

# Using a Word Knowledge Framework to Analyze Vocabulary Tests and Activities

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Vocabulary is back. Of course, it never left language classrooms, but there was a time during the audiolingual and early communicative periods where it certainly did not attract the amount of research attention one might expect for such a basic linguistic building block. However, the 1990s saw so much work being done on vocabulary that even dedicated specialists could not keep up with it all. The decade culminated with no less than four major books on the subject: *Second Language Vocabulary Acquisition* (Coady and Huckin, 1997), *Vocabulary: Description, Acquisition, and Pedagogy* (Schmitt and McCarthy, 1997), *Vocabulary: Applied Linguistic Perspectives* (Carter, 1998), and *Exploring the Second Language Mental Lexicon* (Singleton, 1999), with more on the way: e.g. *Learning Vocabulary in Another Language* (Nation, early 2001).

A key notion finally coming to the forefront in much of this work is that vocabulary is learned incrementally. Everyone already knows this, but it is amazing how little effect this insight has had on vocabulary research. Most studies set some criterion at which a word is considered known, and then proceed to make dichotomous *known/not known* judgements. In fact, most words are likely to exist in a state of partial knowledge. For example, even if a word can be pronounced and/or spelled and one meaning sense is known, the ubiquitous polysemy in English dictates that there are likely to be other meaning senses, some of which may not be known. In addition, lexical knowledge like collocation, register constraints, and intuitions of frequency are only acquired after massive exposure, and so are also unlikely to be fully mastered.

If learners (and even native speakers) are unlikely to have full mastery of most words, this implies that language professionals must develop descriptive systems that adequately capture the various states of partial knowledge. There are two main

approaches for doing this: the developmental approach and the dimensions approach (Read, 1997). The first attempts to measure how vocabulary develops over time, normally by using some type of scale. Below is a typical example:

Rate your knowledge of the target word. If you choose d), please compose a sentence using that word.

expand

- a) I don't know this word
- b) I have seen this word before but am not sure of the meaning
- c) I understand the word when I see or hear it in a sentence, but I don't know how to use it in my own speaking or writing
- d) I can use the word in a sentence

(Scarcella and Zimmerman, 1996)

As can be seen from the example, the scale attempts to measure vocabulary knowledge from a point where the word is totally unknown (a) to a point where the word is mastered, at least to the extent where it can be used in a sentential context (d). This kind of scale can give a teacher some indication of where along the acquisition continuum a word exists in a student's lexicon. In addition, it emphasizes what students know, rather than what they don't know. But scales like this have several weaknesses that need to be addressed. The first is that the students' self-judgements are not verified (although they are in other scales, see Paribakht and Wesche, 1993). Second, the scale mixes judgements of receptive and productive knowledge, which makes interpretation somewhat more difficult. Third, it is not clear in principle how many levels such a scale should have, and so the number usually has more to do with convenience than theory. Also, the increments between each stage are unlikely to be equivalent in magnitude. In short, the developmental approach can be useful in determining the partial knowledge of a word, but there are difficulties inherent in actually using the scales.

In the rest of the paper, I would like to focus on the second approach, that is, analyzing the various dimensions or components (also called types of *word knowledge*) which make up the mastery of a word. Nation (1990, p.31) presents a list of the word knowledge types that native-speakers typically possess. The assumption is made that if EFL learners aspire to native-like proficiency in the use of words, these are the kinds of word knowledge that they must acquire as well.

- 1. a word's spoken form
- 2. a word's written form
- 3. a word's part-of-speech, derivative forms, and grammatical patterns
- 4. a word's collocations
- 5. how frequently a word is used in a language
- 6. the many stylistic constraints which determine if a word is appropriate in a particular context (register)
- 7. a word's conceptual meaning(s)



## 8. a word's semantic network associations

The above list of word knowledge types can help illustrate the incremental nature of vocabulary acquisition. It is obvious that L2 learners do not initially have full control of every type of word knowledge. Their overall knowledge of a word is more likely to develop in something like the following manner. After the initial exposure, a learner may have an idea of one of the word's possible meanings, along with an impression of its form: perhaps its first letter, how many syllables it has, and a rough idea of how it sounds. As the learner repeatedly comes into contact with and uses the word, understanding of the word's form and meaning are strengthened, while other word knowledge aspects are gradually added. This may continue until the learner finally controls the collocational, frequency, and stylistic aspects. These final three kinds of word knowledge may well be the last to be controlled, since they seem to require a great deal of exposure to a language, and arguably, only a minority of L2 learners ever achieve native-like competence of these aspects.

One ramification of using this word knowledge framework is that it leads away from the *knows/doesn't know* view of vocabulary. Since learners may have good control of some kinds of word knowledge, partial control of others, and no control of yet others, any yes/no measurement is inadequate in describing their competence. Thus, it must be realized that traditional vocabulary tests are only providing a very limited measurement of overall vocabulary knowledge. This paper will suggest that a word knowledge framework can be useful for analyzing what kinds of knowledge a vocabulary test does and does not measure. Three tests will be discussed, including one which attempts to break out of meaning-based constraints, to concentrate on associations.

A word knowledge framework is also applicable to vocabulary learning activities. Unless the learner is in a rich ESL learning environment, well-designed activities are important if learners are to learn vocabulary most efficiently in a classroom situation. Teachers can use a word knowledge framework to gain a deeper understanding of the various aspects of vocabulary knowledge, and from that consider which of those aspects to focus on at what time. Once they have some priorities set in their mind, the word knowledge framework can be used to analyze vocabulary activities for which word knowledge aspects they require learners to manipulate. To illustrate this, three activities used for vocabulary learning—a word list, a word family exercise, and guessing from context—will be analyzed for what word knowledge aspects they address.

## 1. Analyzing Vocabulary Tests with a Word Knowledge Framework

Until recently, tests have attempted to capture almost exclusively the knowl-

edge of vocabulary meaning. This has been translated into yes/no scores of how many words students know, either of a small subset of words which was learned in a classroom, or of the English lexicon in general, in other words, the *breadth* of a learner's vocabulary. Recently, there have been efforts to create tests which capture more than just word meaning, in an attempt to measure the *depth* of knowledge of vocabulary words (Read, 2000). To show how the word knowledge framework can be useful for understanding vocabulary testing, let us look at three different types of test: a multiple-choice test, a fill-in-the-blank test, and a word association test.

Various forms of multiple-choice vocabulary tests are common, especially on standardized commercial tests. The items quite often look like the following example:

The writing on the page was *illegible*.

- a. hand-written in ink
- b. written in large letters
- c. difficult to read
- d. written in many colors

Note first that this is a test of receptive knowledge. As such, it gives no direct measurement of how well a learner is able to use the word productively. What is measured is the ability to recognize the written form of the target word, and once recognized, match it with a word that has a similar conceptual meaning. The items are usually written so that there are no other clues, such as grammatical clues, to help the testee guess, and so the testee must rely solely on conceptual knowledge to get the correct answer (or rely on a 25% chance of guessing!). As such, this item almost exclusively tests understanding of meaning; it gives little information about how much the learner knows about the word's grammatical, collocational, associative, or other word knowledge traits.

An example of a productive vocabulary test is the fill-in-the-blank type. As the name implies, learners must decide what the correct word is from context and write it in the provided blank.

When he saw the car coming directly at him,  
he \_\_\_\_\_ jumped out of the way.

This type of item requires a learner to be able to read the contextual clues, use the context to recall an appropriate word and write it down in its correct form. So as with the multiple-choice item above, it mainly deals with conceptual word meaning and written form, only this time productively. To a certain extent, the word's grammatical properties are also being measured, as the required word is obviously an adverb. Target words which exist in several parts of speech (like *quick*, *immediate*, or *smart*) can provide some measure of learners' control of a



word's derivational possibilities, by forcing them to choose the correct derivative form. In addition, this example potentially measures learners' knowledge of the somewhat common collocational relationship between *jump* and *quickly*. The example does not measure frequency or register knowledge, but the word *quickly* probably has associative connections with the action of jumping in general which may be tapped in answering the item.

A test designed to measure more than just meaning has been developed by Read (1998). His Word Associates Test focuses on word associations as opposed to word meaning. In the following example item, learners are required to circle the words which are somehow related to the target word.

### Sudden

beautiful quick surprising thirsty	change doctor noise school
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In this test format, the target word is followed by eight options, four of which have some relationship with the target word and four which don't. The words in the left box have a paradigmatic relationship (sudden-quick, surprising) with the target word, and the ones in the right box have a syntagmatic relationship (sudden change, sudden noise). Learners are told there are four associates and are asked to find them. The assumption is that learners who know a word well will have developed native-like associations for that word; this test attempts to measure those associations. As such, it can address the various connections a word has with other words. These connections can be hierarchal or collocational in nature, or the connected words can be synonyms, antonyms, or members of the same group or category. Since this test has the possibility of measuring all these kinds of connections, it holds the promise of providing a much broader picture about what a learner knows about a word. Of course, it is also testing meaning because it would be almost impossible to match the associations correctly without knowing the meaning. As with all receptive written test formats, it also measures recognition of written word form. The test does not address grammatical knowledge, since associations cross over grammatical boundaries, nor does it address frequency or stylistic constraints. The upshot is that different vocabulary test formats capture different things, and the analysis of those tests from a word knowledge perspective can give teachers a clearer idea of what each format is actually measuring.

## 2. Analyzing Vocabulary Activities with a Word Knowledge Framework

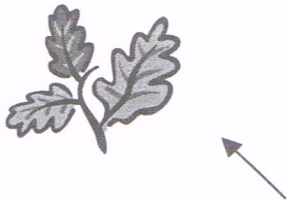
Just as the word knowledge framework can be used to analyze what various vocabulary tests measure, it can also be used to evaluate what forms of word knowl-

edge vocabulary activities address.

Word lists are often used to learn vocabulary. But what can be learned from a word in a word list setting? To illustrate the answer, look at the following examples in which words you may not know are presented (in order to simulate L2 learning). What different kinds of word knowledge can be derived from the various ways of defining the word?

1. *mien* – a person's bearing or look (Oxford Reference Dictionary, 1986)

2. *petiole* –



3. *bread* – pan [Spanish translation]

Assuming you did not previously know the word *mien*, you probably were able to learn various things from the L2 definition. The first obvious thing is that the written form is presented. The definition gives a rough indication of the conceptual meaning. You may have guessed that *mien* is a noun from the part of speech of the definition. If you had any L2 associations for *a person's bearing* you may have transferred them onto the new word *mien*. But it is difficult to see how this definition can advance any of the other aspects of word knowledge. If a learner is studying by himself, then there is no chance to hear the word, other than by listening to his own approximation of it. Definitions do not reliably give collocations, since definitions are usually given with more frequent vocabulary items which may have very different collocation patterns. Normal definitions are also unlikely to give much indication of a word's stylistic constraints or its frequency of use.

The situation remains largely the same if an L2 word is defined with a picture, such as *petiole* above. Again, there is no explicit grammatical information, although pictures are likely to be used with illustratable objects or actions, which are usually transparent as nouns or verbs. The picture should illustrate the conceptual meaning, but apart from having the written form given, there is no other information. Note, however, that in cases involving physical objects, pictures may provide a better illustration of meaning than quite a long definition.

The situation changes when an L1 translation is given, such as in *bread* above. Potentially all of the word knowledge information that learners have about the L1 word can be transferred over to the new L2 word. This is a double-edged sword, however, as some of the information transferred to the new L2 word may be inappropriate. So L1 translations may not be the best activity when the two translation equivalents behave quite differently in the two languages. Even if this is the



case, they may be very useful as an initial introduction to new words. Despite their limitations, word lists can allow learners to meet many new words in a time-efficient manner. However, these first meetings need to be backed up with subsequent activities elaborating on the words' traits. Unfortunately, many (most?) teachers do not follow up on previous vocabulary learning. In many ways, word lists have become unfashionable because teachers have not considered how they can be incorporated into larger, recursive vocabulary learning programs.

The following word-family exercises (Allen, 1983) focus on different kinds of word knowledge. It requires learners to choose from three members of the same word family with different parts-of-speech in order to complete the sentence.

Their new helper is very \_\_\_\_\_.  
(depend, dependable, dependably)

He has completed the work \_\_\_\_\_.  
(satisfaction, satisfactory, satisfactorily)

This activity stresses knowledge of derivatives in building up vocabulary. It also focuses attention on the differences in written form between the words, since they are very similar, and one or two letters can make all the difference (as between *satisfactory* and *satisfactorily*). It also addresses collocations, since different members of the word-family will collocate with different words from different parts of speech. It does not really address meaning, since the three words have essentially the same meaning in different part-of-speech contexts, and so the learner does not really have to know what that meaning is in order to answer the questions. Likewise, the exercise requires no manipulation of frequency or associative knowledge.

When analyzing whether this type of exercise is useful or not, one must compare the types of word knowledge addressed against the teaching goals. If meaning is primary, this type of exercise is not particularly useful. However, if a teacher is emphasizing derivative members of word families, then this exercise format might be very appropriate for highlighting and manipulating this lexical aspect. In the end, it is probably best not to evaluate vocabulary exercise types as good or bad; rather it is better to evaluate them as being better or worse for particular teaching purposes.

Guessing from context has been suggested as a good way to learn unknown words when reading (Nation, 1990). Since the words appear in full context, many more of the word knowledge types can be involved in the guessing process. Consider the italicized words in the following passage.

Mrs. Jones was extremely tired as she *trudged* into the hotel lobby with her two heavy suitcases. Deciding not to wait for her husband, who was still outside paying the taxi, she went directly to the reception desk and asked for a double room. The *receptionist* asked, "Is the *gentleman* at the front door your husband? He seems

to be trying to get your attention.”

The reader may not have known the word *trudged* in the text. But from the context *tired* and *heavy suitcases*, one could probably guess its meaning as something close to *tired walking*. Its place in the sentence would indicate it is a verb. Although it is impossible to know whether the words surrounding it are frequent collocates, they are at least the first examples which can be compared with later. Likewise, if the text is authentic, the learner may be able to get a first feeling for how frequently a word appears in that kind of discourse style. Similarly, there may be hints which give information on its stylistic constraints. In the above example, hotel receptionists usually use polite formal language when addressing guests, so this is an indication that *gentleman* is more formal than *man* or *fellow*. If a learner is able to recognize the similar word forms of *reception* and *receptionist*, then that, combined with the derivational knowledge that *-ist* often refers to a person who does a particular thing, can help lead to a correct guess of meaning. The learner may also form some associations from the relationship of the unknown word and the overall drift of the passage. It is also possible that learners may try the strategy of sounding out an unknown word to see if they know it in its spoken form. So potentially all forms of word knowledge can be used in the guessing process, although it is unlikely that there will clues present to utilize every type of word knowledge.

It is important to note that exercises which only focus on a limited number of types of word knowledge are not necessarily inappropriate. Indeed, as I suggested above, word lists can be a very effective way to introduce new words, as long as they are elaborated on later (Meara, 1995; Nation, 1990; Schmitt and Schmitt, 1995). To avoid boredom and to provide a wide range of exposure, this later elaborative recycling should include several different kinds of activities. Teachers can utilize a word knowledge framework to help provide this diversity, by analyzing the main focuses of different vocabulary activities.

### 3. Conclusion

The fact that vocabulary learning is a process that occurs incrementally requires teachers to adapt programs to this fact. Vocabulary needs many exposures to be adequately learned, and so teachers need to incorporate a recursive vocabulary element into their language programs. In addition, most of the words which a learner ‘knows’ will only be partially mastered. Initially, this partial knowledge will probably include not much more than some idea about a word’s written or spoken form and a single meaning sense. But there is more to knowing a word than this, and it is time for teachers to help their students develop an awareness of the other kinds of word knowledge necessary for adequate control of vocabulary. One



step towards this goal is to create tests and exercises which better address the various word knowledge types. The word knowledge list gives teachers and researchers a framework from which they can make conscious decisions about the types of word knowledge they want to develop. It also gives them a tool for analyzing teaching activities in order to judge the suitability of activities for particular purposes. Likewise, when they want to evaluate the learning of those kinds of word knowledge, they can use this framework to understand more precisely what their vocabulary tests are really measuring. In sum, a word knowledge perspective has the potential to enrich the whole vocabulary learning process.

## Note

For more information on how one author has used the word knowledge perspective in vocabulary research, see Schmitt and Meara (1997), Schmitt (1998), Schmitt (1999), and Schmitt (2000). For an example of how the word knowledge perspective has been used to inform pedagogy in the form of vocabulary notebooks, see Schmitt and Schmitt (1995).

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