

# **A MMORPG with Language Learning Strategic Activities to Improve English Grammar, Listening, Reading, and Vocabulary**

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Rankin, Gold, and Gooch (2006) found sufficient support for adult English language learners (ELLs) within the EverQuest® II (EQII) videogame to improve participants' vocabulary by 40% on their pretest-posttest mean gain score after 1-month of gameplay. EQII (2006) is a noneducational, massively, multiplayer, online role-playing game (MMORPG) in the heroic fantasy genre. Rankin et al. had a small sample size in their pilot study and called for larger investigations of this type given the positive outcomes. My goal was to replicate and extend their study to include English grammar, listening, and reading skills. The purpose being to determine whether college-bound ELLs could improve their English skills and increase vocabulary by playing a MMORPG with prescribed second language acquisition (SLA) optimizing features and activities, as an extracurricular activity for the self-regulation of language learning. This study adds to the literature of commercial-off-the-shelf videogame use for learning with special populations.

## **Statement of the Problem**

The need for English language instruction is great for adult ELLs. For example, 64% of foreign born ELL adults in the US are at Level 1 of the International Adult Literacy Survey (Tuijnman, 2000). Level 1 proficiency means an adult would be unable to read information prescribed on a medicine bottle (OECD, 2000). ELLs face various barriers to improving their English. For example, the opportunity to take English as a second language (ESL) courses, both publicly and privately, is financially impossible for some. Additional constraints such as time, transportation, availability of native English-speaking teachers, and location contribute to the problem of learning ESL (National Center for ESL Literacy Education, 2002).

To make matters worse, English as a foreign language (EFL) programs are sometimes only minimally effective in improving adult students' English skills (Gan, Stapleton, & Yang, 2015; Humphreys et al., 2012) and vocabulary (Webb & Chang, 2012). This means that students who studied EFL in their native countries prior to coming to the US may have received ineffective instruction, which could manifest as gaps in their ESL ability at the skill level (e.g., advanced in reading but intermediate in listening).

## Research Design

This hybrid, quasi-experimental dissertation study included two independent variables (IVs) and three dependent variables (DVs). The primary IV was learning condition (control versus treatment). The exploratory IV was prior gaming experience. The DVs were ESL skills based on the Cambridge Michigan Language Assessment (CaMLA), new vocabulary acquisition, and attitude toward gaming for SLA. A total of 15 college-bound, intermediate- and advanced-level ELL students ages 18-28 volunteered to participate in the study. The intermediate- and advanced-level ELLs received 25-hours of English language instruction weekly for eight weeks, as part of their school language program. The treatment group received supervised computer-based gaming with EQII after school 4-hours a week for a month in addition to the school's daily lectures, while the control group received lectures only. For gameplay, these three optimal SLA strategic gameplay activities with specific features were recommended: formation of a virtual identity within an English-speaking environment, use of headset with mic or chat box to converse with native English speakers (NES), and formation of alliances with NES to obtain support.

The following are my research questions:

- **Research Question 1** - Do international, postsecondary ELLs increase their English grammar, listening, reading, and vocabulary more after playing a MMORPG with SLA optimizing gameplay for 4-hours a week for a month than control group participants in the same ESL class who receive lecture-only?
- **Research Question 2** - Is prior gaming experience related to participants' attitudes toward gaming as a language-learning tool?
- **Research Question 3** - Is prior gaming experience related to English language grammar, listening, reading, and vocabulary performance?

## Mixed Methods Results

**RQ1 Quantitative results.** The IV was the learning condition. DV1 was the composite gain scores on the CaMLA, which assessed grammar, listening, reading, and vocabulary. At end of the 8-week term, the results showed that the control group had the larger gain score on ESL skills DV1,  $M = 3.38$ ,  $SD = 4.0$ ,  $n = 9$ . The treatment group had the smaller gain score on DV1,  $M = 1.67$ ,  $SD = 6.9$ ,  $n = 6$ . That is a difference of 1.7 mean gain score units between learning conditions (See Figure 1). The range of distribution of CaMLA mean gain scores units was nine (i.e., -5 - 14). This finding contradicts my hypothesis, as I expected the opposite outcome. The small sample size, likely measurement error, and nonrandom assignment limit the validity of this finding.

The CaMLA is based on an 80-point scale. The pretest ( $M = 46.64$ ,  $SD = 6.75$ ) and posttest ( $M = 49.28$ ,  $SD = 7.09$ ) means indicated that participants overall performed within the low intermediate level (41-50) on the CaMLA. This low level means that most participants in the treatment group who encountered unfamiliar topics and unclear speech in-game struggled with comprehending the tasks at hand.

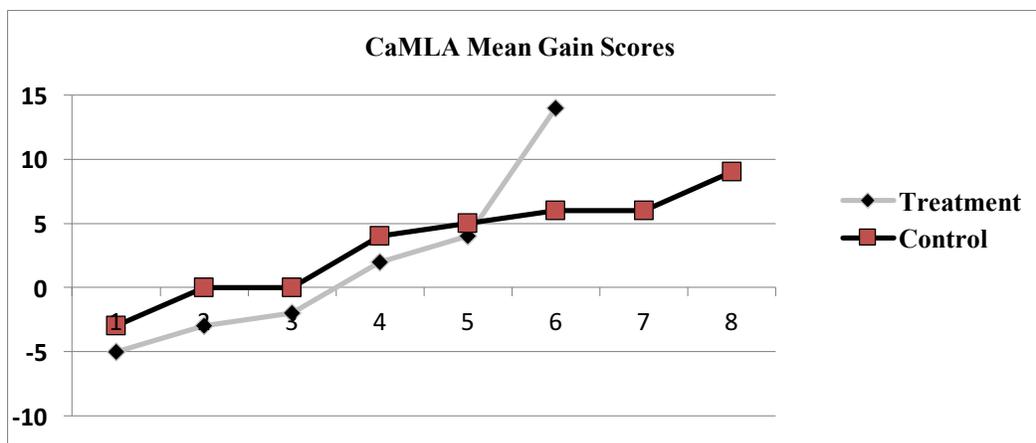


Figure 1. Plot lines for the CaMLA mean gain scores for learning condition groups.

As for DV2, the treatment group learned 15 ( $SD = 4.5$ ,  $n = 6$ ) new words on average after 1-month based on the gameplay vocabulary pretest-posttest mean gain scores. The range of distribution of vocabulary gain scores was 12 (i.e., 7 – 19). This was based on a 50-word pretest ( $M = 12.67$ ,  $SD = 1.96$ ) and posttest ( $M = 27.33$ ,  $SD = 3.26$ ) derived from the participants' chat logs. Examples of words learned include absorb, harvest, attribute, and provisions. This 30% vocabulary growth was less than what Rankin et al. (2006) reported.

**Qualitative results.** Based on observations of their gameplay, participants did not use all of the prescribed SLA strategic gameplay features. For example, they did not want to use the headsets with built in mic even though they were encouraged repeatedly to do so. A male participant said he did not like to put them on his ears. Another student preferred to use earbuds instead. A female participant said it made her tired and gave her headaches. Based on the questionnaire, participants had used the following features and activities during gameplay prior to this dissertation study in decreasing order: game settings in English, chat box for texting NES, headset with mic to speak with NES, read community boards on blogs to learn how to play game, and joined alliances or guild. However, most of the treatment group did not want to use the head set, chat box, or join alliances during gameplay for this study.

Based on post-study, semi-structured, in-depth interviews, I discovered that participants' reading levels ranged from third to fifth grade. For example, Case 3 (Nancy) reported that her AR reading level was Grade 5. Based on observations, she constantly looked up unknown words in the EQII game quests. I explained, to no avail, that she should determine words from context. Apparently, the vocabulary was above her reading level. She had the highest CaMLA score (60 = intermediate), which suggested other treatment group with lower CaMLA scores likely encountered similar reading challenges.

Another challenge to treatment group was vocabulary for specific purposes such as battle and craftsmanship. English for specific purposes (ESP) contains vast amounts of specific vocabulary necessary to complete a task. ESP is a challenge because technical words require both an understanding of the language and the content knowledge (Bravo & Cervetti, 2009). The difficulty level of gameplay vocabulary was further complicated by words invented for the game's narrative such as *crumbler*.

**RQ2 quantitative results.** The relationship between participants' prior gaming experience and attitude toward gaming for SLA DV3 was investigated using the Pearson product-moment correlation coefficient ( $r$ ). Attitude toward gaming for SLA (5 = *strongly*

*agree*) was the DV. The IV was the exploratory variable of prior gaming experience, which was defined as 0 to 2 years = low, 3 to 5 years = medium, and 6+ = high. Based on the questionnaire, participants had the following amount of gaming experience: high (8%), medium (50%), low (17%), and 25% had none. Males ( $M = 1.7$ ,  $SD = .67$ ,  $n = 10$ ) and females ( $M = 1.5$ ,  $SD = .71$ ,  $n = 2$ ) had almost equal gaming experience when averaged. The correlation was not statistically significant ( $r = .279$ ,  $p = .38$ ,  $n = 12$ ). This contradicted my hypothesis, as I thought there would be a statistically significant relationship. The small sample size limits the validity of this conclusion, as well.

**Qualitative results.** Participants understood that gaming was a type of study method. Based on the questionnaire, participants from both learning groups were not averse to the idea of playing videogames to learn English, as 75% had a positive attitude toward the use of gaming to learn English and 25% neutral. Participants perceived the following videogame features as useful in learning ESL in descending order of importance: images, NPCs, rules, headset with mic, chat box, and shopping catalogue.

Three themes emerged on gaming and language learning based on questionnaires, observations, interviews, and focus groups. First, participants had a positive attitude toward gaming for SLA ( $M = 4.18$ ,  $SD = .87$ ,  $n = 12$ ). They self-reported they could learn these ESL skills from playing videogames: listening, reading, and speaking. The second theme, no time for videogames after school, emerged from participants' preference in gaming at night online with friends. After school, they felt the need to study, participate in program activities, and/or run errands. The last theme was the concern over the prescribed SLA strategic gameplay features and activities.

**RQ3 quantitative results.** The relationship between participants' prior gaming experience and ESL skills DV1 was investigated using the Pearson correlation coefficient ( $r$ ). The correlation was not statistically significant ( $r = .238$ ,  $p = .48$ ,  $n = 12$ ). This contradicted my hypothesis, as I thought there would be a statistically significant relationship. The small sample size and likely measurement error limits the validity of this conclusion.

**Qualitative results.** Based on the open-ended questionnaire data, participants from both groups had prior gaming experience that consisted mainly of battle games or sports. For example, their shared videogame preferences were League of Legends, Call of Duty®, and Defense of the Ancients. These are text-light videogames, as compared to text-heavy MMORPGs such as EQII. Tekofsky, Miller, Spronck, and Slavin (2016) found that ELLs prefer text-light games due to their limited English language abilities, while NES prefer text-heavy MMORPGs for leisure activities.

## Conclusions

Based on the overall results, I could not determine the merit, or lack thereof, of videogames plus SLA optimizing strategic gameplay activities and features to improve ESL skills. The treatment was not effective as hypothesized for RQ1. Contextual factors for RQ1 included time, location, and strategic activity and feature usage. I recommend further examination of effective SLA strategic gameplay activities and how best to inform students of their benefits in terms of cultural differences and motivational issues. Future studies should control for differences in gameplay for uniformity in design of treatment; otherwise, these differences confound the outcomes. The Grade 8 reading level of chat logs may have been too challenging for ELLs at low intermediate ESL levels who read at the third to fifth grade levels. Invented words and ESP may have further complicated their acquisition of vocabulary. Implications from this finding

include the need for gameplay scenarios that more closely match participants' vocabulary levels and inclusion of ESP support material.

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