

In this issue of the **Cambridge Connection**, we are delighted to introduce *Lexica*, a company dedicated to developing software that teaches important vocabulary and provides opportunities for extensive reading via PCs and mobile phones. They are currently developing software designed to supplement the vocabulary needs of students using the **Interchange** textbook series. Cambridge University Press will make a further announcement about the availability of the program once the piloting has been completed.

## The Word Engine

Building Vocabulary, Reading and Listening Skills through Cell Phones iPods and PCs

www.lexica.com

BY Dr. Charles Browne, Guy Cihl & Brent Culligan

### What is the Word Engine?

The Word Engine is a set of supplemental learning tools designed to identify and teach the important high-frequency vocabulary words that each student most needs to learn. The Word Engine provides each student with a personalized vocabulary course designed to improve his or her general reading and conversational abilities. The process begins with a lexical needs analysis to identify the specific high-frequency words that each student most needs to acquire. The Word Engine then automatically prepares a personalized list of target words, and makes them available for study via electronic flashcards and learning games designed to promote long-term recall ability.

The Word Engine's patent-pending lexical assessment process is both accurate and fast. The test identifies how many words each student knows and, more importantly, which specific words each student knows. A unique benefit of identifying a student's known words is that those words can be removed from the student's target word list. The result is a cogent and effective personalized course of learning.

### Why high-frequency vocabulary?

Although there are more than 250,000 words in the largest English Dictionary, corpus research has shown that only a small number of these words are actually used in daily communication. In his excellent overview of vocabulary research to date, Nation (2001), found that the 2000 most frequent words of English cover approximately 85 percent of the words that appear in general English texts, and that the top 5000 most frequent words covers approximately 95 percent of all such texts. Hirsch and Nation (1992) found that 95 percent coverage (5000 words) represented a very important vocabulary threshold beyond which learners were able to read and comprehend 'general texts' without the help of a teacher or dictionary. The term 'general texts' refers to: popular books, portal websites, news magazines such as *Time* and *Newsweek*, and major newspapers such as the *New York Times* and the *International Herald Tribune*.

In our own research we have found that EFL learners in Asian countries, on average, know far less than 5000 high-frequency words. In Japan, for example, research by Shillaw (1995), and Barrow et al (1999) found that Japanese university students had an average vocabulary size of between 1700 and 2300 words. We describe any missing high-frequency words as word gaps, and we believe that word gaps represent tremendous barriers to effective comprehension and communication. The purpose of the Word Engine is to identify the word gaps, fill the word gaps, and remove the barriers. We are confident that the more high-frequency vocabulary a student acquires, the more likely they are to enjoy and be effective at communication in English.

### How do we measure lexical ability?

To help students focus on acquiring the high-frequency words they most need to learn, the first step is to identify the specific words that they already know. Until very recently, the only practical way to estimate a learner's vocabulary size was by testing a random sampling of words selected from different frequency bands. The most widely used such test has been Nation's (1990) Level's Test. Because word frequency has relatively low correlation (0.6) to word difficulty, random sampling tests tend to be unreliable across different ability levels, and different cultures. Though useful as research tools, one of the weak points of these types of test is that they are not able to identify which specific high frequency words are known or unknown, meaning that the test results could not directly inform classroom pedagogy.

In response to this problem we have developed V-Check, a Computer Adaptive Test (CAT) that utilizes Item Response Theory (IRT) and Signal Detection Theory (SDT) to assess each individual's absolute lexical ability. By identifying a learner's absolute lexical ability we are able to then precisely determine the statistical probability of the learner knowing any given word in our proprietary database of 20,000 English words. A fundamental characteristic of any IRT/SDT test is that students cannot cheat the system. V-Check knows, for example, if a student is guessing.

The V-Check test also includes a Part 2 depth of knowledge assessment which is useful to further refine the selection of each student's personal target words. The depth of knowledge section presents the student with 20 words selected from up near the upper limit of their ability. The student is then asked to identify the correct definition to each of the words. Students who are precise in their vocabulary knowledge tend to score 90 percent or higher on this part of the test. Students who score lower than 90 percent in Part 2 are sure to find a greater number of review words included in their personal learning course.

### How do we teach new vocabulary?

Research going back more than a hundred years (Ebbinghaus, 1885, Mace 1932, Pimsleur, 1967, Leitner, 1972, Mondria, 1994), has shown that learning new words through a spaced repetition process is one of the most effective ways to rapidly increase one's vocabulary retention. In their studies, both Leitner (1972) and Mondria (1994) devised elaborate systems for repeating new words via the use of printed vocabulary cards, and boxes having multiple slots representing different time intervals. Although the results of these studies were very promising, keeping track of hundreds of flashcards across multiple time intervals has proven far too complex and labor intensive for most learners.

The Word Engine incorporates an automated, electronic spaced repetition system that delivers the exact right words at the exact right intervals. The Word Engine effortlessly manages the flow of hundreds, and even thousands of personal target words over five proven effective time intervals. The Word Engine is also designed to recognize and give special attention to any particular words that a student is having difficulty recalling. Only after a student has demonstrated stable, long-term recall ability, is a target word retired from their learning course.

While electronic flashcards are an efficient way to learn new words, they can become somewhat tedious if they are the sole method employed. Drawing from the rich tradition of incorporating games into the ESL/EFL classroom to increase and maintain learner motivation (Wright et al 1984, Uberman, 1998, Ersoz, 2000) we are creating a suite of interactive vocabulary learning games, each focused on a different aspect of lexical ability. Our first game, SightWords, tackles the issue of sight automaticity (recognition speed). Games for aural automaticity and visual scanning ability are soon to be released. In each case, our learning activities are guided by research conducted to identify what works, and what doesn't work in the classroom and online (Browne 2004a, 2004b, 2003, 2002). Whether a student is building depth of knowledge with our electronic flashcards, or developing automaticity by playing one of our growing selection of games, the Word Engine will automatically manage target word selection, monitor all responses, and report the student's progress.

### What about reading and listening skills development?

Extensive reading of graded reading materials has been widely used to increase vocabulary size as well as to improve overall ability in English (Day and Bamford, 1998, Susser and Rob, 1990). With clear evidence that EFL reading materials are far too hard for learners in Japan, (Browne, 1996, 1998), the use of graded reading materials, including the excellent original works of fiction offered by Cambridge University Press, has been growing in popularity. Graded reading programs have been used to great success in schools at all levels throughout Japan. Most of these extensive reading efforts make use of physical books, usually through the creation of graded libraries. With the rising popularity of the e-book market, and a virtual 100% cell phone ownership rate among Japanese college students (Browne et al, 2007, in press), we have decided to offer shorter stories (about 1000 words) that we believe are more suitable for mobile phones. Our growing team of freelance authors and editors is working to develop an initial set of 100 stories at 4 levels of simplification (1000, 2000, 3000 and unsimplified). Our topic categories include popular books, current films, famous actors, music, sports, horoscopes, games, travel, and more.

We also believe that graded listening materials can be quite beneficial in helping to develop listening skills, so we will also be offering a variety of graded MP3 podcasts in the near future. Our graded audio stories will be accessible to most any MP3 compatible listening devices including PCs, iPods, and mobile phones.

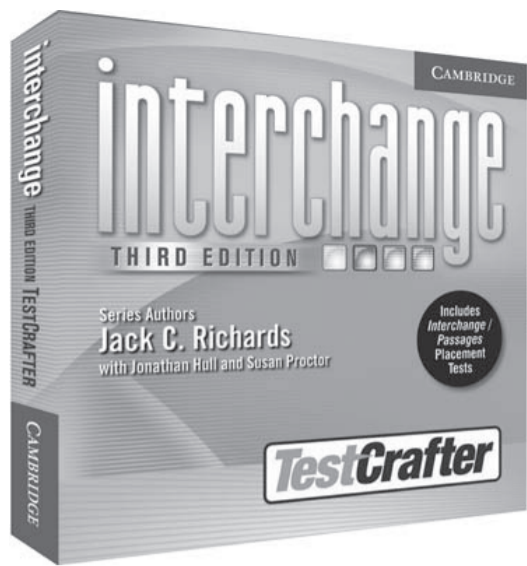
### Sounds great, but how much does it cost?

We are firmly resolved to keep the Word Engine a free service for the testing and teaching of the 5000 high-frequency 'general' English vocabulary words. All of our free services are available on the web at [www.lexica.com](http://www.lexica.com). In the future we intend to sell students access to special sets of high-frequency words. These will be words that are not very frequent in 'general' English, but are very frequent in certain sub-domains of English such as: business, finance, insurance, web-based marketing, IT management, real estate, healthcare management, nursing, and of course, the TOEIC, TOEFL, and IELTS exams. In addition, there are many potential research applications for the Word Engine technology, and we look forward to actively supporting such efforts. Contact: [info@lexica.com](mailto:info@lexica.com)

The image shows two overlapping screenshots of the Lexica website. The top screenshot displays the 'V-Flash' section, which offers 'games & flashcards' and includes a 'reputation' game interface with a question 'Do you know this word?' and the word 'reputation'. The bottom screenshot shows the 'V-Read' section, which provides 'graded reading' materials and lists various categories for English stories, such as 'Hit Movies', 'Top People', 'Fun Places', 'Sports', 'Games', 'Popular Books', 'Cool Things', 'Horoscopes', 'Music', and 'Kids Stuff'.

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## Powerful testing software makes assessment easy

**Interchange, Third Edition TestCrafter** is an easy-to-use software that allows you to create, edit, and administer tests for all four levels of **Interchange**. Using a test bank of over 2,000 questions that correspond to each level and unit of **Interchange**, **TestCrafter** makes assessment simple.

- Create **Interchange** Instant Tests in less than a minute
- Make your own tests by choosing questions from the **Interchange** test bank that assess Grammar, Vocabulary, Listening, and Reading
- Edit existing questions or write your own and add them to the test bank
- Deliver tests in print or on-line format

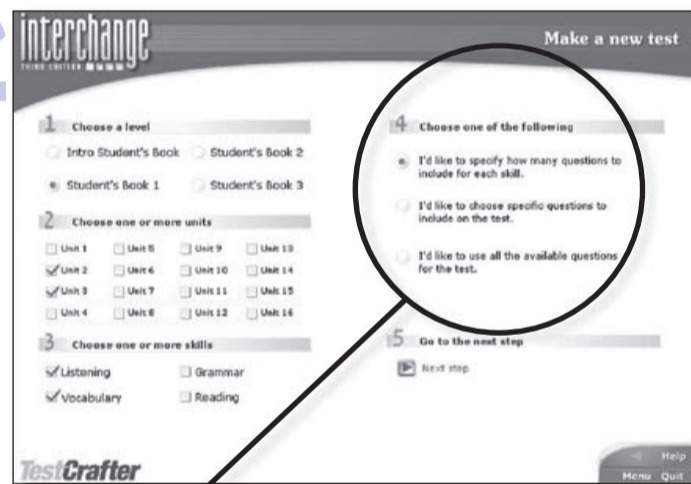
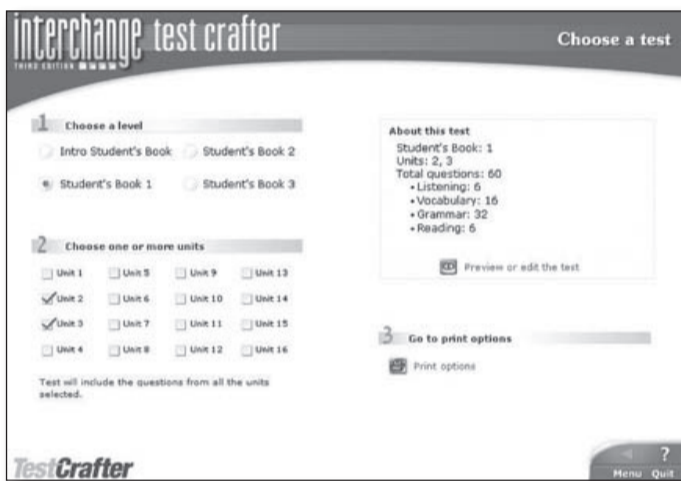
### How to prepare a test

#### 1 Choose an Instant Test

Click **Choose a test** to see a list of ready-made tests for each unit:

- Choose the level of the series
- Select one or more units to test
- Click for printing and on-line options

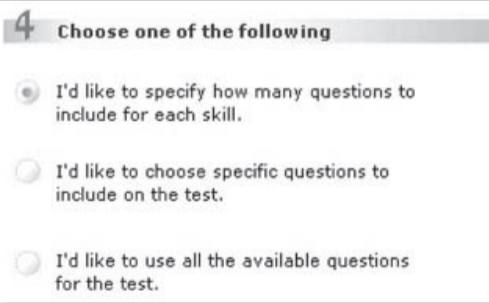
You can also click on **Preview or Edit the test** to move or delete questions.



#### Build a Test

Click **Make a new test** to build a custom test:

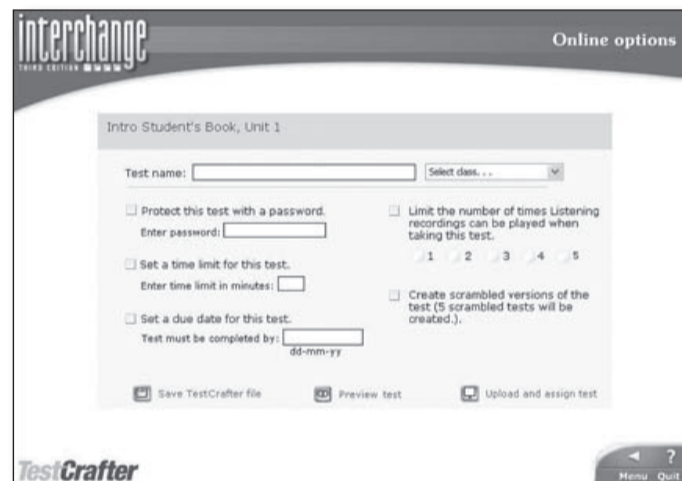
- Select the level and unit or units you want to cover
- Choose the skills you want to test: Grammar, Vocabulary, Listening, and Reading
- Specify how many questions to include for each skill, choose specific questions to include, or use all of the available questions for the test.



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### How to administer a test



Print Tests: **Interchange TestCrafter** allows you to print scrambled versions of the test, and include answer keys as well as audio scripts.

On-line Tests: Students can also take a test over the Internet.

You can output scrambled versions of the test and add a time limit to any test created. Additionally, the **Interchange TestCrafter** automatically grades tests and saves scores in your class rosters.



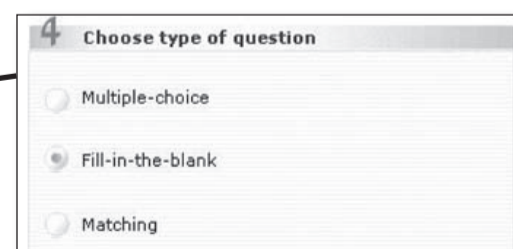
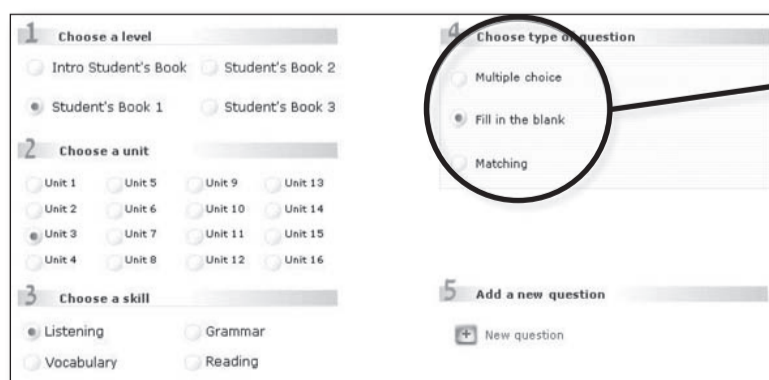
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#### 3 Add and Edit Questions in the Test Bank

**Interchange TestCrafter** allows you to add your own questions to the test bank or edit existing questions.

To add a question, use the Question Editor. The Question Editor allows you to create Multiple Choice, Fill-in-the-blank, or Matching questions.

You can also include art files, reading passages, and audio mp3 files for listening.



For more information, visit the **Interchange** website at [www.cambridge.org/elt/ic3](http://www.cambridge.org/elt/ic3)

## Have a Question? Contact Us!

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