within SL without providing them sufficient support and scaffolding to help them overcome SL's steep learning curve. It is widely recognized that the success of a technology-mediated learning activity does not ultimately depend on the technology ([Colpaert, 2006](#)), but rather on the design of the activity and the way in which the technology is used ([Hampel, 2006](#); [Hauck & Youngs, 2008](#); [Zhao, 2003](#)). The use of technology in and of itself cannot be guaranteed to give rise to learning. A review of the literature by the authors of the present paper indicated the lack of activity design models to guide and inform SL-based foreign language learning. This paper seeks to address the gap in the literature through the proposal of a three-step model for designing initial SL-based foreign language learning activities. This model integrates features to contribute to effective language learning, to reduce the impact of the technical limitations of SL, to moderate the steep learning curve associated with SL novice users, and to scaffold learners' adoption of SL as a foreign language learning environment.

Literature Review

The Virtual World of Second Life

The use of virtual worlds in education can be traced back to the 1970s, when they were still entirely text based ([Livingstone, Kemp, & Edgar, 2008](#)). In the past two decades, 3D virtual worlds have been increasingly adopted and investigated as educational environments ([De Lucia, Francese, Passero, & Tortora, 2009](#)). SL is one of the most popular 3D virtual worlds in use today. SL simulates real life while providing users with tools and guidance to design and manipulate the environment, including action scripting and object construction ([Brown, Hobbs, & Gordon, 2008](#); [Ralph & Stahr, 2010](#)). SL encourages the concept of truly living in the virtual environment where users can dress their avatars, own properties, construct buildings, build virtual cars, and socialize or do business with other users from around the world. In order to support user interaction, SL provides both text-based and audio-based communication approaches. Literally, SL is a multi-functional sandbox that supports a variety of activities.

Second Life in Education

Reasons for choosing SL as an instructional medium can be various, such as pedagogical objectives, institutional decisions, personal curiosity, trends, or fashions ([Stockwell, 2007](#)). No matter what the reasons, educators, researchers, and college students have flocked to using SL since it was launched in 2003 ([Foster, 2007](#)). More than 300 universities explored using SL as an educational tool in 2007 ([Sussman, 2007](#)), and approximately 25% of the universities in the United States reported a presence in SL in 2008 ([Young, 2008](#)). The potential of SL for teaching and learning was also explored. For example, universities such as [Harvard University](#) and [San Diego State University](#) deliver lectures and demonstrations on their virtual campuses within SL ([Brown et al., 2008](#)). Some educators taught entire courses in SL, whereas others used SL to supplement their classes ([Sussman, 2007](#)).

Researchers have reviewed SL mostly for its potential to foster experiential and constructivist learning ([Inman et al., 2010](#)), such as problem-based learning (e.g., [Campbell, 2009](#); [Good, Howland, & Thackray, 2008](#); [Luo & Kemp, 2008](#)), collaborative learning (e.g., [Brown et al., 2008](#)), situated learning (e.g., [Dickey, 2003](#)), project-based learning (e.g., [Jarmon, Traphagan, & Mayrath, 2008](#)), and task-based language learning (e.g., [Hislope, 2008](#); [Wang, Song, Xia, & Yan, 2009](#)). Constructivists consider learning as a social and active process (Vygotsky, 1978). Central to the constructivist perspective is the belief that knowledge is constructed instead of being transmitted. In other words, learners play an active role in the learning process (Jonassen, 1999). SL supports constructivist learning from several aspects. First, SL allows the teacher's role to be blurred because students often develop more sophisticated SL skills than teachers after exploring SL for weeks ([Sanchez, 2007](#)). Students are also more likely to consult other SL users for non-subject-matter questions ([Good et al., 2008](#)). Second, SL supports students' knowledge development through the creation of public entities that have meaning and significance for them ([Good et al., 2008](#)). For example, architectural students can re-build famous buildings, such as Neuschwanstein Castle or the Notre Dame Cathedral, to practice their architectural design skills. Third, SL is an open platform that supports wide social interactions among its users through discussions, negotiations, and collaboration. SL users can also interact with the environment ([Dickey, 2003](#)) by clicking on user-developed items. Lastly, SL provides support for setting open-ended problems that might be foiled by practicalities in real life ([Good et al., 2008](#)). For example, most Chinese students do not have the opportunity to meet native English speakers in their daily lives; however, it is not a problem in SL.

Second Life for Foreign Language Learning and Teaching

There is a long history of using technology to improve language learning (Salaberry, 2001). New technologies were often considered solutions to make language learning faster and more efficient (Blake, 1998). SL is no exception. It has been considered particularly suitable for practicing foreign language listening and speaking skills because it could provide a safe, economical (Cooke-Plagwitz, 2008; Hislope, 2008; Turner, 2007), socially inclusive (Swaine, 2007), and realistic environment (Cooke-Plagwitz, 2008; Deutschmann & Panichi, 2009; Wang, Song, Stone, & Yan, 2009) in which language learners can have real time interactions with native speakers (Shepherd, 2007; Swaine, 2007; Wang, Song, Xia, & Yan, 2009) through text-based or audio-based interaction and collaboration (Cooke-Plagwitz, 2008; Jones, Morales, & Knezek, 2005; Stevens, 2006; Swaine, 2007; Young, 2008). Studies have found that SL is a viable platform for learner-based CALL projects involving small groups (e.g., Peterson, 2010). In addition to practicing language skills, the realistic environment of SL can also provide language learners with the opportunity to be immersed in the culture of the target language.

Currently, various foreign language courses are offered in SL, such as English, Japanese, and Spanish (Erard, 2007); especially popular is English since SL is predominantly an English-speaking environment. However, as researchers point out, a technology might hold great educational potential, but it might not have any positive impact on learning until it is used properly (Brown et al., 2008; Colpaert, 2006; Zhao, 2003). The educational effects of SL for foreign language learning depend on the appropriate activity design (Hampel, 2006; Hauck & Youngs, 2008). Since SL in education as a research field is still in its infancy, the empirical studies that inform instructional design and practices are limited (Jarmon et al., 2008), let alone the activity design models for SL-based foreign language learning. The purpose of this article is to suggest an activity design model for initial SL-based foreign language learning and teaching.

Developing the Model: Element Analysis

SL-based language learning includes two elements: language learning and SL as a learning environment. Therefore, to develop an activity design model for effective SL-based language learning, features of both elements should be appropriately analyzed and given due consideration.

Potential Problems with the Educational Use of Second Life

Understanding the potential drawbacks of an instructional technology empowers educators to make better decisions regarding its relevance to learning and teaching (Silva, Correia, & Pardo-Ballester, 2010). Therefore, the development of this design model started with exploring the possible problems and issues related to using SL to support learning activities.

As Zhao (2003) suggests, an effective activity design should take the learner, the task, and the instructional settings into consideration. According to the literature, there are three major drawbacks of SL, which coincidentally also cover these three design elements: instructional setting (in this case, the technology), the learner, and the task aspects of SL. First, SL is beset by technical problems. The installation of SL requires powerful hardware specifications. Some authors have concluded that "unless you have a top-range computer, it is not practical [to use SL]" (Shepherd, 2007, para. 12). Even when it is installed, the software frequently crashes because it requires high-speed broadband (Foster, 2007; Stevens, 2006; Swaine, 2007; Wang, Song, Xia, & Yan, 2009). Second, researchers tend to assume that today's students, the so-called "digital natives" (Prensky, 2001a, 2001b, 2001c), are able to adjust to the SL learning environment easily because they have grown up using computers, the Internet, video games, and other digital technologies. However, the use of SL is often associated with a steep learning curve (Vogel, Guo, Tian, & Zhou, 2008; Wang, Song, Xia, & Yan, 2009; Wang & Shao, 2012). As Hampel (2006) tells us, educators cannot simply assume that students are familiar with the affordances offered by SL. The fact is that the adoption of SL in educational practices often encounters problems of difficulties in navigation and in using the 3D interface (De Lucia et al., 2009; Sanchez, 2007). Simply adding a training session, suggested by many researchers, cannot solve this problem (Sanchez, 2007). Therefore, SL-based learning activities can be intimidating for novice users. Third, learners may have different preferences regarding the educational integration of SL. For example, Sanchez found that students preferred performing group activities or visiting new places in SL, but did not like using SL for activities that could be done in the classroom (cited in Sussman, 2007).

Features for Effective Language Learning

In order to learn a new language, students must actively gather new information and then process, reorganize, and internalize it ([von der Emde, Schneider, & Kötter, 2001](#)). To support this process, Wang (2010) summarized three principles for designing effective language learning activities. These three principles are task-based, authenticity, and collaboration. In addition to meeting the needs for effective language learning, these three principles may also reduce two SL-related problems: students' preference for working in groups and SL's tendency to crash. The suggested three-step design model is based on these principles.

- *Task-based learning.* Task-based learning has been a staple in foreign language teaching practices ([Carless, 2002](#); [Huang, 2010](#); [Slimani-Rolls, 2005](#)) with the purpose of stimulating the second language acquisition process (Ellis, 2003; [Kiernan & Aizawa, 2004](#); Skehan, 1993). Task-based learning incorporates activities that respect "transfer-appropriate processing and other positive features of communicative practices" ([Segalowitz, 2003](#), p. 402) to help provide learners with the means to creatively apply previous acquired knowledge in new communicative contexts ([De Ridder, Vangehuchten, & Gómez, 2007](#); [Slimani-Rolls, 2005](#)). SL is also considered an appropriate environment to assign task-based learning activities by researchers (e.g., Hislope, 2008; [Wang, Song, Xia, & Yan, 2009](#)). The task-based approach may also reduce SL's chances of crashing. [Garrett \(1991\)](#) suggests two criteria for evaluating technology-based, language-learning materials. One of them is whether the program runs properly without crashing. The running of SL software requires hardware specification and high-speed broadband connections. Therefore, in a situation where students are gathered together in a computer lab to use SL, SL may freeze or crash easily due to fighting for limited bandwidth ([Foster, 2007](#); [Stevens, 2006](#); [Swaine, 2007](#); [Wang, Song, Xia, & Yan, 2009](#)). This problem could be even worse for computer labs in language departments because they usually do not require computers for their instructional needs that have the necessary specifications for running virtual worlds, such as SL. The task-based learning approach, on the other hand, possibly allows students to work on their own schedules or in small groups, instead of having to gather all together in a computer lab. As a result, this approach reduces the chances that students are using SL at the same time. Students can even install SL on their own computers (e.g., [Jarmon et al., 2008](#)) to get more flexibility. Consequently, the task-based approach may reduce the SL's problem of freezing and crashing.
- *Authentic activities.* The other criterion that [Garrett \(1991\)](#) suggests for evaluating technology-based, language-learning materials is whether the language context is authentic and appropriate. Authenticity is also the primary issue in designing tasks for task-based learning activities ([Deutschmann et al., 2009](#)). Authentic learning is normally based on real-world problems and projects that are relevant and interesting to the learner ([Traxler, 2009](#)), such as using role-playing exercises, problem-based activities, case studies, and participation in virtual communities of practice ([Lombardi, 2007](#)). In other words, to facilitate learning engagement, it is important that tasks are based on authentic learning context ([Nunan, 2005](#)). In language learning, authentic learning contexts often refer to learning that involves language produced by native speakers for a real audience ([Gilmore, 2007](#)). This learning approach can take students mentally out of the classroom and bring language learning to a real life situation. Virtual worlds, such as SL, have the potential to support learner autonomy by encouraging learners to interact in the target language as often as possible and to reflect on the learning process ([Schwienhorst, 2002](#)). For example, in face-to-face communication, learners are rarely provided with a record of the conversation, which might give them the opportunity to monitor and evaluate their efforts in the target language. SL, however, has built-in tools, such as the chat log, for users to record and retrieve their conversation records. In other words, SL has the potential to meet the growing demand for more authentic materials and for practicing language in more authentic communicative settings (Felix, 1999).
- *Collaborative learning.* According to the social constructivist conception, learning is a collaborative process. Collaborative learning leverages the differences between participants in their knowledge, skills, and resources and creates the circumstance for participants to help each other ([Hardy, Lawrence, & Grant, 2005](#)). As a result, the literature suggests that it may contribute to the learners' motivation and engagement ([Barron, 2000](#); Bruffee, 1999; [Shibley & Zimmaro, 2002](#)). In task-based learning, students often work in pairs or in small groups – the collaborative learning approach – to promote interaction among students, creativity, and active language use

([Huang, 2010](#); Jones & Youngs, 2006). In addition, SL offers tools for participating in the virtual social network, such as the ability to create a new group or join an existing one ([De Lucia et al., 2009](#)). According to the literature, students prefer using SL for groupwork ([Sussman, 2007](#); [Wang & Burton, in press](#)). Therefore, the collaborative learning approach can encourage students' adoption of SL by satisfying their learning preferences.

In summary, the task-based, authentic, and collaborative learning setting not only aligns with the requirements for designing effective language learning activities, but also offers the potential to reduce the impact of SL's technical problems and accommodates students' preferences of using SL for group activities.

The Three-Step Activity Design Model

As the name indicates, the three-step design model includes three steps: setting the stage, acclimating, and testing the waters. Each step can have more than one activity based on the learning objectives. Usually, educators go directly toward what is equivalent to the last step – testing the waters – to implement their learning activities. The three-step model suggests two additional steps to gradually expose students to SL-based learning, thus to help students overcome the steep learning curve associated with SL novice users.

Step One: Setting the Stage

Being aware of SL's steep learning curve, some researchers (e.g., [Inman et al., 2010](#); [Jarmon et al., 2008](#); [Sanchez, 2007](#)) suggest setting additional technical training sessions to help students get familiar with SL's basic functions. Although adding the training phase may solve some problems, it has limitations. First, the technical training has no relation to language learning. Consequently, students who are not interested in SL may have a hard time concentrating on the learning process. Second, the training activity takes up the already limited class time for language learning. Last, the training activity normally requires the gathering of students in a computer lab, which adds extra burden on the instructor and the lab technician.

The purpose here is to kill two birds with one stone by designing an activity that can function as a language learning activity while motivating students to learn to use SL at the same time. To serve this purpose, it is suggested that learning activities be centered around SL instead of necessarily being carried out within it. For example, SL's tutorials, instructions, and manuals are in English. A possible task for English as a Second Language (ESL) students could be to develop a SL user manual in their native language. First, students are grouped in pairs or trios to translate text-, audio-, or video-based SL tutorials. After the completion of the group translation, students' works are pooled together to develop a final SL manual. Students can then be assigned to install SL on lab computers or their own computers to test the manual. Through this task-based, authentic, collaborative learning activity, the ESL students may not only learn and practice basic SL functions, but also practice their English skills.

Step Two: Acclimating

As [Tammelin \(2004\)](#) reminds us, a lack of feedback might add to the feeling of isolation experienced by learners. The linguistic signaling of engagement can help create a sense of social presence. However, the linguistic feedback cannot be guaranteed for novice SL users because they either have no friends and acquaintances in SL, or they may be too shy to initiate a conversation. Some feedback in SL, on the other hand, could even deter a novice user. Empirical studies have found that students could also get scared by sudden shouts or by strange followers in SL (e.g., [Hislope, 2008](#)). Moreover, even for students who have been exposed to similar virtual environments, online environments that operate exclusively in the target language with native speakers can be challenging for some students ([Felix, 1999](#)). For these reasons, it is important to scaffold the novice users to reach the proficiency of using SL by setting up a safe zone for them.

The goal of this step is to set a safe zone for students by assigning students to complete simple tasks in SL. In this step, foreign language students will be gathered in groups in an instructor-selected SL place to discuss assigned topics through text-based communication. By doing this, the expected feedback will be guaranteed, whereas the unexpected interruptions from strangers can be mostly eliminated. In terms of language practice, as [Belcher and Hirvela \(2008\)](#) point out, text-based interactions have significant relationships or overlaps with oral discourses. Second language learners' text-based interactions within SL are also likely to help them improve their spoken language ([Wang, Song, Xia, & Yan, 2009](#); [Chun &](#)

[Plass, 2000](#)). The discussion topics can also be aligned in the syllabus to make them an extension of the classroom-based discussions. Because foreign language students usually have few opportunities to practice the target language outside the classroom (Saran, Seferoglu, & Cagiltay, 2009; [Thornton & Houser, 2004](#)), the extension of the classroom-based discussions in SL might help keep students' minds on a topic for a longer time. Of course, the audio-based discussions can be gradually added to the tasks based on their improvement of technical proficiency and familiarity with the SL environment. In addition, because of the limited task load in this step, students can use this opportunity to practice their SL skills to reach an effective level of proficiency in SL use. Instructors can also embed SL skill-related performance to the tasks so as to encourage students' exploration of SL. For example, the task can include reporting the group chat log. Without being shown how to get the chat log, students will have to explore the SL interface to complete the task.

Step Three: Testing the Waters

Through the activities in the first two steps, the steep learning curve of SL should, at least to some extent, be conquered. Students are able to take SL seriously as a learning environment. In other words, students are ready to work on a final learning task in SL, such as practicing their foreign language skills with native speakers. The final task should also be a task-based activity; otherwise, learners could still be wandering around in SL, caught up in distractions ([Annetta, Klesath, & Holmes, 2008](#); [Annetta, Murray, Laird, Bohr, & Park, 2008](#)).

Conclusion

Based on the analysis of problems and issues associated with SL for conducting effective language learning activities, this paper has proposed a three-step design model for initial SL-based foreign language learning and teaching. The goal of this design model is to overcome SL's technical limitations and its steep learning curve to help students gradually adopt SL as a foreign language learning environment. This model integrates three basic language-learning features – task-based learning, the use of authentic activities, and collaborative learning – to ensure the effective design of foreign language learning activities, to satisfy students' preference for groupwork in SL, and to reduce SL's chances of crashing. In addition, a three-step design is suggested to moderate the steep learning curve associated with novice SL users.

The proposed model has yet to be empirically tested. Therefore, quantitative and qualitative studies aimed at producing evidence of the model's efficacy would be desirable. Further investigation should concern both the effectiveness and limitations of the model from the instructors' and students' perspectives. Moreover, there is a need to devise and validate assessment tools for the purpose of measuring task loads and ascertaining students' readiness to move from one step in the model to the next.

References

- Annetta, L., Klesath, M., & Holmes, S. (2008). V-learning: How gaming and avatars are engaging online students. *Innovate: Journal of Online Education*, 4(3), 5-8. Retrieved from http://www.innovateonline.info/pdf/vol4_issue3/V-Learning-How_Gaming_and_Avatars_are_Engaging_Online_Students.pdf
- Annetta, L., Murray, M., Laird, S. G., Bohr, S., & Park, J. (2008). Investigating student attitudes toward a synchronous, online graduate course in a multi-user virtual learning environment. *Journal of Technology and Teacher Education*, 16(1), 5-34. Retrieved from [Ed/ITLib Digital Library](#). (21984)
- Barron, B. (2000). Achieving coordination in collaborative problem-solving groups. *The Journal of the Learning Sciences*, 9(4), 403-436. [doi:10.1207/S15327809JLS0904_2](https://doi.org/10.1207/S15327809JLS0904_2)
- Belcher, D., & Hirvela, A. (2008). *The oral-literacy connection: Perspectives on L2 speaking, writing, and other media interactions*. Ann Arbor, MI: University of Michigan Press.
- Blake, R. J. (1998). The role of technology in second language learning. In H. Byrnes (Ed.), *Learning foreign and second languages: Perspectives in research and scholarship* (pp. 209-237). New York, NY: Modern Language Association.
- Brown, E., Hobbs, M., & Gordon, M. (2008). A virtual world environment for group work. *International Journal of Web-Based Learning and Teaching Technologies*, 3(1), 1-12. [doi:10.4018/jwlts.2008010101](https://doi.org/10.4018/jwlts.2008010101)

- Bruffee, K. A. (1999). *Collaborative learning: Higher education, interdependence, and the authority of knowledge*. Baltimore, MD: Johns Hopkins University Press.
- Campbell, C. (2009). Learning in a different life: Pre-service education students using an online virtual world. *Journal of Virtual Worlds Research*, 2(1). Retrieved from <http://journals.tdl.org/jvwr/index.php/jvwr/article/view/379/451>
- Carless, D. (2002). Implementing task-based learning with young learners. *ELT Journal*, 54(4), 389-396. doi:10.1093/elt/56.4.389
- Chun, D. M., & Plass, J. L. (2000). Networked multimedia environments for second language acquisition. In M. Warschauer & R. Kern (Eds.), *Network-based language teaching: Concepts and practice* (pp. 151-170). Cambridge, UK: Cambridge University Press. doi:10.1017/CBO9781139524735.009
- Colpaert, J. (2006). Pedagogy-driven design for online language teaching and learning. *CALICO Journal*, 23(3), 477-497. Retrieved from <http://www.calico.org/memberBrowse.php?action=article&id=102>
- Cooke-Plagwitz, J. (2008). New directions in CALL: An objective introduction to Second Life. *CALICO Journal*, 25(3), 547-557. <http://www.calico.org/memberBrowse.php?action=article&id=716>
- De Lucia, A., Francese, R., Passero, I., & Tortora, G. (2009). Development and evaluation of a virtual campus on Second Life: The case of SecondDMI. *Computers & Education*, 52(1), 220-233. doi:10.1016/j.compedu.2008.08.001
- De Ridder, I., Vangehuchten, L., & Gómez, M. S. (2007). Enhancing automaticity through task-based language learning. *Applied Linguistics*, 28(2), 309-315. doi:10.1093/applin/aml057
- Deutschmann, M., & Panichi, L. (2009). Talking into empty space? Signalling involvement in a virtual language classroom in Second Life. *Language Awareness*, 18(3-4), 310-328. doi:10.1080/09658410903197306
- Deutschmann, M., Panichi, L., & Molka-Danielsen, J. (2009). Designing oral participation in Second Life: A comparative study of two language proficiency courses. *ReCALL*, 21(2), 206-226. doi:10.1017/S0958344009000196
- Dickey, M. D. (2003). Teaching in 3D: Pedagogical affordances and constraints of 3D virtual worlds for synchronous distance learning. *Distance Education*, 24(1), 105-121. doi:10.1080/01587910303047
- Ellis, R. (2003). *Task-based language learning and teaching*. Oxford, UK: Oxford University Press.
- Erard, M. (2007, April 10). A boon to Second Life language schools: New technology will allow high-quality audio in a virtual world. *MIT Technology Review*. Retrieved from <http://www.technologyreview.com/news/407667/a-boon-to-second-life-language-schools/>
- Felix, U. (1999). Web-based language learning: A window to the authentic world. In R. Debski & M. Levy (Eds.), *WorldCALL: Global perspectives on computer-assisted language learning* (pp. 85-98). Lisse, The Netherlands: Swets & Zeitlinger.
- Foster, A. L. (2007, September 21). Professor Avatar: In the digital universe of Second Life, classroom instruction also takes on a new personality. *The Chronicle of Higher Education*. Retrieved from <http://www.chronicle.com/article/Professor-Avatar/30018>
- Garrett, N. (1991). Technology in the service of language learning: Trends and issues. *The Modern Language Journal*, 75(1), 74-101. doi:10.1111/j.1540-4781.1991.tb01085.x
- Gilmore, A. (2007). Authentic materials and authenticity in foreign language learning. *Language Teaching*, 40(2), 97-118. doi:10.1017/S0261444807004144
- Good, J., Howland, K., & Thackray, L. (2008). Problem-based learning spanning real and virtual worlds: A case study in Second Life. *ALT-J, Research in Learning Technology*, 16(3), 163-172. doi:10.1080/09687760802526681
- Hampel, R. (2006). Rethinking task design for the digital age: A framework for language teaching and learning in a synchronous online environment. *ReCALL*, 18(1), 105-121. doi:10.1017/S0958344006000711

- Hardy, C., Lawrence, T. B., & Grant, D. (2005). Discourse and collaboration: The role of conversations and collective identity. *Academy of Management Review*, 30(1), 58-77. doi:10.5465/AMR.2005.15281426
- Hauck, M., & Youngs, B. L. (2008). Telecollaboration in multimodal environments: The impact on task design and learner interaction. *Computer Assisted Language Learning*, 21(2), 87-124. doi:10.1080/09588220801943510
- Hislope, K. (2008). Language learning in a virtual world. *The International Journal of Learning*, 15(11), 51-58.
- Huang, J. (2010). Grammar instruction for adult English language learners: A task-based learning framework. *Journal of Adult Education*, 39(1), 29-37. Retrieved from ERIC database. (EJ891084)
- Inman, C., Wright, V. H., & Hartman, J. A. (2010). Use of Second Life in K-12 and higher education: A review of research. *Journal of Interactive Online Learning*, 9(1), 44-63. Retrieved from <http://www.ncolr.org/jiol/issues/pdf/9.1.3.pdf>
- Jarmon, L., Traphagan, T., & Mayrath, M. (2008). Understanding project-based learning in Second Life with a pedagogy, training, and assessment trio. *Educational Media International*, 45(3), 157-176. doi:10.1080/09523980802283889
- Jonassen, D. H. (1999). Designing constructivist learning environments. In C. M. Reigeluth (Ed.), *Instructional-design theories and models: Vol. 2. A new paradigm of instructional theory* (pp. 215-239). Mahwah, NJ: Erlbaum.
- Jones, C. M., & Youngs, B. L. (2006). Teacher preparation for online language instruction. In P. Hubbard & M. Levy (Eds.), *Teacher education in CALL* (pp. 267-282). Philadelphia, PA: John Benjamins.
- Jones, J. G., Morales, C., & Knezek, G. A. (2005). 3-Dimensional online learning environments: Examining attitudes toward information technology between students in Internet-based 3-dimensional and face-to-face classroom instruction. *Educational Media International*, 42(3), 219-236. doi:10.1080/09523980500161254
- Kiernan, P. J., & Aizawa, K. (2004). Cell phones in task based learning – are cell phones useful language learning tools? *ReCALL*, 16(1), 71-84. doi:10.1017/S0958344004000618
- Levy, M. (1997). *CALL: Context and conceptualization*. Oxford, UK: Oxford University Press.
- Livingstone, D., Kemp, J. W., & Edgar, E. (2008). From multi-user virtual environment to 3D virtual learning environment. *ALT-J, Research in Learning Technology*, 16(3), 139-150. doi:10.1080/09687760802526707
- Lombardi, M. M. (2007). *Authentic learning for the 21st century: An overview*. Boulder, CO: EDUCAUSE. <http://net.educause.edu/ir/library/pdf/eli3009.pdf>
- Luo, L., & Kemp, J. W. (2008). Second Life: Exploring the immersive instructional venue for library and information science education. *Journal of Education for Library and Information Science*, 49(3), 147-166.
- Nunan, D., (2005). Important tasks of English education: Asia-wide and beyond. *The Asian EFL Journal Quarterly*, 7(3), 5-8. Retrieved from http://www.asian-efl-journal.com/September_2005_EBook_editions.pdf
- Peterson, M. (2006) Learner interaction management in an avatar and chat-based virtual world. *Computer Assisted Language Learning*, 19(1), 79-103. doi:10.1080/09588220600804087
- Peterson, M. (2010). Learner participation patterns and strategy use in Second Life: An exploratory case study. *ReCALL*, 22(3), 273-292. doi:10.1017/S0958344010000169
- Prensky, M. (2001a). *Digital game-based learning*. New York, NY: McGraw-Hill.
- Prensky, M. (2001b). Digital natives, digital immigrants Part 1. *On the Horizon*, 9(5), 1-6. doi:10.1108/10748120110424816
- Prensky, M. (2001c). Digital natives, digital immigrants Part 2: Do they really think differently? *On the Horizon*, 9(5), 1-6. doi:10.1108/10748120110424843

- Ralph, L., & Stahr, B. (2010). When off-campus means virtual campus: The academic library in Second Life. *Journal of Library Administration*, 50(7-8), 909-922. doi:10.1080/01930826.2010.488993
- Salaberry, M. R. (2001). The use of technology for second language learning and teaching: A retrospective. *The Modern Language Journal*, 85(1), 39-56. doi:10.1111/0026-7902.00096
- Sanchez, J. (2007). A sociotechnical systems analysis of Second Life in an undergraduate English course. In C. Montgomerie & J. Seale (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2007* (pp. 4254-4258). Chesapeake, VA: Association for the Advancement of Computing in Education. Retrieved from [Ed/ITLib Digital Library](#). (25990)
- Saran, M., Seferoglu, G., & Cagiltay, K. (2009). Mobile assisted language learning: English pronunciation at learners' fingertips. *Eurasian Journal of Education Research*, 34, 97-114.
- Schwienhorst, K. (2002). The state of VR: A meta-analysis of virtual reality tools in second language acquisition. *Computer Assisted Language Learning*, 15(3), 221-239. doi:10.1076/call.15.3.221.8186
- Segalowitz, N. (2003). Automaticity and second languages. In C. J. Doughty & M. H. Long (Eds.), *The handbook of second language acquisition* (pp. 382-408). Malden, MA: Blackwell. doi:10.1002/9780470756492.ch13
- Shepherd, J. (2007, May 8). It's a world of possibilities: Virtual campuses are springing up in Second Life, as universities discover the advantages of cyberspace. *The Guardian*. Retrieved from <http://www.guardian.co.uk/education/2007/may/08/students.elearning>
- Shibley, I. A., Jr., & Zimmaro, D. M. (2002). The influence of collaborative learning on student attitudes and performance in an introductory chemistry laboratory. *Chemical Education Research*, 79(6), 745-748. doi:10.1021/ed079p745
- Silva, K., Correia, A.-P., & Pardo-Ballester, C. (2010). A faculty mentoring experience: Learning together in Second Life. *Journal of Digital Learning in Teacher Education*, 26(4), 149-159.
- Skehan, P. (1993). *A cognitive approach to language learning*. Oxford, UK: Oxford University Press.
- Slimani-Rolls, A. (2005). Rethinking task-based language learning: What we can learn from the learners. *Language Teaching Research*, 9(2), 195-218. doi:10.1191/1362168805lr163oa
- Stevens, V. (2006). Second life in education and language learning. *TESL-EJ*, 10(3). Retrieved from <http://www.tesl-ej.org/ej39/int.html>
- Stockwell, G. (2007). A review of technology choice for teaching language skills and areas in the CALL literature. *ReCALL*, 19(2), 105-120. doi:10.1017/S0958344007000225
- Sussman, B. (2007, August 1). Teachers, college students lead a Second Life. *USATODAY.com*. Retrieved from http://www.usatoday.com/news/education/2007-08-01-second-life_N.htm
- Swaine, C. (2007, May 20). Re: Introduction and questions [Electronic mailing list message]. Retrieved from <http://lists.secondlife.com/pipermail/educators/2007-May/009707.html>
- Tammelin, M. (2004). *Introducing a collaborative network-based learning environment into foreign language and business communication teaching: Action research in Finnish higher education* (Doctoral dissertation, University of Helsinki, Finland). Retrieved from <http://helda.helsinki.fi/bitstream/handle/10138/19988/introduc.pdf>
- Thornton, P., & Houser, C. (2004). Using mobile phones in education. In J. Roschelle, T.-W. Chan, Kinshuk, & S. J. H. Yang (Eds.), *Proceedings of the Second IEEE International Workshop on Wireless and Mobile Technologies in Education (WMTE'04)* (pp. 3-10). Los Alamitos, CA: IEEE Computer Society. doi:10.1109/WMTE.2004.1281326
- Traxler, J. (2009). Current state of mobile learning. In M. Ally (Ed.), *Mobile learning: Transforming the delivery of education and training* (pp. 9-24). Edmonton, Canada: Athabasca University Press. Retrieved from http://www.aupress.ca/books/120155/ebook/01_Mohamed_Ally_2009-Article1.pdf
- Turner, D. (2007, December 5). Second life "island" created for virtual teaching: Students soon will tap into online world for real-world help with studies. *NBCNews.com*. Retrieved from http://www.msnbc.msn.com/id/22115492/ns/technology_and_science-internet/

- Vogel, D. R., Guo, M., Tian, S., & Zhou, P. (2008). In search of SecondLife nirvana. *Issues in Informing Science and Information Technology*, 5, 11-28. Retrieved from <http://proceedings.informingscience.org/InSITE2008/IISITv5p011-028Vogel498.pdf>
- von der Emde, S., Schneider, J., & Kötter, M. (2001). Technically speaking: Transforming language learning through virtual learning environments (MOOs). *The Modern Language Journal*, 85(2), 210-225. doi:10.1111/0026-7902.00105
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Wang, C. X., Song, H., Stone, D. E., & Yan, Q. (2009). Integrating second life into an EFL program in China: Research collaboration across the continents. *TechTrends*, 53(6), 14-19. doi:10.1007/s11528-009-0337-z
- Wang, C. X., Song, H., Xia, F., & Yan, Q. (2009). Integrating Second Life into an EFL program: Students' perspectives. *Journal of Educational Technology Development and Exchange*, 2(1), 1-16. Retrieved from <http://www.sicet.org/journals/jetde/jetde09/charles.pdf>
- Wang, F. (2010). Design principles for cell phone learning in EFL. *Journal of Educational Technology*, 7(2), 1-6.
- Wang, F., & Burton, J. K. (in press). Second Life in education: A review of publications from its launch to 2011. *British Journal of Educational Technology*. doi:10.1111/j.1467-8535.2012.01334.x
- Wang, F., & Shao, E. (2012). Using Second Life to assist EFL teaching: We do not have to sign in to the program. *TechTrends*, 56(4), 15-18. doi:10.1007/s11528-012-0582-4
- Young, J. R. (2008, October 29). Technology survey reveals budget cuts and concerns about staffing. *The Chronicle of Higher Education*. Retrieved from <http://www.chronicle.com/article/Technology-Officials-Worry/1283/>
- Zhao, Y. (2003). Recent developments in technology and language learning: A literature review and meta-analysis. *CALICO Journal*, 21(1), 7-27. Retrieved from <http://www.calico.org/memberBrowse.php?action=article&id=279>
-



This work is published under a Creative Commons Attribution-Non-Commercial-Share-Alike License

For details please go to: <http://creativecommons.org/licenses/by-nc-sa/3.0/us/>