Game-based Learning and Vocabulary Acquisition through In-class RPG Activities and Printouts

James Dunn

School of Law, Meiji University

DOI:https://doi.org/10.55853/CP1_7

Short summary:

Game-based learning (GBL) is increasingly recognized as an effective tool in English as a Foreign Language (EFL) classrooms, fostering engagement, vocabulary acquisition, and other language skills (Davis, 2020). This paper investigates the effects of a cooperative game-based activity on vocabulary retention among Japanese EFL students. A six-week experiment involving pre- and post-tests assessed the efficacy of a custom-designed game adapted from an upcoming solo roleplaying game, Gates of Niflheim, integrating 70 vocabulary selected by me to help with understanding rules and gameplay. Words that were replaced in the original rules were replaced with CEFR A2-B2 level vocabulary words. The findings, supported by statistical analysis of the participants' performances, demonstrate significant improvement in vocabulary acquisition. Drawing upon the theoretical foundations of cognitive load theory and the motivational principles of GBL (Ferdig, H. & Johnson, T. 2009), this study underscores the pedagogical potential of games in language education. A comprehensive review of relevant literature further contextualizes the role of GBL in EFL, contributing to the growing body of research advocating for interactive and innovative teaching methods.

Your constraints plus the who and what of your teaching context

Context (Where do you work? What kind of institution? What is your role? etc.)	I teach at a private university in Tokyo, Japan where students can benefit from strategic thinking, independent thinking, and critical thinking skills. My institution allows great freedom for teachers to do what they feel is best for the students. The activities described in this presentation were designed to help law students improve their vocabulary while developing inquisitiveness and critical/strategic thinking skills that could be useful in their future careers. I am a Senior Assistant Professor and my duties include teaching, entrance exam creation, and various committee responsibilities.
Students (goals, wants, needs, knowledge, skills, hobbies, hates, worries)	My students are, for the most part, interested in becoming lawyers or other types of legal professionals in the future. These students have shown an interest in critical thinking skills and strategic thinking skills to further improve their abilities to work in the legal field in the future. My students' hobbies vary wildly, but they all seem to enjoy the game aspect of the game-based learning activities. They seemed to relax while focusing on working through the quest, spoke more (as needed by the nature of the

	game), and even the less talkative (or withdrawn students in some cases) were coaxed into more speaking and engaging in the class than in other styles of teaching such as lecture or even video/discussion based EFL classes. I have noticed that my students do not like to have their time wasted and focused activities with clear goals (like learning these vocabulary words through playing such and such games) are appreciated.
How much freedom do you have? (What can you do? What can't you do? Why? Who do you need to ask? What will they say?)	I have a lot of freedom. I am lucky that my university allows us to do pretty much anything we want in the classroom when it comes to styles of teaching and even the focus of the classes. I guess the largest constraining factor for me is time. I am the President of the JALT Critical Thinking SIG and I really enjoy making original printouts (which I hope to share during the symposium) but that takes time. I feel that if I had more free time, I could create even more/better printouts for my students (I wish!). That being said, however, the limitation of time and the myriad of obligations pulling at my attention due to both internal (at my school) pressures and external (in textbook creation, volunteering, etc.) make it so I feel rushed when doing one of the favorite parts of my job. I would like to finish by saying that I love the freedom given to me by my school, but this freedom comes with the cost of more time invested in making prints/preparing for classes, both of which I enjoy to the detriment of my other obligations sometimes. Though, I do think it is time well spent.
Language (goals) (the goals of your course or curriculum, what you must teach, what you want to teach, what students need to know, etc.)	The goal of the activity in question was to allow students to gain independent thinking skills through strategic and critical thinking while working with a partner to best complete the missions found in the game-based activities. The secondary (and more measurable) goal was to help students improve their vocabulary knowledge through game-based (practice-based?) activities that integrated the vocabulary in question. A pre- and post-test showed a clear improvement over the six weeks of learning and playing the game-based activity.

How do you create SPACE in the methods, materials and mediation of your teaching and learning playground?

Student Agency x Strategic Thinking x Support from Printouts
Students were told to cover the rules printouts prior to the class they would use them in. The printouts covered basic concepts in the game like the useful vocabulary for that day's activity, how to take turns, how to move, and how to fight in the game. Students were asked to utilize the knowledge from the printouts in the class time to both play the game and support other students in their understanding/playing of the game. Students needed to make their own choices, come up with strategies, decide on movements and the order of play, and work together to complete goals in the game.

Participation x Materials

The game system adapted for this study comes from the single-player game named Gates of Niflheim (GoN). This adventure dice-rolling game integrated quite a few CEFR B1 and below (with also a few very high level/specialized vocabulary) to teach and play the game. I adapted this to help give further context and background information using the vocabulary that was tested on in the pre-test. I created original printouts to help students prepare for the day's activities and presented the most important game-play instructions without much of the verbose instructions found in the rule book of the original game (GoN). I prepared tokens, gameboards, dice, printouts, character sheets, and various other support materials for students to successfully complete the activity. It was a lot of work, but it was a lot of fun.

Agency x Materials
As described in SPACE-based teaching (deHaan & York, 2025), game-based activities can give students a sense of agency and control over their choices during the activities such as the ones described in this presentation. Students also have to "live with" their choices and play out the game to the point where they either lose the mission or complete it.
Students benefit from this freedom of choice and the realization that choices have consequences. While my students also study "traditional" English language skills, I feel it is important that they feel that they have control over their choices in class and learn to live with the results of those choices. The materials provided the students gave them the basics of playing the game, but the success or failure of their mission was ultimately down to their choices. Students also were encouraged to help those playing the game before their turn to play came up. This hopefully encourages students to be more independent thinkers and be more group oriented (even at the same time in some cases) when it comes to working towards a goal.

> Students also were encouraged to help those playing the game before their turn to play came up. This hopefully encourages students to be more independent thinkers and be more group oriented (at the same time) when it comes to working towards a goal.

Critical x Mediation
Critical thinking is a large part of any strategic thinking-focused game. The ability to reason out what your best actions should be and the resulting possible ramifications give students a chance to develop strategic and logical thinking skills. Evaluating the

choices afterward gives the students opportunities to think critically about what happened and integrate those lessons into their next play session. Throughout the course of the six weeks for this study, students became more thoughtful in their choices and started discussing strategies more than at the beginning where it felt as though they were not taking into consideration the effect their actions might have on their teammate.
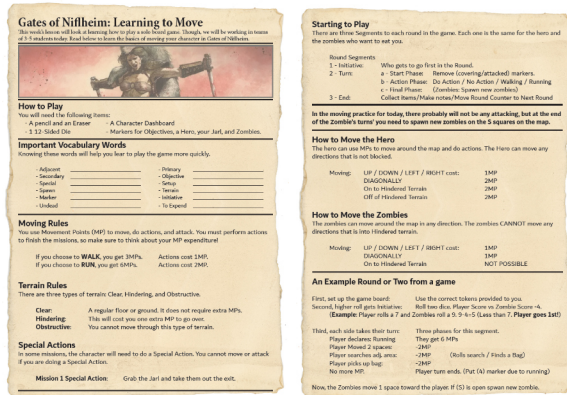
Students were asked to interpret the logical flow of the rules, integrate that understanding into action, and keep others on task to allow the game to continue naturally. These aspects of gameplay, especially with a choice of equipment and actions to use in the game, allows students to develop critical thought on both the rules-side and play-side of the game, but also the aspect of keeping others within the game's rules so everyone can enjoy (and learn!). This should help students to better integrate critical thought into an English language environment.
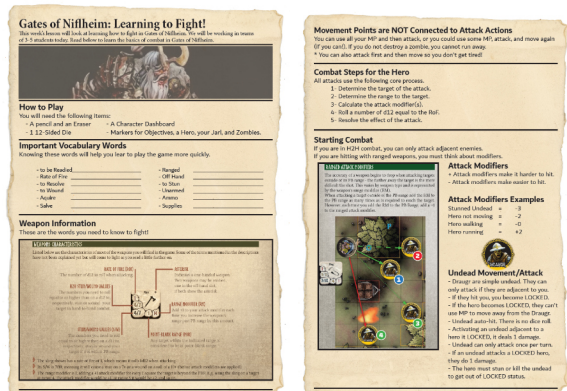
Experiences x Methods

One excellent aspect to game-based learning that is so impressive is the chance for students to create memorable experiences during the class activity. An RPG in particular allows the students' imaginations to fill in the blanks in the game and create their own story. This original story can change every time they play and hopefully can create some memorable moments that will further help cement language learning done through the game play as when motivation is high, so goes learning.

The teaching and learning, a definition and example.

What we do (teaching and learning)	What is the result (learning/outcomes/actions)
We are the Facilitators of Understanding It seems to me that we, as educators, need to give students knowledge that facilitates the understanding of something in order for the students to use and expand upon said knowledge. A game-based activity can help students to do this in a more motivated head-space. To help with this facilitation of understanding, printouts can be used to focus on, and introduce, vocabulary that can be helpful for the game-based activities. From introducing the rules:	The result of the game-based activities are pretty interesting from both a student learning experience perspective and from a vocabulary acquisition perspective. The students who were asked to take a pre- and post-test showed a marked improvement on almost all of the participants in the classes. Among the more than 80 students who participated in these activities, there was a marked improvement in vocabulary scores. Student impressions were measured with an online, anonymous, questionnaire which asked the students to rate their experiences during the six weeks of learning and playing the game-based vocabulary learning activity.

Dunn, J. (2025). Game-based Learning and Vocabulary Acquisition through In-class RPG Activities and Printouts. LLPx 2025 Symposium Post-Conference Publication, p.57 of 90

Gates of Niflheim: Learning to Move

To learning how to fight:

Students can utilize the vocabulary and rules to both play the game and describe it after the experience in a variety of different game environments.
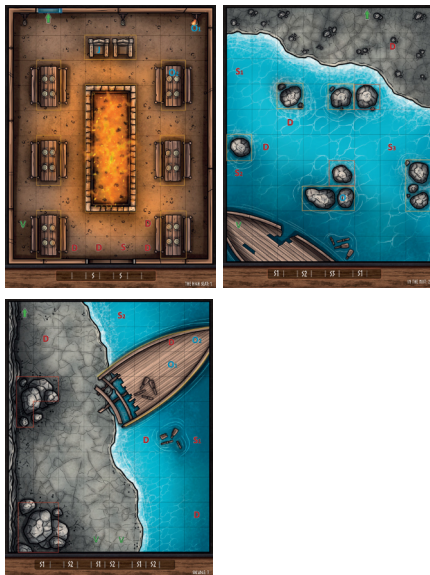
Student impressions were, overall, very positive and reported that the activity was a challenge, but they felt very confident in playing the game in English at the end of the six weeks. Teacher observations as well supported the motivational qualities of the activities as participants all exhibited a willingness to start, and continue with, the ongoing activities during the intervention.

On the front of vocabulary retention and use improvement, the data suggests that participants increased their vocabulary knowledge and recall over the course of the intervention.

To evaluate the effectiveness of the game-based learning intervention on vocabulary acquisition, a paired-samples t-test was conducted on the pre-test and post-test scores of 39 EFL learners. Participants completed a vocabulary test before and after a six-week game-integrated instructional period designed to reinforce 70 target vocabulary items.

Participant scores revealed that the mean score on the pre-test was 49.80 (SD = 8.19), while the mean score on the post-test increased to 55.00 (SD = 6.55). After analysis, improvement in scores were shown to be statistically significant, $t(38)=-6.19, p<.001$, indicating that the vocabulary gains observed were unlikely to have occurred by chance. Furthermore, taking into consideration the effect size, using Cohen's d test with a result of d=0.71, suggests a medium to large impact from the intervention and the game-based activities.

And even start to plan their own original game as a productive activity.

A Short Discussion of the Results

These results are encouraging as they provide further support for the efficacy of the game-based vocabulary instruction in enhancing word retention and recognition among EFL learners. The moderate-to-large effect size further suggests that the approach not only achieved statistically significant, and positive, results but also could have meaningful educational value to students in the EFL context. These findings align with previous research findings suggesting that interactive and motivational learning environments, such as game-based systems, can enhance language acquisition outcomes in foreign language contexts.

The significant improvement in vocabulary test scores following the game-based intervention highlights the pedagogical potential of game mechanics in EFL classrooms. The increase in post-test performance, paired with a medium-to-large effect size, suggests that learners not only retained more vocabulary but were also likely more engaged with the learning process. These findings support the idea that integrating gameplay elements, such as repetition through meaningful use during the game, immediate feedback, and collaborative competition, can promote deeper cognitive processing and retention of target language forms. This is consistent with prior research emphasizing the motivational advantages of game-based learning in second language acquisition (Gee, 2003; Reinhardt & Sykes, 2014).

Adding to this, the interactive nature of the vocabulary games may have encouraged incidental learning and peer-supported scaffolding, both of which are known to enhance vocabulary acquisition. Importantly, the results underscore that well-designed games are not merely supplementary activities but can function as central components of an
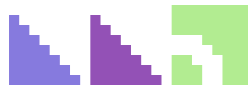
effective language curriculum. While the current study was limited to short-term vocabulary gains, future research should examine the long-term retention effects and how different game mechanics impact various learner profiles and language skills. In the future, an original game which better utilizes the target vocabulary, while remaining a simple, easy to pick up game/activity. While I would not use this specific game again, I would certainly consider an alternative RPG to use in class as there are many possible use cases for specific vocabulary acquisition, be it through fantasy themed games or science fiction themed ones.

5 key takeaways for other teachers. Share tips, materials, etc that others can use immediately.

Takeaway		Details
1	Get them thinking	Allowing students to make their own choices in a game-based activity is something that should be encouraged. The highs and lows of playing a game make the information inside of the game more memorable, even without the aid of memorizing a word list. Students can pick up new vocabulary through gameplay if it is focused and pointed out for them.
2	Supplements matter.	If you are going to have students learn and play a game in English, make sure you support that learning by adjusting it to their level. This may require some original prints and the adaptation of the game's original rules to better fit the skill levels of the students. Even with this, it can be a struggle for students to play the game so the clarity of the printouts is incredibly important.
3	Questions matter.	Prior to, during, and after the activities, it is important to query the students and get their impression on how they are understanding and playing the game. Is it fun? Is it too difficult? Is it way past their abilities in English to follow the rules? Encouraging students to ask questions and even following up with the students through questionnaires and other data collection methods can help them to be more independent and ask more questions in the future.
4	Games can help us learn.	As will be explained in this presentation, games are an effective way to help students gain vocabulary knowledge in a fun and motivating way. Learning rules and implementing them in the classroom, combined with the natural motivating force games have, help students to learn more and practice more.
5	Teachers matter.	As the teacher, we are the facilitators of understanding. It is ultimately up to the students to practice and perform, but the teacher's awareness of student understanding and even how they present the information for the students can impact learning outcomes. Easily understandable rules with focused vocabulary usage can be a valuable tool for teachers in getting students to both learn, and use, English more in class.

Easily understandable rules with focused vocabulary usage can be a valuable tool for teachers in getting students to both learn, and use, English more in class.

References

Changkwian, W., & Suppasetseree, S. (2023). The Effects of an MMORPG on Thai EFL University Students' Reading for Main Ideas. International Journal of Learning, Teaching and Educational Research, 22(6), 415-434.

Connolly, T. M., Boyle, E. A., MacArthur, E., Hainey, T., & Boyle, J. M. (2012). A systematic literature review of empirical evidence on computer games and serious games. Computers & Education, 59(2), 661-686.

Davis, J. S. (2020). Game Framework Analysis and Cognitive Learning Theory Providing a Theoretical Foundation for Efficacy in Learning in Educational Gaming. International Journal of Learning, Teaching and Educational Research, 19(7), 159-175.

Esteban, A. J. (2024). Theories, Principles, and Game Elements that Support Digital Game-Based Language Learning (DGBLL): A Systematic Review. International Journal of Learning, Teaching and Educational Research, 23(3), 1-22.

Gee, J. P. (2003). What video games have to teach us about learning and literacy. Computers in Entertainment, 1(1), 20-20.

Ochoa-Cueva, C., Castillo-Cuesta, L., & Cabrera-Solano, P. (2023). Engaging English as a Foreign Language (EFL) Students through the Game-Based Learning Approach in Higher Education. International Journal of Learning, Teaching and Educational Research, 22(7), 517-534.

Reinhardt, J., & Sykes, J. M. (2014). Digital game-mediated foreign language teaching and learning: Myths, realities, and opportunities. The CALICO Journal, 31(1), 9–36. https://doi.org/10.11139/cj.31.1.9-36

Ryan, R. M., & Rigby, C. S. (2019). Self-determination theory in education. In K. J. Reeve & R. D. Niemiec (Eds.), Handbook of Self-Determination Theory. Springer.

Squire, K. (2011). Video games and learning: Teaching and participatory culture in the digital age. Teachers College Press.

Wouters, P., Van Nimwegen, C., Van Oostendorp, H., & Van Der Spek, E. D. (2013). A meta-analysis of the cognitive and motivational effects of serious games. Journal of Educational Psychology, 105(2), 249.