Applying Computer Software Technology to Develop English as a Foreign Language Vocabulary Acquisition

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This paper examines the teaching and learning of vocabulary using technology. The paper takes the form of pilot research into an often-neglected part of Teaching English to Speakers of other Languages (TESOL), the research area of vocabulary.

Vocabulary is often divided up into categories like receptive (reading and listening) and productive (writing and speaking) skills or knowledge; breadth (how many words known) and depth (how many senses of each word are known); contextualized (words in sentences) and decontextualized (words in isolation).

In this paper, the focus is receptive vocabulary breadth in a decontextualized mode. This will be examined in relation to using technology through software development to teach and learn vocabulary. The paper is divided into three main sections: philosophy of TESOL, software development, and conclusion. The software development is designed for an authentic audience, that is, learners that I teach. More specifically, they are Japanese tertiary-education EFL learners in their first, second and third years.

Philosophy of TESOL

The philosophy of TESOL adhered to in this paper does not advocate one particular method or approach, rather, it is eclectic. The focus is to actualize, adopt, or adapt what works and discard what does not work. This will vary

according to particular contexts, so this stance is not static but ever-changing. This philosophy endeavors to meet a need for "more learning and less education: that is, greater stress on acquiring knowledge from a desire to learn, and less emphasis on institutions and the attendant bureaucracy" (Vesey & Foulkes, 1990, p. 90). Therefore, I am interested in promoting learner autonomy, dealing with individual differences, and motivating EFL learners both inside and outside the classroom.

Receptive Vocabulary

The Vocabulary Levels Test (VLT) Nation, 1983, 1990, was developed as a diagnostic test. This instrument gives a rough estimate of receptive vocabulary breadth. It uses decontextualized vocabulary and definitions to measure. Despite some limitations, the VLT is still considered by many vocabulary experts as the closest our profession has to a standard and accepted vocabulary instrument. The VLT consisted of five word levels: 2000, 3000, 5000, 10 000, and university word level, later updated to the academic vocabulary level. These levels are referred to in this paper as the 2K, 3K, 5K, 10K, UW and the updated AV. See Appendix A for an example of a VLT cluster.

The original VLT (Nation, 1983, 1990) had three major limitations: there was only one version, it was not validated, and there were only 18-items per word level. The VLT has been amended a couple of times in its development in order to address these three limitations. Firstly, the one version limitation was addressed by four amended VLT studies: Schmitt (1993) with four versions, Beglar & Hunt (1999) with two versions, and Schmitt (2000), Schmitt, Schmitt, and Clapham (2001) with two versions. Secondly, the validation limitation was addressed by two amended VLT studies by Beglar & Hunt (1999) with three types of validity: face, content, and construct, and Schmitt et al. (2001) who

presented seven aspects of validity: six indirect and one direct. Thirdly, the items per level limitation was addressed by three amended VLT studies by Beglar & Hunt (1999) with 27-items per level, and Schmitt (2000), Schmitt et al. (2001) with 30-items per level. For a timetabled historical development of the VLT, see Appendix B.

Concerning the third limitation, items per level, representation which relates to content validity is important. Even after the amendments to take the items per level from 18 to 27 and finally 30-items, the word level lists are still under-represented. Beglar and Hunt's (1999) revised 2K-word levels symbolized 1.4% of the General Service List (GSL) (West, 1953), while the UW level symbolized 3.2% of the UWL. Both these small sample sizes did not represent reliable estimates, according to Meara (1996, as cited in Beglar and Hunt, 1999). Schmitt (2000), and Schmitt et al. (2001) levels showed representations of 2K = 1.5%, 3K = 3%, 5K = 1.5%, 10K = 0.6%, AV = 5.3%. For this word list representation in table-form, see Appendix C. For two lists of the 30-items each used in the 2K levels of Version One and Two of the most recently amended VLT by Schmitt (2000) and Schmitt et al. (2001), see Appendix D.

Software Development

The software development addresses a gap in the amended VLT studies which under-represent the vocabulary at each word level. This paper will concentrate on the most recently amended VLT versions developed by Schmitt (2000), and Schmitt et al. (2001). I propose to create a practice computer-based VLT (pre-test) which will cover more words per level.

The practice computer-based VLT will use *Hot Potatoes* software to create a matching activity. This will increase representation levels, which is one way of developing content validity, and provide practice for training purposes. For this

I will select words that are from the GSL but are not utilized by Schmitt (2000) and Schmitt et al. (2001), see Appendix D.

The *Hot Potatoes* software activity I will focus on in this paper is *JMatch*. This *JMatch* activity will require learners to match words and definitions. Matching is the activity the paper and pencil versions of the VLT present, so these computer-based activities will be excellent practice. Some of the advantages of completing these activities on the computer with *Hot Potatoes* are teachers do not have to make photocopies, it is accessible to others for free, and learners can also write activities. *Hot Potatoes* software was designed by a team at the University of Victoria, Canada, to create learning materials that can be published on the Internet. Teachers and learners can create materials and publish online in a quick and straightforward manner.

Ideally I would like to present the learners with one cluster example, for example, see Appendix E. The Appendix E VLT cluster example contains GSL words that are not included in the amended VLT versions. After this I would like to give the learners a list of words to be used (GSL 2K-words not in the amended VLT versions) and the learners will create VLT practice clusters in pairs or small groups. In this way, we can get a greater representation from the GSL. For example, in a class of 30 learners with 15 pairs, each examining 6 words, we can cover 90 words from 15 clusters. With three definitions from each cluster being tested, 45 definitions will also be covered. In this first "round" of the activity we will cover more than the 30-items presented in the 2K word level of the amended VLT versions.

There are six steps involved with using *Hot Potatoes* (Heimbach, 2006). In this matching exercise we should: design, create, configure, save, convert, and save our activities. The design will be similar to the example shown in Appendix E. This example uses words from the 2,000-word GSL (West, 1953) that were

not included in the amended VLT by Schmitt (2000) and Schmitt et al. (2001).

In this paper I just isolated one word level from the VLT, the 2K word level. In the most recently amended VLT versions by Schmitt (2000), Schmitt et al. (2001), the 2K level has only 30-items per level. This is a very low representation of the available 2,000 words in the GSL. In the software development program example outlined in this paper with a class of 30 learners divided into 15 pairs, during the first "round" of activities 90 words and 45 definitions could be covered (or 45-items of VLT standard). This is only in the first "round" and already there is a 150% mark up on the 2K level of the amended VLT. This could be continued into "round" two, three, ... etc. to build up vocabulary representation. In the case of these learners, after the 2K level has been sufficiently covered we might move onto the more challenging Academic Vocabulary (AV) word level and repeat the process.

The *Hot Potatoes* software includes six applications: multiple-choice, short-answer, jumbled-sentence, crossword, matching/ordering, and gap-fill activities. In this paper only the matching activity was used. However, in the future I would like to incorporate more of these activities. *Hot Potatoes* is not freeware, rather it is free for those working in publicly-funded non-profit making educational settings. Part of the agreement insists that activities be available for all on the Web. *Hot Potatoes* Version 6 was released on August 10, 2006 and requires Version 1.4 of Java Virtual Machine. Windows 98, NT4, 2000, XP,or Mac OS X are required to run *Hot Potatoes* Version 6 (Hot Potatoes Webpage, 2006).

An excellent online resource I found which will help learners with finding definitions for these words is www.call4all.us///home/_all.php?fi=d. This has a list of 1,500 web dictionaries (Loucky, 2005). One of the ways I would like to build the learners vocabulary is by involving them in extensive reading. These

are also available online through *call4all.us*. Some provide timed reading and comprehension questions with corrections. In the future I would also like to use the *Compleat Lexical Vocab Profiler* (www.lextiutor.ca/vp/eng/) to provide online support for the learners in my writing classes. This software provides a four category analysis of a written text into the first most frequent 1,000 words, the second most frequent 1,000 words, Academic Word List (AWL) words, and off-list words (Loucky, 2005).

Conclusion

The software development outlined in this paper relates to my philosophy of TESOL in many respects. The eclectic philosophy fits in with the exploratory nature of this pilot study. After trying this with learners in a classroom, the software may be modified or completely changed to suit the needs of a particular class. Flexibility is a real key issue here. Learner autonomy and individual differences are catered for in this software development as each pair of learners can proceed at their own pace, both inside and outside the classroom. I hope the learners will also find these activities motivating as they are guided by the teacher to participate in these self-learning tasks.

Education is a life-long activity. If we as teachers can provide learners with autonomous learning opportunities to be pursued both inside and outside the classroom, especially through the use of computer technology, we are preparing them for the future where technology will play a key part of their everyday lives. As technology changes at an ever increasing pace, we owe it to our learners as well as to ourselves to try and keep abreast of technological changes and incorporate them into our curriculum.

Looking back on my philosophy of TESOL outlined at the beginning of this paper, we should try actualize, adopt, or adapt what works and discard what

does not work. Indeed, this philosophy could be followed in an EFL classroom, in our ever-changing technological society, or even within life itself.

References

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Appendix A

VLT Cluster Example, from Nation (1990, p. 264).

1. business
2. clock .. part of a house
3. horse .. animal with four legs
4. pencil .. something used for writing
5. shoe
6. wall

Appendix B

Timeline of Developments Related to the VLT.

Year	Author	Forms or Versions	Items per Level	Levels or Sublists	Development
1983	Nation	1	18	5 (with UW)	VLT published (in article)
1990	Nation	1	18	5 (with UW)	VLT published (in book)
1993	Schmitt	4	18	5 (with UW)	VLT revised & new versions
1999	Beglar & Hunt	2	27	2 (2K & UW)	VLT revised & validated
2000	Schmitt	1	30	5 (with AV)	VLT revised & validated
2001	Schmitt et al.	1	30	5 (with AV)	VLT revised & validated

Note. UW = University Word Level. 2K = 2 000-word Level. AV = Academic Vocabulary Level. Schmitt (1993), as cited in Schmitt et al. (2001).

Appendix C

Representation of Word List Levels as a Percentage

	2K	3K	5K	10K	UW/AV
Nation (1990)	0.9	1.8	0.9	0.4	2.2
Beglar & Hunt (1999)	1.4				3.2
Schmitt (2000)	1.5	3	1.5	0.6	5.3
Schmitt et al. (2001)	1.5	3	1.5	0.6	5.3

Appendix D

Example Vocabulary Items from Amended VLT. Schmitt (2000), Schmitt et al. (2001)

2K

Version 1		Version 2	
sport	climb	tip	manufacture
victory	examine	motor	elect
birth	surround	copy	melt
temperature	connect	roar	opportunity
flesh	wander	debt	dozen
salary	limit	pride	tax
education	burst	wage	difficult
scale	improve	skirt	ancient
journey	deliver	justice	holy
treasure	original	develop	stretch
charm	private	arrange	introduce
lack	total	prefer	admire
cream	usual	wine	lovely
wealth	hungry	clerk	slight
pupil	brave	noise	popular

Appendix E

Example VLT Cluster Using GSL Words Not Included in the Amended VLT

1. hide
2. spoil .. moving fast
3. root .. keep out of sight
4. clerk .. big stone building
5. speed
6. castle