

## Measuring L2 Receptive and Productive Vocabulary Knowledge

Virginie Pignot-Shahov

What does it mean to know a word? Most learners and teachers would agree that knowing a word is being able to recognise it (receptive knowledge) and to use it correctly (productive knowledge). This paper reviews the notion of receptive and productive knowledge, also referred to as passive or active knowledge. Despite their importance to our understanding of lexical development, these two components of vocabulary knowledge have been assigned different degrees of significance by researchers. The reasons for such ambiguity and the relevance of these two notions to vocabulary learning are discussed below, with a description of the tests that have been designed and used to measure productive/receptive knowledge and of their possible impact on teaching.

### 1. Introduction

Up to the 1980s, grammar was the central study area for second language acquisition research. However, in the last three decades, vocabulary has become a major focus of linguistic works or, to quote Meara, “has mushroomed enormously” (Meara 1995: 11), even being at the heart of theories such as the Lexical Learning Hypothesis according to which “vocabulary knowledge is indispensable to acquire grammar” (Malvern et al. 2008: 270).

But despite this increased emphasis on vocabulary, the seemingly easy question “what does it mean to know a word?” can still not be answered either simply or unanimously. But why is it so when most foreign language learners would say, based on their learning experience, that knowing a word means being able to recognise its spoken and its written form as well as its meaning (Nation 2010: 47). Why is this definition insufficient? Firstly, because it implies that form and meaning are separate aspects of vocabulary knowledge. Secondly, this definition fails to refer to all the other aspects of vocabulary knowledge. Word knowledge involves more than just the link between meaning and form (Laufer et al. 2004), it is, indeed, multifaceted. The miscellaneous nature of word knowledge is the first obstacle to defining it easily and it is impossible to test all the different knowledge facets of a word at the same time. At present, there are no accepted tests that could measure every aspect of word knowledge; there are, however, a small number of well-established tests investigating and providing data for some aspects of word knowledge which will be discussed in greater detail below.

Alongside form and meaning, there is a further distinction between receptive (passive) and productive (active) knowledge that is used by researchers (Milton 2009) when investigating vocabulary learning. I shall evaluate the place and the importance of these two facets in vocabulary knowledge research. Does receptive and productive mean the same across research? Why is receptive and productive knowledge useful in understanding the L2 vocabulary learning process? Is receptive and productive word knowledge a viable knowledge division for future vocabulary research?

Here the focus is on receptive and productive *knowledge* rather than *learning*, the latter having attracted fewer studies. In fact, according to Bogaars and Laufer-Dvorkin (2004: 80) “there are only five experimental studies comparing receptive and productive L2 word

learning, Schuyten (1906), Stoddard (1929), Griffin and Harley (1996), Waring (1997), Schneider, Healy and Bourne (2002)".

## **2. The difficulty in defining the receptive and productive dimension**

### **2.1. Receptive and productive mastery in lexical knowledge taxonomies**

Let us first investigate what receptive and productive knowledge means. Productive knowledge is usually associated with speaking and writing while receptive knowledge is associated with listening and reading (Laufer & Goldstein 2004). As simple as the distinction might seem at first, it is more complicated when we consider that "good passive skills often require the reader or the listener to actively anticipate the words that will occur" (Milton 2009: 13). In other words, while listening and reading, the learner also displays productive knowledge. Furthermore, different researchers have proposed different taxonomies of lexical knowledge. In describing these taxonomies the same terms have been used by researchers for different processes or subprocesses, which in turn means that it is difficult to define terms such as receptive and productive knowledge.

For Nation, word knowledge includes: knowledge of form, knowledge of meaning and knowledge of use. He then subdivides each of these three categories into three subcategories. For instance, the knowledge of form is further divided into spoken, written and word parts. Nation maps receptive and productive distinctions to the nine subdivisions, so that the form/spoken/receptive division aims at answering the question "What does the word sound like?" and the form/spoken/productive division investigates "How is a word pronounced?" (Nation 2001: 17).

For Henriksen (1999), lexical knowledge is categorised in three components: partial to precise knowledge, shallow to deep knowledge, and receptive to productive knowledge. Her three-dimension representation of lexical knowledge was a bridge between Meara's (1996) two dimensions lexical organisation (size and organisation) and a lexical knowledge description. It was an attempt to develop a unified lexical knowledge structure that could be universally accepted.

An additional component of word knowledge, known as *automaticity* or *fluency* (Laufer & Goldstein 2004: 401) has been suggested. Schmitt (2010) refers to fluency as the adequate recognition/comprehension speed when reading or listening and the adequate retrieval/production speed when speaking or writing. But apart from a few studies, fluency has not been extensively researched. We do not know yet the link it has with other lexical knowledge parts or how to facilitate its progress.

### **2.2. Receptive and productive knowledge: continuum or opposite poles?**

Another issue which has divided researchers about the receptive and productive notion is that there is "no consensus as to whether this distinction is dichotomous or whether it constitutes a continuum" (Laufer & Goldstein 2004: 405). For some, like Melka Teichroew (1982), receptive and productive knowledge are placed on a continuum. According to this theory, receptive knowledge gradually moves towards productive mastery as a result of the learner learning more about the lexical items. This gradual cline from passive to active has been widely accepted by Faerch et al. (1984), Tréville (1988) and Palmberg (1987; cited in Meara 1997), but the threshold at which receptive knowledge becomes productive is not clear (Laufer & Goldstein 2004; Schmitt 2010). For Meara (1997), on the other hand, the two types of knowledge represent different types of associational knowledge and therefore cannot be a continuum. He proposes a lexical organisation in which productively-known words are connected to a productive item, whereas receptively-known words are not connected to any words in the lexicon. There is no natural progression from a receptive to a productive state in

this view and it has links with connectionism and “measurement of the strength of productive mastery would presumably require determining the relative number of links to other member in the lexicon” (Schmitt 2010: 82).

Whether researchers adhere to a bi- or multi-dimensional representation of word knowledge and whether they view receptive and productive knowledge as a continuum or as two separate poles, they all accept the receptive and productive dimension. However, the fact remains that, frustratingly, there is still no unanimous definition for ‘receptive’ and ‘productive’. Let us now turn to empirical receptive and productive testing and results, to see if more concrete and accepted facts have emerged.

### **3. Measuring depth of vocabulary**

#### **3.1. Why is it important?**

Measuring vocabulary usually means testing how big a learner’s vocabulary size is and how well he or she knows a word. As we will see, vocabulary size is more often tested and can give more accepted conclusions than testing lexical knowledge. But why is it important to test vocabulary at all?

First of all, vocabulary tests aim at validating theories and models of the mental lexicon. For instance, test results which show that L2 learners store the base form of a word and its regular derivations and inflections support lexically driven theories according to which grammar acquisition is prompted by word learning. Secondly, measurement results can provide valuable information for teachers, learners and assessment bodies because knowing how words are stored and learned helps to improve language course content, delivery and assessment. For instance, Meara (1996: 37) notes that “learners with big vocabularies are more proficient in a wide range of language skills than learners with smaller vocabularies”. The recurrent idea that L2 learners need to learn many words – as many as 10,000 – to be fluent, has certainly been taken on board by EFL courses as they introduce and revisit a vast lexis on many different topics and over regular intervals. On the other hand, “a feature of UK modern foreign language books is the way they lack this huge variety of thematic coverage, as well as presenting rather less vocabulary” (Milton 2009: 249). Vocabulary tests results and theories might not always influence vocabulary teaching right away but they remain essential to develop further our understanding of language learning processes.

#### **3.2. The developmental approach vs. the components approach**

Measuring the depth of vocabulary, or measuring how well a word is known, is a trickier task than measuring how many words a learner knows. Indeed, the kind of tests used to measure the depth will depend on whether the researcher takes a developmental approach to vocabulary learning process or a dimensions approach. These tests are productive by nature and include a variety of productive tasks such as translating, producing free speech or writing (Nation 2010).

Based on the incremental nature of vocabulary learning, the developmental approach views vocabulary learning as a continuum. However, designing tests to validate the depth of vocabulary following this approach is not easy as we still do not know how words are learned. How many stages of learning might there be? What amount of time or knowledge is necessary to move from one stage to the other? Are the stages all equal in the development of lexical knowledge? Unable to answer these questions yet, current scales are designed and tested based on L2 learners’ knowledge. Here are some of the most common scales.

The Vocabulary Knowledge Scale (VKS) is the most well-known of such tests and “was designed to capture initial stages in word learning that are amenable to accurate self-report or demonstration through the use of a five-category Elicitation Scale that provides information

for scoring using a five-Scoring scale. But the VKS has its flaws: a lack of ‘unidimensional representation’ of lexical knowledge. Schmitt (2010: 222) simplifies the testing from five to four scales and “examinees self-evaluate what they can do with their language proficiency rather than providing metalinguistic judgments of what they know”; he also recognises, however, that “no current scale gives a full account of the incremental path of mastery of a lexical item, and perhaps acquisition is too complex to be so described” (p. 224).

Instead of using a vocabulary development scale, some vocabulary tests based on the ‘dimensions approach’ seek to catalogue and test word knowledge items. As we have previously seen, lexical knowledge can be made up of different elements such as spelling, register, collocation etc. Anyone embarking on testing depth must first understand that the multilayers of word knowledge cannot be tested at the same time. Nevertheless, Schmitt believes that these productive and passive depth tests are useful in understanding the relationship between each component even if they have to be tested separately. Testing components might “lead to a better understanding of the movement of vocabulary from receptive to productive mastery” (Schmitt 2010: 225) and to get closer to an answer of whether receptive and productive are a continuum or not.

### 3.3. What do studies on vocabulary depth tell us?

For some researchers, such as Schmitt (2010), it is important to develop the use of depth tests, sometimes in connection with breadth tests to try to understand the lexical learning process more and therefore help both students and teachers to acquire vocabulary in the most efficient way. Others researchers, however, seriously question the usefulness of depth. It “may be modified if it is to remain useful as a dimension at all, since nothing keeps the elements comprising it together terribly persuasively and it does not seem to function entirely separately from breadth” (Milton 2009: 169). Concretely however, there are some encouraging conclusions that have been drawn from depth tests.

First of all, it seems that some knowledge components can only emerge once the lexicon has reached a substantial size of single words. This is the case for instance for idiom knowledge and collocation knowledge, which have been observed in highly advanced foreign language learners. Furthermore, the evidence suggests that “learners will develop in their foreign language whatever type of association they favour in their L1 and this may not be paradigmatic” (Milton 2009: 169). These conclusions are very valuable for language course book designs and language assessments; however, they are still not enough to bring everyone around an accepted description of vocabulary learning.

With the emergence of fluency or automaticity, another path to lexical knowledge understanding might be the use of new psycholinguistics techniques. Admittedly, “many of these techniques are relatively new to mainstream vocabulary research, but have very great potential in the hands of innovative researchers” (Schmitt 2010: 106). The conclusion that can be drawn so far is that receptive and productive knowledge have a primordial place in lexical knowledge testing and understanding but a clearer idea of the dynamics between the two and their unanimous use in tests would be more than useful.

## 4. Measuring breadth of vocabulary

The notion of ‘vocabulary breadth’ refers to the number of words a person knows. The advantage of this term is that receptive and productive knowledge can be mapped onto it. When designing breadth tests, researchers must first decide what lexical item to use as a measuring unit. As Schmitt (2010: 188) notes, “different ways of counting lexical items will lead to vastly different results, and a persistent problem in lexical studies is that size figures are reported, but without a clear indication of how they were derived”. Tokens, types, lemmas and word families are the most commonly used lexical items in breadth tests. Tokens

or running words correspond to the number of words in a spoken or written text; types are used to answer questions such as “How many words are needed to read this book? How many words does this dictionary contain?” (Nation 2010: 7).

A lemma, on the other hand, “consists of a headword and some of its inflected and reduced forms” (Nation 2010: 7). It is based on the psycholinguistic finding that the mind stores the base form of the word. The difficulty with lemmas arises with irregular forms of a headword such as *bring/brought*. Should they be counted as separate lemmas or not? This point is still under discussion. As Nation (2010) points out, when lemmas are used as a measuring unit, the number of units in a corpus can reduce greatly: for instance, the 61,805 types in the Brown Corpus were reduced by almost 40% to 37,617 lemmas.

Word families are another unit of vocabulary measurement. They are similar to lemmas but include all words related to the headword regardless of their word class. Therefore, *teach*, *taught*, *teaches*, but also *teacher* or *teachable*, belong to the same word family. The choice of the unit is down to the researcher and the aim of the research itself. However, according to Schmitt (2010), lemmas tend to be a better unit than word families, tokens or types because lemmas seem quite straightforward and a useful unit for counting both productive and receptive items therefore allowing the research to compare the two types of vocabulary.

#### 4.1. The importance of the frequency factor

Given the understanding that many languages contain more than a million words, it is fair to say that native or non-native speakers will never learn all the words that make up the richness of their language. According to Goulden et al. (1990: 341), “well-educated adult native speakers of English have a vocabulary of around 17,000 base words” and it is widely accepted that the frequency factor plays a key role in receptive and productive vocabulary knowledge. Indeed, Palmer noted that “the more frequently used words will be the more easily learnt” (1917: 123). Words that are frequent in a language are learnt first because they are encountered more often and each encounter leaves a trace which makes them easier to retrieve.

High-frequency words tend to be shorter, just a few syllables long and are not semantically restrained like words with a lower frequency. That is to say, they can be used in a variety of contexts because there is no connotation or collocation attached to them. Low-frequency words, on the other hand, are words which do not recur often in the language. They are usually proper nouns, technical words for subject areas and make up around 5% of an academic text (Nation 2010). High-frequency lists have been created in various languages, but most of all in English, ranking the first 1,000 most frequent words, the first 2,000, and so on; those “in the first band occur, on average, about 800 times in the corpus, words in the second band 74 times and words in the fifth band only 20 times on average” (Milton 2009: 24). Nation (2010: 15) concludes that “counting the 2,000 most frequent words of English as the high-frequency words is still the best decision for learners going on to academic study”, as those 2,000 words are enough to cover 80% of a text. The frequency hypothesis, i.e. the idea that the most frequent words are learned before the less frequent words, has been tested and verified in various studies. These studies used yes/no tests designed to evaluate the receptive or passive vocabulary knowledge which I will study in more detail later.

#### 4.2. Choice of test

There are two main methods to measure vocabulary size: “one is based on a sampling from a dictionary and the other is based on a corpus or a frequency list derived from a corpus” (Nation 2010: 363). For the first method, a sample of words is extracted from a dictionary and learners are tested on these words. Corpus-based studies, on the other hand, are drawn on language use and are useful to identify and test high frequency words; this type of test has been extensively used for non-native speakers whose proficiency is limited. Among the many

studies carried out to measure the receptive vocabulary of learners, the focus here will be on recognition/receptive vocabulary size tests.

The Vocabulary Levels Test (VLT) focuses on testing the first four frequency levels using a form-recognition matching format with each cluster containing three stems and six clusters as we can see below. For Schmitt (2010: 198) it “is not really designed to provide an estimate of a person’s overall vocabulary size [...] the test is better used to supply a profile of learner’s vocabulary, which is particularly useful for placement and diagnostic purposes”.

The Vocabulary Size Test (VST) adopts a meaning-recognition format that aims to test the learner’s overall vocabulary size. It is broken into 1,000 frequency bands, from the first 1,000 band to the thirteenth.

Yes/no tests, developed by Meara and his colleagues are meaning-recall tests for which examinees tick words they think they know. One of the issues is the notion of “knowing a word” which is not easy to explain, even though demonstration of knowledge is not required for the test. If the examinee is tempted to ‘check’ words that he or she does not know, non-words are added to the test. If examinees check more than 10% of nonwords, these are usually removed from the study (Schmitt 2010).

X-Lex and Y-Lex are tests that assess the vocabulary size of learners at each 1K band, up the 10,000 frequency band for Y-Lex. AuralLex (Milton 2009) is the equivalent of the X-Lex, with words tested not orthographically but phonologically, thus allowing researchers to draw parallels between these two different types of word knowledge.

The Computer Adaptive Test of Size and Strength (CATSS), developed by Laufer and Goldstein (2004), is a computerised vocabulary test that aims to test both breadth and depth of vocabulary. It is based on the assumption that there are four hierarchic degrees of knowledge based on two dichotomous distinctions: “supplying the form for a given meaning versus supplying the meaning for a given form and being able to recall versus only being able to recognise (whether form or meaning)” (Laufer & Goldstein 2004: 406). These four degrees of word knowledge are tested by active recall, passive recall, active recognition and passive recognition. CATSS overcomes the unanswered problem of whether receptive and productive knowledge is a continuum or is dichotomous.

Valuable insights have been gained from recognition/receptive tests. First of all, it is possible to estimate learners’ vocabulary size. Secondly, it is possible to predict the amount of vocabulary learned across a course of instruction and also to compare the number of words learned at the same level but in different countries. For instance, when comparing the vocabulary growth of foreign language learners in the UK to other countries, the UK came under criticism because L2 vocabulary for UK students is slower than in other countries (cf. Milton 2009).

The combination of receptive/recognition tests also allows researchers to draw parallels between different types of word knowledge for receptive vocabulary. This is the case for X-Lex and Aural-Lex, which measure receptive vocabulary on a phonological and orthographic level. An early finding of these combined tests is that “all groups of learners investigated thus far appear to favour phonological vocabulary knowledge at the outset of learning” (Milton 2009: 103). But does this mean that students who have larger phonological knowledge will be better in aural exams and worse in written exams? Will it be the opposite for those learners with larger orthographic vocabulary knowledge? Further studies need to be carried out in order to address these questions.

Another weakness of these methods is that “vocabulary breadth, the knowledge of word form and how many of these word forms are known is a relatively unified dimension of knowledge” (Milton 2009: 116). Tests like CATSS confirm that the passive vocabulary is larger than active vocabulary and that there is a difficulty hierarchy between the two: “if active knowledge is more difficult to achieve than passive knowledge, and if recall is more difficult than recognition, then the most advanced degree of knowledge is reflected in active

recall and the least advanced knowledge is passive recognition” (Laufer & Goldstein 2004: 408).

## 5. Conclusion

Defining receptive and productive knowledge from a pedagogical point of view seems easy enough. In that case, receptive knowledge is being able to understand a word in its spoken or written form and productive knowledge means to be able to use a word correctly in a written work or a speech.

As discussed here, however, the form-meaning aspect of word knowledge is only the tip of the iceberg. Lexical knowledge is multi-faceted and the relation between these facets and their effect on lexical knowledge is still unclear and certainly very complex. For some researchers, lexical knowledge follows a developmental pattern, whereas for others it relies on dimensions theory according to which word knowledge is made up of different components. Whichever theories we adhere to, receptive and productive knowledge is unanimously recognised and used for testing vocabulary. Their place in a testing model is sometimes different: Laufer and Goldstein (2004), for example, see active (productive) and passive (receptive) retrieval as one of the two taxonomies making up the four degrees of vocabulary knowledge. For Nation (2010), on the other hand, receptive and productive knowledge are mapped onto word knowledge components.

Despite no consentaneous definition or way of using receptive and productive, some conclusions about receptive and productive knowledge have been drawn. First, it is generally believed that learners develop receptive vocabulary before productive vocabulary. The transfer from one type of knowledge to the other is not clear, yet it has been observed that to develop the productive knowledge essential for effective communication a large receptive vocabulary, probably made of thousands of words, needs to be in place (Milton 2009). Finally, it seems that to learn a word productively it is better to teach it productively and same goes for receptive knowledge.

## Bibliography

- Bachman, L. (2000). Modern language testing at the turn of the century: assuring that what we count counts. *Language Testing* 17, 1-42.
- Bogaars, P., & Laufer-Dvorkin, B. (2004). *Vocabulary in a Second Language*. Amsterdam: John Benjamins.
- Broady, E. (2010). Fragmentation and consolidation: recent articles on vocabulary acquisition. *Language Learning Journal* 36, 259-265.
- Daller, H, Milton, J., & Treffers-Daller, J. (2007). *Modelling and Assessing Vocabulary Knowledge*. Cambridge: Cambridge University Press.
- Edwards, R., & Collins, L. (2011). Lexical frequency profiles and Zipf's Law. *Language Learning* 61, 1-30.
- Ellis, R. (2004). The definition and measurement of L2 explicit knowledge. *Language Learning* 5, 227-275.
- Faerch, C., Haastруп, K., & Phillipson, R. (1984). *Learner Language and Language Learning*. Clevedon: Multilingual Matters.
- Goulden, R., Nation, P., & Read, J. (1990). How large can a receptive vocabulary be? *Applied Linguistics* 11, 341-362.
- Griffin, G., & Harley T.A. (1996). List of learning of second language vocabulary. *Applied Psycholinguistics* 17, 443-460.
- Henriksen, B. (1999). Three dimensions of vocabulary development. *Studies in Second Language Acquisition* 21, 303-317.
- Laufer, B. (1998). The development of passive and active vocabulary in a second language: same or different? *Applied Linguistics* 19, 255-271.
- Laufer, B. (2005). Lexical frequency profiles: from Monte Carlo to the real world. A response to Meara. *Applied Linguistics* 26, 582-588.
- Laufer, B., & Goldstein, Z. (2004). Testing vocabulary knowledge: size, strength, and computer adaptiveness. *Language Learning* 54, 399-436.

- Laufer, B., & Nation, P. (1995). Vocabulary size and use: lexical richness in L2 written production. *Applied Linguistics* 16, 307-322.
- Laufer, B., & Paribakht, T. (1998). The relationship between passive and active vocabularies: effects of language learning context. *Language Learning* 48, 365-391.
- Laufer, B., Elder, C., Hill, K., & Congdon, P. (2004). Size and strength: do we need both to measure vocabulary knowledge? *Language Testing* 21, 202-226.
- Laufer, B., & Goldstein, Z. (2004). Testing vocabulary knowledge: size, strength and computer adaptiveness. *Language Learning* 54, 399-436.
- Malvern, D., Richards, B., Meara, P., & Milton, J. (2008). Introduction: special issue on knowledge and use of the lexicon in French as a second language. *French Language Studies* 18, 269-276.
- Melka Teichroew, F.J. (1982). Receptive vs. productive vocabulary: a survey. *Interlanguage Studies Bulletin* 6, 5-33.
- Melka Teichroew, F.J. (1991). Les notions de réception et de production dans le domaine lexical et sémantique: étude exploratoire. *The Modern Language Journal* 75, 237-238.
- Meara, P. (1990). A note on passive vocabulary. *Second Language Research* 6, 150-154.
- Meara, P. (1995). Single subject studies of lexical acquisition. *Second Language Research* 11, i-iii.
- Meara, P. (1996). The dimensions of lexical competence. In Brown, G., Malmkjær, K., Williams, J. (eds) *Performance and Competence in Second Language Acquisition*. Cambridge: Cambridge University Press, 35-52.
- Meara, P. (1997). Towards a new approach to modelling vocabulary acquisition. In Schmitt, N., & Mc Carthy, M. (eds) *Vocabulary: Description, Acquisition and Pedagogy*. Cambridge: Cambridge University Press, 109-121.
- Meara, P., & Fitzpatrick, T. (2000). Lex30: an improved method of assessing productive vocabulary in an L2. *System* 28, 19-30.
- Milton, J. (2004). Testing your students' vocabulary size and what this can tell us. Puebla, Mexico: ANUPI. Available at <[http://www.anupi.org.mx/PDF/04007\\_JamesMilton.pdf](http://www.anupi.org.mx/PDF/04007_JamesMilton.pdf)>.
- Milton, J. (2009). *Measuring Second Language Vocabulary Acquisition*. Clevedon: Multilingual Matters.
- Nation, I.S.P. (2006). How large is a vocabulary needed for reading and listening? *The Canadian Modern Language Review - La Revue canadienne des langues vivantes* 63, 59-82.
- Nation, I.S.P. (2010). *Learning Vocabulary in Another Language*. Cambridge: Cambridge University Press.
- Palmberg, R. (1987). Patterns of vocabulary development in foreign language learners. *Studies in Second Language Acquisition* 9, 201-220.
- Palmer, H.E (1917). *The Scientific Study and Teaching of Languages*. London: Harrap.
- Read, J. (2000). *Assessing Vocabulary*. Cambridge: Cambridge University Press.
- Read, J., & Chapelle, C.A. (2001). A framework for second language vocabulary assessment. *Language Testing* 18, 1-32.
- Richards, B., Malvern, D., & Graham, S. (2008). Word frequency and trends in the development of French vocabulary in lower-intermediate students during Year 12 in English schools. *Language Learning Journal* 36, 199-213.
- Schmitt, N. (1998). Tracking the incremental acquisition of second language vocabulary: a longitudinal study. *Language Learning* 48, 281-317.
- Schmitt, N. (2010). *Researching Vocabulary. A Vocabulary Research Manual*. Basingstoke: Palgrave Macmillan.
- Schmitt, N., & Meara, P. (1997). Researching vocabulary through a word knowledge framework: word associations and verbal suffixes. *Studies in Second Language Acquisition* 20, 17-36.
- Schmitt, N., Schmitt, D., & Clapham, P. (2001). Developing and exploring the behaviour of new versions of the Vocabulary Levels Test. *Language Testing* 18, 55-88.
- Schneider, V.I, Healy, A.F, & Bourne, L.E (2002). What is learned under difficult conditions is hard to forget: contextual interference effects in foreign vocabulary acquisition, retention and transfer. *Journal of Memory and Language* 46, 419-440.
- Schuyten, M.C. (1906). Experimentelles zum Studium der gebräuchlichsten Methoden im fremdsprachlichen Unterricht. *Experimentelle Pädagogik* 3, 199-210.
- Stoddard, G.D. (1929). An experiment in verbal learning. *Journal of Educational Psychology* 20, 452-457.
- Tréville, M.C. (1988). Faut-il enseigner le vocabulaire dans la langue seconde? In Leblanc, R., Compain, R., Duquette, L., & Séguin, H. (eds) *L'enseignement des langues secondes aux adultes: recherches et pratiques*. Ottawa: Presses de l'Université d'Ottawa.
- Van Gelderen, A., Oostdam, O., & Van Schooten, E. (2011). Does foreign language writing benefit from increased lexical fluency? Evidence from a classroom experiment. *Language Learning* 61, 281-321.
- Vidal, K. (2011). A comparison of the effects of reading and listening on incidental vocabulary acquisition. *Language Learning* 61, 219-258.
- Waring, R. (1997). A study of receptive and productive vocabulary learning from word cards. *Studies in Foreign Languages and Literature* 21, 94-114 (Notre Dame Seishin University).



Webb, S. (2005). Receptive and productive vocabulary learning: the effects of reading and writing on word knowledge. *Studies in Second Language Acquisition* 27, 33-52.

---

Virginie Pignot-Shahov is a Teaching Fellow in French at the University of Southampton, where she is also a part-time research student in the Modern Language Department. Prior to this, she taught French and Spanish at Alton Sixth form College for six years and French at IWLP at the University of Reading. Her main research focus is post A-level French vocabulary learning. Email: [V.Pignot-Shahov@soton.ac.uk](mailto:V.Pignot-Shahov@soton.ac.uk).