**[Web Application Review]**

# Word Engine

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| Title | Word Engine: High-Speed Learning System |
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| Publisher | Lexxica |
| Type of Product | Web-based application for: learning vocabulary and phrases; practicing for English tests |
| Target Users | University students, professionals, and others looking to expand their respective vocabularies/improve their achievement levels on popular standardized tests |
| Access to Content | 3,980 yen per year for a premium account |

Word Engine is a popular web-based application that challenges users to a series of game-like quizzes to incrementally boost their respective vocabularies. The web application boasts a long list of respected universities on its roster and is one of an impressive set of computer-based tools associated with noted vocabulary expert, Charles Browne. The software could function as a useful complementary tool to aid students in vocabulary acquisition and retention activities in university CALL centres. Moreover, Word Engine could be incorporated as a supplementary vocabulary learning aid for students in established EFL programs to provide an avenue for individualized learning and practice. This web-based application provides users with repeated exposure to oft-mentioned terms and phrases from a corpus of more than 1,250 tests that may expand individual vocabularies and lead to improvements in overall English competencies. Further, Word Engine has the potential to foster learner efficacy and autonomy through its self-directed framework. This drill-based software set features a variety of tools focused on expanding user vocabulary and affords users the customizability to hone their familiarity with an expanding set of phrases for: daily conversation, presentations, negotiations, hospitality, and other specific purposes. In addition, Word Engine allows users to learn special-purpose vocabulary to prepare for TOEIC, TOEFL, IELTS, EIKEN, and entrance exams, and to bolster their knowledge of subject-specific vocabulary. Finally, Word Engine features a variety of useful implements for teachers, including the ability to: create classes; view test results; receive progress reports by email, and download paper tests. A premium account costs 3,980 yen for a full year of services.

Word Engine has a neat and clean layout. The website is simple to navigate for both students and teachers. Users can opt for either an English or a Japanese learning environment and can customize their learning experiences based on their individual needs and desires. A useful side menu can be accessed from near the top centre of the webpage

and offers information concerning the words that users have recently viewed, their V-check scores, and other useful data. Registering for the program is straightforward and Word Engine provides users a variety of convenient payment options. New users begin with the patented "V-Check" test so that the Word Engine algorithm can diagnose the learner's current English competencies and select terms from the corpus-linguistics-inspired New General Service List (NGSLT) comprised of 2800 essential vocabulary items (see http://www.newgeneralservicelist.org) based on the user's needs. Subsequent tests then present users with fifteen questions where learners encounter written or spoken terms and select the correct meaning of the words from the corresponding definitions. These terms are often repeated as users go through the tests so that learners become familiar with the words. Research suggests that this is sound pedagogy because increased exposure to target words in a thoughtful, principled manner leads to enhanced retention (Nation, 2000, 2001; Schmitt, 2008; Sa'd & Rajabi, 2018). Word Engine also offers listening exercises where users can listen to subject-specific/content-specific sentences and choose the correct sentence from a short list to enhance their phonemical awareness and reading skills and increase their topic-specific stock phrases. Thus, the program offers students opportunities to bolster and reinforce their English-language competencies and increase their vocabularies. Moreover, the posted results from each quiz are tabulated and these statistics could prompt users to set goals and reuse the application. The application also offers daily and weekly targets that users can aim to meet or surpass. Furthermore, the software allows users to update their goals and change their courses. In short, Word Engine offers a nice set of tools and data that may be motivating for students. The simple layout of the Word Engine website (http://www.wordengine.jp) is also an asset and provides users with easy access to these tools and data.

Complementing the easy-to-navigate design of the Word Engine webpage and its potentially motivating data sets is the simple functionality of the Word Engine quizzes. Research suggests that ICT-based vocabulary instruction and games can have a positive impact on student vocabulary knowledge (Esit, 2011; Li, Cummins, & Deng, 2017; Sa'd & Rajabi, 2018). Hirschel and Fritz (2013) noted that students using CALL-based vocabulary learning methods resulted in increased long-term gains over those in a control group that used vocabulary notebooks. Moreover, an extensive list of authors argue that game-based instruction and reinforcement activities have been shown to increase student motivation and competencies in other subject areas. Undoubtedly, for some users, Word Engine gamifies vocabulary learning and may foster self-motivated and motivating challenges to meet or exceed one's personal bests. However, some users may tire of the relatively simple nature of the tests. Future iterations could be enhanced by offering users the opportunity to challenge fellow learners in other parts of Japan/the world (see http://www.mathletics.com) or afford them the capability to create their own user-selected vocabulary tests (see http://www.lextutor.ca, http://www.quizlet.com, or http://www.memrise.com). The present iteration of Word Engine is wholly focused on word lists and stock phrases—which have merit, however, affording users the ability to further customize their learning experiences could transform this vocabulary-focused learning tool from one created to increase user test scores, to one that fosters a lifelong love of learning. Furthermore, automatic speech recognition (ASR) and chatting applications have been identified as useful vocabulary-learning tools in CALL contexts (Golonka, Bowles, Frank, Richardson, & Freynik, 2014; Young & Wang, 2014), yet

Word Engine does not afford its users these luxuries in its current form. Augmenting Word Engine with these aforementioned considerations would likely make the software considerably more valuable than it is at present. In its current format, it is hard to offer much more than a mild endorsement.

The research behind the creation of Word Engine appears valid, meaningful, and substantive. Theoretically, frequent interactions with NGSLT terms would foster improvement on test scores. It is hard to argue that a working knowledge of common words and word families, collocations, and phrases would not lead to an enhanced understanding of any language. Charles Browne claims that native English speakers have mastered between 25,000-30,000 words of a possible 350,000-600,000 words (depending on which dictionary one uses) by the time they have graduated from post-secondary institutions (No wonder reading is so hard!) (Browne, 2016). By contrast, Browne contends that the average Japanese person has learned about 2000 words after fourteen years of English classes (Browne, 2016). Thus, Browne makes the salient argument that some words are more important for language learners to learn than others. Browne extends this argument by making the bold statement that mastering the NGSLT would afford a learner the ability to understand 90-92% coverage of the majority of reading materials, and an even greater understanding of Hollywood TV shows and movies (Browne, 2016).

Certainly, it is highly believable that a working understanding of frequently-used terms would enhance one's English abilities. Yet, it is hard to reconcile how learning a fraction of the words that a native English-speaking person knows would afford one the ability to understand nine-tenths of written texts. Richards and Pilcher (2016) echo this sentiment, and assert that context is, "…fundamental to giving language the conscious and psychological elements that underpin its use" (p. A122). Further, the authors argue that rather than using, "…corpus linguistics to inform pedagogical materials to teach language, we should instead be teaching the language in the subject context and dialogue it is intended to be used in" (Richards & Pilcher, 2016, p. A138). Without delving deeper into a debate about corpus linguistics, it remains difficult to comprehend how not understanding ten percent of a text would not dramatically interfere with comprehension. However, a wider debate on corpus linguistics is outside the scope of this review. That said, it is important to reiterate that Word Engine should be utilized as a complementary component to a pre-existing language-learning program, or as a supplementary tool to expand one's general vocabulary knowledge, rather than as a standalone English-learning application. Despite these critiques, enterprising teachers with solid programs may find a lot of value in the tools and services that Word Engine offers.

Computer-assisted language learning should be a component of any comprehensive language-learning program (Hoopingarner, 2009). The beauty of computer-assisted language learning is that students can receive customized instruction that focuses on areas targeted for development without further taxing (overworked) teachers. Effective computer-based programs are challenging, motivating, customizable, and reinforce student learning. Golonka, Bowles, Frank, Richardson, and Freynik (2014) contend that at their best, "…technological innovations can increase learner interest and motivation; provide students with increased access to target language…and feedback" (p.70) and one

could argue that Word Engine satisfies these criteria. However, in the Web 2.0 era, it would follow that meaningful computer-assisted programs would take advantage of the social aspects of the internet and connect students and teachers across geographies, whilst improving user abilities in a fun and intuitive manner. Word Engine falls short in these categories.

Language teaching benefits from access to technological tools in demonstrable and quantifiable ways (Hoopingarner, 2009). Conscientious teachers need to be cognizant of technological tools that can bolster their programs to deliver the best learning possible. Therefore, it is incumbent on teachers and program designers to consider the numerous ways that technological tools can enhance their current language-learning programs. Several studies have explored the impact that software-based games can have on language-learning environments. Bolliger, Mills, White, and Kohyama (2015) cited several statistics related to the pervasiveness of technology usage in Japan and found that most students in their research viewed the incorporation of digital games into their learning programs as positive. Similarly, Ebrahimzadeh and Alavi (2017) found that video games significantly enhanced the language learning motivations of high school students in Iran. Wu, Chen, and Wang (2014) also discovered that digital board games enhanced performance and contributed to an immersive environment that fostered encouraging communication in a Taiwanese context. In short, there is substantial evidence in support of computer-based games to enhance language-learning environments. Thus, the game-based manner that Word Engine reinforces vocabulary is supported by a substantial amount of research.

As a closing thought, when native-speaking English learners are provided with ability-grouped or individual word lists to expand their vocabulary in elementary and junior high school, these lists are often accompanied by mini-lessons on etymological considerations, examples of how the word is commonly used, prefix/suffix-based sorting activities, vocabulary notebook activities, and creative writing activities (see Bear, Invernizzi, Templeton, & Johnston, 2016). Of course, these activities are in addition to tasking learners to search dictionaries for definitions of terms. Moreover, the inclusive classroom structures that western schools are increasingly mandated to create, task classroom teachers with assigning word lists unique to each individual student's ability level, including English-language learners. This begs the question of whether a computer-assisted language learning tool focused exclusively on testing users on commonly-used words and their definitions provides enough reinforcement for vocabulary learning and retention. Further, it makes one wonder why Japanese English-language learning courses and programs are heavily focused on rote learning and recall rather than repeated creative applications of knowledge. Western education systems commonly warn/proscribe that teachers not "teach to the test". Unfortunately, "teaching to the test" continues to be popular in Japan, and Word Engine is a commercial tool that promises higher test scores. Hopefully, enhanced features and incremental improvements to future iterations of the program will promote lifelong learning over higher test scores. Bold claims like, "…Word Engine is the fastest way to memorize thousands of new vocabulary words and spoken expressions" (Lexxica, n.d.) clearly target users who are aiming to expeditiously improve their English competencies but should be revised and updated to honour the incredible complexity of endeavouring to learn a foreign language.

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