

# Linking Web 2.0 and 3D Virtual Reality for Language Learning: Design and Implementation

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**Abstract:** Considering the needs of language learners, this work proposes a blended learning solution, combining different learning environments and methods. We designed task-based events by bridging Web 2.0 and 3D virtual environments (VEs), such as Second Life, regarded as an optimal language learning environment. 3D virtual worlds bring the possibility of applying situated learning to language learning. Web 2.0, consisting of a group of open social networking tools, such as blogs, is used to cooperate with VEs to support collaborative language learning, especially writing skills and cross-cultural awareness. The article concludes with proposed future directions and a multi-faceted case study, using both qualitative and quantitative assessment methodologies for follow-up empirical research.

## 1 Web 2.0 for Language Learning

Tim O'Reilly and ReillyMedia Inc. coined the phrase, "Web 2.0" [Or05] to refer to available second generation network services. Web 2.0 applications, such as blogs, wikis, podcast, YouTube and other social networking websites, facilitate information-sharing, collaboration, interaction, and communication on a worldwide basis. The current trend draws academic and practical interest to Web 2.0 as a "participatory Web" [De06] and "platform" [Or05] for language learning.

Researchers [Al06, Ca03, Go03, Pi05, RK06, St06] devoted to this brand-new issue, have incorporated Web 2.0 tools into language learning. Alm, for instance, conducted the observation of class blog, wikis, YouTube, and MySpace for an intermediate German language-learning unit themed soap opera [Al06]. Web 2.0 allows language learners to reach out to the target language community and motivate learners in a dynamic way.

Campbell introduced Weblogs [Ca03], including tutor blog, learner blog and class blog, for ESL (English as a Second Language) learning in the classroom context to put forward suggestions for future research and practices. Godwin-Jones proposed the concept of "emerging technologies", blogs and wikis to support online collaborative language learning [Go03]. Pinkman conducted a small scale action research study by integrating blogs into EFL (English as a Foreign Language) teaching in a Japanese university [Pi05]. Pinkman indicated, "blogs are authentic, interesting, and communicative resources that can serve a variety of purposes in the foreign language classroom. A medium to reflect on material, inquire into issues, and interact with others, blogs provide a rich and easy-to-use environment for both learners and instructors" (p. 21). Rosen and Kato conducted a "wiki case study" [RK06] in 2006. The purpose of the study was to help students form

a learning community, improve their oral proficiency, offer feedback on learners' performance and facilitate target cultural understanding. Stanley utilized a variety of ways to use and create audio podcasts in language learning and teaching [St06].

Using Web 2.0 for language learning has recently gained much attention. Previous researchers have endeavored to explore this issue. However, research into Web 2.0 assisted language learning is in its infancy. The results of studies relative to Web 2.0 social networking tools, such as incorporating wikis into writing instruction, demonstrates the positive impact on writing skills [L110, Fr08], MySpace, and Facebook [MB10] into the writing classroom. The aim of this paper is to identify future research issues, linking Web 2.0 and the virtual environment, for CALL practitioners.

## **2 Virtual Reality Assisted Language Learning**

Virtual Reality Assisted Language Learning (VRALL) refers to the search for or the study of computer-generated 3D virtual worlds, such as Second Life, used to support language learning. VRALL is one of the new frontiers in computer-assisted language learning (CALL). Koenraad, for instance, used the acronym "VRALL" to name his website (<http://www.koenraad.info/vrall-2>) for VRALL related events and publications. Currently, world-famous projects such as the ViTAAL Project [Ko07, Ko08], the NIAFLAR project (<http://www.slideshare.net/tonk/niflarproject-slanguages3>) and Indiana University's Quest Atlantis (<http://atlantis.crlt.indiana.edu>) are devoted to the field of VRALL. Project scope and research topics of VRALL include oral proficiency training [Ko07, Ko08], developing communicative competence, intercultural awareness, interactional strategies [Pe05, Pe06], reading and writing. The current status of VRALL is embryonic, as the world's researchers strive to expand efforts to explore this issue systematically and empirically.

## **3 Bridge to Benefits:**

As mentioned previously, a lack of empirical data or research support for the research areas related to Web 2.0 and/or Virtual Reality assisted language learning is obvious. However, Web 2.0 and virtual environments are concluded as "a powerful potential" [SOT08] for second language learning based on a review of the research and pedagogical reports. SurReal Language Quests [Vi07a, Vi07b] is an example of incorporating virtual world (Second Life) and Web 2.0 tools (blogs and podcast) for language learning. SurReal Language Quests reveal the potential for combining the advantages of blended teaching and learning which integrate web-based online approaches with "Real Life Teaching". The quest named "Travel Podcast", for instance, is meant to guide learners through a social process of inquiry through assigned tasks that lead them to discover travel destinations such as Krakow via websites, blogs, podcasts, forums, interviews with people in the Second Life location. The quest also concludes with a task to record and upload a podcast. The stated aims of the project are to "clarify points of language usage and practice specific language skills," as well as to combine the benefits of "Second Life Teaching" and of "Education 2.0- Reflect Web 2.0".

## 4 Design and Implementation

We implement a “hybrid model” of language instruction that combines Web 2.0-based learning with Second Life. This project presents collaborative writing and experiential learning as an instructional model within the blended learning environment: VE and Web 2.0. Language learning results from interaction within the socio-cultural context; especially, writing and cross-cultural learning are therefore inherently collaborative, experiential-based.

Currently, task-based events are designed and implemented to link Web 2.0 applications, including Blogger, YouTube and Flickr, with Second Life for cultural understanding and descriptive writing. The latest task development allows EFL graduate learners to immerse themselves in a culture-rich virtual environment such as Winterfest Celebration in Second Life and describe people they meet, places they visit, virtual objects or scenes they see, events they join and what they hear. Whatever they experience or perceive is the focus of their descriptive writing. Based on their immersion experience gained in 3D virtual worlds, descriptive and creative writing is conducted to describe sensory details, arouse their imagination and cultural understanding.

## 5 Conclusions and Future Works

The purpose of this project is to motivate students in writing, specifically in descriptive writing, and cross-cultural awareness through bridging Web 2.0 tools and a 3D virtual world, Second Life. The project was conducted from September 2009 to the present. The current targeted EFL graduate students enjoy the language learning and writing process. After implementation, the follow-up empirical research will contribute to understanding EFL learners’ writing process and cross-cultural experiences.

In the proposed project researchers use writing samples of four graduate students as small-scale and long-term case studies to illustrate students’ virtual world exploring experiences as writing topics. The samples also indicate possible enjoyment and developing creativity and writing skills as students attempt to meet the demands of writing tasks and cultural understanding. Using a variety of data collection strategies helps to discover student writing motivation, attitudes, writing skills, creativity, and cross-cultural awareness during this one year research project. The specific strategies include: pre-, during, and post- interviews, observation, and collection of writing samples, such as student blogs, and their reflections on the virtual world discovery experiences. The project administers and researchers employ observation checklists and rubrics to analyze and compare writing samples to measure student progress in acquiring writing skills and creativity. This work also plans to assess or measure the degree of cross-cultural awareness in students by collecting portfolios as a student evaluation tool [JSM99] and performing critical text analysis [IKK+02], a quantitative measurement of cross-cultural awareness within the portfolio. This project will hopefully design and implement an innovative and effective way to enhance student writing abilities and cross-cultural understanding.

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