Vocabulary notebooks: theoretical underpinnings and practical suggestions

Norbert Schmitt and Diane Schmitt

In spite of the recent surge of interest in many aspects of vocabulary learning, little has been written about what constitutes a good vocabulary notebook. This article attempts to address this perceived gap by first deriving eleven principles from language memory and language research which can serve as a guide in the creation of a pedagogically-sound notebook. Drawing from these principles, a design for vocabulary notebooks is presented which emphasizes the incremental learning of vocabulary, and different aspects of word knowledge. Suggestions are then made for integrating this kind of notebook into classroom activities. A sample schedule is provided to illustrate how notebooks can be introduced into a class.

Introduction

In recent years, proponents of learner-based teaching have promoted the idea of giving their students the tools and strategies to learn independently (O’Malley and Chamot 1990, Oxford 1990). In terms of vocabulary learning, one way of achieving this is to have them keep vocabulary notebooks. These do not replace other forms of vocabulary learning, such as extensive reading, learning implicitly through task work, or explicit classroom vocabulary exercises, so much as supplement them by focusing on a limited subset of words. The use of vocabulary notebooks is widely advocated (Allen 1983: 50, Gairns and Redman 1986: 95–100, McCarthy 1990: 127–9), but many teachers are unsure how best to advise students on setting up well-organized and pedagogically-sound notebooks of their own. This article aims to give teachers practical advice on this matter, by highlighting findings from memory and language research, suggesting how these can be applied to the design of a sound vocabulary notebook, and showing how this component can be added to a course.

Memory and vocabulary acquisition

The following eleven principles need to be considered when designing any vocabulary programme. Most come from general memory research (reviewed by Baddeley 1990), while others have been developed by language researchers.

1 The best way to remember new words is to incorporate them into language that is already known

According to Baddeley, (ibid.: 145) the principle of incorporating new knowledge into old is so widely accepted as a basic requirement of
learning, that learning itself can in some respects be considered a ‘problem-solving exercise in which one attempts to find the best way of mapping new learning onto old’ (ibid.: 198). Old-established words are part of a rich network of interwoven associations. If new words can be integrated into this network, those associations can facilitate their recall. Conversely, a word which has not yet been integrated will have only its individual features to aid the student in its retrieval. (For more on this, see Stoller and Grabe 1993: 33–6.)

2 Organized material is easier to learn
It is much easier to learn information that is organized in some way than to remember unrelated elements (Baddeley 1990: Chapter 8). For example, which of the following lists, consisting of the same numbers, would be easier to learn in order?

a. 7, 3, 9, 6, 1, 8, 2, 4, 0, 5
b. 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.

There is a wide variety of ways in which words can be organized to facilitate learning-in hierarchies, for instance, or as synonyms and antonyms, or parts of speech. (For more details, see Gairns and Redman 1986: 69–71, McCarthy 1990: 15–22, or Carter and McCarthy 1988: Chapter 2)

3 Words which are very similar should not be taught at the same time
Although organization can facilitate learning, teaching words together which are too similar can be counter-productive. With a pair like left and right, learners often confuse which word applies to which direction. In addition to learning the meanings of the two words, the learner has the additional burden of keeping them separate. This ‘principle of interference’ applies to formal similarities as well. If affect and effect are taught together, they are likely to become cross-associated in the learner’s mind. Higa (1963) found that words which were strongly associated with each other, such as antonyms, were more difficult to learn together than words which had weak connections, or no relationship at all. One way to avoid interference between two similar words is to teach the more frequent word first, and only introduce the second item after the first has been firmly acquired.

4 Word pairs can be used to learn a great number of words in a short time
Nation (1982: 16–18, 22–4) reviewed research on using word pairs (native word/L2 target word) and concluded that average learners were able to master large numbers of words (thirty-four word pairs per hour in one study) using this technique. He also concluded that this learning does not wear off quickly. In a study by Thorndike (1908), more than 60 per cent of the words were still remembered after forty-two days. These results led Nation (1982) to suggest that word pairs are a good way of giving initial exposure to new words. For adult EFL learners who have already developed the concepts underlying most new L2 words, word pairs may be especially useful for quick exposure to the new L2 labels.
for those concepts. However, despite these advantages, there are also some problems. Most word pairs are only partly synonymous, with potential cultural, stylistic, or grammatical differences (Gairns and Redman 1986: 23). Also, while in regular use context reduces the risk of misunderstandings, in word pairs, words are presented in isolation. Since the long-term goal is to tie the L2 word directly to meaning, rather than to an L1 word, it is important to enrich these initial translated meanings and so give the learner a fuller understanding of the target word.

Nation (1982: 20) also explains that consideration must be given to the order of the word pairs: studying an L2 word and trying to recall its L1 meaning is appropriate for words that only need to be recognized in reading, while an L1–L2 order is best for words which need to be used productively.

5 Knowing a word entails more than just knowing its meaning
Word pairs may be good for the initial learning of a word’s meaning, but several additional kinds of word knowledge are necessary for native-like control. These include knowledge about a word’s form (spelling and pronunciation), its grammatical characteristics, its root form and derivatives, its frequency, its relationships to other semantic concepts (diamond: hard, weddings, expensive), the words it commonly appears with (blonde occurs with hair but not with paint), and its stylistic qualities (ask is a neutral term, request is more formal) (Richards 1976, Nation 1990: 30–3).

6 The deeper the mental processing used when learning a word, the more likely that a student will remember it
The ‘Depth of processing hypothesis’ states that mental activities which require more elaborate thought, manipulation, or processing of a new word will help in the learning of that word (Craik and Lockhart 1972; Craik and Tulving 1975). Deeper, richer semantic processing, such as creating a mental image of a word’s meaning, judging the formality of a word, or grouping the word with other conceptually associated words, will be more likely to enhance learning than shallower processes such as rote repetition.

7 The act of recalling a word makes it more likely that a learner will be able to recall it again later
The ‘retrieval practice effect’ (Baddeley 1990: 156) requires students to use vocabulary techniques that call for the production of new words as soon as possible. To begin with, students are usually forced to rely mostly on receptive activities, such as word pairs in an L2–L1 order, to discover and practise the meaning of new words. After that, if the goal is productive capability, switching to activities which require production of the target word, such as using it in written sentences, will improve the chances of future recall.

8 Learners must pay close attention in order to learn most effectively
Although implicit learning can occur when learners are not paying specific attention to language, Cohen (1990:143–8) argues that the most
efficient learning happens when learners are concentrating their mental resources on the task at hand. Ellis (forthcoming) distinguishes between the types of word knowledge learnt implicitly and explicitly: word recognition and speech production systems are largely learnt through exposure, but knowledge about semantic meaning needs attention and elaborative practice to be remembered.

9 Words need to be recycled to be learnt
The seemingly obvious principle that learners cannot be expected to learn a word fully on the first exposure has been confirmed by empirical studies. In several studies summarized by Nation (1990: 43–5), learners need from five to sixteen or more repetitions to learn a word. Nagy et al. (1985) placed the chances of eighth-grade students learning an L1 word from context in one exposure at only 10–15 per cent. If recycling is neglected, many partially-known words will be forgotten, wasting all the effort already put into learning them (Nation 1990: 45).

10 An efficient recycling method: the 'expanding rehearsal'
When studying language, most forgetting occurs soon after the end of the learning session. After that major loss, the rate of forgetting decreases. Taking this into account, the 'principle of expanding rehearsal' suggests that learners should review new material soon after the initial meeting, and then at gradually increasing intervals (Pimsleur 1967, Baddeley 1990: 156–8). One explicit memory schedule proposes reviews 5–10 minutes after the end of the study period, 24 hours later, one week later, one month later, and finally six months later (Russell 1979: 149). Students can use the principle of expanding rehearsal to individualize their learning. They should test themselves on new words they have studied. If they can remember them, they should increase the interval before the next review, but if they can't they should shorten the interval. Landauer and Bjork (1978) combined the principle of expanding practice with research results (demonstrating that the greater the interval between presentations of a target item, the greater the chances it would subsequently be recalled) to suggest that the ideal practice interval is the longest period that a learner can go without forgetting a word. Research by Schouten-van Parreren (1991: 10–11) shows that some easier words may be 'overlearnt' (in the sense that more time is devoted to them than necessary), while more difficult abstract words are often 'underlearnt'. A practice schedule based on the expanding rehearsal principle may help in avoiding this problem.

11 Learners are individuals and have different learning styles
There has been a recent emphasis on learner enablement, in which teachers consider their students' desires and individual differences in an attempt to allow them some voice in the curriculum, as well as to teach them how to learn independently. When dealing with vocabulary, Allen (1983: 9–10) suggests that teachers should create a need for new words if they want them to be learnt. One way of doing this is to let students pick the words they want to study (Gairns and Redman 1986: 55–7; McCarthy 1990: 90). This fits in with the general recommendation that
teachers should not be too prescriptive when teaching learning strategies. Since students may have diverse learning styles, or simply different ways in which they like to study, the best teaching plan may be to introduce students to a variety of learning strategies and techniques and then let them decide for themselves which ones they prefer.

This section will illustrate what a vocabulary notebook based on as many of the above principles as possible might look like.

Setting up a vocabulary notebook

Formats

The notebook should be arranged in a loose-leaf binder, an index card binder, or on cards which are kept in a box. The advantage of these formats over traditional bound notebooks is that the pages can be taken out and moved around to facilitate expanding rehearsal; pages with better-known words can be put further back in the binder, and lesser known words put towards the front. In addition, this arrangement allows words to be organized into groups, which can make learning easier. Cohen (1990: 35-6) proposes several word-grouping possibilities, including topics, parts of speech, themes, speech acts, and even separate sections for productive and receptive words. (see Gairns and Redman 1986: 69-71 for additional groupings.) However, it is best to avoid placing words which are very similar to each other in these groupings until they are known well enough not to be cross-associated. Cards have an additional advantage in that their handy size makes them convenient to carry around, and easy to study in odd minutes of free time. (For more on word cards, see Brown 1980.) The pages or cards should be large enough to include the elaborate information it is suggested students add to their word listings.

Writing word pairs

Given the usefulness of word pairs as a way of gaining initial exposure to a word, a good first step is writing word pairs in the vocabulary notebook. Once the students have discovered the L1 translation for an L2 target word from a teacher, textbook, or dictionary, they can initially practise it by looking at the L2 word and trying to remember its L1 translation. As soon as possible, they should switch to an L1-L2 word-pair order to practise recalling the new word, because recall involves deeper processing than recognition. Alternatively, if students know an L2 synonym, they could use that instead of the L1 translation.

Enriching knowledge

Once the word has been learnt from the L1 translation or L2 synonym, it needs to be enriched with some of the other kinds of word knowledge, for example, the more common words with which it collocates. To facilitate this, the word card or page should be divided into sections, with each having enough space to write down a different aspect of word knowledge. A wide variety of activities could be used in the different sections, of which the following are only some of the possibilities.

- Semantic maps are useful in helping students visualize the associative network of relationships which exist between the new words and those they already know. Hierarchical trees may achieve the same
purpose more clearly for words which are part of a superordinate or subordinate structure.

- Students can increase their awareness of the frequency of a word by keeping a tally of every time they hear or see it within a certain period of time, say a day or a week. Students might also keep track of words that seem to collocate with the new word at a noticeably frequent rate.

- Roots and derivatives in the word’s ‘family’ can be learnt by studying what affixes are used to change its part of speech.

- Students might quickly sketch a keyboard illustration to prompt recall of the word. They could make notes on stylistic aspects of the word, or write a sentence illustrating its use.

Figure 1 illustrates what word cards might look like if every section were eventually completed. Of course, more details could be included on the cards than can be shown here.

**Figure 1**

**Card 1 (front)**

<table>
<thead>
<tr>
<th>L1 translation of invite</th>
<th>keyword illustration (ippai =full)</th>
</tr>
</thead>
<tbody>
<tr>
<td>常客</td>
<td>ippai</td>
</tr>
<tr>
<td></td>
<td>ask: informal</td>
</tr>
<tr>
<td></td>
<td>invite: more formal</td>
</tr>
</tbody>
</table>

**Card 1 (back)**

<table>
<thead>
<tr>
<th>part of speech, and pronunciation</th>
<th>semantic map</th>
</tr>
</thead>
<tbody>
<tr>
<td>invite (v.)</td>
<td>wedding</td>
</tr>
<tr>
<td>[invait]</td>
<td>invite</td>
</tr>
<tr>
<td>party</td>
<td>guest</td>
</tr>
<tr>
<td>RSVP</td>
<td></td>
</tr>
<tr>
<td>-ed past</td>
<td>invite friends</td>
</tr>
<tr>
<td>-ation n.</td>
<td>invite trouble</td>
</tr>
<tr>
<td>-ing adj.</td>
<td>host invites</td>
</tr>
</tbody>
</table>

**Card 2 (front)**

<table>
<thead>
<tr>
<th>L1 translation of horror</th>
<th>keyword illustration (horu =dig)</th>
</tr>
</thead>
<tbody>
<tr>
<td>恐怖</td>
<td>horu</td>
</tr>
<tr>
<td></td>
<td>intense</td>
</tr>
<tr>
<td></td>
<td>fear, dread</td>
</tr>
</tbody>
</table>

**Card 2 (back)**

<table>
<thead>
<tr>
<th>part of speech, and pronunciation</th>
<th>semantic map</th>
</tr>
</thead>
<tbody>
<tr>
<td>horror (n.)</td>
<td>emotion</td>
</tr>
<tr>
<td>[horor]</td>
<td>death</td>
</tr>
<tr>
<td>accident</td>
<td>horror</td>
</tr>
<tr>
<td>war</td>
<td></td>
</tr>
<tr>
<td>-id adj.</td>
<td>horror movie</td>
</tr>
<tr>
<td>ibly adv.</td>
<td>horror-struck</td>
</tr>
<tr>
<td>-ify v.</td>
<td>inspire</td>
</tr>
</tbody>
</table>

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Wallace (1982), McCarthy (1990), and Gairns and Redman (1986) are among the many sources for ideas and activities which can be adapted and used as part of this enriching process in the vocabulary notebooks.

**Recycling**

The new words need to be recycled regularly to be learnt. A method of doing this that combines several purposes is to have students go back and fill in the above kinds of information on a scheduled basis. For example, students may sketch as many keyword illustrations as they can for a few days. After that, they might go back and list possible affixes for the words for the next few days. Later, they may try to draw semantic maps for a period of time. Still later, they may review the words by writing down other words which collocate with them. The key point is that students regularly go through their notebooks and do something with the words.

**Learners**

Learners can find information for some forms of enrichment, such as derivative affix information, in resource materials—a dictionary, for instance, or their textbook. They might also find it beneficial to work together in groups to find and develop other kinds of information. For some activities, such as semantic maps, they need only knowledge they already have. For others, teachers may have to provide some kind of information, such as stylistic nuances, in which case they may want to write the information on the blackboard and have students copy it, or perhaps photocopy small squares of information for the students to paste directly onto their cards. However, care should be taken not to spoonfeed too much information to students, as their individual efforts to discover and develop meaning enhance both their learning of vocabulary and their independence from the teacher.

**Expanding rehearsal**

Obviously, it would be too time-consuming to do all these enrichment activities with every word in the notebook. The principle of expanding rehearsal suggests that the words which are towards the front of the notebook should be given the most attention. The words placed at the very front will probably still be only partially memorized at the L2–L1 translation level, but the memorized words placed behind them should be enriched as much as possible. One practice strategy would be to start at the beginning of the notebook and review all the words which are still at the receptive translation level, then begin the enrichment activity with the words which are at the productive level. This is not to say that the learner should not occasionally go towards the back of the notebook and spend time with the words which are better known, since even better-known words need to be enriched to achieve a native-like level of knowledge; it is just a matter of how much time and effort the learner is willing to expend. When a word eventually becomes known to the learner’s satisfaction, it can be taken out of the expanding rehearsal rotation and be moved to a ‘learned section’ at the back of the notebook, or to a separate notebook or box to be stored in alphabetical order in case it is needed again in the future.

*Vocabulary notebooks*
A personal word store

After an initial training period, in which students are shown different possibilities, they should be left free to choose their notebook activities. Some may even prefer to use an audio supplement to their notebooks, by putting some of the vocabulary information on cassette tapes, and listening to them in order to study. But learner autonomy goes further than students picking their own practice activities. The vocabulary notebook should become each student’s personal word store. Although it may be desirable initially to give students lists of words to learn and put into their notebooks, teachers should also encourage them to find their own words from readings or class lessons. Eventually, the notebooks should become deposits for the words the students want to learn. Use of vocabulary notebooks is one learning strategy that can outlive the classroom and be a continuing resource, provided teachers encourage students to keep them independently.

Reviewing notebooks

Since students will put a great deal of information into this kind of notebook, much of it on their own, teachers should occasionally take the time to check what they have written for accuracy (Kramsch 1979: 155-6). It does no good to have students efficiently learning errors! Additionally, McCarthy (1990: 128) notes that teachers can learn much about their students’ progress and problems by reviewing their notebooks.

Selecting words

A final consideration which should not be forgotten is the words themselves: which ones should be included and how many should be studied in a week? Some teachers may want their students to study lists such as the first 2,000 words on Thorndike and Lorge’s list (1944) or on Nation’s University Word List (1990: Appendix 2), while others will choose words from class texts or activities. In either case, the teacher should be careful to choose words that are frequent and that students are likely to encounter again in their studies. The number of words chosen will depend on the goals of the class. If the primary goal is to teach students how to enrich their word knowledge, twenty words per week should be sufficient. However, if the goal is to increase vocabulary, the number will have to be quite a bit larger.

Using vocabulary notebook activities

Teachers can keep vocabulary notebooks relevant by integrating them into as many activities as possible. One way of doing this is by planning classroom exercises which use the words in the notebooks, for instance, having students write short stories which include a certain number of words from their notebooks, having them listen to a story and list how many words from their notebooks they hear, or giving them one or two letters from the alphabet and asking them how many words they have in their notebooks which include the letters. Fountain (1980) suggests several word card games which could be used in the classroom, including versions of solitaire, snap, concentration, and bingo. Nation (1990: 138) lists six ways of reviewing words which could be applied to words in a vocabulary notebook, including asking students to break words into their roots and affixes, and having them suggest words which collocate...
with those written on the blackboard. Teachers could blow up a student's card or page on an OHP, or pin it up on a classroom wall, and have the class question the owner on its contents. Students could be put in pairs or groups to either teach or test each other on their notebook words. Outside the classroom, students can make notebook words relevant by taping cards to the physical objects they represent or are associated with, or by trying to use several notebook words in their regular conversations throughout the day. By promoting activities which encourage students to use the words they are learning, teachers can make them feel their notebooks are more than just an academic exercise.

A sample schedule

The sample schedule given below shows how the use of vocabulary notebooks might be implemented in a class over a period of weeks.

**Week 1**

The first week has an activity every day so that students will get into the habit of looking at their notebooks regularly and begin to practise the principle of expanding rehearsal.

**Day 1:** Introduce the vocabulary notebook as an important course objective, and tell students what materials they need to buy.

**Day 2:** Introduce the ten new words for the week, and tell the students to use a dictionary to write L1 translations or L2 synonyms on the front of the card or page, and the new word on the back. Ask the students to choose ten additional words from this week’s lessons, and write them in their notebooks.

**Day 3:** Using good learner’s dictionaries, if possible, show the students where to find each word’s phonemic transcription and part of speech. Ask them to write this information in their notebooks for all twenty words.

**Day 4:** Again using a learner’s dictionary, have the students write the L2 definition of each word in their notebook. (This may be done using the dictionary definition or their own words). Show them how to find the meaning which best fits how that word has been used in class; this will be a lesson in using context.

**Day 5:** Collect the students’ notebooks and skim through them to check that the information they have written is correct. Depending on the motivation of your students, you may want to give them some kind of mark for completing their homework. In order for the introduction of vocabulary notebooks to be a success, it is important that they be mandatory for an extended period of time, since it will take time for students to see the benefits of this type of study. If they are not encouraged, they may give up too soon. Give the notebooks back, so that students can study from them over the weekend. Tell the students to arrange the words according to how well they feel they know them.

**Week 2**

The following activities expand upon what was learnt in the first week, with the inclusion of information about derivatives.
Day 1: Introduce this week's ten new words. Give the students a worksheet which shows them how to form derivatives for the new words. Show them where to find information about derivatives in their learner’s dictionaries. Tell them to write the new words, their L1 translations, and their derivatives in their notebooks.

Day 2: Ask the students to find ten additional words from this week's lessons and to write them, their L1 translations, and their derivatives in their notebooks.

Day 3: Tell the students that they should add the derivative information to all of last week’s words, and all of last week’s information to this week’s words.

Day 4: Remind the students to continue working with their notebooks.

Day 5: Collect the students’ notebooks and skim through them to make sure that the information is correct.

Week 3
In each subsequent week, teachers can introduce ten new words and a new strategy that will enrich their students' word knowledge. Initially, they will need to give explicit instruction in how to use each strategy. After that, class time should no longer be necessary except to remind the students to look for ten additional new words and to add any new information to the words already in their notebooks. Teachers should continue to make periodic checks of the notebooks both for accuracy and for compliance. This is a good chance to determine which strategies have been mastered and which need additional attention. Teachers should also check to see that words are moving to different sections in the notebook—a sign that students are gaining mastery over some words, and putting extra study time into others. Some teachers may wish to give their students periodic quizzes on words and strategies from the notebooks. Quizzes can be individualized by including both assigned words and self-selected words from each student’s notebook.

As the number of words in the notebook grows larger, students will no longer be able to complete all information for each word. However, the minimum information for each word should include: L1 translation or L2 synonym, part of speech, phonemic transcription, L2 definition, and the word’s derivations. After using their notebooks for a period of weeks, students should gain some sense of which other information they find beneficial.

Conclusion
The memory and language learning principles discussed in the first section serve as a guide to preparing an efficient vocabulary notebook. We should teach students to learn words from as many different perspectives as possible, encourage them to choose the learning activities which are best for them, and foster independent vocabulary study. The type of notebook advocated here is likely to be much more interesting than traditional notebook designs, and keep students actively engaged in the learning process long enough to gain some tangible results.

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