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## A Review of “Digitised Vocabulary Acquisition: Lexxica Word Engine”

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Many learners of English as an additional language reach a plateau and then either remain in the communicative comfort zone or have the realisation that vocabulary acquisition is crucial to further development. The call of ‘I need to learn more words’ is all too common. While syntax and communicative interaction are vital in English language learning, it is clear that an accurate grasp of vocabulary enhances one’s productive and receptive skills. Research recognises that reading with pleasure requires knowledge of 95% of the words of a text while related research suggests that English for academic purposes requires a core vocabulary of at least 5000 carefully chosen words (Coxhead, 2000; Nation, 1990). Learning a new word also includes spelling, pronunciation, meaning and how a word works in different registers.

In this digital age, learners want to quickly reach learning and target goals, and they may also require vocabulary which may be domain specific. A learner managing his or her time strategically may want to know what particular vocabulary to learn for a specific purpose while ensuring that learning involves uptake rather than short term memorisation. The online Lexxica Word Engine system with its domain specific focus, diagnostics and individualised system provides an innovative set of tools for English language vocabulary learning, which addresses many of these concerns. This report will outline the web-based system’s rationale and briefly describe its methodology.

Learners often use textbooks which by the nature of a written hard copy cannot provide individualised points of departure for vocabulary learning. Time may be wasted revisiting familiar vocabulary or learning vocabulary that does not meet a learner’s specific needs such as business English or test-taking vocabulary. Vocabulary lists may provide a means of learning the form of the word but are not able to provide the word in varied contexts or link to pronunciation learning. Some learners need to hear a word, not just read it. Digital technology has now provided the means for varied ways of learning vocabulary. However, I

am not referring to capital intensive labs but to a website with software that is accessible even at moderate internet speeds: <http://www.wordengine.jp/>

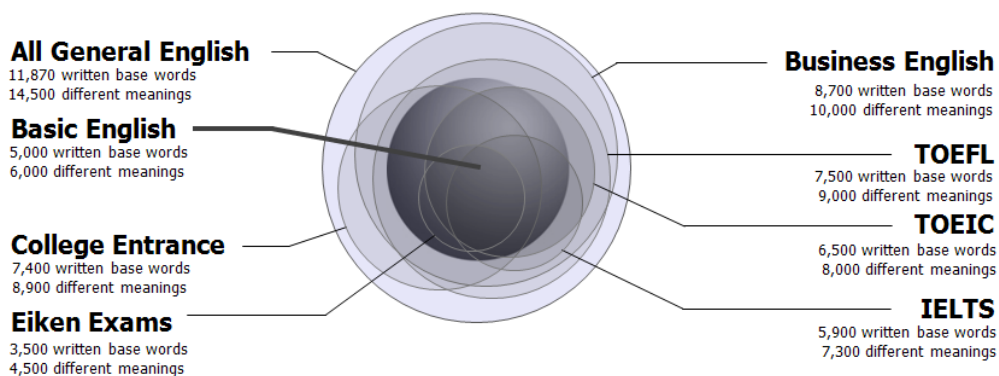
In 2005 the Lexicca Corporation based in Japan began intensive development of a vocabulary diagnostic system using word corpora and a testing system called V Check. The aim was to devise a system for assessing the words a learner already knew. The patented online diagnostic tool V Check has been developed as a free testing service that identifies the probabilities of a learner knowing Lexicca's word database, which is derived from a 850 million word corpora. The diagnostic system and learning suite are derived from research described in detail on their comprehensive website. There is a lot of specialised vocabulary beyond the scope of this article to unpack in the linguistic computational sub-strata which underlies the system.

[http://www.wordengine.jp/research/pdf/Measuring\\_vocabulary\\_via\\_online\\_technology.pdf](http://www.wordengine.jp/research/pdf/Measuring_vocabulary_via_online_technology.pdf)

Using a ranking of base words by the statistical value, Lexicca has developed an online suite of vocabulary comprehension tasks in which vocabulary learning tasks are matched to an individual learner's level and needs. The learner can choose a specific domain of interest: Basic English, Business English, TOEFL or IELTS, to name a few. The diagram below shows these domains and the vocabulary demands using what the developers term 'base words.'

### Lexicca's General Purpose, High Frequency Vocabulary Courses Each Provides 99.5% Domain-Specific Coverage

The fastest way to increase domain-specific comprehension is to study just the high frequency words related to a particular targeted sub-domain, for example: TOEIC, TOEFL, IELTS, etc.



Corpora: All General-850 million words; Business Only- 350 million words; Specific Tests-0.6 to 1.5 million words

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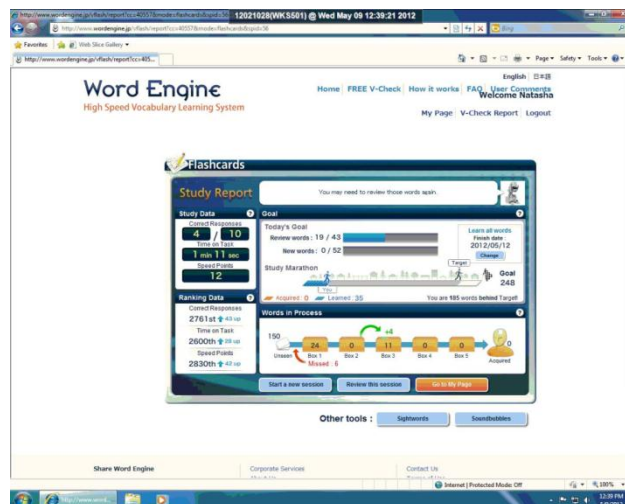
Automated, electronically-spaced repetition builds on the test results to deliver the base words that a learner needs for their chosen domain of interest. The system tracks an individual's retention and gives attention to the particular words a student has trouble remembering by classifying each word as learnt or not. This is achieved through varied tasks such as sight recognition, meaning matching and inserting in sentence contexts. While one finds accurate meaning matching and varied recognition tools, the focus is very much on words rather than phrases, making the term Word Engine an accurate descriptor.

The word tasks teach word knowledge through sight recognition and use spaced significant repetition to recheck learning. There is sight and sound matching, and pronunciation can be checked by playback. An online coach, almost like an avatar which a user chooses, provides feedback and suggestions, adding a personalised touch, albeit automated. Drag and drop tasks provide contextual recognition, and multiple meanings are also part of learning the words. The distracters for testing meaning are well chosen and sufficiently challenging at the advanced levels. This partially addresses the challenges of common collocation, an area that would require even more complex programming.

The Word Engine system aims to promote retention beyond short term memory, an issue that has been a concern of language learning for many years (Leitner, 1972, Mondria & Mondria-De Vries, 1994). Visually, learners have many clues to their progress, and they can compete in a game-like-way with others in the system. They can also see where they are in relation to their target area, at the word level as shown below and in the wider sense as in the following pages:



There is also a virtual card system, which may take some getting used to, but it quickly becomes a clear guide and stimulus to retention. The original approach was designed to let students organise hundreds of flashcards, but this requires a lot of teacher time in materials preparation. Word Engine uses a visual representation of Leitner's (1972) cardboard boxes to show how known words progress through a series of boxes or five stages. Recurrences of a word provide data on whether the word is known or is a forgotten word, which is then recycled for relearning and dropped back to an earlier virtual box. A learner must correctly identify the particular word at each of five time intervals or the word goes back the first 'box.' This reinforces the concept of spaced-significant repetition. Further reinforcement comes with graphs showing progress.



One of the concerns when organising individualised learning is whether programme organisers /teachers are able to see if learners are progressing or otherwise. With Word Engine learners sign into an individual account, or the teacher allocates a group code for learners before they sign up. Learners may therefore be allocated to the group that they sign into. However, their learning suite is accessible any time they go online. This provides for on demand vocabulary learning for individuals while still providing an overview for teachers who can monitor those in the group.

Word Engine has enjoyed considerable success in Japan, and it is accessible online by anyone. Since April 2012 a more international pricing structure has been in operation. The considerable research behind the system is detailed and available online, and one sees the influence of many of the vocabulary gurus such as Paul Nation at work. As broadband access

widens, and expenditure on laboratory-based learning is justifiably being questioned, online vocabulary learning systems deserve wider consideration.

### **References**

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Associate Professor Dr Stephen J Hall is Director, Centre for English Language Studies, Sunway University, Malaysia. He has managed national education projects, been a corporate trainer and trained ASEAN teachers. He has taught tertiary, secondary and primary levels. Stephen's doctorate analyses in-service teacher interaction.