

Design of Web-based Support Materials to Address Learning Difficulties — Vocabulary Building Skills

Karen Kar Ying Law and Flora Fung Yin Leung

Education Infrastructure Division, Education Bureau, Hong Kong

This paper discusses the importance of vocabulary as a building block in language learning. Findings from local data-driven research suggest that Hong Kong students have limited vocabulary, and through understanding the data, a suite of vocabulary building interactive resources have been designed.

Introduction

“R-e-f-r-i-g-e-r-a-t-o-r. Refrigerator. R-e-f-r-i-g-e-r-a-t-o-r. Refrigerator. R-e-...” Kelly mumbled to herself while filling another piece of scrap paper with the word refrigerator.

“Are you ready to try again?” asked her mum.

“I think so,” Kelly put down her pencil and said.

“Spell *sink*,” said Mum.

“S-i-n-k, sink,” Kelly spelt the word without any difficulty.

“Good,” smiled Mum, “How about *refrigerator*?”

Kelly was nervous. She spent so much time revising this word. She should never forget how to spell it, she thought. “R-e-f-r-i...er...f-r-i...d”

“No, it should be r-e-f-r-i-G-e-r-a-t-o-r. Study it again. I’ll come and test you in a few minutes,” sighed Mum.

“Sorry, Mum,” said Kelly. Disappointed with herself, Kelly went back to her desk, took up her pencil and started to write the word refrigerator on a piece of paper again. It was ten o’clock at night.

This is typical of the kind of scene that we often come across with parents and children in Hong Kong when they are revising before a dictation. Many children struggle and find it difficult to learn new words, and more importantly, to retain the words so that they can retrieve them easily at a later date.

A Critical Gap in Our Own Students' Learning

In language learning, the importance of essential vocabulary acquisition and effective vocabulary instruction is discussed in a range of research studies (e.g. Allington & Cunningham, 1996; National Reading Panel, 2000; National Research Council, 1998). Vocabulary is indispensable to a competent language learner and user. By making use of contextual information, readers with higher levels of vocabulary knowledge are more likely to make sense of texts from context (Shefelbine, 1990). Cunningham (2009) expresses concern about a learning gap here, pointing out that a vicious cycle begins when children come to school with small meaning vocabularies:

“These children struggle with learning to read. Because reading is hard for them, they avoid reading. But, since reading is one of the major ways new words are learned, the meaning vocabulary gap between children who like to read and read well, and children who struggle with reading grows wider every day.” (p.16)

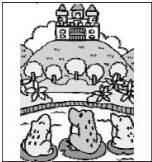
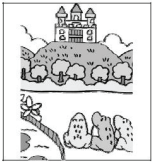
This view is echoed by local researchers and language educators. McNeill (2009) observes that Hong Kong students need to know at least 5,000 words in order to cope with the demands of an English medium university degree programme. However, language education researchers (Fan, 2000; Chiu, 2005) reveal a disappointing fact that most of the university entrants in Hong Kong know fewer than 3,000 English words. In an EDB-commissioned research project, the Study of Using Assessment Data to Enhance Learning and Teaching (English Language Education), Tong (2009) found that many weaker students lacking interest in reading did not have adequate vocabulary to cope with the 2008 TSA reading texts at their levels; they tended to have very small vocabulary sizes. Some weaker students in the study did not know up to 10% of the words in the text. As Wilkins (1972; 111) points out, “Without grammar very little can be conveyed, without vocabulary nothing can be conveyed.”

The problem of having too small a vocabulary size is that students will find

it difficult, if ever possible at all, to learn new words from context. In order to read a passage fluently, Liu and Nation (1985) show that we need to understand at least 95% of a text before we can fully comprehend it. Without getting the right words, communication will be hampered.

To empirically verify some primary and secondary students' key reading problems observed from TSA data analysis, Tong (2009) found that reading difficulties had much to do with vocabulary size and lack of lexical knowledge (Table 1).

Table 1: Specific learning problems identified in Tong (2009)

Reading Text	Question Item and Facility Index (FI) from 2008 TSA results	Specific Learning Problems
<p>“One day, the three frogs were sitting <u>next to</u> a pond.”</p> <p>[Part 2a of 2008 P3 TSA 3ERW1/3ERW4]</p>	<p>Where were the three frogs?</p> <p>A.  FI for A is 37.5%</p> <p>...</p> <p>D.  (Key) FI for D is 32.3%</p>	<p>Students in the Study confused “next to” (a preposition of location) with “next” (a sequencer of time).</p>
<p>“...and the rich and famous will <u>beg</u> to eat my super creamy chocolate cheesecake...”</p> <p>[Part 4 of 2008 P6 TSA 6ERW1/6ERW3]</p>	<p>What does the word ‘beg’ mean?</p> <p>A. to ask for food or money because you are very poor. FI for A is 27%.</p> <p>B. to ask for something very strongly (Key) FI for B is 39.6%.</p> <p>...</p>	<p>Students in the Study displayed lack of awareness of the different meanings a word (e.g. beg) can have.</p>
<p>“One interesting <u>custom</u> in a traditional Chinese wedding is the ‘hair combing ceremony.’”</p> <p>[Part 3 of 2008 S3 TSA 9ER1/ 9ER3]</p>	<p>What is the ‘hair dressing ceremony’?</p> <p>A. a wedding FI for A is 44.6%.</p> <p>B. a custom (Key) FI for B is 33.3%.</p> <p>...</p>	<p>Students confused the word “custom” as a cultural practice with “customs”, as a law enforcement department at the borders.</p>

As such, it is believed that ample exposure to vocabulary at appropriate levels, explicit vocabulary work, repeated encounters in receptive and productive language skills and diagnostic assessments, all matter, in closing a key learning gap in language development. In view of this, a Web-based Learning and Teaching (WLTS) package has been developed as resource materials with a focus on the following vocabulary building skills: 1) building a sight word bank; 2) word formation; and 3) word association.

Building a Sight Word Bank with *Sight Word Park*

Building a sight word bank enables young learners to speed up the development of reading fluency.

Learning sight words is important and should be dealt with differently because many of these high-frequency words, because of their Anglo-Saxon origin, do not always sound as they are spelled, making them difficult to sound out using knowledge of phonics, e.g. what, laugh and enough. Also, some of them have rather abstract meanings which are hard to explain to young learners. For example, it is easy to explain words like dog or tree because they can be related to a real object or picture. However, it may not be as easy to explain words like *the*, *or*, *of*.

We believe that explicit teaching and learning of sight words should take place in primary students' daily reading practice. To help learners recognize high-frequency sight words, we have developed *Sight Word Park*, a resource pack with diagnostic tools, classroom activities, teaching aids and interactive games for teachers to integrate in contextualized learning.

An exemplar showing how sight word learning can be incorporated in a reading unit is provided to demonstrate how teachers can adopt and adapt the materials to cater for diverse learning needs and teaching objectives.

Teaching Sight Words in Context

An Exemplar

Goldilocks and the Three Bears

Key Stage 1

Module: The World Around Us

Duration: 130 minutes

Session 3

Warm Up (15 minutes)

1. Play *Sight Word Bingo!* (Supplementary Activity 6) using the high frequency words and sight words learned in the previous sessions. Read out sentences with the missing words so that students have to pick a word that belongs to the sentence. For example,

What's _____ name?

_____ name is Tony.

Tony and Peter are playing with _____ ball.

Mary loves _____ dogs.

Today is so hot! I need a _____ drink.

The sun is bright and _____.

The grass is _____ and green.

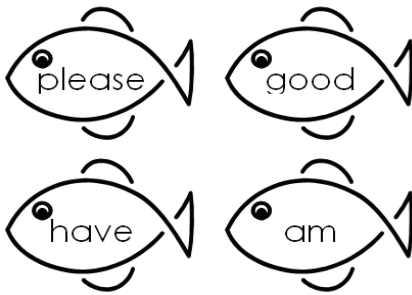
Reading the Text (15 minutes)

1. Cover the possessive adjectives in the big book with strips of paper.
2. Read the story with students. Ask them to help you complete the story by using the words.
3. Assist them by revealing the first letter of the adjective and read out the initial sound of the adjective in case they cannot give the answers.

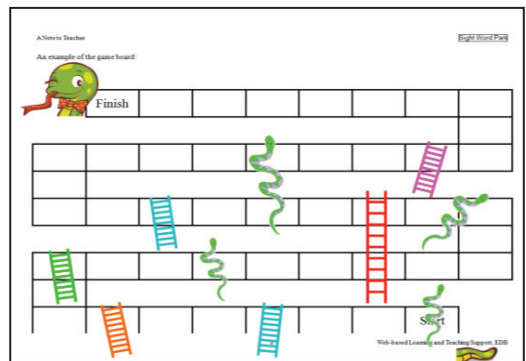
Shared Writing: Rewrite the Ending (30 minutes)

1. Say, 'What would you do if you were Goldilocks? What would you say? Let's look at the ending of the story again!' Then read the ending of the story again.
2. Gather and share ideas and language for the writing by brainstorming what will happen if Goldilocks reacts differently.

Sight Word Park provides a variety of teaching aids to make sight word learning enjoyable and sight words memorable. The ready-to-use materials such as word cards, bingo sheets, play mats and game boards help teachers integrate sight word teaching into the classroom routine.

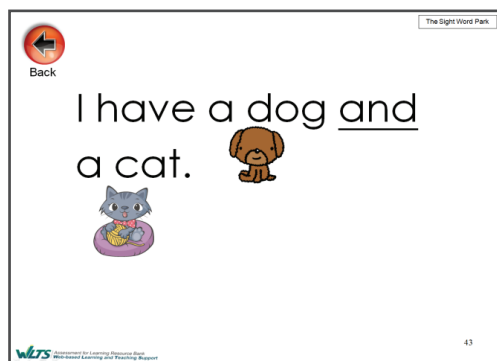
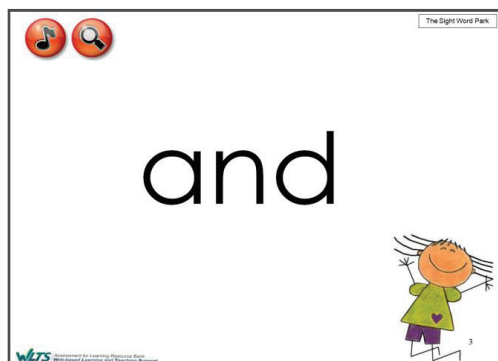
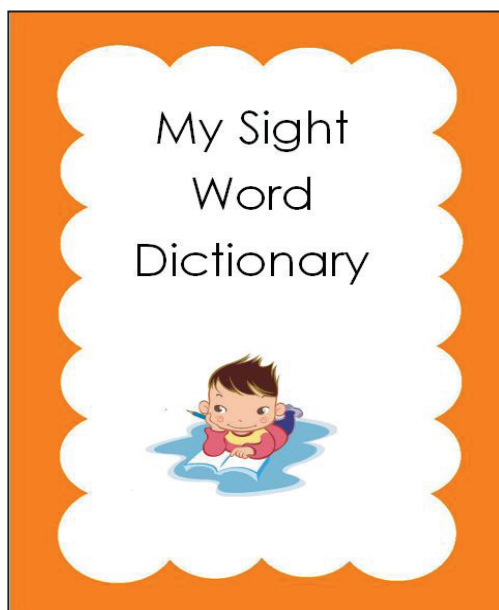


An example of the Twister mat:



Sight word dictionary is a picture-dictionary designed for learners to collect and organize words with different themes.

Electronic flash cards with pronunciation and an example of the word used in a sentence, are available for teachers' adaptive use, for students' self study and for parents' use.



Parents' support helps bridge the gaps between learning at home and school. *Sight Word Park* offers notes to parents, providing some useful ideas and strategies, like creating word cards and playing word games at home.

Teaching Sight Words in Context: An Exemplar
Sight Word Park

Some Ideas for Parents

Teacher may communicate to parents some of the ideas below at different stages:

What are Sight Words?

- They are words that learners should recognize, read and understand instantly.
- They are high-frequency words that make up a large part of the materials we read. Many of them cannot be sounded out, and so must be learned as sight words.
- When learners can read sight words quickly and effortlessly, reading becomes a simpler job as they can focus on the more difficult words.

Playing Sight Word Activities at Home

- You can help your child's reading by highlighting sight words in the texts.
- There are lots of fun activities that keep children interested and eager to learn.

Sight Word Cards

- Create a list of the sight words found in your child's books or from lists provided by the teacher.
- Put these words on index cards for review or for playing games.
- Invite your child to help you by adding a sentence using the word and pictures about the word on the card.
- Create two sets of identical word cards so that you can play matching games.

An example of a word card:

away

(Front)

away

I throw away the rubbish.

(Back)

Sight Word Dictionary

- Encourage your child to keep a sight word dictionary.
- When your child encounters a new sight word, he / she can write it down in the sight word dictionary.

The online interactive games in *Sight Word Park* aim to promote an enjoyable learning experience. The games offer repeated exposure of the target sight words in interesting ways. These games are designed to test learners' word recognition, pronunciation, spelling and usage of sight words. To cater for different needs, teachers can create their own games by entering their targeted word lists or question stems and options.



Learning Word Formation with *Hong Kong Adventure*

The teaching of word formation skills is essential for vocabulary learning. By making use of the known word parts, learners are invited to guess the meaning of a new word. They do not need to look up every unknown word. The following are some of the common ways that words are built:

Compounding: forming a word with two or more separate words (e.g. play + ground = playground)

Affixation: adding a prefix (e.g. unhappy) or a suffix (e.g. reporter) to an existing word to modify the meaning and/or part of speech

Conversion: using the same word in different parts of speech (e.g. a cook, to cook a meal)

Derivation: forming a word from another word (e.g. excite, exciting).

The objective of *Hong Kong Adventure* is to help students develop an awareness that (i) words can be formed in certain specific ways; (ii) new words can be understood if we know the typical ways they are formed; and (iii) we can infer the meanings of words from their form and their contexts. To cater for different needs and abilities of students, teachers can flexibly adopt and adapt any material in the four units given in Table 2.

Table 2: Summary of the four units in Hong Kong Adventure – Word formation skills

Unit	Learning Focus	Teaching Materials				Remarks
		Activity	PPt	Others	Game	
1. Discover Hong Kong	Compound words	✓	✓	✓	✓	This is a stand alone unit; it can also be used with Level 1 of Treasure Hunt.
2. An Unlucky Day	Prefixes	✓	✓		✓	This is a stand alone unit; it can also be used with Level 2 of Treasure Hunt.
3. A Day on Cheung Chau	Suffixes	✓	✓		✓	This is a stand alone unit; it can also be used with Level 3 of Treasure Hunt.
4. Treasure Hunt (4 levels)	Compound words Prefixes Suffixes				✓	This unit can be preceded by either <i>one</i> OR <i>all units above</i> . It can also be used as a self-learning unit.

Context of the unit

With its interesting plot and attractive animations, *Hong Kong Adventure* introduces word formation skills to students. The story begins when Susan, a P4 student, asks for opinions on where to show her grandpa around Hong Kong. To help Susan, students do research on different places in Hong Kong and then make suggestions to her. After her grandpa leaves, Susan and her friends find a treasure map with funny limericks. Out of curiosity, they follow the clues and go on an adventure. At the end of the journey, learners are expected to know more about Hong Kong and have a better understanding of the common ways that words are built, including compounding and affixations.



Learning objectives

In each unit, a word formation skill is introduced in context. Through various types of activities, students discover the use of different word formation skills and understand how to make use of some known word parts to infer meaning.

Discover Hong Kong (Hong Kong Adventure 1)

Read and Clap!

Let's read this together!

Compound!

Clap your hands twice and say, 'Compound!' when you find a compound word.

Hong Kong: Some Fun Facts
What do you know about it?

Are Unlikely Day (Hong Kong Adventure 2)

Sorting Game

Drag and drop the words using your mouse

re- meaning 'back'	re- meaning 'again'
return	redo replay

reread restart reopen rewrite
 retreat rebuild rewind repay
 reuse recycle rerun rename
 replace

A Day on Cheung Chau (Hong Kong Adventure 3)

-ess

An actor is a man.
An actress is a woman.

A waiter is a man.
A waitress is a woman.

A prince is a man.
A princess is a woman.

Discover Hong Kong (Hong Kong Adventure 1)

Choose a word to form a compound word with the word 'man'

_____ man

happy fire cook fisher
sales clean police

Pedagogical considerations

In these units, various reading texts are provided to allow students to have repeated exposure to the target words. For example, students are asked to read travel brochures about the interesting places in Hong Kong, and to identify the compound words in them (*Hong Kong Adventure 1*). They then need to write a reply to an email by making suggestions on where to go in Hong Kong.



Fun things to do... for kids!



Open-air markets in Mongkok

Mongkok has lots of markets for animal lovers. Visit the Bird Market for the beautiful songbirds and Chinese bird cages. Go to the Goldfish Market. Lots of pet animals and fish are waiting for you to take them home.

The light and sound show

Every night at eight o'clock, people wait at the Tsim Sha Tsui waterfront. Enjoy the firework and laser show created by 40 buildings on both sides of the harbour.

Hong Kong Science Museum and Hong Kong Space Museum

Learn about science and space in a fun way! The interactive exhibits and models give you a hands-on experience to explore the secrets of science and space. Watch a multimedia show at the egg-shaped dome. Be a scientist today!



The Star Ferry

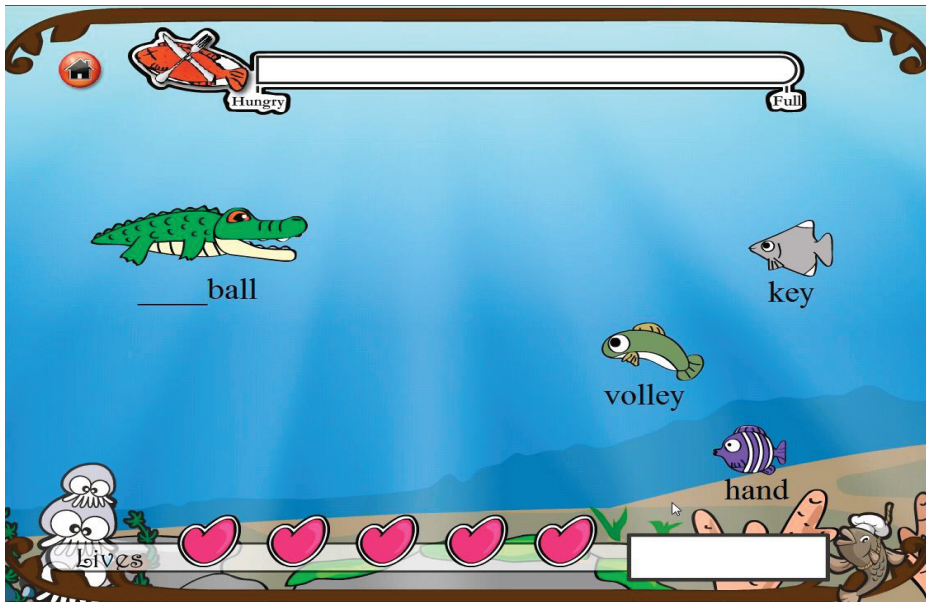
The white and green Star Ferry has travelled back and forth between Hong Kong Island and Kowloon for over 100 years. Take your camera and get ready to take some nice photos of Victoria Harbour!



After doing plenty of work on compound words, students are asked to create sentences with as many compound words as they can. They are also asked to make their own word cards to build up their vocabulary bank and to retain the words they have learnt.

Treasure Hunt is an online game focusing on the teaching of word formation skills. Different skills are covered in various levels.

- Level 1 — Compound words
- Level 2 — Prefixes
- Level 3 — Suffixes
- Level 4 — Consolidating the skills
acquired in levels 1 to 3
- Level 5 — Further practice



To cater for different students' abilities and to allow flexibility in teaching, tutorial lessons are provided so that students can learn and practise at their own pace.

Learning Word Association with *Super Word Kid*

Helping learners make meaningful associations with words can promote the retention of vocabulary (McNeill, 2009). For example, students can be guided to identify some key meaning relationships in the target language:

Synonyms: words with identical or very similar meaning (e.g. happy, glad)

Antonyms: words with opposite meaning to other words (e.g. bright, dark)

Homonyms: words that share the same spelling and the same pronunciation but have different meanings (e.g. *catch* a bus, *catch* a cold)

Collocation: the combination of words formed when they are often used together in a way that sounds correct to native speakers of the language (e.g. *watch* TV and not *see* TV; *make* a wish and not *do* a wish)

Lexical sets: a group of words with certain kinds of relation (part-whole relations: face – eyes, ear, mouth, ears; superordinates: furniture – table, chair, desk, cupboard)

Context of the unit and learning objectives

The design of *Super Word Kid* aims to draw students' attention to the importance of using synonyms. The advantages of using and knowing more synonyms are illustrated through a story of a superhero. Students are given the opportunity to practise how to find synonyms from dictionaries or thesauri and to pay attention to word collocations and lexical sets when using synonyms.

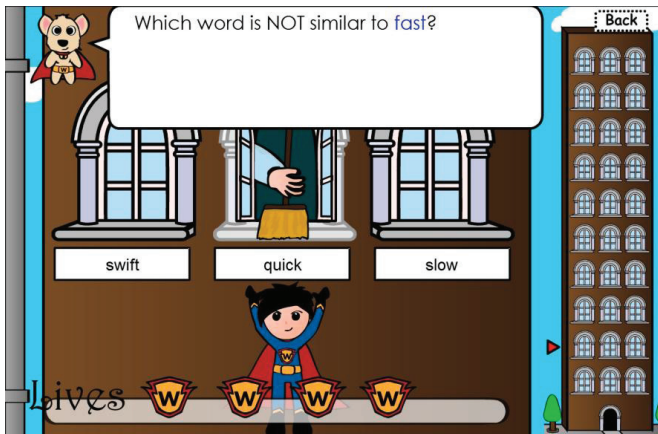
Pedagogical considerations

It starts with an activity that is designed to help students to identify the use of synonyms in a biography about the comic hero Super Word Kid. This is followed by a tutorial helps students understand different methods to find synonyms from dictionaries and thesauri. It also points out the fact that not all synonyms can replace the original words because of word collocations. In order to provide an opportunity for students to



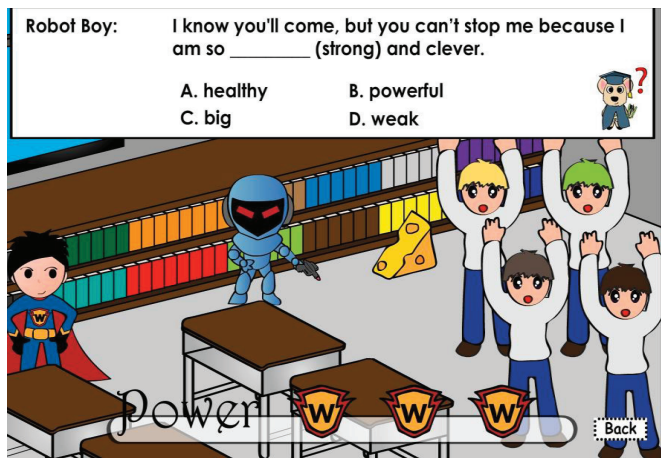
put the newly learnt words to use and to explore concordancing, the resource supports students to write a biography about a super hero they invent using various synonyms.

Two interactive games have been designed to provide repeated encounters with the target words. These games not only allow the learning of synonyms in interesting contexts, but also provide an opportunity for independent learning.



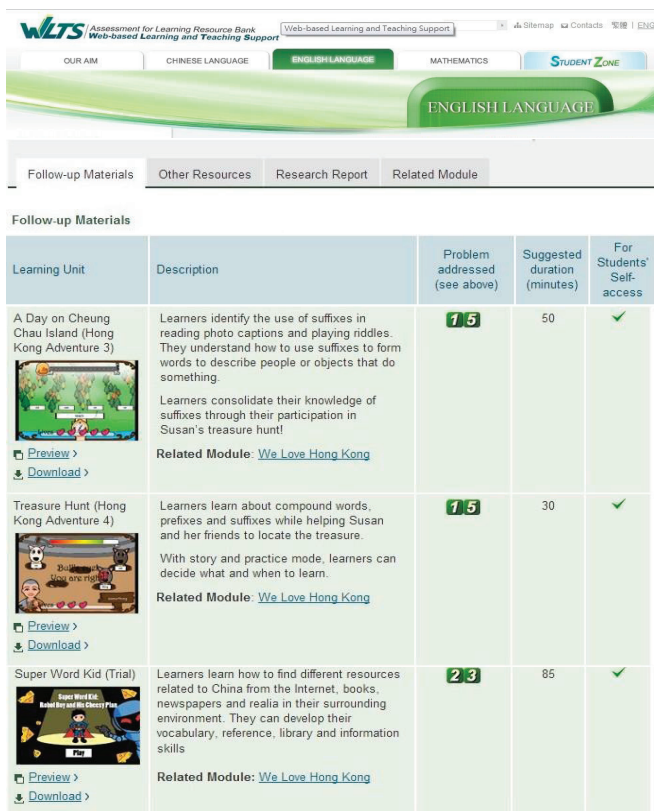
Encouraged by the positive reception from the tryouts, two new units with a focus on promoting word association skills are being developed. Super Word Kid Returns, a sequel to Super Word Kid, switches its


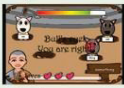
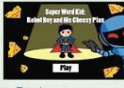
focus from synonyms to antonyms. Students get the opportunity to use antonyms in various writing and speaking tasks. A cluster of units about the triathlon have also been created in order to raise learners' awareness of collocations and the use of lexical sets to organize vocabulary.



Way Forward

The WLTS learning units, incorporating teaching and learning strategies for vocabulary building skills, have been tried out by members of the WLTS collaborative focus group with students in different schools. Through participating teachers' action research, peer lesson observation and interschool evaluation sessions, teachers shared among themselves creative and effective strategies relating to vocabulary building skills. Based on the groups' successful experiences and their feedback on the design of the units, the materials have been enhanced and uploaded to the WLTS website (wlts.edb.hkedcity.net).



Learning Unit	Description	Problem addressed (see above)	Suggested duration (minutes)	For Students' Self-access
A Day on Cheung Chau Island (Hong Kong Adventure 3)  Preview > Download >	Learners identify the use of suffixes in reading photo captions and playing riddles. They understand how to use suffixes to form words to describe people or objects that do something. Learners consolidate their knowledge of suffixes through their participation in Susan's treasure hunt! Related Module: We Love Hong Kong	15	50	✓
Treasure Hunt (Hong Kong Adventure 4)  Preview > Download >	Learners learn about compound words, prefixes and suffixes while helping Susan and her friends to locate the treasure. With story and practice mode, learners can decide what and when to learn. Related Module: We Love Hong Kong	15	30	✓
Super Word Kid (Trial)  Preview > Download >	Learners learn how to find different resources related to China from the Internet, books, newspapers and realia in their surrounding environment. They can develop their vocabulary, reference, library and information skills Related Module: We Love Hong Kong	23	85	✓

A great deal has been learnt throughout the process of the TSA data-driven research, the design of web-based support materials, and witnessing the capacity building experience of the school teams participating in the WLTS focus group. They will no doubt provide guidance for future WLTS projects that seek to address the wide-ranging needs of students. They will also help sustain concerted efforts towards “assessment for learning”.

References

- Allington, R. L., & Cunningham, P. M. (1996). *Schools that work: Where all children read and write*. New York: HarperCollins College Publishers.
- Chui, S.Y. (2005). An investigation of the English vocabulary knowledge of university students in Hong Kong. Unpublished M.Phil. thesis. Hong Kong: The Chinese University of Hong Kong.
- Cunningham, Patricia M. (2009). *What really matters in vocabulary: Research-based practices across the curriculum*. Boston: Pearson Education Inc
- Curriculum Development Council (2004). *English Language Education Key Learning Area English Language Curriculum Guide (Primary 1-6)*. Hong Kong: Government Logistics Department.
- Fan, M. (2000). How big is the gap and how to narrow it? An investigation into the active and passive vocabulary knowledge of L2 learners. *RELC Journal*, 31, 105-119.
- Goulden, R., Nation, I.S.P. and Read, J. (1990). How large can a receptive vocabulary be? *Applied Linguistics* 11, 4, 341-363.
- Liu, N. and Nation, I.S.P. (1985) Factors affecting guessing vocabulary in context. *RELC Journal* 16, 1, 33-42.
- McNeill, Arthur (2009). Theoretical underpinnings of vocabulary learning and teaching. In Curriculum Development Institute (Ed.). *Enhancing English Vocabulary Learning and Teaching at Primary Level*. Hong Kong: Government Logistics Department.
- Nation, I. S. P. (2001). *Learning vocabulary in another language*. Cambridge University Press.
- National Reading Panel (2000). Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction. Retrieved 2 April 2011 from: <http://www.nichd.nih.gov/publications/nrp/report.cfm>
- National Research Council (1998). *Preventing reading difficulties in young children*. Washington, DC: National Academy Press.
- Shefelbine, J. L. (1990). Student factors related to variability in learning word meanings from context. In (Ed.). *Journal of Literacy Research* 1990, 22, 71-97.
- Tong, Anthony K.K. (2009). Report on the Study of Using Assessment Data to Enhance Learning and Teaching (English Language Education) Phase II. Retrieved 1 March 2011 from Web-based Learning and Teaching Support, Education Bureau, <http://wlts.edb.hkedcity.net/>
- Wilkins, D. A. (1972). *Linguistics in language teaching*. London: Arnold.

Authors' e-mail: Karen Law pobcae@edb.gov.hk
 Flora Leung scdobcae@edb.gov.hk