

# Optimizing EFL Vocabulary Learning with IRT and Online Technology

2008 AILA World Congress

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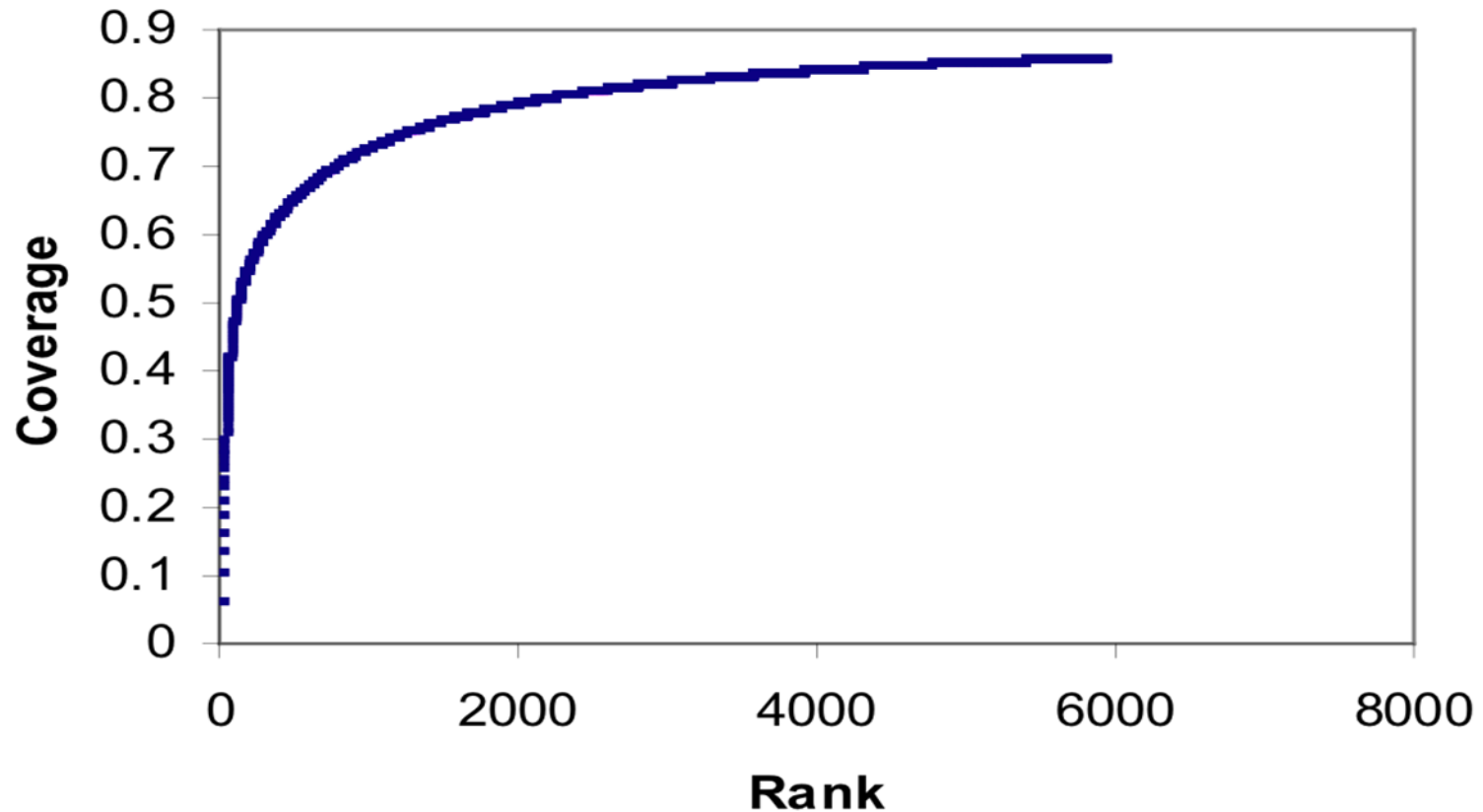
# Outline of Presentation

1. Basic “facts” regarding vocabulary research
2. Introduction to problems faced by Japanese EFL learners related to vocabulary and reading
3. Introduction to a variety of free online vocabulary & reading development software

# The Importance of "Coverage"

<u>Words</u>	<u>% known</u>	<u># known</u>	<u>Researcher</u>
1	7%	97/100	West(53), Nation(90)
10	25%	3/4	West(53), Nation(90)
100	50%	1/2	West(53), Nation(90),
1000	75%	1/4	West(53), Engles(68)
2000	85%	1/7	West(53), Nation(90)
<b>4200</b>	<b>95%</b>	<b>1/20</b>	<b>Culligan (2008)</b>
8000	98%	1/50	Laufer (92), Coady(93)
350,000	100%	100/100	Oxford English Dictionary

# Coverage within the BNC for high frequency words (Leech, Rayson, & Wilson, 2001)



# Problem 1:

EFL learners don't know enough  
high frequency words...

# How many words do L2 learners know?

Minimum **4200** words needed for independent learning

Country	Vocab. Size	Hours of Instruction	Reference
<b>Japan (University)</b>	<b>2000-2300</b>	800-1200	Shillaw (95), Barrow (99)
China (English Majors)	4000	1800-2400	Laufer (99)
<b>Indonesia (University)</b>	<b>1220</b>	900	Nurweni & Read (99)
Oman (University)	2000	1350	Hort et al (98)
Israel (HS graduates)	3500	1500	Laufer (98)
France (HS students)	1000	400	Arnaud et al (85)
Greece (age 15, HS)	1680	660	Milton & Meara (98)
Germany (age 15, HS)	1200	400	Milton & Meara (98)

# 75% Coverage

is provided by 1000 high frequency words

16 missing words

## Forestry

If \_\_\_\_\_ planting rates are \_\_\_\_\_ with planting \_\_\_\_\_  
\_\_\_\_\_ in each \_\_\_\_\_ and the forests \_\_\_\_\_ at  
the earliest opportunity, the \_\_\_\_\_ wood supplies could  
further increase to about 36 million \_\_\_\_\_ meters \_\_\_\_\_  
in the \_\_\_\_\_ 2001-2015. The additional \_\_\_\_\_ wood  
supply should greatly \_\_\_\_\_, even if  
much is used for \_\_\_\_\_ production.

# 85% Coverage

is provided by 2000 high frequency words

9 missing words

## Forestry

If \_\_\_\_\_ planting rates are maintained with planting targets satisfied in each \_\_\_\_\_ period and the forests milled at the earliest opportunity, the \_\_\_\_\_ wood supplies could further increase to about 36 million \_\_\_\_\_ meters \_\_\_\_\_ in the period 2001-2015. The additional \_\_\_\_\_ wood supply should greatly exceed \_\_\_\_\_, even if much is used for \_\_\_\_\_ production.



# 95% Coverage

is provided by 4200 high frequency words

1 missing word

## Forestry

If current planting rates are maintained with planting targets satisfied in each annual period and the forests milled at the earliest opportunity, the available wood supplies could further increase to about 36 million \_\_\_\_\_\* meters annually in the period 2001-2015. The additional available wood supply should greatly exceed domestic requirements, even if much is used for energy production.

# Vocabulary Thresholds:

- Below 80%, reading comprehension is almost impossible (Hu & Nation, 2001)
- 95% coverage is the point at which learners can read without the help of dictionaries (Laufer, 1989)

## Problem 2:

Reading materials in Japan  
are too difficult...

# Vocabulary & Readability:

## How do Japanese schools measure up?

### Junior High:

- Teaches first 1000 words fairly well
- Readability of texts seems good - short passages, easy vocabulary, lots of pictures to support texts

### Senior High:

- Focus changes dramatically to teaching of low frequency words
- Many, many words from 1000-2000 are never taught...
- Readability of texts is actually MORE difficult than unsimplified native speaker texts!

# The Compleat Lexical Tutor

www.lextutor.ca

Compleat Lexical Tutor


http://www.lextutor.ca/





Google

ilohaMail SALVATORE ...OMO JAPAN Brother Sol...ted Kingdom LIBRARY!!! Alfa Forum National Ins...icy Research TheCurve Theoretical ... of learning ilohaMail Apple Store - Shibuya Ota Ward Office

Compleat Lexical Tutor

Welcome to

**The Compleat Lexical Tutor** (v.4.5 03/06) 

**QUICK LOOK-UP**  
Eng: Conc  Dico  Fr: Conc  Dico  >>>

For data-driven language learning on the web [\[BookBox\]](#) [\[Read a site review or comparison\]](#) [AAAL 07 - Getting the word out](#)

## TUTORIAL

**Test**  
your lexis Eng|Fr  
 2 new tests!

Resource-linked  
**Word Lists**  
[Eng \[v.1\]](#) | [Fr](#)

**Group Lex** Eng|Fr  
Collab, Extract, Quiz  (v.6)

Read  
With Resources  
[Eng](#) | [Fr](#)

Check Errors  
against corpus data  
[Eng](#) | [Fr](#)

**Range** Eng|Fr  
Word distribution

**Vocabprofile** Eng|Fr  
 20kBNC, 31 Dec 06

**Concordancers**  
Search a corpus

**Phrase Extraktor**  
[Eng](#) | [Fr](#)

**RT Builder**  
Time experiments


**Vocab Stats**  
Corr, chi2, t-test

Why & wherefore  
**Research Base**

## RESEARCH

**Text Tools**  
Strip, List, Join...  
RaNdOm NuMbErS!

**FreqList Builders**

**Tex\_Lex**  
**Compare**  
Compare texts, lists  
 Improved list subtraction

**Random Word**  
**Generator**

## TEACHERS

**WordLists**  
Eng | Fr

**BUILDERS!**

**Text-to-Speech**  
Hear your texts  
Eng French Span

**Cloze**  
3 types, Eng|Fr

**Hypertext**  
Eng|Fr|Sp

**MultiConc**  
 Cleaner contexts, May 07

**Dictator**  
Practice spelling

UQAM

Université du Québec † Montréal [Tom Cobb](#) (Site likes IE5/6 for Windows.) To the free dissemination of knowledge on the WWW

# Vocab Profile: Online Vocabulary Analysis Tool

## www.lex tutor.ca

[Home](#) > [VocabProfilers](#) > [English](#)

### Web VP v 2.5 Classic (300% speed-up on Jan 6, 2006)

Input method A Type or paste smaller text (<2000 words) below and click *Submit\_window* to see its Frequency Profile.

Title:  | [FREQ](#) | [VP-CLOZE](#) | [RESEARCH](#) | [FRENCH](#) | [X<sup>2</sup>](#) | [AWL texts](#) > [APA](#), [StatCan](#) |

INSTRUCTIONS Type or paste your text here and click SUBMIT\_window. VocabProfile will tell you how many words the text contains from the following four frequency levels: (1) the list of the most frequent 1000 word families, (2) the second 1000, (3) the Academic Word List, and (4) words that do not appear on the other lists. For a demo, enter this text, or one of the sample texts below.

#### TEXT SET-UP

General: Include an empty space after every comma or full stop.  
Research: Deal with spelling errors and proper nouns.

SIZE LIMITS: Web input is normally limited to 30,000 characters – use UPLOAD method below for larger files (up to 1000 kb as Dec 2004; must be ~.txt; send in straight from your own hard drive). Text is NOT stored on Web VP's server

Words to re-categorize as common words (proper nouns, etc.) [<Changed from drop to recat. Sept 06](#) [\\*\\* One-word VP](#)

Samples: [Isogram](#) | [Lit \(1\) \(2\)](#) | [Science \(1\) \(2\)](#) | [News \(1\) \(2\)](#) | [Speech \(1\) \(2\)](#) | [Rex M.](#)

### Input method B For larger text files

1.  no file selected

own drive for file; and then 2.

Original VP by A Heatley & P. Nation, VUW New Zealand & B. Laufer, U Haifa, Israel; AWL by A. Coxhead VUW; WebVP adapted by T. Cobb, UQAM Canada. [How to reference](#)

# Typical English Newspaper in Japan

85% expected for 2000 words

VOCABPROFILE ENGLISH OUTPUT

http://www.lexutor.ca/vp/eng/output.pl? Q- cobb compleat

Vocabulary B...ary Profiler Alfaowner.com SCF SEIJO TIRE on the web!! VTrain Spaced repe...ncyclopedia Monkasho Jobs Page Password Lexile Lexxica General Deto...orld Online Daulton-List... (I-TESL-I) digg USA TAXES

Home > VocabProfilers > English (Alt-arrow-left to preserve settings) > Output

300% SPEED UP ON JAN 6, 2006

WEB VP OUTPUT FOR FILE: Untitled

Words recategorized by user as 1k items (proper nouns etc): NONE (total 0 tokens)

Note: In the output text, punctuation is eliminated; all figures (1, 20, etc) are replaced by the word *number*; contractions are replaced by constituent words (*won't* => *will not*); type-token ration is calculated using said constituents; and in the 1k sub-analysis content + function words may sum to less than total (depending on user treatment of proper nouns and program decision to class numbers as 1k although not contained in 1k list).

	Families	Types	Tokens	Percent
<b>K1 Words (1 to 1000):</b>	78	85	119	76.77%
Function:	...	...	(74)	(47.74%)
Content:	...	...	(45)	(29.03%)
> Anglo-Sax				
=Not Greco-Lat/Fr Cog:	...	...	(29)	(18.71%)
<b>K2 Words (1001 to 2000):</b>	12			
> Anglo-Sax:				
1k+2k				
<b>AWL Words (academic)</b>				
<b>Off-List Words:</b>				

Words in text (tokens): 155  
Different words (types): 119  
Type-token ratio: 0.77  
Tokens per type: 1.30  
Lex density (content words/total): 0.52

Pertaining to onlist only

Tokens: 133  
Types: 99  
Families: 92  
Tokens per family: 1.45  
Types per family: 1.08  
Anglo-Sax Index: 81.95%  
(A-Sax tokens + functors / onlist tokens)  
Greco-Lat/Fr-Cognate Index: (Inverse of above) 18.05%

For easy editing as MS Word table - [Edit/print-friendly table](#)

Page menu: [Tokens](#) [Types](#) [Families](#)

Integral text: reasons to leave madonna alone spare some sympathy for madonna not a lot mind you celebrities are better cushioned against life slings and arrows than the rest of us and the flamboyant u s turned british pop star is a super mega celebrity still the pillorying she has suffered in recent weeks is unreasonable anyone would think the woman had incorporated into her latest concert tour a routine in which she sings while hanging on a mirrored cross wearing a crown of thorns oh wait she did do that so there actually plenty to pillory but we will get back to that that is not what the true blue madonna haters are up in arms about just now the thing that has really focused their attention is her frivolous selfish wish to adopt a number month old motherless malawian boy whose dirt poor father had turned him over to an orphanage how shocking is that

87.4%



# Harry Potter Chapter 2

85% expected for 2000 words

VOCABPROFILE ENGLISH OUTPUT

http://www.lextutor.ca/vp/eng/output.pl? cobb compleat

Vocabulary B...ary Profiler Alfaowner.com SCF SEIJO TIRE on the web!! VTrain Spaced repe...ncyclopedia Monkasho Jobs Page Password Lexile Lexica General Deto...orld Online Daulton-List... (I-TEST-J) digg USA TAXES

## WEB VP OUTPUT FOR FILE: Untitled

Words recategorized by user as 1k items (proper nouns etc): NONE (total 1 tokens)

Note: In the output text, punctuation is eliminated; all figures (1, 20, etc) are replaced by the word *number*; contractions are replaced by constituent words (*won't* => *will not*); type-token ratio is calculated using said constituents; and in the 1k sub-analysis content + function words may sum to less than total (depending on user treatment of proper nouns and program decision to class numbers as 1k although not contained in 1k list).

	Families	Types	Tokens	Percent	
<b>K1 Words (1 to 1000):</b>	79	91	150	78.53%	Words in text (tokens): 191
Function:	...	...	(90)	(47.12%)	Different words (types): 122
Content:	...	...	(60)	(31.41%)	Type-token ratio: 0.64
> Anglo-Sax					Tokens per type: 1.57
=Not Greco-Lat/Fr Cog: ...					Lex density (content words/total): 0.53
<b>K2 Words (1001 to 2000):</b> 10					<i>Pertaining to onlist only</i>
> Anglo-Sax:					Tokens: 164
1k+2k					Types: 104
<b>AWL Words (academic):</b>					Families: 92
<b>Off-List Words:</b>	?				Tokens per family: 1.78
92+?					Types per family: 1.13
					Anglo-Sax Index: 85.37%
					(A-Sax tokens + functors / onlist tokens)
					Greco-Lat/Fr-Cognate Index: (Inverse of above) 14.63%

94.1%

For easy editing as MS Word table - [Edit/print-friendly table](#)

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**Integral text:** chapter two harry went down to breakfast the next morning to find the three dursleys already sitting around the kitchen table they were watching a brand new television a welcome home for the summer present for dudley who had been complaining loudly about the long walk between the fridge and the television in the living room dudley had spent most of the summer in the kitchen his piggy little eyes fixed on the screen and his five chins wobbling as he ate continually harry sat down between dudley and uncle vernon a large beefy man with very little neck and a lot of mustache far from wishing harry a happy birthday none of the dursleys made any sign that they had noticed harry enter the room but harry was far too used to this to care he helped himself to a piece of toast and then looked up at the reporter on the television who was halfway through a report on an escaped convict the public is warned that black is armed and extremely dangerous a special hotline has been set up and any sighting of black should be reported immediately



# Typical Time Magazine Article

85% expected for 2000 words

WEB VP OUTPUT FOR FILE: Untitled

Words recategorized by user as 1k items (proper nouns etc): NONE (total 0 tokens)

Note: In the output text, punctuation is eliminated; all figures (1, 20, etc) are replaced by the word *number*; contractions are replaced by constituent words (*won't* => *will not*); type-token ration is calculated using said constituents; and in the 1k sub-analysis content + function words may sum to less than total (depending on user treatment of proper nouns and program decision to class numbers as 1k although not contained in 1k list).

	Families	Types	Tokens	Percent		
<b>K1 Words (1 to 1000):</b>	57	60	91	75.83%	Words in text (tokens):	120
Function:	...	...	(54)	(45.00%)	Different words (types):	86
Content:	...	...	(37)	(30.83%)	Type-token ratio:	0.72
> Anglo-Sax	...	...	(14)	(11.67%)	Tokens per type:	1.40
=Not Greco-Lat/Fr Cog:	...	...			Lex density (content words/total)	0.55
<b>K2 Words (1001 to 2000):</b>	4				<hr/>	
> Anglo-Sax:					<i>Pertaining to onlist only</i>	
1k+2k					Tokens:	100
<b>AWL Words (academic)</b>					Types:	69
<b>Off-List Words:</b>					Families:	66
					Tokens per family:	1.52
					Types per family:	1.05
					Anglo-Sax Index:	71.00%
					(A-Sax tokens + functors / onlist tokens)	
					Greco-Lat/Fr-Cognate Index: (Inverse of above)	29.00%

80.9%

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**Integral text:** the postponement of the first session of a high stakes summit between president bush and iraq prime minister nuri al maliki wednesday night in jordan may indeed be as officials on both sides took pains to stress simply a matter of logistics but reports on the outlook that each man was going to bring to the table suggests that the two may be on a collision course the meeting was touted as a crisis summit designed to set a new course for tackling iraq mounting violence civil war or whatever one chooses to call it the salient point is that iraq has spun so dangerously out of control that existing policies appear to offer no way out of the mayhem

# Japanese High School Textbook (Spectrum Unit 16)

85% expected for 2000 words

## WEB VP OUTPUT FOR FILE: Untitled

Words reclassified by user as 1k items (proper nouns etc): NONE (total 0 tokens)

Note: In the output text, punctuation is eliminated; all figures (1, 20, etc) are replaced by the word *number*; contractions are replaced by constituent words (*won't* => *will not*); type-token ration is calculated using said constituents; and in the 1k sub-analysis content + function words may sum to less than total (depending on user treatment of proper nouns and program decision to class numbers as 1k although not contained in 1k list).

	Families	Types	Tokens	Percent	
<b>K1 Words (1 to 1000):</b>	47	55	100	76.34%	Words in text (tokens): 131
Function:	...	...	(71)	(54.20%)	Different words (types): 81
Content:	...	...	(29)	(22.14%)	Type-token ratio: 0.62
> Anglo-Sax	...	...	(15)	(11.45%)	Tokens per type: 1.62
=Not Greco-Lat/Fr Cog:	...	...			Lex density (content words/total) 0.46
<b>K2 Words (1001 to 2000):</b>	2	2	2	1.52%	
> Anglo-Sax	...	...			<i>Pertaining to onlist only</i>
1k+2k					Tokens: 116
<b>AWL Words (academically used):</b>					Types: 68
<b>Off-List Words:</b>					Families: 60
					Tokens per family: 1.93
					Types per family: 1.13
					Anglo-Sax Index: 75.86%
					(A-Sax tokens + functors / onlist tokens)
					Greco-Lat/Fr-Cognate Index: (Inverse of above) 24.14%

76.8%

For easy editing as MS Word table - [Edit/print-friendly table](#)

Page menu: [Tokens](#) [Types](#) [Families](#)

Integral text: spectrum unit number to put it concisely walking is an inherent biological function of the human species not so language it is true that in a certain sense the individual is predestined to talk but that is due entirely to the circumstance he is born in and the lap of a societal situations that are certain to lead him to its traditions eliminate society and it is justified to reason that he will learn to walk if he survives at all or again remove the newborn individual from the societal environment into which he has come and transplant him to an utterly alien one he could possibly develop the skill of walking in this novel environment but his speech will be utterly at variance with the speech of his native environment

# Summary: Difficulty of Typical Types of Text

Type of Text	% Coverage from knowing 2000 High Frequency Words
English Daily Newspaper	87%
Harry Potter	94%
Time Magazine	81%
Unsimplified Native Text	<b>85%</b>

# Difficulty of Japanese Textbooks

(Browne, 1996, 1998, and in press)

Text	Coverage from 2000 High Frequency Words
Spectrum	71%
Milestone	78%
Unicorn	79%
Unsimplified Native Texts	<b>85%</b>

# Difficulty of Japanese Entrance Exams

(Kikuchi, 2006, Browne & Kikuchi, 2008)

Text of Entrance Examinations for:	% Coverage from 2000 High Frequency Words
Keio Univ.	69%
Sophia Univ.	72%
Waseda Univ.	72%
Kyoto Univ.	77%
Nagoya Univ.	68%
Tokyo Univ.	80%

# Examples of low frequency words found in high school textbooks:

- anemone
- hearth
- syncopate
- cockcrow
- neigh
- insularism
- cataclysm
- seedle
- prodigious
- lappilus
- whin
- pitchblende
- mazurka
- polonaise

## **Solution Number One:**

Find out which high frequency words learners don't know and teach them

# V-Check online vocabulary test

www.lexxica.com

language: English

username: \_\_\_\_\_ password: \_\_\_\_\_ login Free signup!

## Word Engine My personal coach

Increase your vocabulary fast!

Learn with any of these popular programs – FREE!

- Basic English**  
2874 words  
95% coverage  
Start now!  
About this program
- TOEIC**  
3461 words  
99% coverage  
Start now!  
About this program
- Ultimate English**  
7931 words  
99% coverage  
Start now!  
About this program
- Interchange**  
2426 words  
99% coverage  
Start now!  
About this program

Mastering high-frequency vocabulary is the fastest way to improve your comprehension and performance!

High-frequency words are those that occur most often in each subject. Knowing them is essential to your success.

The patented V-Check system identifies all the specific high-frequency words you are missing and automatically prepares a personalized list for you to learn!

High speed learning tools help you develop instant recognition ability, and the built-in spaced repetition system insures long-term memory retention.

Finally, there's a fast and easy way to acquire high-frequency vocabulary!

Learning Tools  
Flashcards & Games

**V-Check®**  
An accurate and reliable vocabulary test.

V-Admin  
Automatically organizes V-Check sessions and progress data.

Home Learning Tools V-Check V-Admin powered by lexica

Corporate Services | Affiliate Programs | Contact Us | About Us | Research | Terms of Use | Privacy Policy  
Copyright © 2009 Lexica. All rights reserved. International Patents Pending.

- Identifies both size of vocabulary and specific words known
- Uses IRT to identify each word item's statistical difficulty
- A patented Computer Aided Test using Lexical Decision Tasks, IRT, and Signal Detection Theory



# Lexical Decision Task

(Meara, 1992)

Do you know this word?

time

Yes

No

# Lexical Decision Task

(Meara, 1992)

Do you know this word?

ghart

Yes

No

# V-Check answers the questions:

What words do you already know?

Which high frequency words are you missing?

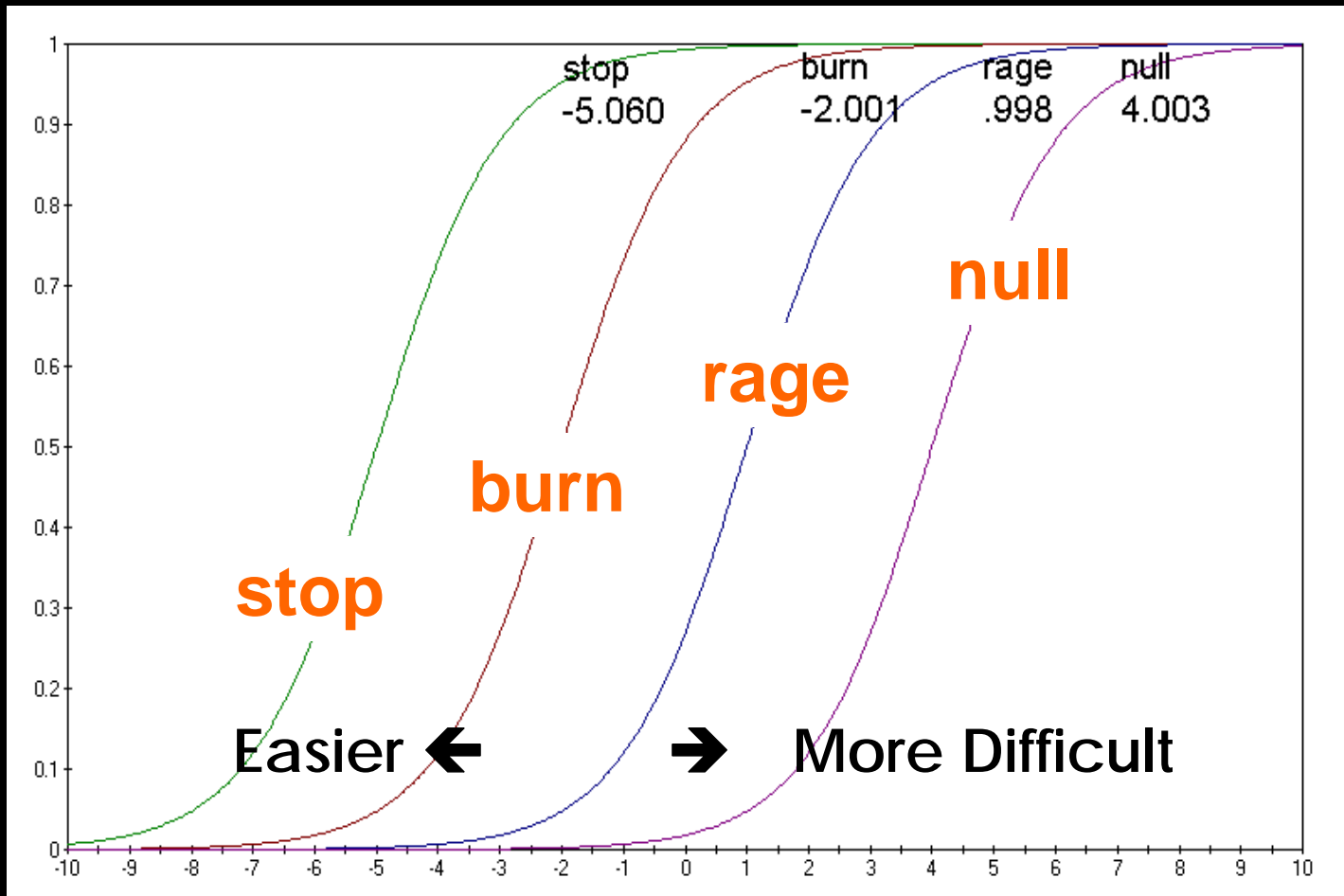


A screenshot of the V-Check interface. It features a blue background. At the top, a yellow rounded rectangle contains the word "legacy" in a black serif font. Below this, the question "Do you know this word?" is written in white. At the bottom, there are two blue rounded buttons with white text: "yes" on the left and "no" on the right.

# Methods for Estimating Lexical Size

Test	Gathers data on:	To find probability of knowing ( $N$ ):	Formula for proportion of known words	Formula for Estimating Lexical Size
Paper-based Levels Test (NATION)	18 items per 1,000 words	1,000 words	$p = \frac{X_j}{N}$	$pN$
Paper-based Yes/No (MEARA)	40 items per 1,000 words	1,000 words	$p = \frac{P(H) - P(FA)}{1 - P(FA)}$	$pN$
CAT-based Yes/No (CULLIGAN/BROWNE)	1,000 items per 1,000 words <b>(IRT-based)</b>	1,000 words	$P = \frac{e^{(\theta-b)}}{1 + e^{(\theta-b)}}$	$\sum_{i=1}^N P_i$

# IRT generates item difficulty for each word as to each specific population



# Word Frequency vs. Difficulty

	<b>injured</b>	<b>hurt</b>
Frequency	25x	55x

Average occurrences per million words

# Word Frequency vs. Difficulty

	<b>injured</b>	<b>hurt</b>
Frequency	25x	55x
Difficulty	1.33	2.34
	People with a <b>1600</b> word vocabulary will know injured	People with a <b>2500</b> word vocabulary will know hurt

# Which is more difficult?

tulip

lily

---

snake

crow

---

peanut

onion



# More difficult

tulip

lily

---

snake

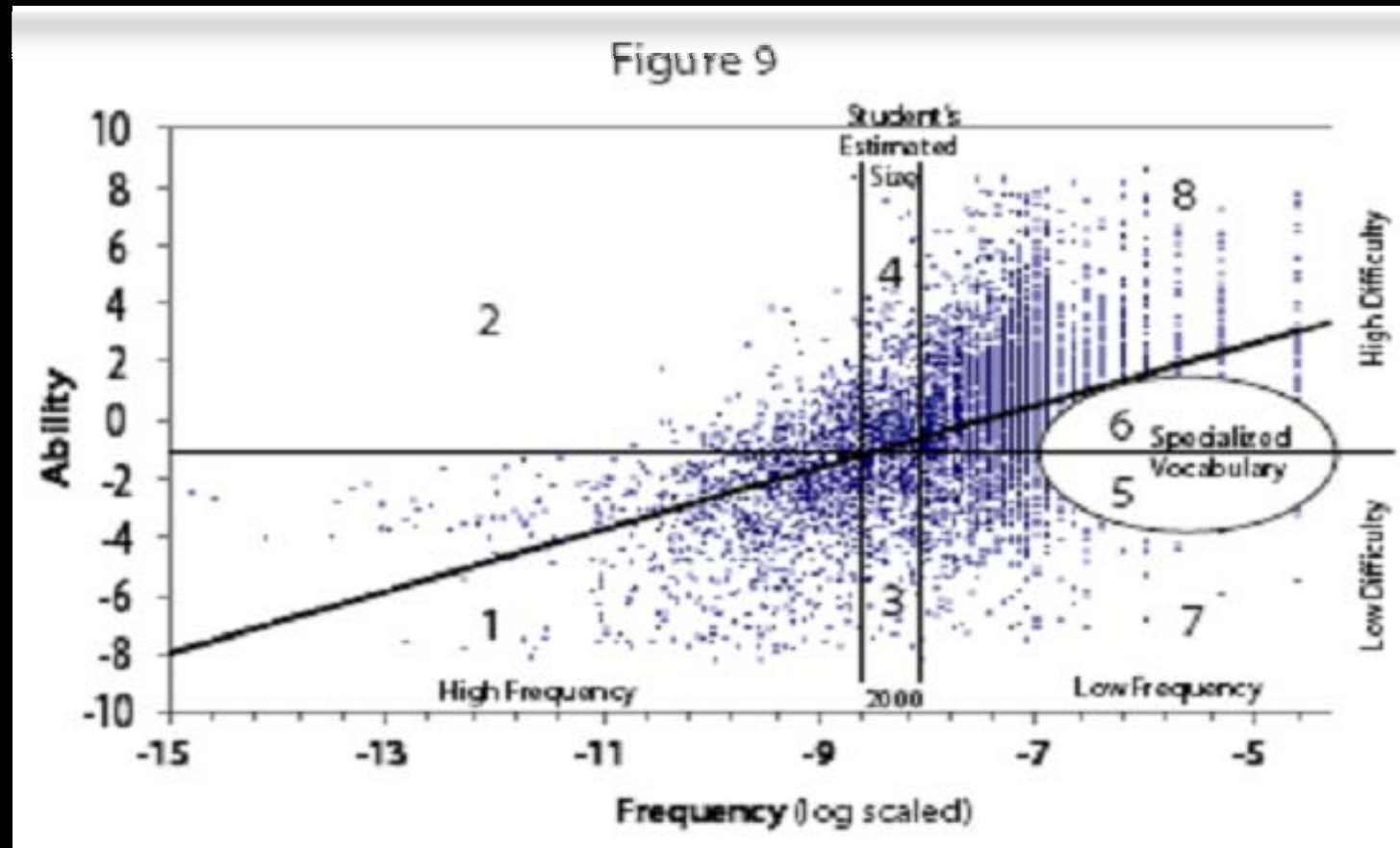
crow

---

peanut

onion

# Word difficulty regression for Japanese learners



# www.lexxica.com

## Word Engine My personal coach



Increase your  
vocabulary

Word Engine offers special purpose programs for subjects like TOEIC and TOEFL.

Learn with any of these popular programs – FREE!

**2874**  
**Basic English**  
2874 words  
**95%** coverage  
Start now!  
About this program

The 2874 high-frequency words that provide 95% coverage of all English in all situations!

**3461**  
**TOEIC**  
3461 words  
**99%** coverage  
Start now!  
About this program

The 3461 high-frequency words that provide 99% coverage of all English for TOEIC exams.

**7931**  
**Ultimate English**  
7931 words  
**99%** coverage  
Start now!  
About this program

The ultimate list of 7931 high-frequency words. Covers 99% of all English in all situations!

**2426**  
**Interchange**  
2426 words  
**99%** coverage  
Start now!  
About this program

The 2426 high-frequency words that provide 99% coverage of all Interchange textbooks.

Maximize your  
comprehension and performance!

High-frequency words are those that occur most often in each subject. Knowing them is essential to your success.

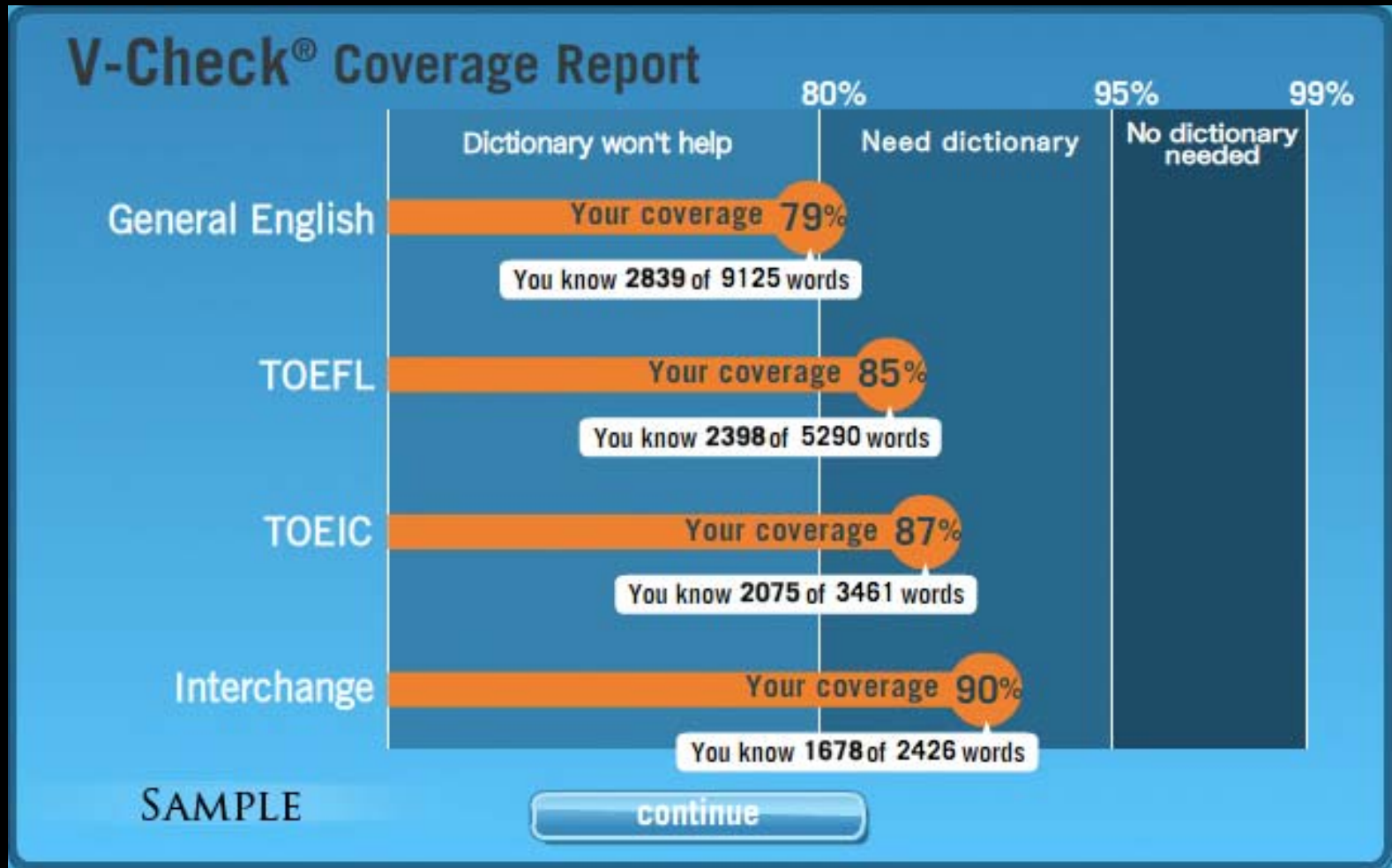
The patented V-Check system identifies all the specific high-frequency words you are missing and automatically prepares a personalized list for you to learn!

High speed learning tools help you develop instant recognition ability, and the built-in spaced repetition system insures long-term memory retention.

Finally, there's a fast and easy way to acquire high-frequency vocabulary!

# Sample V-Check Coverage Report

V-Check reports vocabulary coverage for different purposes

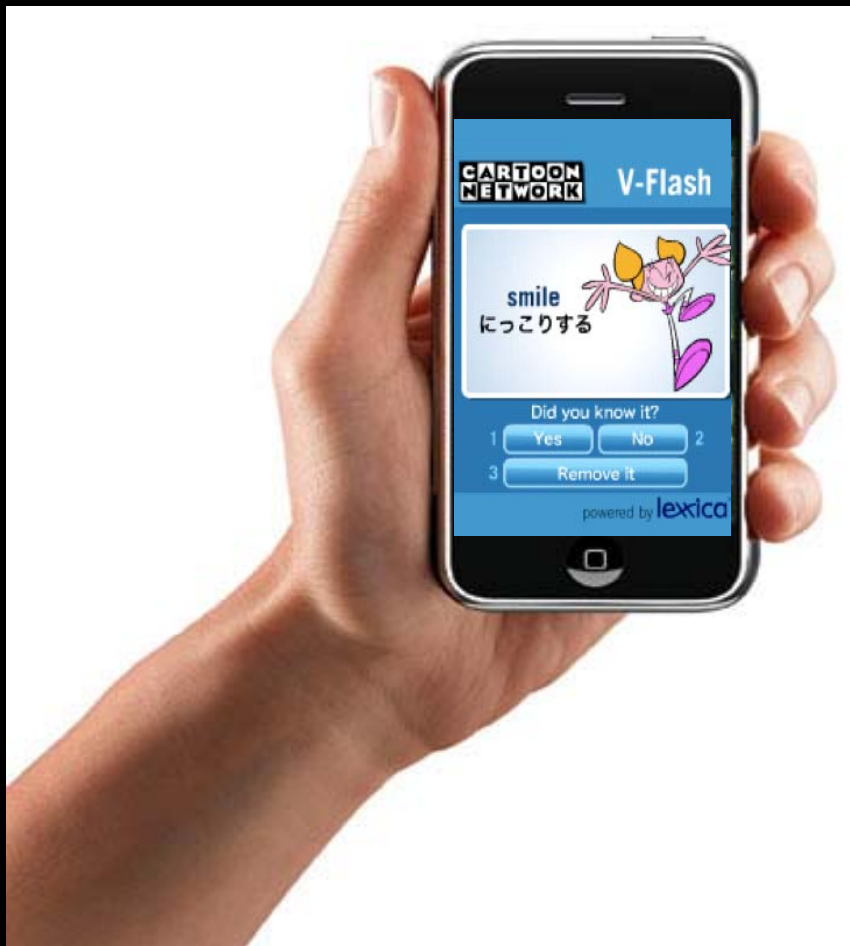


# Solution Number Two:

High-speed vocabulary  
learning system

Personal target words based on  
each learner's actual needs

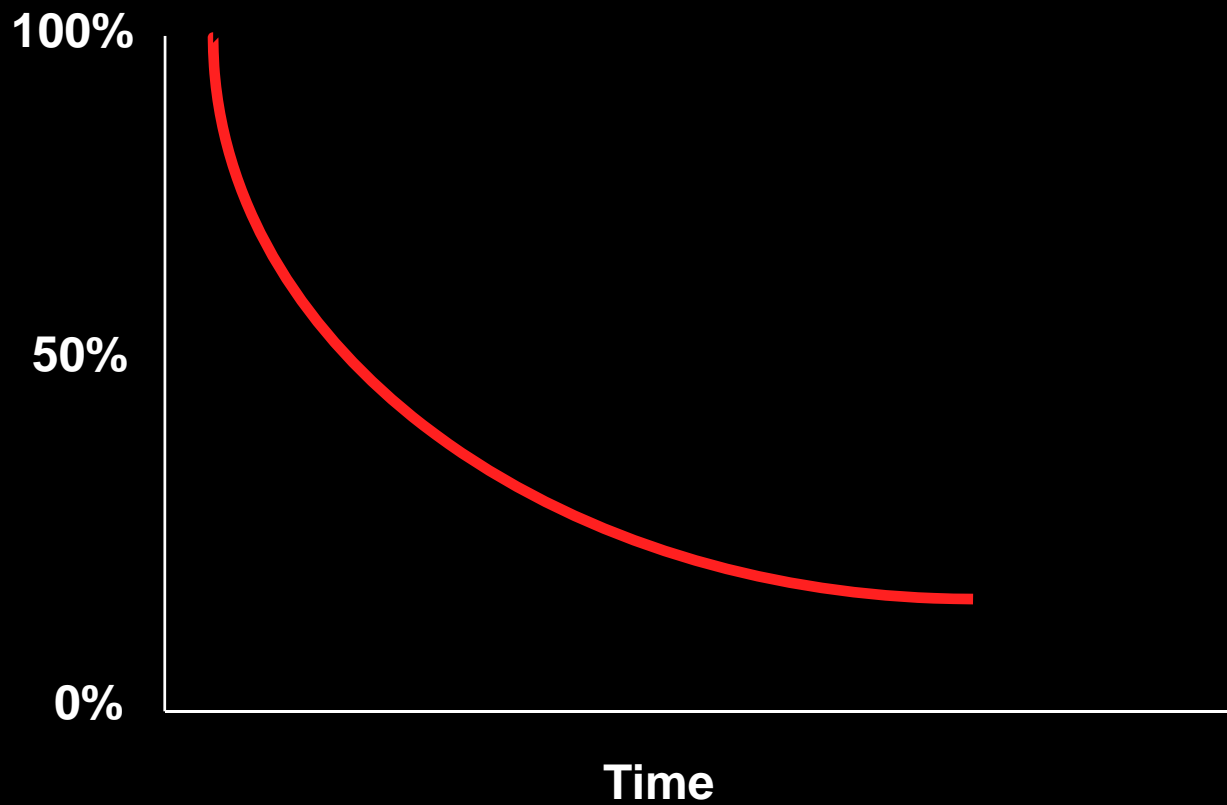
# PC and Mobile Learning Games



Cell phones enjoy 100% penetration among Japanese university students versus just 54% for PCs

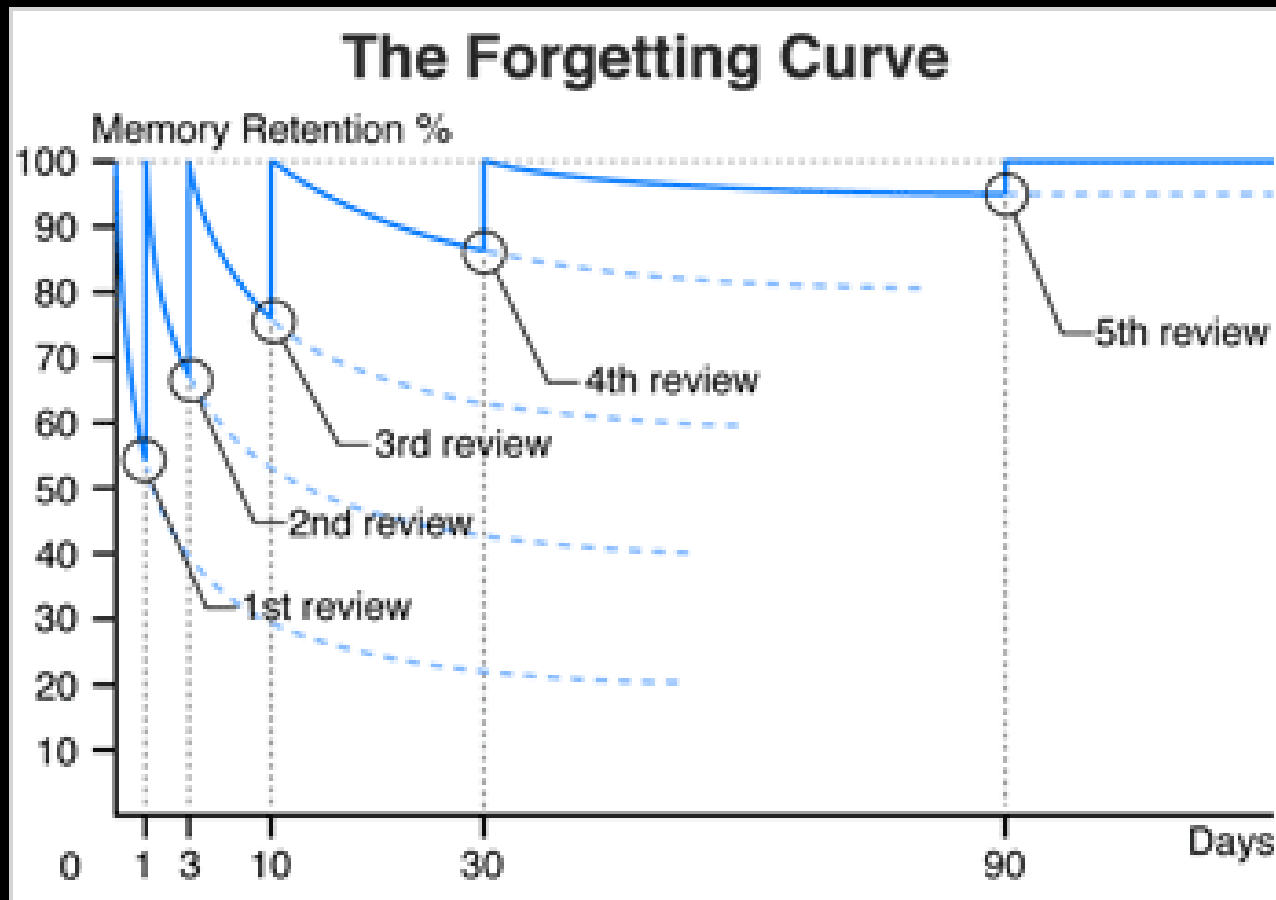
(Browne, 2007)

# How do we overcome short term memory loss?



# Learning via spaced repetition

Ebbinghaus (1885), Leitner (1972), Pimsleur (1967), Mondria, (1994)

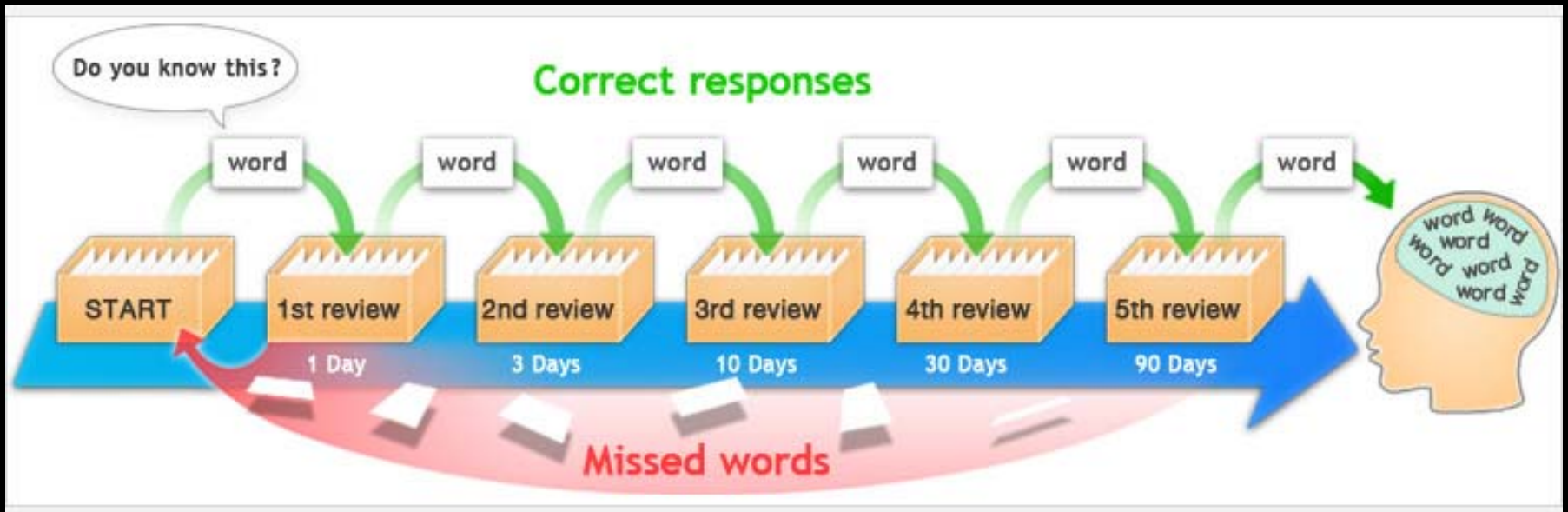


Repeated viewings foster long-term retention



# A personal spaced repetition database

Words are automatically selected and repeated at increasing time intervals until the student acquires long-term retention



# Spaced repetition learning tools

Flashcards for comprehension

A digital flashcard interface with a blue background. The word "thermal" is displayed in large, bold, dark blue font at the top. Below it, the Japanese characters "熱の" (Netsu no) are shown in a smaller, dark blue font. Underneath the characters, the word "collocation" is written in a smaller, dark blue font, followed by the text "thermal springs, thermal insulation, thermal underwear, thermal properties" in a smaller, dark blue font. A small, blue, rounded rectangular button with a white speaker icon is centered below the text. At the bottom of the card, the question "Did you know it?" is written in white font. Below this question are two blue, rounded rectangular buttons: one labeled "yes" and one labeled "no", both in white font.

**thermal**  
熱の

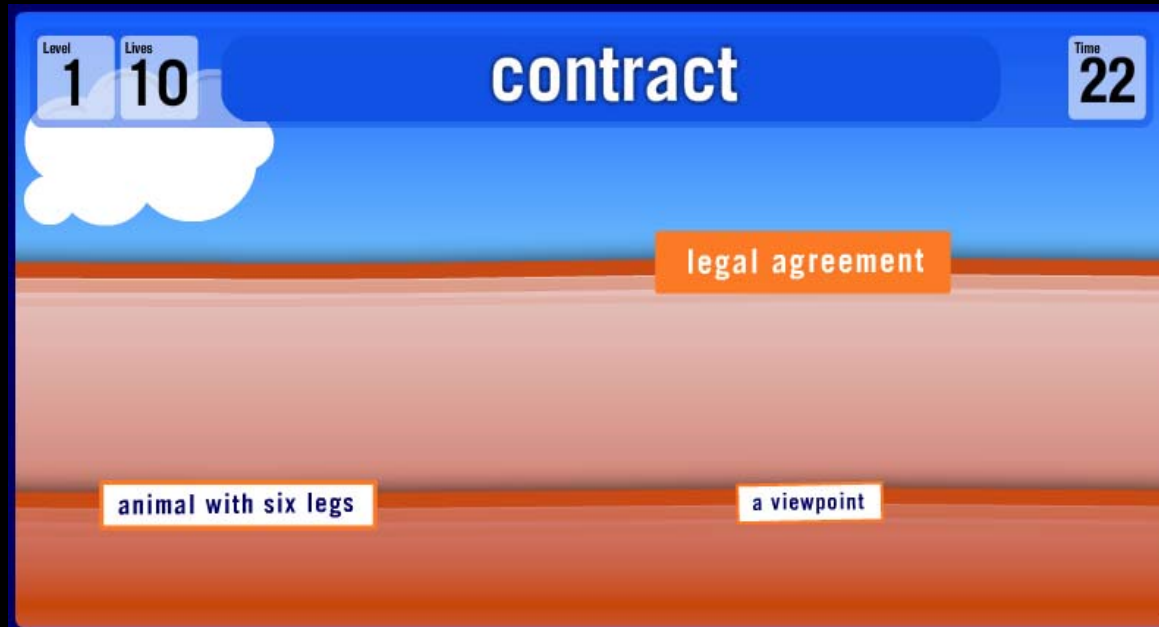
collocation  
thermal springs, thermal insulation, thermal underwear, thermal properties

Did you know it?

yes no

# Spaced repetition learning tools

SightWords for visual automaticity



# Spaced repetition learning tools

SoundBubbles for aural automaticity



# Spaced repetition learning tools

Mobile games for visual automaticity



# Solution Number Three:

Graded reading online

Reading materials at student's 95%  
comprehension level

# Graded Reading

Lexxica . com Available Spring 2009

Lexxica - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://dev2.lexxica.com/vflash

Language | English | username: [input] password: [input] login! Free signup!

## Word Engine My personal coach

[Home](#) [Learning Tools](#) [V-Check](#) [V-Admin](#)

### Learning Tools

All Word Engine learning tools automatically select and give repeated exposure to the exact words needed to increase your subject comprehension in the fastest and most direct way possible.



#### flashcards

**Focus on Comprehension**

Flashcards might seem a bit old fashioned, yet they remain one of the most efficient ways to rapidly increase your vocabulary size. Our patented electronic flashcard system offers major improvements over paper-based cards.



#### SIGHT WORDS

**Focus on Visual Speed**

Research confirms that faster visual recognition leads directly to higher ability and performance! SightWords is a fast-paced game designed to increase the speed of your visual recognition of high-frequency vocabulary.



#### SoundBubbles

**Focus on Listening Speed**

Research confirms that fast sound recognition is essential for effective comprehension. SoundBubbles is a listening game designed to increase your aural skills fast.



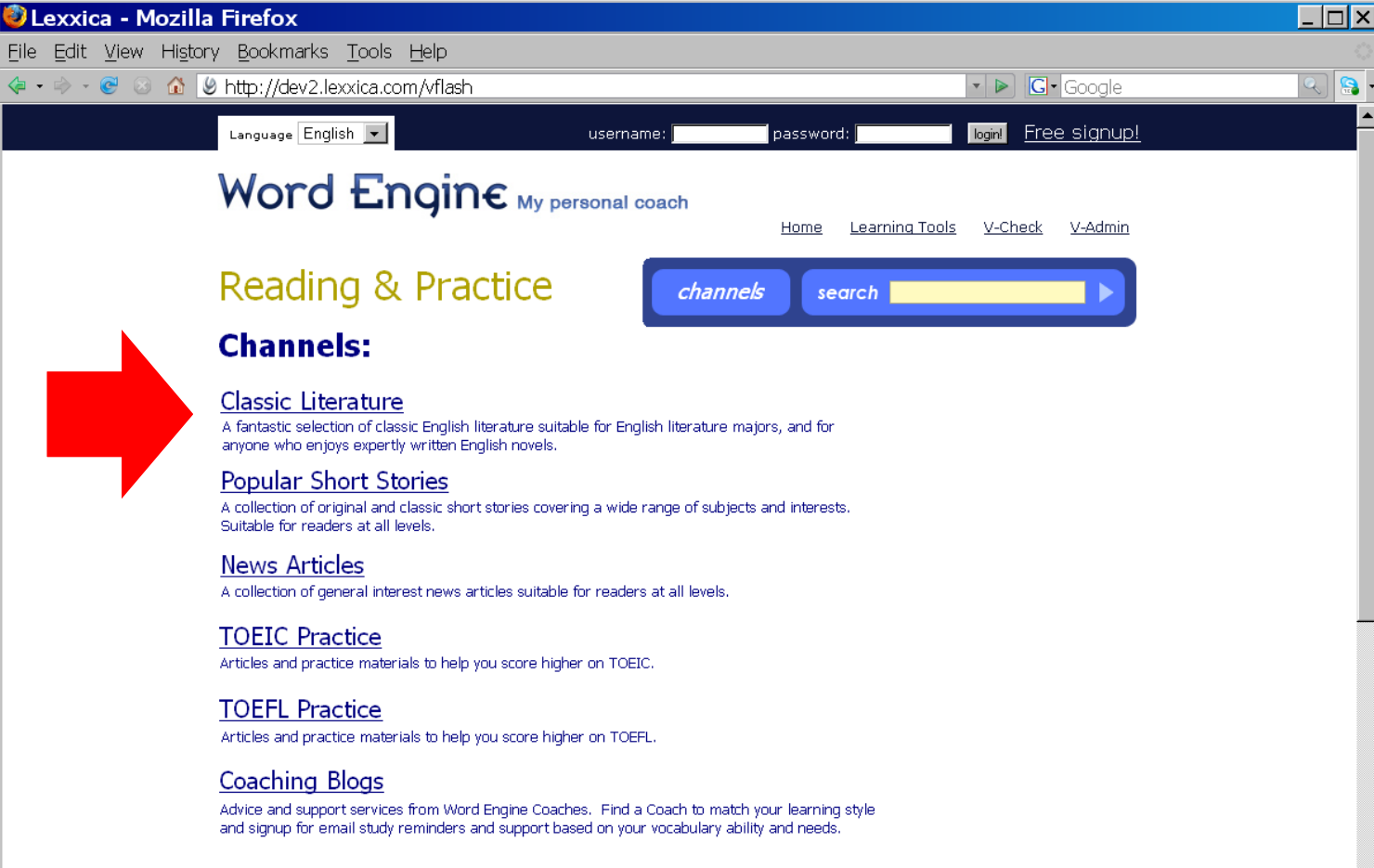
#### Reading & Practice

**Focus on Control**

Reading and listening are great ways to help you gain control of new vocabulary and grammar. Word Engine provides a wide variety of stories, podcasts, and practice exercises that are adjusted to your ability.

# Graded Reading

Lexica . com Available Spring 2009



Lexica - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://dev2.lexica.com/vflash

Language English

username: password: login! Free signup!

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Reading & Practice

channels search

**Channels:**

Classic Literature  
A fantastic selection of classic English literature suitable for English literature majors, and for anyone who enjoys expertly written English novels.

Popular Short Stories  
A collection of original and classic short stories covering a wide range of subjects and interests. Suitable for readers at all levels.

News Articles  
A collection of general interest news articles suitable for readers at all levels.

TOEIC Practice  
Articles and practice materials to help you score higher on TOEIC.

TOEFL Practice  
Articles and practice materials to help you score higher on TOEFL.

Coaching Blogs  
Advice and support services from Word Engine Coaches. Find a Coach to match your learning style and signup for email study reminders and support based on your vocabulary ability and needs.



# Extensive Reading

Lexica . com Available Spring 2009

Lexica - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://dev2.lexica.com/vflash

Google

Language English

username: password: login Free signup!

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### Reading Practice

channels search


### Classic Literature

The most important thing is to enjoy reading without a dictionary.  
Please feel free to adjust the level up or down to where you feel most comfortable.

Unsimplified  
4000 level  
3000 level  
2000 level  
1000 level

## The Great Gatsby - Chapter 1.1

by F. Scott Fitzgerald



Then wear the gold hat, if that will move her; If you can bounce high, bounce for her too, Till she cry "Lover, gold-hatted, high-bouncing lover, I must have you!"  
--THOMAS PARKE D'INVILLIERS

In my younger and more vulnerable years my father gave me some advice that I've been turning over in my mind ever since. "Whenever you feel like criticizing any one," he told me, "just remember that all the people in this world haven't had the advantages that you've had."

He didn't say any more but we've always been unusually communicative in a reserved way, and I understood that he meant a great deal more than that. In consequence I'm inclined to reserve all judgments, a habit that has opened up many curious natures to me and also made me the victim of not a few veteran bores. The abnormal mind is quick to detect and attach itself to this quality when it appears in a normal person, and so it came about that in

The Great Gatsby  
F. Scott Fitzge...  
ロープライス ¥2,334  
or 新品 ¥2,851  
amazon.co.jp で買う

フライシャーについて

Thank you!

Dr. Charles Browne, Professor of Linguistics  
Meiji Gakuin University, Dept. of English