Teaching the Right Words in the Right Way

How to Promote English Vocabulary Learning
in Dutch Secondary Schools?

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Abstract

This study looked at the extent to which three programmes for teaching English in Dutch 5-vwo classes – *New Interface, Of Course!,* and *Stepping Stones* – correspond with research findings about the most effective ways for enhancing lexical competence in a foreign language. Nine criteria for effective foreign language vocabulary instruction were formulated on the basis of a literature review, and the final unit of each of the three programmes was analysed on the basis of these criteria. The patterns of scores for the nine criteria turned out to be quite similar for the three educational programmes. All programmes introduced target words in a meaningful context, presented words in thematic or unrelated clusters, and used word lists to revise learning. However, the results also showed that there was much room for improvement. In all three programmes, explicit vocabulary instruction was provided for more low- than high-frequency words; the variety of contexts in which students were exposed to target words was insufficient to promote lexical competence; students did not receive enough opportunities to practise newly acquired word knowledge on both a receptive and a productive level; and the proportion of vocabulary tasks stimulating deep processing of words was rather small. Moreover, only one programme provided students with training in word learning strategies, and two programmes encouraged students to read English texts outside the classroom. These findings imply that secondary school teachers should adopt a critical attitude towards the vocabulary component of programmes for teaching English in 5-vwo.

1. Introduction

If the Netherlands wants to maintain their role in the global world economy, it is essential that Dutch students learn English well. As a *lingua franca*, English has become the most important language for communication across the world. One of the most crucial tasks in mastering a foreign language is to learn its vocabulary. Nation (2001b) indicates that "educated native speakers of English know around 20,000 word families," with each word family including "a headword [e.g. *care*], its inflected forms [e.g. *cares* and *cared*], and its closely related derived forms [e.g. *careful* and *careless*]" (p. 8-9). Such a large vocabulary size is no realistic aim for foreign language learners, acquiring English in a formal setting. Moreover, it may not be necessary to learn that many words, as a great proportion of a native speaker's vocabulary consists of low-frequency words. However, the fact remains that to be able to read authentic texts in English and to understand spoken conversations, students need to know a considerable number of words. Nation (2006a) indicates that at least 98% of words in a text have to be known to understand it without assistance. This implies that to comprehend authentic texts in English, like newspapers and novels, students need to know at least 8,000 word families. The number of words required to understand spoken discourse, for instance in a film or a conversation, is less clear-cut, but an estimation of 6,000 word families seems realistic. While word families up to the 1,000 frequency level contain about six word forms, this number decreases to approximately three word forms for families at the 9,000 frequency level. According to calculations by Nation (cited in Schmitt, 2008), 6,000 word families are equal to 28,015 words, and 8,000 word families to 34,660 words. It is an enormous challenge to learn all these words, especially because learning a word in depth means much more than just knowing the connection between the written and/or spoken form of a word and its meaning. It also involves knowledge of word parts, concepts and referents, associations, grammatical functions, collocations, and constraints on use (Nation, 2001b). Furthermore, to be able to speak and write in English, students do not only need to master these aspects of word knowledge on a receptive level, but also on a productive level.

Although many studies have been conducted with regard to second language (L2) vocabulary acquisition over the past decades, there is still a great deal of discussion about the most effective way to teach foreign language vocabulary. An important role in this discussion is played by the contrast between acquisition and learning, or informal and formal learning. Although recently, pilot projects have been initiated to experiment with immersion education in English in Dutch elementary schools, the reality for most students in the Netherlands is still

that they start learning foreign languages in a formal setting when they enter secondary school at the age of 12. By that time, most students have received some English language instruction in elementary school, mostly during the last two years, but the total amount of time dedicated to English in elementary school is usually not more than 60 hours (Thijs, Trimbos, Tuin, Bodde, & De Graaff, 2011). Especially for students enrolled in havo or vwo, who generally continue their studies in higher professional education or at university, it is very important that they acquire in-depth word knowledge of a sufficient quantity of words, to be able to comprehend English texts and oral messages and to make themselves understood in spoken and written English. The question is how secondary schools can succeed in realising this in a formal language learning environment, in which students receive English instruction for only two to three hours a week. Most schools use educational programmes to teach their students English. These programmes pay attention to listening, speaking, reading, and writing in English, by providing students with texts, audio recordings, and exercises to practise vocabulary, grammar, speech, and writing. Often, the new words are gathered in word lists at the end of a section, which need to be studied for a test.

The central question of this study is to what extent educational programmes for teaching English in Dutch secondary schools are in accordance with research findings about the most effective ways for enhancing in-depth word knowledge in a foreign language. Can teachers rely on these programmes for vocabulary input, instruction, and practice or would it be wiser to follow a different approach? To answer this question, this thesis will first explore how L2 learners actually acquire new vocabulary. The following issues will be addressed in chapter 2: how is L2 lexical information organised and represented in the mental lexicon, what role does the first language (L1) play in L2 lexical processing, and what is required to become lexically competent in a foreign language? Subsequently, a selection of L2 vocabulary studies will be reviewed in chapter 3 to determine what are the most effective approaches for promoting vocabulary learning in the foreign language classroom. Attention will be paid to the role of context, strategies, and instruction, the selection of words to teach, the presentation of words, and the characteristics of effective vocabulary tasks. The results of these studies will be interpreted in light of the psycholinguistic theory about L2 lexical representation and development that has been presented in chapter 2. The literature review will result in a set of criteria with regard to effective vocabulary teaching in the foreign language classroom. These criteria will be used to analyse three programmes that are used for English instruction in Dutch secondary schools. The method and results of the study will be presented in chapters 4 and 5. Finally, chapter 6 will offer a conclusion and a discussion.

2. Psycholinguistic theory of L2 vocabulary acquisition

Since the 1980s, many studies have been conducted in the field of L2 vocabulary acquisition. This has led to greater insight into the factors and conditions that influence L2 vocabulary learning. However, as Jiang (2004) points out, most of these studies have "focused on broad, often pedagogy-related issues" and have investigated only one part of the acquisition process, i.e. "word retention" (p. 416). Jiang asks for research that investigates:

> [m]ore basic and specific issues related to the acquisition process, such as how lexical knowledge is represented in the learner's mind, what is involved in the form-meaning mapping process, and what stages a word goes through before it becomes an integrated part of the learner's lexicon. (p. 416)

Moreover, in contrast to former studies, which have been "largely descriptive and model-free," Jiang argues that there is a need for studies that are "explanatory and model-driven," so that research findings can be integrated and interpreted in terms of "the psychological processes and mechanisms involved in L2 vocabulary acquisition" (p. 416). A similar plea is made by De Bot, Paribakht, and Wesche (1997), who emphasise that to understand "both the nature of vocabulary knowledge and the acquisition of this knowledge," a model for L2 lexical representation and processing is necessary (p. 310). Two perspectives can be distinguished within psycholinguistic research on L2 vocabulary acquisition. The first perspective assumes that the L2 can be studied independently of the L1, while the second perspective takes into account the role of the L1 in L2 lexical processing. Although the L1 clearly plays a role in L2 vocabulary learning, both perspectives offer valuable insights, which will be discussed in this chapter. With regard to the first perspective, several researchers have tried to shed more light on the question of how lexical information is organised in the L2 mental lexicon, and how this compares to the structure of the L1 mental lexicon. Although these studies ignore the influence of the L1, they provide some interesting information on the relationship between words in the L2 mental lexicon. With regard to the second perspective, attention will be paid to three models that contribute to an understanding of L2 lexical processing and the various stages in L2 vocabulary acquisition, taking into account the influence of the L1. Besides these two perspectives, this chapter will clarify the contrast between lexical knowledge and lexical competence that is made within psycholinguistic theory.

2.1 Organisation of words in the L2 mental lexicon

To understand L2 vocabulary acquisition, an important question that needs to be answered is how lexical information is organised in the L2 mental lexicon. Reviewing the literature that has been conducted with regard to this issue, Wolter (2001) concludes that many studies point in the direction of an L2 mental lexicon that is structurally different from the L1 mental lexicon. Most of these studies have used word association tests to compare the associative responses of native and non-native speakers to stimulus words. Three kinds of associations are generally distinguished: (1) paradigmatic associations, i.e. words which are of the same lexical category as the stimulus word (coordinates, like *dog – cat*; superordinates, like *dog – animal*; subordinates, like *dog – terrier*; and synonyms, like *dog – canine*); (2) syntagmatic associations, i.e. words which have a syntactic relationship with the stimulus word, and are usually of a different lexical category (e.g. *dog – bite*); and (3) phonological associations, i.e. words which are only related to the stimulus word phonologically (e.g. *dog – bog*[1]). Research has indicated that native speakers generally show a higher proportion of paradigmatic associations, while L2 learners show higher proportions of syntagmatic and phonological associations (Meara; Piper & Leicester; Söderman, cited in Wolter, 2001). However, as Wolter points out, most of these studies have examined responses to high-frequency words, which are usually well known to native speakers, but not necessarily to non-native speakers. Thus, differences in associative patterns between native and non-native speakers may be caused by depth of individual word knowledge rather than by fundamental differences in the structure of the lexicon.

Wolter assumes that the connections between words in the mental lexicon are influenced by how well a particular word is known, with deeper knowledge[2] implying more paradigmatic associations. He tested this hypothesis in a study with adult Japanese speakers of English as an L2 and native speakers of English. He used two word association tests, which were both administered orally. Participants were asked to say the first word to come to their minds upon hearing a stimulus word. The first test was taken by the native as well as the non-native speakers, and consisted of 45 words of varying frequencies from the 1,000 up to the 8,600 word range (of the Bank of English corpus created by COBUILD). The second test, consisting of 45 lower-frequency words from the 9,000 up to the 39,150 range, was only

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[1] All examples are from Wolter (2001), p. 43.
[2] Section 2.3 will pay more attention to what it means to know a word.

taken by the native speakers. The tests consisted of nouns, verbs, and adjectives. Immediately after completion of the word association test, a depth of individual word knowledge test was administered orally to examine how well each word was known to the participants. This was the Vocabulary Knowledge Scale developed by Wesche and Paribakht, which tests both "self-reported and demonstrated" (p. 53) word knowledge by asking participants whether they have seen or heard a word before, whether they *think* or *know* what it means, and if so, to provide a synonym or translation, and use the word in a sentence. The results confirmed Wolter's assumption that words that are not well known elicit a high proportion of phonological responses for both non-native and native speakers. This suggests that "the L2 mental lexicon is not less structured than the L1 mental lexicon" (p. 60), but only contains fewer words that are well known. Typically, for well-known words, L2 speakers showed more syntagmatic associations, while native speakers showed more paradigmatic associations. According to Wolter, "a syntagmatically dominated mental lexicon" is not inferior to a "paradigmatically dominant one" (p. 63). He challenges the theory of the syntagmatic-paradigmatic shift, which suggests that as children, native speakers move from syntagmatic to paradigmatic associations for the entire lexicon. Wolter argues that this shift actually seems to be a change from "semantically meaningless" to "semantically meaningful" responses (p. 63), i.e. from phonological responses on the one hand to syntagmatic and paradigmatic responses on the other hand. This assumption was confirmed by the fact that the native speakers in his study provided a syntagmatic response to 41% of the higher-frequency words, which would be rather high if they had gone through a syntagmatic-paradigmatic shift. Wolter argues that besides depth of individual word knowledge, which determines the extent to which a word is integrated in the mental lexicon, breadth of word knowledge also seems to play a role in the responses to stimulus words. Native speakers have a larger mental lexicon, which implies that more associations will come to mind on a word association task. The chance that the word that is mentioned is a paradigmatic association (most often a synonym) will be greater in case of a lexicon that contains more words. Thus, the conclusion that can be drawn from Wolter's study is that the L2 mental lexicon appears to be structurally similar to the L1 mental lexicon, and that differences in associative patterns seem to be caused by breadth of word knowledge as well as depth of individual word knowledge.

Zareva (2007) also compared the associative patterns that are formed by adult native and non-native speakers of English. The L2 learners in her study had different L1 backgrounds. By distinguishing between intermediate and advanced L2 learners, Zareva tried to find out whether language proficiency influences the structure of the mental lexicon. A

word association test was used to get more insight into the way semantic information is structured in the participants' mental lexicons. The test contained 73 stimulus words, which were gathered from a learner's dictionary through a spaced sampling procedure, i.e. by starting at a random point in the dictionary and picking each word that occurs after a specific interval. This led to a broad collection of words with varying frequencies and of different lexical categories. For each stimulus word in the test, participants had to indicate whether they were familiar with its meaning by writing down a synonym or a brief explanation. If they were familiar with the word, they were subsequently asked to write down three associations for the word: "I *associate* this word with ___, ___, ___" (p. 134). To examine the associative patterns within each group, both quantitative and qualitative features were measured. Quantitative features included the size, strength, and heterogeneity of the associative domain, measured by the total number of responses, the number of common responses, and the number of different responses within each group. The results showed that the intermediate L2 learners scored significantly lower on these three features than the advanced L2 learners and the native speakers. This implies that intermediate L2 learners do not only show fewer, but also less stable and less diverse meaning connections between words than advanced L2 learners and native speakers. Between the advanced learners of English and the native speakers, no significant differences were found with regard to these quantitative features. Qualitatively, the study distinguished between paradigmatic, syntagmatic, and phonological associations. No significant differences were found between the three groups with regard to the proportions of these three kinds of associations. The participants of all three groups produced more paradigmatic than syntagmatic associations for familiar words, and no phonological associations at all. This implies that the patterns of semantic information in the L2 mental lexicon are qualitatively similar to those in the L1 mental lexicon. Moreover, the absence of phonological associations confirms the idea that semantically meaningless associations disappear when words become well known.

Thus, the studies by Wolter and Zareva suggest that the L2 mental lexicon is structurally similar to the L1 mental lexicon. Qualitative differences in associative patterns seem to disappear when depth of individual word knowledge increases. When words become well known, they are better integrated into the mental lexicon, and semantic connections between words become dominant over phonological connections. Furthermore, when language proficiency increases, quantitative differences in associative patterns disappear. The number, strength, and heterogeneity of connections between words in the mental lexicon are similar for advanced L2 learners and native speakers. These findings imply that the structure

of the L2 mental lexicon should not hinder L2 learners in acquiring native-like proficiency, as L1 and L2 lexical information are organised in the same way. However, a serious drawback of the studies by Wolter and Zareva is that they have approached the L2 mental lexicon as "an isolated entity" (Wolter, 2001, p. 64), while research has suggested that there are strong connections between words in the L1 and L2 mental lexicons (Channell; Piper & Leicester; Söderman, cited in Wolter, 2001). This means that to understand how L2 vocabulary acquisition takes place and how the representation of L2 lexical information develops over time, the L2 mental lexicon should be examined in relation to the L1 mental lexicon. Zareva states that "[s]uch a line of exploration will . . . add to our understanding of the processing resources required to store two lexical systems and the breadth of the task L2 learners face in building lexical connections in their mental lexicons" (p. 146).

2.2 Towards a model for L2 lexical processing

In this section, three models will be presented that are of importance for the development of a theory for L2 lexical processing which takes into account the role of the L1. Firstly, hierarchical models of bilingual memory organisation explain how L1 and L2 lexical systems and concepts are interrelated. In particular Kroll and Stewart's (1994) Revised Hierarchical Model makes important predictions about the role of the L1 in L2 vocabulary development, and the relationship between language proficiency and the strength of lexical and conceptual links in bilingual memory. Secondly, Levelt's (1989) model of L1 speech production offers insight into the internal structure of a lexical entry in the mental lexicon, and the processes that are involved in language production. Thirdly, Jiang's (2000) model of L2 lexical representation and development builds on the first two models, and tries to shed more light on the process of L2 vocabulary acquisition of adult learners in an instructional setting by distinguishing three stages.

2.2.1 Kroll and Stewart's Revised Hierarchical Model

In the past, there has been much debate among researchers about the question whether bilinguals have "a common memory system for both languages or independent memory systems that correspond to each language" (Kroll & Stewart, 1994, p. 149). This dispute was solved by uniting both perspectives in one model – a hierarchical model of bilingual memory – which assumes that "[w]ords in each of a bilingual's two languages are . . . stored in

separate lexical memory systems, whereas concepts are stored in an abstract memory system common to both languages" (Kroll & Stewart, 1994, p. 150). This hierarchical model incorporates two possible ways in which words in the two languages are connected, namely through word association or concept mediation, which are both depicted in Figure 1. According to the *word association* model, L2 words are linked to L1 words, and can only gain access to concepts through L1 mediation. The *concept mediation* model on the other hand assumes that L2 words are directly linked to concepts.

Kroll and Curley (cited in Kroll & Stewart, 1994) showed that language proficiency influences the specific model that is used during translation from L1 into L2. In their study, the speed of bilingual translation from L1 to L2 was compared to the speed of picture naming in L2, an activity that requires access to concepts before naming can take place. Highly fluent bilinguals were just as fast in translating as picture naming, which suggests the application of the *concept mediation* model in both cases. Yet, beginning L2 learners were faster in translating than in picture naming, which implies that the *word association* model was operative during translation. Kroll and Stewart (1994) conclude that apparently, there is "a developmental shift in second language learning from reliance on word-word connections to reliance on concepts" (p. 151).

Word association   Concept mediation
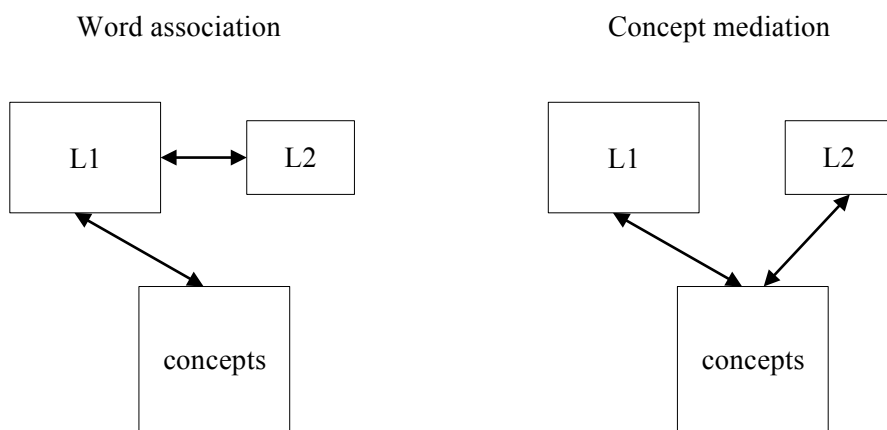
Figure 1: Models of *word association* and *concept mediation* (Kroll & Stewart, 1994, p. 150).

As Kroll and Stewart (1994) point out, translation from L2 to L1 is generally faster than translation from L1 to L2. To accommodate this "translation asymmetry" (p. 157) into the hierarchical model of bilingual memory, they developed the Revised Hierarchical Model (RHM), which is represented in Figure 2. According to this model, "both lexical and conceptual links are active in bilingual memory, but the strengths of the links differ as a

function of fluency in L2 and relative dominance of L1 to L2" (p. 157). As is shown by the arrows, the links between concepts and words are stronger for L1 than for L2, because most concepts are acquired in the L1. Lexical links on the other hand are strongest for L2 to L1 because this is the direction in which L2 words are first learned. Since translation from L2 to L1 takes place through lexical association, it is faster than translation from L1 to L2, which requires concept mediation. While in the first stages of L2 acquisition, L2 words are added to the system through lexical links with L1 words, links between L2 words and concepts are gradually acquired once the L2 learner gains proficiency. As Kroll and Stewart (1994) argue, "it is the ease of accessing connections between L2 words and concepts that changes most dramatically as proficiency in L2 increases" (p. 167). The course of L2 development as predicted by the RHM has been supported by various studies (Chen & Leung; Kroll & Curley; Kroll & Sholl; Kroll & Stewart, cited in Kroll & Stewart, 1994).
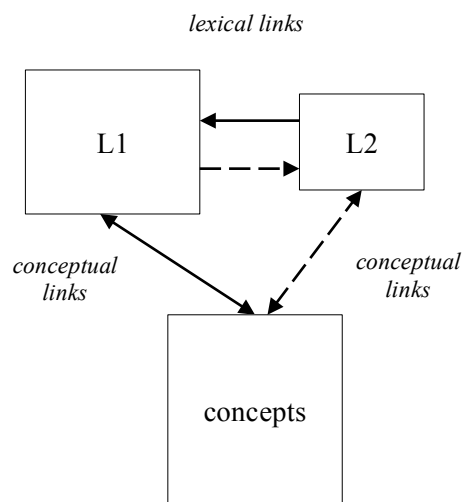
Figure 2: Revised Hierarchical Model (Kroll & Stewart, 1994, p. 158).

2.2.2 Levelt's model of L1 speech production

Another important model in the discussion of L2 lexical processing is Levelt's (1989) model of L1 speech production. According to Levelt, a lexical entry in the mental lexicon is made up of two components: (1) a lexeme, which contains morphological and phonological information; and (2) a lemma, which consists of semantic and syntactic information. Figure 3 provides a schematic picture of the internal structure of a lexical entry. Research has shown that there is a high degree of integration of the four types of information in a lexical entry. When an entry is opened, phonological, morphological, semantic, and syntactic information

are simultaneously activated (Perfetti, Bell, & Delaney; Perfetti & Zhang; Swinney; Van Orden, cited in Jiang, 2000).

Figure 3: Internal structure of a lexical entry (Levelt, 1989, p. 182).

Levelt's model describes the processes that are involved in the production of spoken language, taking into account the role of the information that is stored in a lexical entry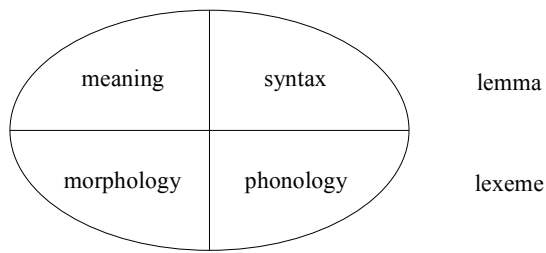. First of all, a pre-verbal message is generated, which triggers lemmas whose semantic information corresponds with parts of the message. When a lemma is activated, syntactic information also becomes available, which initiates the building of a surface structure. The insertion of lexemes into the surface structure then leads to the activation of morphological and phonological information. All morphological variants of a word are activated, but only the form that matches the meaning best is selected. Next, a phonetic plan is created, after which the utterance can be articulated. These processes of message generation, grammatical encoding, phonological encoding, and articulation are completely automatic for native speakers.

While Kroll and Stewart's (1994) Revised Hierarchical Model approaches lexical and conceptual representations as two separate levels, Levelt's (1989) model of lexical representation considers meaning as an integral part of a lexical entry. Although Levelt's model was originally devised for clarifying L1 speech production, De Bot et al. (1997) and Jiang (2000) argue that it can be very useful for explaining the process of L2 lexical development as well.

2.2.3 Jiang's model of L2 lexical representation and development

Jiang (2000) developed a psycholinguistic model for L2 lexical representation and development, which uses Levelt's (1989) model of L1 speech production as its main point of departure, while also building on the assumptions of Kroll and Stewart's (1994) Revised Hierarchical Model of bilingual memory organisation. Jiang's model focuses on older

learners who have already acquired an L1 and are learning the L2 in an instructional setting. Jiang argues that this group of L2 learners usually lack extensive and contextualized exposure to the L2. Furthermore, they have already established L1 lexical and semantic systems, which they are likely to rely on when learning L2 vocabulary. In other words, they are less likely to pay attention to contextual cues to derive the meaning of an L2 word because they have already acquired the L1 word form that shares the same meaning. The L1 semantic system may even prevent the formation of new meanings that are related to the ones that already exist in the L1. Because of these two constraints, L2 and L1 lexical representation and development are fundamentally different.

Jiang (2000) distinguishes three stages in the process of L2 vocabulary acquisition in an instructional setting. The first stage is called the *formal stage*. An L2 lexical entry is established, which only contains formal information, i.e. phonological and/or orthographic information. The morphological information in the lexeme is missing, just like the semantic and syntactic information that would normally be stored in the lemma. The lexical entry contains a "pointer" (p. 50) that connects the L2 word to its L1 translation equivalent. When this L1 word is activated, the semantic, syntactic, and morphological information that are stored in the L1 lexical entry become available. Figure 4 visualises the lexical representation and processing in the formal stage.
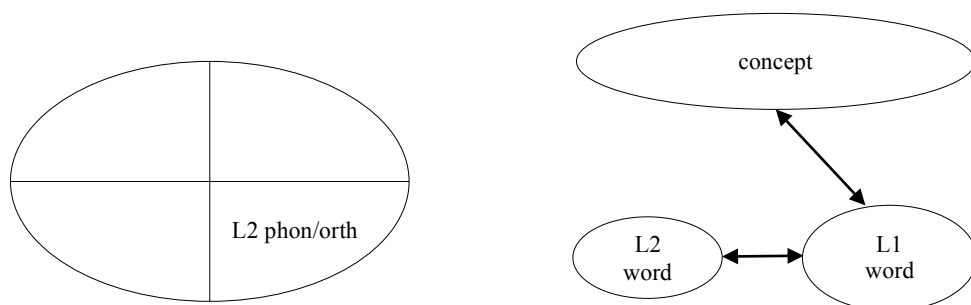
Figure 4: Lexical representation (left) and processing (right) in the formal stage (Jiang, 2000, p. 51).

In the second stage, the association between the L2 word and the lemma information of the L1 word becomes stronger because of constant simultaneous activation. Jiang suggests that this results in the L1 lemma information being copied into the L2 lexical entry. Thus, the lexeme contains the formal information of the L2 word, while the lemma contains the semantic and syntactic information of the L1 translation equivalent. This second stage of L2 vocabulary acquisition is called the *L1 lemma mediation stage* because the lemma information of the L1 word mediates the use of the L2 word. The L2 lexeme contains no

morphological information at this stage. In contrast with semantic and syntactic information, which are often fairly similar for the L2 and L1 word, morphological information is generally "language-specific" (p. 52) and therefore not easily transferred from one language to another. Moreover, the connections between L2 word forms and the concepts that they represent are rather weak at this stage. Jiang offers two possible explanations for this fact. Since the lemma information is not newly created in the process of learning an L2 word, but copied from the L1, the integration of this information into the lexical entry is not so strong. Another reason may be that part of the copied information is lost as it is being transferred from the L1 word form to the L2 lexical entry. The lexical representation and processing in the L1 lemma mediation stage are visualised in Figure 5.
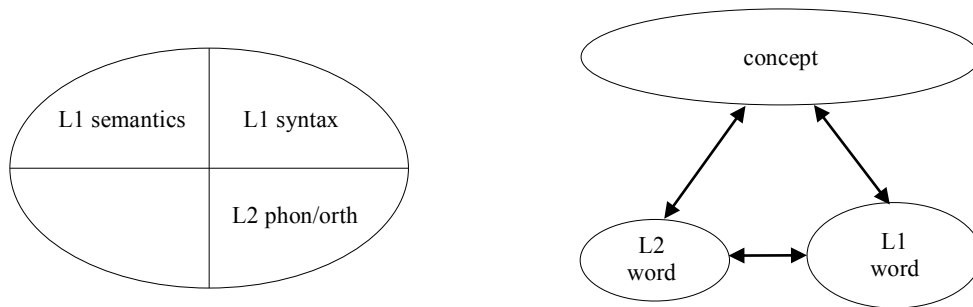
Figure 5: Lexical representation (left) and processing (right) in the L1 lemma mediation stage (Jiang, 2000, p. 53).

The third and final stage is the *L2 integration stage*. Exposure to and use of the L2 result in the gradual extraction of semantic, syntactic, and morphological information of an L2 word, which are then integrated into the L2 lexical entry, replacing the L1 lemma information. Figure 6 depicts the lexical representation and processing in this final stage of L2 lexical development.
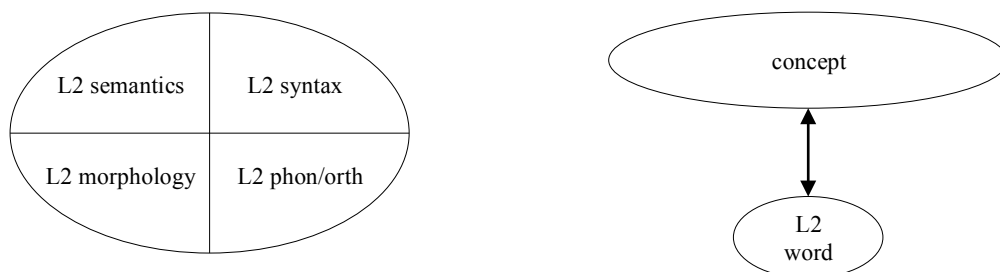
Figure 6: Lexical representation (left) and processing (right) in the L2 integration stage (Jiang, 2000, p. 53).

It is important to note that these three stages apply to words, not to the lexical competence of an individual learner in general. Words may be at different stages of development for one learner at a particular time. Furthermore, the stages are not clear-cut; some words may be in the process of developing from one stage to the next. As a result, there may be differences in the use of L1 lemma information in comprehension and production, for example. Jiang observes that the lexical development of L2 learners often stagnates at the second stage, in spite of a sufficient quantity of contextualized input. Apparently, learners are not able to extract the lexical information from this input. Jiang argues that L1 lemma mediation seems to be the most important cause of lexical fossilization, as the presence of L1 lemma information in the L2 lexical entry prevents the language learner from extracting L2 semantic, syntactic, and morphological information from the input. It may also be argued that the L1 lemma information obstructs the incorporation of L2 lemma information into the lexical entry. Thus, while the L1 initially seems to help learners to acquire L2 words, it later becomes a hindrance for reaching the final stage of L2 vocabulary acquisition.

The consequences of the specific characteristics of L2 lexical development manifest themselves most prominently in productive use of the L2. While the process of speech production is completely automatic for native speakers, it is not for L2 learners. In the *formal stage* of L2 acquisition, the pre-verbal message activates L1 lexical entries whose semantic information corresponds with the message. The L2 word is then evoked through the connection that has been made between the L2 lexical entry and its L1 translation equivalent while learning the word. This costs a lot of effort on the part of the learner, who has to recall the association consciously. Moreover, while the connection between the two words was created from L2 to L1, it now has to be recalled in the opposite direction, from L1 to L2. In the first stage of L2 lexical development, word production is thus far from automatic. In the *L1 lemma mediation stage*, the degree of automaticity increases because a direct link now exists between the L1 lemma information and the L2 word form. However, the L1 lemma mediation stage will often lead to lexical or interference errors as the semantic and syntactic information of the L1 and L2 word may not be completely similar. Furthermore, the absence of morphological information in the lexeme of the L2 lexical entry is also problematic. In L1 speech production, the pre-verbal message activates all the morphological variants of a word that are integrated in the lexical entry, and the form that matches the meaning best (e.g. in number or tense) is automatically selected. However, in the L1 lemma mediation stage, no morphological information is included in the L2 lexical entry. This kind of information is often learned as "explicit knowledge" in the foreign language classroom (Jiang, 2000, p. 58).

The result is that in L2 language production, the root form of a word is selected automatically, but the selection of the correct morphological variant is a conscious process, which often leads to morphological errors.

Studies based on a hierarchical model of bilingual memory organisation have shown that beginning L2 learners with less than two years of experience in learning the L2 rely on lexical associations between L1 and L2 words, whereas advanced L2 learners rely on conceptual links between L2 words and concepts (Chen & Leung; Kroll & Curley, cited in Kroll & Stewart, 1994). In contrast with these findings, Jiang (2002) demonstrated that L1 semantic information is still present in the L2 lexical entries of advanced L2 learners as well. In his study, native English speakers and Chinese speakers of English as an L2 took part in two experiments, in which they had to respond to English word pairs. In the first experiment, a semantic judgment task was administered, in which participants were asked to judge, on a 5-point rating scale, the extent to which 80 English word pairs were semantically related. Half of these pairs were "same-translation pairs," i.e. pairs consisting of words that share the same Chinese translation, while the other half were "different-translation pairs," i.e. pairs consisting of words with different Chinese translations (p. 620). The "degree of semantic relatedness" (p. 620) of these two types of word pairs was similar, as estimated by native speakers. The second experiment consisted of an online semantic judgment task. Participants had to decide as fast as possible for 160 English word pairs whether they were semantically related or not. The same 80 pairs from the first experiment were used, complemented with 80 semantically unrelated pairs. Both the results of the first and the second experiment provided evidence for the existence of L1 semantic information in L2 lexical entries, as the L2 speakers responded with significantly higher rating scores and shorter reaction times to the same-translation pairs than to the different-translation pairs, while no differences were found between these two types of pairs for the native speakers. Because the same-translation pairs shared the same semantic information in their lexical entries, they were judged to be more related by L2 speakers than different-translation pairs, which contained different semantic content in their lexical entries. In other words, the results confirm the presence of an L1 lemma mediation stage in L2 lexical development. Jiang (2004) replicated the second experiment with a different population, i.e. Korean speakers of English as an L2, arriving at the same conclusion. Since the participants in both the first and the second study were advanced L2 learners, these results prove that L1 semantic information continues to be present at high levels of proficiency, and that semantic development in the L2 is limited. A similar result was found by Sunderman and Kroll (2006), who concluded that "the L1 is active during L2

processing for both learners at early stages of acquisition and for those who are more advanced" (p. 418).

Although Jiang's model focuses on the acquisition of individual words, Wolter and Gyllstad (2011) argue that the model is also applicable to the development of connections between L2 words. They examined the influence of the L1 on the formation of L2 collocations, which they defined as "sequence[s] consisting of two or more words which co-occur more frequently than chance would predict based on the frequency of occurrence of the individual constituent words" (p. 434). Participants were Swedish adults who were advanced speakers of English; native English speakers served as a control group. Collocations often form a problem for L2 learners, since they are generally not easily transferable from one language to another, and the specific combinations of words are often unpredictable. Wolter and Gyllstad focused on verb and noun combinations in their study, and administered a primed lexical decision task consisting of two types of collocations: (1) L1-L2 collocations, i.e. L2 collocations which have translational equivalents in the L1; and (2) L2-only collocations, i.e. L2 collocations that do not have translational equivalents in the L1. Unrelated verb-noun pairs were used as a "baseline condition" (p. 435). As expected, the native speakers responded in exactly the same way to the two different types of collocations, while the L2 speakers responded faster to the L1-L2 items than to the L2-only items. This suggests that the L1 has a significant influence on the development of L2 collocational knowledge. However, the abovementioned effect was not found for all items in the L2-only condition. A possible explanation is that some L2-only items were recognised as genuine L2 collocations by L2 learners, because they had already been acquired. These items became activated upon priming the first word, just like the L1-L2 collocations, which suggests that they were stored in the L2 lexicon. Unrecognised items on the other hand were processed like unrelated items. Wolter and Gyllstadt claim that the results can be explained on the basis of Jiang's (2000) model, since the combined words in a collocation generally result in a "new, unified concept" (p. 446). This implies that for L2-L1 collocations, the learner has stored L1 information in the lemma, while for the L2-only collocations, the learner has to integrate L2 information at both the lexeme and lemma level. As Wolter (2006) points out, accommodating L2 connections that do not exist in the L1 requires a greater effort on the part of the learner since the existing network needs to be restructured.

Jiang (2000) emphasises that his model for L2 lexical processing is preliminary. For example, lexical fossilization can also occur with L2 learning in naturalistic settings, while some adults in instructional settings do achieve the final stage of L2 lexical development.

This implies that other factors than input and the presence of an established semantic and lexical system may be involved. Moreover, it is not clear yet whether the same-translation effect also exists for speakers with an L1 that is "typologically related to English" (Jiang, 2004, p. 428). Nevertheless, the model is useful as it provides greater insight into L2 lexical representation and development, and can help to interpret findings of L2 vocabulary acquisition research. Moreover, as Jiang points out, the observation that L1 semantic information continues to mediate L2 lexical processing at high proficiency levels has important pedagogical implications, which will be discussed in chapter 3.

2.3 Lexical knowledge versus lexical competence

To interpret and compare the results of studies on L2 vocabulary acquisition, it is crucial to have a good definition of what it means to have learned a word. The following three definitions of lexical competence can be found in the literature on L2 vocabulary acquisition: (1) "being able to recognize or recall a word or its meaning"; (2) "various kinds of knowledge one has to possess in order to use a word properly"; and (3) "skills rather than knowledge, with an emphasis on automaticity in lexical processing" (Jiang, 2000, p. 64-5). The first definition, which is often assumed in experimental studies of L2 vocabulary acquisition (e.g. Rodríguez & Sadoski, 2000; Tian & Macaro, 2012; Waring & Takaki, 2003), is very narrow and does not say much about the ability of L2 learners to use a word correctly in an authentic situation. Although it is a very practical definition, studies using it seem to be measuring memory rather than acquisition. The second definition – which is reflected for instance in Nation's (2001b) distinction between knowledge associated with form (spoken, written, word parts), meaning (form and meaning, concepts and referents, associations), and use (grammatical functions, collocations, constraints on use) – acknowledges that knowing a word in depth involves much more than just knowing the connection between form and meaning. Yet, besides the fact that this second definition poses "a mammoth task for the test constructor" (Meara, 1996, p. 46), it also still defines lexical competence as knowledge. According to the third definition, lexical competence must be interpreted as skills rather than knowledge. Automaticity plays an important role in this definition, as it determines the difference between mastering a word receptively and productively (Meara, 1996). However, Jiang (2000) stresses that automaticity is not necessarily the key factor in lexical competence, as "a certain level of automaticity" is also present in the L1 lemma mediation stage (p. 65).

According to Jiang (2000), a distinction should be made between lexical knowledge and lexical competence. *Lexical knowledge* can be defined as "the knowledge or information an L2 learner remembers about the form, meaning, grammatical usage, and sociolinguistic use of a word that is stored in a general memory system, rather than integrated into the lexical entry of a word" (p. 65). *Lexical competence*, on the other hand, entails "the semantic, syntactic, morphological, and formal knowledge about a word that has become an integral part of a lexical entry in the mental lexicon and can be retrieved automatically in natural communication" (p. 65-6). Thus, while lexical knowledge is represented outside the lexical entry in the general memory system, lexical competence is represented within the lexical entry. Furthermore, the use of lexical knowledge requires "conscious awareness," whereas the realisation of lexical competence is an "automatic process" (p. 66). Morphological errors, for instance, seem to be the result of the application of lexical knowledge; since the morphological information is stored outside the lexical entry in the general memory system, as Jiang assumes, it has to be retrieved by deliberate effort rather than automatically, which can lead to errors. Besides lexical knowledge and competence, Jiang distinguishes *lexical transfer*, i.e. "the use of L2 words on the basis on their L1 translations" (p. 66). Although lexical transfer in the L1 lemma mediation stage may look very much like lexical competence because of its high degree of automaticity, the occurrence of interference errors often betrays the "pseudo-acquisition nature" (Krashen, cited in Jiang, 2000, p. 66) of this state. Jiang (2004) stresses that an essential factor in attaining lexical competence is "semantic autonomy" (p. 425); an L2 learner can only approximate the lexical competence of a native speaker if L2 semantic information is integrated in the lexical entries of L2 words.

2.4 Summary

As was shown in the first half of this chapter, the organisation of words in the L2 mental lexicon does not differ substantially from the organisation of words in the L1 mental lexicon. Wolter (2001) and Zareva (2007) proved that qualitative and quantitative differences in the associative patterns of words in the L2 mental lexicon disappear when general language proficiency and depth of individual word knowledge increase. However, as was explained in the second half of the chapter, L1 and L2 lexical representation and development at the word level are fundamentally different. L2 speakers who learn a new language after they have acquired an L1 have already established L1 lexical and semantic systems, which have a great influence on the development of L2 lexical knowledge. Three models were discussed that

contribute to an understanding of L2 lexical representation and development. While Kroll and Stewart's (1994) Revised Hierarchical Model explains how the strength of lexical and conceptual links in bilingual memory depends on L2 language proficiency, Levelt's (1989) model of L1 speech production offers insight into the internal structure of a lexical entry, and explains how the organisation of lexical information on the word level relates to processes involved in language production. Jiang (2000) built on both of these theories to develop a model of L2 lexical representation and development that aims to explain L2 vocabulary acquisition in instructional settings. The model distinguishes three stages in the process of L2 vocabulary learning: the formal stage, the L1 lemma mediation stage, and the L2 integration stage. In spite of a sufficient quantity of contextualized input, the lexical development of L2 learners often stagnates at the second stage. Lexical fossilization seems to be caused by the presence of L1 lemma information in L2 lexical entries, which prevents the language learner from extracting L2 semantic, syntactic, and morphological information from the input and integrating this information in the L2 lexical entries. It has been shown that the L1 remains active during L2 processing for beginning as well as advanced L2 learners. Thus, although the L1 initially seems to help learners to acquire L2 words, it later becomes a hindrance for reaching the third and last stage of L2 vocabulary learning. Finally, this chapter has argued that to interpret the results of studies on L2 vocabulary acquisition, a distinction must be made between lexical knowledge and lexical competence. Only L2 learners who have integrated L2 semantic, syntactic, morphological, and formal information into their L2 lexical entries can approximate the *lexical competence* of a native speaker. If this information is stored outside the lexical entry in the general memory system, a speaker has *lexical knowledge* rather than lexical competence. In that case, the information can only be retrieved by conscious effort rather than automatically, which often leads to errors in L2 language production.

3. Promoting vocabulary learning in the foreign language classroom

An important question is how the psycholinguistic insights into the nature of L2 vocabulary learning can be translated into specific approaches in the foreign language classroom. What are efficient and effective ways to promote L2 vocabulary learning? There has been considerable debate about this issue. In this chapter, we will reflect on three main approaches that are generally distinguished with regard to L2 vocabulary teaching, i.e. providing rich context, strategy training, and explicit vocabulary instruction. The results of various studies will be discussed to determine what approach or combination of approaches is most effective, and what role the L1 must play in foreign language vocabulary education. In addition, attention will be paid to three other issues that play an important role in L2 vocabulary teaching, namely the selection of words to teach, the presentation of words, and the involvement load of vocabulary tasks.

3.1 Providing rich context

The first and most extreme position with regard to L2 vocabulary teaching holds that vocabulary can be acquired solely from context, through reading extensively, and that there is "no need or even justification for direct vocabulary instruction" (Coady, 1997, p. 275). The most important exponent of this position is Krashen (1989), whose Input Hypothesis suggests that an L2 is best acquired by receiving "comprehensible input" (p. 440). This kind of input makes L2 learners focus on the message instead of the form, and as a result, makes them acquire language implicitly rather than explicitly. Comprehensible input can be either spoken or written language. Yet, with regard to learning vocabulary, reading seems to be more important than listening because written texts contain more difficult or low-frequency words than spoken discourse (Nagy & Anderson, cited in Krashen, 1989). This is confirmed by research showing that students generally learn fewer words from listening than from reading (Al-Homoud; Vidal, cited in Schmitt, 2008).

Several studies have examined the effects of reading in a foreign language on incidental vocabulary learning. Pitts, White, and Krashen (1989) replicated the *Clockwork Orange* study by Saragi, Nation, and Meister (1978). *A Clockwork Orange* is a novel by Anthony Burgess, which contains 241 invented slang words based on Russian, named *nadsat* words. While the original study by Saragi et al. with adult native speakers of English included Burgess's whole book, the adult students who learned English as an L2 in the study by Pitts et

al. only read the first two chapters of *A Clockwork Orange*. The selected passage contained 123 *nadsat* words, of which 30 were included in a multiple-choice test that was conducted shortly after the reading session. Transfer effects were excluded since the *nadsat* words did not resemble the participants' L1 vocabulary. The results showed that the experimental group had learnt an average of 6.4% of the words, whereas the control group, who had not read *A Clockwork Orange*, scored around zero.

Day, Omura, and Hiramatsu (1991) studied the effects of reading on incidental vocabulary learning for Japanese students learning English as a foreign language at Japanese high schools and universities. The experimental group read an adapted short story in English, including 17 target words, which occurred several times and in various contexts to allow students to infer their meanings. A multiple-choice test was administered immediately after reading. The experimental group scored higher on this test than the control group, who had not read the story and was simply given the test. The effects were found for both high school and university students, with the greatest gain for the university students. The latter knew 3 words more than the control group as opposed to a 1-word difference for the high school students.

In contrast to the former studies, in which students read only one text, Mason and Krashen (1997) studied the effects of an extensive reading program on the vocabulary knowledge of Japanese university students. Students were allowed to choose books from a large collection of graded readers and were asked to write brief summaries after finishing each story. After one semester, the students in the experimental group, who had read an average of 30 books, made significantly greater gains on a 100-item cloze test – a 1600-word story in which every tenth word was deleted – than the students in the control group, who had followed the traditional program. The average gains were 8.90 versus 4.35. This shows that a long-term program of extensive reading can positively influence vocabulary growth.

In all previous studies, only knowledge of the meaning of words was tested. Pigada and Schmitt (2006) performed a one-month extensive reading study, in which they not only measured the effects on knowledge of meaning, but also of spelling and grammatical characteristics. In their case study of a learner of French, who read approximately one graded reader a week, the gains in all these three types of knowledge were measured by means of an interview before and after the intervention. Pigada and Schmitt found that for 65% of the target words partial knowledge was acquired, which boils down to a pick-up rate of 1 out of every 1.5 words tested. Only for 6% of the target words all three types of knowledge were enhanced at the same time. Knowledge of spelling turned out to be more easily improved than

knowledge of meaning and grammatical characteristics. While the spelling of a word was picked up sometimes after only one encounter, more than ten exposures were necessary to promote knowledge of meaning.

Similar results were found by Waring and Takaki (2003), who measured the effects of reading one English graded reader on the word knowledge of Japanese university students. Words that appeared more frequently in the text were more likely to be remembered. However, the study showed that after three months, the number of words remembered had decreased considerably. Besides measuring the retention effects of reading on incidental vocabulary learning, Waring and Takaki also compared prompted meaning recognition (multiple-choice testing) with unprompted meaning recognition (providing a translation). While students recognized 10.6 out of 25 words on the immediate multiple-choice test, they were able to give a translation for only 4.6 of the words. Three months later, these scores had dropped to 6.1 and 0.9 respectively. Based on these results, Waring and Takaki argue that earlier studies, which used only multiple-choice tests and measured only immediate effects, have overestimated the incidental effect of reading on learning vocabulary.

Thus, although words can be learned from context alone, the number of words that is actually picked up and retained is relatively low, and exposure to written text by itself does not lead to in-depth lexical knowledge. As was anticipated in section 2.3, the abovementioned studies use a rather narrow definition of lexical knowledge, and do not measure lexical competence.

3.2 Strategy training

A second approach to L2 vocabulary teaching is strategy training. Although the proponents of this position "believe that context is the major source of vocabulary learning . . . they express some significant reservations about how well students can deal with context on their own" (Coady, 1997, p. 276). This view is confirmed by Hulstijn, Hollander, and Greidanus (1996), who showed that L2 learners often infer word meanings incorrectly from context or simply ignore unknown words when reading a text. Apparently, students lack the skills to infer the meanings of words correctly from context. Thus, providing rich context alone is not sufficient for vocabulary acquisition; students need to be taught how to infer and learn the meanings of new words that they encounter during reading.

Nation (2001b) argues that "training in strategy use [should be] a planned part of a vocabulary development programme" (p. 222) that receives "plenty of time" (p. 261). Since it

is impossible for teachers to explicitly teach every word in the language, students need to be taught vocabulary learning strategies, so that they are able to infer and learn the meanings of unknown words, and can expand their knowledge of low-frequency words by themselves. According to Nation (2001b), attention should be paid to three categories of vocabulary learning strategies, i.e. strategies focusing on (1) *planning*: choosing words, choosing aspects of word knowledge to focus on, choosing strategies, and planning repetition; (2) *sources*: analysing word parts, using context, consulting a reference source, and using parallels with other languages; and (3) *processes*: noticing, retrieving, and generating. Strategies are learned best when they are modelled by the teacher, and gradually taken over by the students as they gain proficiency (p. 218-22). Coady (1997) and Hulstijn (1997) argue that strategy instruction seems most suitable for intermediate and advanced learners, who are already fairly proficient in the L2, and can use strategies to expand their academic vocabulary.

According to a literature review by Walters as well as meta-analyses by Fukkink and De Glopper, and Kuhn and Stahl (cited in Schmitt, 2008), instruction in the use of context is beneficial for L2 vocabulary learning from reading. Two different approaches can be followed when inferring meaning from context: the *inductive* or *deductive* approach. Students following the *inductive* approach will first look for clues in the immediate and wider context to guess the meaning of a word, and then check whether this guess fits the context (Clarke & Nation, cited in Nation, 2001b). Students following the *deductive* approach will start guessing the meaning of the word, and then check and readjust their guess on the basis of contextual clues (Bruton & Samuda, cited in Nation, 2001b). While the first approach is very useful for teaching students the various strategies that are involved in inferring meaning from context, the second approach can be helpful for younger learners who are less systematic, as well as for advanced learners who are already fairly proficient in using strategies and just want to practise their fluency in guessing. Nation (2001b) indicates that advanced L2 learners are generally better able to infer meaning from context because of their greater vocabulary size. Moreover, good readers are usually more competent at inferencing than weak readers, as the ability seems to be strongly related to reading skills. Besides the learner's ability to infer word meanings, there are other variables that influence the chance that words will be learned from context, namely the frequency with which a word occurs; the proximity of the repetitions within the text; the variability of the contexts in which a word is encountered; the presence, proximity, number, and explicitness of relevant clues; the density of unknown words; the significance of the unknown word for text comprehension; prior knowledge of the topic; familiarity with the concept and referents; the concreteness of the referents; and the extent to

which the meaning of a word is unambiguous (Jenkins & Dixon, cited in Nation, 2001b, p. 243-5).

Nation (2001b) stresses that vocabulary learning from context is incremental; during each encounter with a word, new information is acquired and added. As De Bot et al. (1997) argue, "the process of inferring the features of unknown words in a reading passage can be described in terms of lemma construction" (p. 310). During the process of inference, a new lemma structure is set up and filled with syntactic and semantic information. Each follow-up encounter with the word will supply the lemma with additional information. Hulstijn (1997) stresses that words need to be rehearsed regularly to guarantee that they will eventually be retrieved automatically. Research has shown that frequent rehearsal for short periods of time (spaced learning) is more effective than lengthy, but infrequent rehearsal episodes (massed learning) (Bloom & Shuell; Dempster, cited in Nation, 2006b). Furthermore, each rehearsal should involve "as many previously formed associations as possible, since an elaborative rehearsal technique has been proven to be much more effective than a maintenance rehearsal technique" (Baddeley, cited in Hulstijn, 1997, p. 219).

Besides training students in inferencing skills, Nation (2001b) points out that it is worthwhile to pay special attention to the use of word parts, dictionaries, and word cards, since these vocabulary learning strategies can contribute to the acquisition of many new words. Training in the use of morphology, i.e. knowledge of roots and inflectional and derivational prefixes and suffixes, can help students to infer the meanings of unknown words and to verify whether a certain guess is correct (White, Power, & White, cited in Nation, 2001b). Furthermore, awareness of "morphological relationships" between words that belong to the same word family may increase the chance that students will integrate L2 morphological information into their L2 lexical entries, as is suggested by research of Nagy, Anderson, Schommer, Scott, and Stallman (cited in Nation, 2001b, p. 269). Nation (2001b) points out that to master the word part strategy, students need to learn two steps: (1) "Break the unknown word into parts"; and (2) "Relate the meaning of the word parts to the meaning of the words" (p. 278). Research suggests that "there is a relatively small group of very useful accessible affixes that learners could be introduced to at appropriate levels of their language development" (e.g. Bauer & Nation; Bock; Harwood & Wright; Stauffer; Thorndike, cited in Nation, 2001b, p. 267). It is important that vocabulary development programmes pay enough time and attention to learning these affixes as well as to practicing the steps of the word part strategy.

Secondly, dictionaries are not only "sources of information," which are helpful for understanding or producing spoken or written language, but can also be "aids to learning" (Nation, 2001b, p. 281). Opinions differ whether monolingual or bilingual dictionaries should be used in foreign language education. While monolingual dictionaries contain more detailed information about words, bilingual dictionaries are easier to interpret by beginning language learners and are very useful for productive use. Nation (2001b) argues that a combination of both types of dictionaries seems to be most effective.[3] Research has shown that dictionary use during reading can have a positive effect on both short-term and long-term vocabulary learning (Hill & Laufer, 2003; Hulstijn et al., 1996). Yet, students are not always very skilled in using a dictionary, and therefore need to be trained in this strategy (Coady, 1997; Nation, 2001b). They must learn, for instance, how to find the right sub-entry in a dictionary, and to interpret the grammatical information that is provided for a word. However, although training in dictionary use is very valuable, students "will only gain a small amount of information from any one dictionary look-up" (Nation, 2001b, p. 296). This information should always be expanded through further encounters with the words, in various contexts.

Thirdly, the use of word cards also deserves training (Nation, 2001b). Students put an L2 word on one side of a card, and an L1 translation, L2 definition, and/or picture on the other side. They then go repeatedly through the pack of cards, try to retrieve the meaning of each foreign language word, and turn over the card to check the meaning if it could not be retrieved. After words have been learned receptively in this manner, they can be learned productively. It is also possible to add "a sample sentence or collocations" to the translation or definition, to provide extra information about the word (p. 297). Yet, even without this information, the use of word cards is effective for both short- and long-term retention, as it helps to strengthen the association between L2 word forms and their meanings (Atkinson; Landauer & Bjork, cited in Nation, 2001b). Several important factors should be taken into account when using the word card strategy. In choosing the words to write down on the cards, high-frequency words should be given preference, and "interference" (p. 303) of words in a pack should be prevented (Tinkham, 1997; Waring, 1997).[4] Moreover, the number of words to learn should be adjusted to the difficulty of the words; the easier the words, the greater the number of cards can be (Crothers & Suppes, cited in Nation, 2001b). More difficult words should be put in the beginning of the pack, so that they get more attention and are learned

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[3] Section 3.3 will pay more attention to the use of the L1 or L2 for semantization.
[4] The concept of *interference* will be further explained in section 3.4.2.

better (Baddeley, cited in Nation, 2001b). By regularly changing the order of cards in the pack, "serial learning" can be prevented (Nation, 2001b, p. 307). Finally, research has shown that saying the words out loud has a positive effect on retention, as it helps to put the words into long-term memory (Seibert, cited in Nation, 2001b). It is important to realise that learning from word cards and learning from meaningful context complement and reinforce each other; while word cards make students familiar with "the underlying concept" of a word, later experiences with the word in reading or listening activities can alert students to "how this concept changes to suit particular contexts and the range of contexts in which the word can be used" (Nation, 2001b, p. 301).

Other vocabulary learning strategies, which can be combined with the word card strategy, include the use of mnemonic techniques. These help the learner to remember the word by reinforcing the link between a word form and its meaning. One of these techniques is the keyword method, which consists of two steps: (1) the learner chooses an L1 or L2 keyword, "preferably referring tot a concrete entity," which bears "acoustic and/or orthographic similarity" to the target word; (2) the learner chooses a visual image, which links the meaning of the target word and the meaning of the keyword "in a salient, odd, or bizarre fashion" (Hulstijn, 1997, p. 204). Thus, in the first step, an "acoustic link" is created and in the second step an "imagery link" (Rodríguez & Sadoski, 2000). For example, an English learner who tries to remember the French word *paon* ("peacock") may use the acoustically and orthographically similar English word *pawn* as a keyword, and imagine "a chess board on which all pawns look like peacocks" (Hulstijn, 1997, p. 205). Memorising this image, which reflects the interaction between the target word and the keyword, increases the chance that the target word and its meaning will be remembered. Nation (2001b) stresses that to be able to apply this method appropriately, students need to receive "extended training with the keyword technique" (p. 314).

Rodríguez and Sadoski (2000) compared the effects of rote rehearsal, context, keyword, and context/keyword conditions on the immediate and long-term retention of foreign language vocabulary. The age of the participants in the study varied from thirteen to eighteen years, and they had been studying English for at least two years. The study was conducted in a natural classroom setting, and the strategy training was provided by experienced EFL instructors. In the rote rehearsal condition, students were given Spanish translations of English words, and were asked to repeat these combinations several times. The keyword condition provided students with a Spanish translation, a Spanish keyword, and an image that linked the target word and the keyword. In the context condition, students were

shown three example sentences in which the target word was used, and were asked to infer its Spanish meaning from context. The teacher corrected the inferences if they were wrong. Finally, the combined context/keyword condition included three sentences as well as a Spanish keyword and image. A cued-recall test was administered either directly after the intervention or one week later. In both post-tests, students were asked to give Spanish translations of the English words. The results showed that the context/keyword condition had the greatest effect on vocabulary retention, especially on the delayed post-test. This effect was found for students with different levels of proficiency in English. The finding can be explained by the fact that the non-mnemonic rote rehearsal and context conditions only activate the verbal system, while the mnemonic-based keyword and context/keyword conditions activate both the verbal and the non-verbal system. According to Rodríguez and Sadoski, "dual encoding . . . enhances elaboration, comprehension, and memory by producing stronger memory traces and more accessible retrieval paths" (p. 404). Moreover, the additional verbal activation in the context/keyword condition clarifies why the combined condition was more effective than the keyword condition by itself.

Likewise, Sagarra and Alba (2006) showed that the keyword method led to better vocabulary retention with beginning learners of Spanish at a US university than rote memorization or semantic mapping. In all three conditions, the English translations of the Spanish words were given. The rote memorization condition was similar to the condition in Rodríguez and Sadoski's study. Yet, the keyword condition was somewhat different, since students had to create the L1 keywords and images themselves. According to Sagarra and Alba, "increasing the learners' involvement while processing new words can aid retention" (p. 234). Finally, in the semantic mapping condition, students were asked to create "a diagram with L1 words semantically related to the new L2 word" (p. 229). Sagarra and Alba assumed that the keyword and semantic mapping conditions would lead to better word retention than rote memorization because both methods are "elaboration techniques," requiring students to make associations between the new L2 word and previous knowledge, and thus encourage deeper processing (p. 229). Yet, the authors expected the keyword method to be most effective because it requires students to create both "form and meaning associations," while semantic mapping only requires them to make "meaning associations" (p. 232). The results supported the hypothesis that the keyword method is more effective than rote memorization and semantic mapping. However, semantic mapping turned out to be less effective than rote memorization on both an immediate and delayed post-test. According to Sagarra and Alba, a possible explanation for this finding is that the semantic mapping task encouraged students to

focus primarily on the meaning of the L2 word, while disregarding its form and the connection between form and meaning. Since students were already familiar with the meaning of the target word, they may have been more in need of clues that helped them to remember the form of the word. Moreover, the semantic mapping task may have encouraged students to produce associations that were only distantly related in meaning to the target word, and may therefore have "inhibited rather than facilitated" the retention of the L2 words (p. 238).

Although it has been empirically shown that the keyword method has a positive effect on word learning, it is not widely used in foreign language learning methods (Hulstijn, 1997). Reasons for this may be that the use of the keyword method is restricted to words that refer to concrete entities, and that the method is helpful only for fostering comprehension of L2 words and not for production. Yet, according to Hulstijn (1997), the most important reason seems to be that teachers perceive the keyword method as an "unnatural technique," since they assume that "[i]nput in L2 language courses must be as authentic as possible, embedded in situations of quasi-natural communication" (p. 210). However, as Hulstijn points out, "natural, authentic, communicative L2 instruction" and the keyword method do not need to be contradictory (p. 210). The keyword method only serves a temporary role for establishing a link between a word form and its meaning, and the association between the keyword and the target word will eventually disappear. Acquiring vocabulary is an incremental process, and the "keyword method does not claim to offer a substitute to this entire process of adding all semantic and formal features to a node in the mental lexicon. It functions only to help establish *one* of the necessary links in the *initial* phases of this process" (p. 213). Thus, mnemonics are a useful addition to contextual methods for acquiring vocabulary, and not a replacement. Another issue of controversy concerns the use of L1 versus L2 keywords. When L1 keywords are used, a connection is made between the L2 target word and L1 information that is already stored in the mental lexicon. Although this facilitates the initial learning of the word, it also implies that a greater effort is needed to reach the final stage of L2 lexical development, in which the L2 lexical entry is made up completely of L2 information. Hulstijn (1997) therefore prefers the use of L2 keywords. However, this is only possible for more advanced L2 learners, who already have a considerable vocabulary size in the L2.

To summarize, training in strategies to infer word meanings and to strengthen the association between word forms and their meanings in the mental lexicon can contribute to the acquisition of many new words. When students know how to use context, word parts, dictionaries, word cards, and mnemonic techniques like the keyword method, they will be

able to independently increase their vocabulary. Yet, to promote long-term retention of words and automaticity in use, repeated exposure in various contexts and frequent and elaborative rehearsal are crucial.

3.3 Explicit vocabulary instruction

A third approach to L2 vocabulary teaching is explicit vocabulary instruction. Whereas strategy training is generally focused on more advanced learners, explicit vocabulary instruction is often aimed at beginning L2 learners, to teach them the most frequent words of the language as quickly and efficiently as possible. However, intermediate and advanced L2 learners can also profit from explicit vocabulary instruction. As Paribakht and Wesche (1997) point out, during the reading of a text, "[l]earners often ignore the meanings of unknown words, unless they are essential for achieving the desired level of text comprehension" (p. 196). As a result, the number of words that is learned from reading alone is limited. This number can be increased by directing learners' attention to target words in the text through explicit vocabulary instruction. One way to do this is by providing students with marginal glosses, i.e. L1 translations or L2 definitions of target words that are given in the margin of the text. Hulstijn et al. (1996) showed that the provision of marginal glosses for unknown words in the form of L1 translations has a positive influence on L2 vocabulary learning from reading.

The explicit vocabulary instruction can also be provided by the teacher. In their study with Arabic students of English, Sonbul and Schmitt (2010) compared a Read-Only condition to a Read-Plus condition. In both conditions, students read a short text silently, after which the teacher asked questions to test comprehension. In the Read-Plus condition, the teacher also provided explicit instruction about word meanings for a selection of target words after reading. For each word, the teacher gave two meanings, which she wrote down on the board, and repeated once. Three post-tests were administered without announcement directly after the teaching session and one week later, measuring "form recall, meaning recall, and meaning recognition" (p. 256). The results showed that the Read-Plus condition had a greater effect on all three levels of word knowledge. While the Read-Only condition merely improved meaning recognition (measured by a multiple-choice test, in which students had to select the correct meaning for each target word), the Read-Plus condition also enhanced meaning recall (measured by a translation test, in which students had to provide an L1 translation for each target word) and form recall (measured by a completion test, in which the first three letters of

each target word and its meaning were given). This implies that "deeper levels of vocabulary knowledge" can only be realised when reading is complemented with direct instruction (p. 258). As word form turned out to be much harder to acquire than meaning, Sonbul and Schmitt argue that more attention should be paid to "the development of word form" in foreign language vocabulary teaching (p. 258). It was found that more than half of the students reread the text on their own accord between the immediate and delayed post-tests, which may have contributed to the fact that the learning gains from the first session did not decrease in this study, but were consolidated or even reinforced. This result confirms that "repeated exposure" is crucial in vocabulary learning (p. 257).

While in the former studies, students' attention was focused on the target words in a text through glosses or teacher explanations, other explicit learning activities may involve the execution of specific vocabulary exercises. In their studies with Canadian university students learning English as an L2, Paribakht and Wesche (1997) and Wesche and Paribakht (2000) found that the performance of vocabulary exercises after reading resulted in more and deeper word knowledge than reading alone, as measured by the Vocabulary Knowledge Scale. The vocabulary exercises provided students with multiple exposures to the words in various contexts, and emphasised different lexical characteristics of the words. According to Wesche and Paribakht (2000), this led to "elaboration as well as strengthening of the knowledge learners have of particular lexical items" (p. 207). In other words, the exercises made students acquire orthographical, morphological, semantic, and syntactic knowledge about the L2 words, and provided them with the opportunity to practise this knowledge on both a receptive and a productive level. Min (2008) reported similar results for Chinese secondary school students learning English. Her study showed that the condition of reading plus vocabulary exercises did not only lead to more and better word knowledge than the reading only condition on an immediate post-test, but also on a delayed post-test that was administered three months later. Furthermore, Hill and Laufer (2003) found that post-reading tasks that explicitly focus students' attention on target words in the text and encourage them to find out their meanings, have a greater effect on vocabulary learning than comprehension questions. Hill and Laufer's study was computer-based, and for each target word students could access an L1 translation, L2 definition, pronunciation, syntactic information, and a sample sentence from an electronic dictionary. The more dictionary activity a task encouraged, the greater the effect on vocabulary learning. Hill and Laufer conclude that "the amount of word-related activity" is a crucial factor in foreign language vocabulary teaching (p. 104); "if learners pay careful attention to the word's pronunciation, orthography, grammatical category, meaning

and semantic relations to other words, they are more likely to retain the word than if they pay attention to only one or two of the above word properties" (p. 89-90).

Explicit vocabulary instruction in foreign language education is also justified from a psycholinguistic perspective. Jiang (2004) argues that to help L2 learners progress from the second to the final stage of L2 lexical development, their attention needs to be focused on "the semantic differences between an L2 word and its L1 translation, or between two L2 words that share the same L1 translation" (p. 427). Jiang argues that such differences are usually too "subtle" to be revealed by natural contexts. Therefore, "deliberate instructional intervention" is necessary to realise "semantic restructuring and development" (p. 427). Jiang points out that "timing" is crucial with regard to instruction in semantic differences. It is not advisable to offer this kind of instruction when learners "are still struggling with the core meanings for new words" (p. 427). However, the process of semantic restructuring should be stimulated as soon as possible. This can be done, for instance, by highlighting the semantic differences between specific problem words through the provision of example sentences. Jiang argues that the awareness of semantic differences between words is "a critical first step in [the] semantic restructuring process" (p. 427). The explicit instruction will result in the acquisition of new L2 semantic information by the learner. To make sure that this information will eventually be integrated into the L2 lexical entry, it is important that learners are provided with plenty of "contextualized input and interaction" as well (p. 427). Frequent exposure and practice will stimulate lexical competence, so that learners will be able to retrieve the information automatically in natural communication.

Although the established L1 lexical and semantic systems can help learners to acquire the meanings of L2 words quickly and efficiently, they can also hinder learners in moving from the L1 lemma mediation stage to the L2 integration stage. This raises the question of whether L1 translations should or should not be used in L2 vocabulary teaching. Jiang (2004) distinguishes three categories of "semantization strategies," namely: (1) *intralingual strategies*, which use "synonyms, definitions, or linguistic contexts" in the L2; (2) *interlingual strategies*, making use of "the L1 in the form of a bilingual dictionary, cognates, or L1 translation equivalents"; and (3) *extralingual strategies*, utilizing "pictures, objects, physical contexts, and other multimedia aids" (p. 426). According to Jiang, "it is not necessary or desirable for learners to avoid using the L1 for semantization" (p. 426). First of all, learners are often unable to infer the meanings of L2 words correctly from context, which limits the usefulness of intralingual strategies for initial semantization. Secondly, there are many benefits to using interlingual strategies like L1 translation equivalents: (1) they are "an

easy and efficient way of depicting the core meaning of a word"; (2) they make the learner feel confident that the word has been understood correctly; and (3) the fact that an L2 word form is connected to the "well-established" L1 semantic system heightens the chance that the word will be remembered (Jiang, 2004, p. 426). Similarly, Nation (2006b) argues that an L1 translation is generally "short and clear," and "a synonym rather than a definition" (p. 452). Moreover, it is simply impossible to avoid L1 involvement because new L2 word forms will always be mapped to meanings or concepts that already exist. Therefore, Jiang argues, "there is no reason not to use the L1 as a means of semantization or as a tool for checking and validating learners' understanding of word meaning" (p. 426).

This idea is confirmed by Laufer and Shmueli, who "found that L1 glosses were superior to L2 glosses in both short-term and long-term (5 weeks) retention, irrespective of whether the words were learned in lists, sentences or texts" (cited in Nation, 2001b, p. 304). Tian and Macaro (2012) found a similar result for explicit vocabulary instruction during listening comprehension activities. They compared the effects of teacher codeswitching between L2 and L1, and the provision of L2-only explanations on the vocabulary acquisition of Chinese university students of English. Students listened to a recorded text, answered multiple-choice comprehension questions about this text, and then listened to the recording once again in segments, with the teacher providing either L1 translations or L2 explanations for target words in the text. English was the predominant language in the codeswitching condition, while Chinese was used only to provide short translations of the target words. While both experimental conditions led to better vocabulary learning than a control condition in which no explicit vocabulary instruction was provided, the effects of the codeswitching condition turned out to be superior to those of the L2-only condition. Moreover, it generally took less time to explain a word in Chinese than in English. However, the superior effects of the codeswitching condition were only found on the immediate post-tests; there were no significant differences between the two experimental conditions on a delayed post-test. Thus, constantly switching to L1 during vocabulary instruction does not seem to be necessary nor desirable. More research should be conducted to find out whether certain word types could be explained more effectively in either L1 or L2. Moreover, the vocabulary learning effect of both experimental conditions in Tian and Macaro's study had decreased considerably on the delayed post-test, which implies that "a single exposure to a new word does not permit enough consolidation in the mental lexicon" (p. 381). Frequent exposure to new words is crucial to allow long-term retention. Finally, against expectation, low-proficiency students did not benefit more from receiving L1 vocabulary instruction than high-proficiency students.

This finding may have been caused by the fact that "differences in proficiency levels were not large enough" (p. 382). Another explanation may be that only low-frequency words were involved in this study. Low- and high-proficiency students may therefore have relied on their L1 to a similar degree. Whatever the reason may have been, the result corresponds with Jiang's (2002, 2004) finding that L1 semantic information continues to be used at high levels of proficiency.

In short, focusing students' attention explicitly on new words in a text or audio recording by providing them with glosses or teacher explanations, or by involving them in word-focused exercises, has a positive effect on vocabulary learning. These forms of direct vocabulary instruction provide students with information about the meanings of L2 words, which would otherwise be ignored. Psycholinguistic theory as well as empirical studies suggest that there is no need to avoid using the L1 for the semantization of L2 words.

3.4 Other issues in L2 vocabulary teaching

This section will discuss three other important issues in L2 vocabulary teaching: the selection of words to teach, the presentation of words, and the involvement load of vocabulary tasks. First of all, since time is scarce in the secondary school classroom, it has to be well considered which words are given direct attention and which are not. Choices depend on the frequency, usefulness, and learning burden of words and combinations of words. Secondly, the way in which words are presented also plays a role in vocabulary learning. Words can be presented in semantically related or unrelated sets, or in thematic clusters. Various studies that have examined the effects of different presentation modes on the learning of L2 words will be discussed. Finally, attention will be paid to the Involvement Load Hypothesis, which provides an explanation for the fact that certain vocabulary learning tasks are more effective than others.

3.4.1 Selection of words to teach

The English language has developed from many different languages – Anglo-Saxon, Norman French, Latin, and Greek – which makes its vocabulary rather complex (Nation & Meara, 2002). Often, semantically related words share no formal similarities (Schmitt, 2010), and "rare and unusual words" are used to express concepts for which other languages use compounds of higher-frequency words (Nation & Meara, 2002, p. 49). This makes learning

English a great challenge. Although it is not necessary to acquire the same vocabulary size as a native speaker, learners will have to learn a considerable number of words to become "functional" in English (Zimmerman & Schmitt, 2005). Nation (2006a) calculated that students need to know 6,000 to 7,000 word families to comprehend spoken English discourse, and 8,000 to 9,000 word families to understand authentic texts like novels and newspapers. Moreover, to understand university reading materials in a foreign language, a vocabulary size of at least 10,000 word families seems to be required (Hazenberg & Hulstijn, 1996).

Although such a large vocabulary size should be the ultimate aim of English classes in secondary education, it seems that most Dutch students start their school career with a relatively low proficiency in English. To be able to have simple conversations about everyday topics and to read authentic texts with help from the teacher, it is crucial that students soon acquire the 2,000 to 3,000 most frequent word families of English (Schmitt, 2007; Schmitt, 2010; Zimmerman & Schmitt, 2005). The 2,000 most frequent word families have been shown to cover 80 to 85% of words in any text, and an even greater percentage of words in spoken language (Nation, 2001a; Nation & Newton, 1997). In addition, as Nation (2001a) argues, secondary school students who will continue their studies in higher professional education or at university will benefit from learning the 570 word families that are included in Coxhead's (2000) Academic Word List. Together, these 570 academic word families and the 2,000 most frequent word families of English lead to a 90% coverage of academic texts (Nation, 2001a). This makes it very worthwhile to invest time and effort in explicitly teaching this group of words in the foreign language classroom. The teacher should make sure that high-frequency words are "directly studied" as well as frequently recycled in "listening, speaking, reading and writing" (Nation, 2001a, p. 23). Attention should be paid to meaning, collocations, grammatical features, and morphological characteristics of the words (Zimmerman & Schmitt, 2005). Low-frequency words on the other hand are less useful and therefore do not deserve direct teacher attention. Instead, the teacher should focus on training students in using strategies to deal with and learn these words independently, when meeting them in context (Nation, 2001a; Nation & Newton, 1997).

Based on Nation's research (2006a) on the vocabulary size required to understand authentic English texts, Schmitt and Schmitt (2012) argue that the low-frequency boundary starts at the 9,000 level, while high-frequency vocabulary should include the most frequent 3,000 word families. The authors argue that the mid-frequency vocabulary in between these two boundaries is very important for proficient language use, and should get more attention in foreign language courses than it currently gets. This is also claimed by Tschirner (2004).

Discussing the disappointing results of German students after eight years of secondary school instruction in English, he argues that teachers should pay more attention to the 3,000 to 5,000 most frequent words of English to better prepare students for university courses in English.

Some words are harder to acquire than others. Factors that influence the "learning burden" of L2 words are associated with (1) word form: pronunciation, spelling, and word parts; (2) word meaning: connection between form and meaning, concepts and referents, and associations; and (3) word use: grammatical functions, collocations, and constraints on use (Nation, 2006b). The learning burden of words can be eased through explicit vocabulary instruction. An important factor influencing the learning burden is the "degree of semantic overlap" between an L2 word and its L1 translation. Jiang (2000) distinguishes between "real friends," "false friends," and "strangers" (p. 67). L2 words that have a high degree of semantic overlap with their L1 translations are called *real friends*. While real friends may be easy to learn in the beginning, they often stay at the L1 lemma mediation stage for a long time, and may never reach the final stage of L2 lexical development. L2 words and L1 translations that do not have a high degree of semantic overlap are called *false friends*. These words have a greater chance of reaching the L2 integration stage because "it is more likely for a learner to catch a semantic mismatch between a false friend and its translation" (p. 68). When that happens, the learner is stimulated to create "new semantic content that is specific to this L2 word," which will then be integrated into the lexical entry of the word (p. 68). Finally, there are L2 words that do not have L1 translation equivalents at all; these are called *strangers*. Although strangers generally take a long time to be understood and even longer to be used productively, their use will eventually become nearly as automatic as the words of the learner's native language. This is because learners will have to derive L2 lexical information from context to create a meaning for these words, which they will then integrate into their lexical entries (Jiang, 2000, 2002). Thus, while false friends and strangers need to be given extra attention in the beginning of the acquisition process by providing definitions and rich context that clarifies their meaning, real friends should be recycled more extensively after they have been learned to increase the automaticity of their use.

Finally, several authors stress the importance of paying direct attention to collocations in foreign language education (Wolter & Gyllstad, 2011; Zimmerman & Schmitt, 2005). Being able to use collocations appropriately makes learners sound more native-like, and improves their fluency since the formulaic sequences are immediately available for use (Shin & Nation, 2008). However, as Wolter (2006) points out, the L1 lexical and semantic systems may provide learners with "misinformation about allowable combinations of words" in the L2

(p. 742), which leads to errors in language production. Shin and Nation (2008) show that there are many high-frequency collocations, especially in spoken language, which deserve classroom attention. Although it is not possible to "teach every possible collocation for every word," Zimmerman and Schmitt (2005) argue that students should be made aware of "the most prominent collocations," i.e. collocations that occur most frequently (p. 4). Although not much research has been conducted yet with regard to the effects of teaching formulaic sequences, Alali and Schmitt (2012) showed that formulaic language profits just as much from direct teaching and repetition as individual words. According to Zimmerman and Schmitt (2005), important guidelines for teaching collocations are to "present words in strings rather than individually and to point out the sequential relationships to students" (p. 4). Moreover, students should be provided with ample exposure to the foreign language so that they will "acquire reliable intuitions for which words collocate with one another" (p. 4).

3.4.2 Presentation of words

The presentation of words also plays an important role in L2 vocabulary acquisition. Many L2 coursebooks introduce new words in semantically related sets (Nation, 2000; Tinkham, 1997; Waring, 1997). Examples of such lexical sets are "parts of the body," "clothes," "foods," and "jobs" (Waring, 1997, p. 261). The presentation of L2 words in semantic clusters is based on the belief that it helps the acquisition of new words and the formation of associations in the mental lexicon. Advocates argue that semantic clusters reflect the way in which words are organised in the mental lexicon, and that words are generally recalled "on the basis of the semantic field in which they are conceptually mapped" (Aitchison, cited in Erten & Tekin, 2008, p. 408). Moreover, semantic clusters are assumed to "provide a useful framework for the learner to understand semantic boundaries: to see where meaning overlaps and learn the limits of use of an item" (Gairns & Redman, cited in Tinkham, 1997, p. 140). However, these beliefs are not supported by research findings. On the contrary, as early as 1931, McGeoch and McDonald (cited in Waring, 1997) found that similarity between words actually makes it more difficult to learn these words. Especially synonyms were found to pose problems. As a result of these and other findings, Interference Theory was developed, which claims that "when words are being learned at the same time, but are too 'similar' or share too many common elements, then these words will interfere with each other," which will hinder their "retention" (Waring, 1997, p. 261). Learners will get confused about which meaning belongs

to which word, and extra effort is required to discriminate between the words and prevent that "crossassociations" are being formed (Nation, 2006b, p. 452).

Tinkham (1997) provided experimental evidence that learning words in semantic clusters indeed hinders learning. The students in his study needed much more time to learn sets of semantically related words than sets of unrelated words. Thematic clusters on the other hand turned out to be easier to learn than unrelated words. Whereas words in a semantic cluster share semantic and syntactic similarities, like *apple, pear, nectarine, peach, apricot,* and *plum*, words in a thematic cluster have "a shared thematic concept" and do not all belong to the same syntactic category, for example *frog, pond, swim, hop, green,* and *slippery* (p. 142). Tinkham's results were found in both oral and written intervention modes, and on recognition as well as recall tests. Moreover, student questionnaires confirmed the image of the difficulty levels of the various conditions. Replicating an earlier study by Tinkham with Japanese subjects, Waring (1997) also found that presenting words in semantic clusters interferes with learning. While Tinkham and Waring studied the learning of artificial words by adult learners, Erten and Tekin's study (2008) involved real words and younger learners. The participants were fourth grade students, who were beginning learners of English. In contrast with the previously discussed "tightly controlled studies" (Waring, 1997, p. 271), this study took place in the classroom during normal English class hours. In accordance with the former studies, the results showed that learning semantically related sets of words yielded significantly lower scores than learning unrelated words. Moreover, it took students longer to finish the tests on semantically related words, which indicates that recall was slower for these words. Erten and Tekin argue that although words may be organised in "semantic fields" in the mental lexicon, semantic clustering is not an appropriate way for learning new words. The fact that learners have to "discriminate between semantic properties" increases "task complexity . . . [and affects] the capacity of the short term memory" (p. 416-7).

The results of these studies on presentation modes imply that the use of semantic clusters should be avoided in L2 coursebooks. Instead, the learning burden of new L2 words can be eased by using thematic clusters. For example, a unit about clothes could include thematically related words like *sweater, changing room, try on, cash register, wool,* and *striped*, rather than semantically related words such as *scarf, tie, coat, pants,* and *skirt* (Waring, 1997, p. 270). According to Nation (2000), the presentation of vocabulary in L2 coursebooks should meet the following three criteria: (1) "usefulness," as determined by the frequency of words and the extent to which learners need particular words; (2) "avoidance of interference" between words, so that they can be learned easily; and (3) "normal use, meaning

that words should occur in normal communication situations, not in contrived, language-focused activities" (p. 8). The last criterion implies that word lists should not be used as "a starting point" for offering new vocabulary to students, but rather to revise words that have been learned in a meaningful context (Waring, 1997, p. 270). This could be done by organising lessons around stories rather than topics (Nation, 2006b).

Besides coursebooks, teachers and learners also have a role in avoiding interference. Teachers should make sure that semantically related words are presented at different times, and if this is not possible, they should use "widely differing contexts" to explain the meanings of these words. For example, rather than using *hot* and *cold* in the same context, as in *hot water* versus *cold water*, *hot* could be associated with *weather*, *water*, and *summer*, and *cold* with *morning*, *meal*, and *drink*. By doing this, the "strength of association" between *hot* and *cold* will be reduced, and interference will become less likely (Nation, 2000, p. 9). It is also important that students are told about interference, and know how they can avoid it when they are learning vocabulary outside the classroom, for example when using word cards. Interference is not limited to semantically related words, but can also occur when words are morphologically or formally similar (Nation, 2001b). Mnemonic techniques could be presented to students as a way to keep such words apart when interference cannot be avoided. Although learning semantically related words together is not helpful when these words have not been established yet, Nation (2000) argues that it could be useful to bring them together when they have been acquired to a considerable level. This could help "to see how they differ from each other and where the boundaries between them lie," and to "strengthen associations" between the words (p. 9).

3.4.3 Task involvement load

The uniting characteristic of all strategies, methods, and activities that positively contribute to L2 vocabulary learning seems to be that they encourage "deep processing" or "elaboration" (Hulstijn & Laufer, 2001, p. 543). These terms, which were originally coined by Craik and Lockhart in their "levels of processing theory" (cited in Hulstijn & Laufer, 2001, p. 540), suggest that the more elaborately a word is processed, the stronger the connections between new and existing knowledge will be, and the more likely it is that the word will be acquired and retained. However, because it is difficult to measure "deep processing" and "elaboration," Laufer and Hulstijn (2001) developed the Involvement Load Hypothesis, which is built around the concept of "task-induced involvement" (p. 2). This construct consists of three

measurable dimensions, i.e. the motivational dimension "need" and the cognitive dimensions "search" and "evaluation" (p. 2). *Need* signals the necessity to obtain linguistic knowledge, and can be either extrinsically or intrinsically motivated. Need is moderate when it is imposed by the teacher, and strong when it is self-imposed. The dimension *search* denotes the effort that is required to find a meaning or a word form, and is either present or absent from a task. Finally, *evaluation* represents the student's assessment of whether a certain word or meaning fits a specific context. Evaluation is moderate when the context is given, and strong when the context is created by the student.

The involvement load of a task can be determined by calculating its "involvement index" (Hulstijn & Laufer, 2001, p. 544). This is done by scoring the absence of a factor as 0, a moderate presence as 1, and a strong presence as 2, and subsequently adding the scores for each of the three factors. According to Laufer and Hulstijn (2001), "tasks with a higher involvement load will be more effective for vocabulary retention than tasks with a lower involvement load" (p. 17). In their study with Israeli and Dutch students of English, Hulstijn and Laufer (2001) compared the effects of three tasks that had involvement indices of 1 (reading comprehension with marginal glosses), 2 (reading comprehension plus fill-in task), and 3 (writing a composition and incorporating the target words) respectively. Although for the Dutch students, the second task did not lead to a significantly higher score than the first task, the overall results supported the Involvement Load Hypothesis as the task with the highest involvement load resulted in the best performance on the vocabulary test for all students.

A meta-analysis of twelve studies by Huang, Eslami, and Willson (2012) on the effects of output tasks after reading on L2 vocabulary learning also provides support for the Involvement Load Hypothesis. According to this meta-analysis, the greatest vocabulary gain is achieved by a combination of tasks, followed by composition writing, sentence writing, and blank filling exercises respectively. These are all tasks with relatively high involvement loads. Composition and sentence writing exercises are usually imposed by the teacher, which implies that there is moderate need (1) to find out the meanings of target words. Search (1) is usually present in these exercises because students will have to look up the target words that they need to incorporate in their writing. Finally, there is strong evaluation (2) because students have to create original sentences and must decide which additional words can be combined with each target word. Therefore, the maximum involvement index of these exercises is 4. In a blank filling exercise, students have to fill in gaps in sentences by placing the correct target word in the correct sentence. This task is also imposed by the teacher; so

there is moderate need (1). Search (1) is present when students have to look up the meanings of words that must be placed in the sentences. Finally, there is moderate evaluation (1); the context is given, and students have to evaluate which sentence provides the right context for each target word. Thus, this exercise has a maximum involvement index of 3.

Lu (2013) found that the Taiwanese vocational high school students in her study perceived composition tasks, which took them longest to complete, to be less beneficial for vocabulary learning than blank filling tasks. Although this finding may be tied up with the Taiwanese educational system, in which writing instruction only has a small place, it does signal an important factor that should not be overlooked in foreign language education, i.e. students' own perceptions of task effectiveness. As Schmitt (2008) argues, it is not only task type that determines students' involvement, but student-related factors like their "strategic behaviour" in dealing with certain materials and their "motivation and attitudes" also play a significant role (p. 338). Schmitt summarises these factors with the term "engagement" (p. 339), which he considers to be a major success factor in L2 vocabulary learning.

3.5 Summary

The review of the three approaches to L2 vocabulary teaching in this chapter has shown that exposure to rich context, strategy training, and explicit vocabulary instruction are all valuable as they complement and reinforce each other. Although reading can lead to vocabulary learning, the pick-up rate from reading alone is quite low, and reading by itself does not lead to in-depth knowledge of words. Moreover, when time is limited, more efficient methods than extensive reading are necessary to promote vocabulary learning. These can be either explicit vocabulary instruction or strategy training. Providing students with L1 or L2 explanations for words, or involving them in word-focused exercises, contributes to the construction of correct form-meaning connections in the mental lexicon. Furthermore, training in strategies to infer word meanings and to strengthen the associations between word forms and their meanings can help students to independently increase their vocabulary. Nevertheless, reading remains important, as it is very useful for consolidating the knowledge of words that have been acquired partially through intentional learning activities. Extensive reading can help to facilitate the transition from lexical knowledge to lexical competence as it provides students with multiple exposures to L2 words in various contexts, and stimulates the integration of L2 semantic, syntactic, and morphological information in L2 lexical entries. Moreover, it

provides the opportunity for encountering and learning many words that cannot be explicitly taught in the classroom.

The use of a combination of approaches in instructional settings is also supported by psycholinguistic theory. To make students aware of the semantic differences between L2 and L1 words or between two L2 words that share the same L1 translation, it is necessary to provide them with explicit vocabulary instruction, as such semantic differences are often too subtle to be revealed by natural contexts. Moreover, according to psycholinguistic theory, both the L1 and the L2 can be used effectively for semantization of L2 words, a claim that is supported by empirical evidence. However, besides explicit vocabulary instruction, contextualized input and interaction are also very important, to help students progress from the second to the final stage of L2 lexical development. Only through frequent exposure and practice will students acquire lexical competence, and will they be able to retrieve L2 lexical information automatically in natural communicative situations.

In addition to the three approaches to L2 vocabulary teaching, this chapter has explored three other issues that are important in foreign language vocabulary education. First of all, explicit vocabulary instruction should focus on words that are most useful for students to learn. While direct attention is worth the effort for high-frequency words, it is not for low-frequency words. Moreover, words that are more difficult to learn require more attention than words that are relatively easy to learn. Secondly, L2 coursebooks and teachers should avoid the use of semantic clusters. Presenting words in semantically related sets hinders the learning process because of interference between words that share too many similarities. Instead, the learning burden of new L2 words can be eased by using thematic clusters, and by making sure that new words are met in meaningful contexts. Rather than using word lists as a starting point for learning, they should be used to revise words that have already been learned. Finally, students should be involved in vocabulary tasks with a high involvement load, since these tasks encourage deep processing and the creation of elaborate associations between new and existing knowledge. This will ultimately result in better retention of vocabulary.

The vocabulary studies described in this chapter have resulted in important insights with regard to efficient and effective ways for promoting L2 vocabulary learning in the foreign language classroom. However, it has also become clear from the literature review that most studies measure the effects of interventions on lexical knowledge rather than lexical competence. The reason is mostly practical, as it is easier to establish whether students have semantic, syntactic, morphological, and/or formal knowledge of a word than whether they can retrieve this knowledge automatically during authentic communication. Yet, the observation

that most L2 vocabulary studies fail to measure the effects of interventions on lexical competence has important implications for the conclusions that can be drawn from these studies. If we want lexical competence to be the ultimate goal of foreign language vocabulary teaching, then – whatever actions are undertaken to promote L2 vocabulary learning – frequent exposure and recycling of words are crucial, to make sure that L2 lexical information becomes integrated in students' L2 lexical entries. Only then can the final stage of L2 vocabulary development ever become a reality.

3.6 Criteria for effective L2 vocabulary teaching

When leaving secondary school, students should have learned enough vocabulary to understand spoken discourse and authentic texts in English without assistance, and to make themselves understood in speaking and writing. Especially students enrolled in vwo must be equipped with a well-developed vocabulary as most of them will continue their studies at university, where they will be required to read academic texts in English, which include words up to the 10,000 frequency range. Since educational programmes play a major role in the teaching of English in Dutch secondary schools, it is important to analyse to what extent these programmes are in accordance with the latest insights concerning effective vocabulary teaching in the foreign language classroom. Thus, the research question of this study is: to what extent do educational programmes for teaching English in Dutch vwo-education correspond with research findings about the most effective ways for enhancing lexical competence in a foreign language?

The main findings of the literature review in chapters 2 and 3 can be summarised in a collection of nine criteria. Since explicit vocabulary instruction will inevitably play a larger role in foreign language coursebooks than strategy training or extensive reading, this aspect receives most attention in the inventory. The first seven criteria on the list are all related to explicit vocabulary instruction, while the last two criteria focus on strategy instruction and extensive reading.

First of all, it is very important that target words are presented in a meaningful context. Although sections 3.1 to 3.3 have shown that context by itself is not sufficient and that intentional word learning activities are necessary to promote L2 vocabulary acquisition in a formal setting, a meaningful context offers the best starting point for learning new words because it provides students with the opportunity to extract semantic, syntactic, and morphological information about L2 words (Jiang, 2000).

Secondly, explicit vocabulary instruction must be given for high-frequency words since these are most useful for students to learn (Nation, 2001a; Zimmerman & Schmitt, 2005). This can be done by providing students with glosses or explanations during listening or reading, or by involving them in word-focused activities afterwards (Hill & Laufer, 2003; Hulstijn et al., 1996; Sonbul & Schmitt, 2010; Wesche & Paribakht, 2000). Target words can be explained both in the L1 and the L2 (Jiang, 2004; Tian & Macaro, 2012). Besides high-frequency words, academic words and collocations are very important for secondary school students to learn (Nation, 2001a; Shin & Nation, 2008; Zimmerman & Schmitt, 2005).

Thirdly, since word learning is incremental, students need to be repeatedly exposed to target words in various contexts to reach the final stage of L2 lexical development. During each new encounter with a word, additional semantic, syntactic, and morphological information is acquired and integrated into the lexical entry of the word (De Bot et al., 1997; Hulstijn, 1997; Jiang, 2000; Nation, 2001b).

Fourthly, target words should be used in listening, speaking, reading, and writing activities, so that students have enough opportunities to practise newly acquired word knowledge on both a receptive and a productive level (Nation, 2001a). Repeated practice will promote automaticity in use and will ultimately lead to lexical competence (Jiang, 2004).

Fifthly, students should be involved in vocabulary tasks that have a high involvement load, i.e. tasks that score high on the dimensions need, search, and evaluation (Hulstijn & Laufer, 2001; Laufer & Hulstijn, 2001). Tasks with a high involvement load have a positive influence on vocabulary retention as they stimulate deep processing of words and the creation of elaborate associations between new and existing knowledge.

Sixthly, words should be presented in thematic or unrelated sets rather than in semantic clusters. Sets of semantically related words are harder to learn than sets of unrelated words because they share too many semantic and syntactic similarities, causing interference between words (Erten & Tekin, 2008; Tinkham, 1997; Waring, 1997). Presenting words in thematic clusters on the other hand eases the learning burden (Tinkham, 1997). Thematically related words share a thematic concept, but do not all belong to the same syntactic category.

The seventh criterion is closely related to the first: word lists should not be used as a starting point for learning new words, but only to revise words that have already been learned in a meaningful context (Nation, 2000; Waring, 1997).

Eighthly, students should receive training in using strategies to infer word meanings and to learn new words, for example by using context, word parts, dictionaries, word cards, and mnemonic techniques like the keyword method (Nation 2001b; Rodríguez & Sadoski,

2000; Sagarra & Alba, 2006). Students can use such strategies to increase their vocabulary independently from the teacher.

Finally, students need to be involved in extensive reading activities. Long-term programmes of extensive reading have been shown to have a positive influence on L2 vocabulary learning (Mason & Krashen, 1997; Pigada & Schmitt, 2006). Reading can help both to consolidate word knowledge and to learn new words. Therefore, students should be encouraged to read as much as possible outside the classroom.

4. Method

The present study examined to what extent educational programmes that are used for teaching English in Dutch vwo-education correspond with research findings concerning effective foreign language vocabulary teaching. This chapter will describe which educational programmes were the focus of the study, and which parts of these programmes were selected for examination. To analyse the selected materials, the nine criteria for effective vocabulary instruction in the foreign language classroom – which were summarised in section 3.6 – were operationalised into observable factors. This chapter will reflect on these operationalisations as well as on the procedure for data analysis.

4.1 Educational programmes

The study focused on educational programmes that are used in the upper grades of vwo-education, to find out whether these programmes prepare students well enough for their future academic careers. We selected materials that are used in 5-vwo, the prefinal year of vwo-education, because this is the last year in which students receive English classes during the complete school year. The following educational programmes were selected: *New Interface*, *Of Course!*, and *Stepping Stones*, which are published by ThiemeMeulenhoff (2009), Malmberg (2009), and Noordhoff Uitgevers (2009) respectively. All three programmes have special editions for vwo-education. The website wikiwijsleermiddelenplein.nl was used to get an overview of the available programmes for teaching English in Dutch secondary school, and in 5-vwo in particular. Unfortunately, there are no data available about the frequency of use of various educational programmes for teaching English in the Netherlands. However, the three selected programmes are from Dutch publishing houses that seem to hold a considerable portion of the market as they develop educational materials for teaching English in all levels and grades of Dutch secondary education. Moreover, from a more practical point of view, all three selected programmes consist of printed materials, which were available for inspection in the library of the Hogeschool Utrecht.

      The 5-vwo sections of the three programmes have a similar structure. All three programmes consist of several "units" or "themes," four in *New Interface* and *Stepping Stones,* and five in *Of Course!*. Each unit includes reading materials, audio fragments, and exercises that focus on reading, listening, speaking, and writing. A small difference is that the units in *Of Course!* and *Stepping Stones* have a title that describes the central topic of the texts

in these units, while the units in *New Interface* are not labelled and consist of texts about various topics. *New Interface* and *Of Course!* offer a "coursebook" or "source book" with reading materials for 5- and 6-vwo, which are organised per unit. In addition, there are separate "workbooks" providing exercises belonging to each of these units. The coursebook of *New Interface* ends with a "checkbook" and the source book of *Of Course!* has a "reference guide" in the back. Both sections offer extra information with regard to grammar, vocabulary, and strategies. *Stepping Stones* looks somewhat different than the other two programmes as it integrates the source book and workbook into one book, which alternates texts with exercises for each theme. There are two of these books for 5-vwo, offering four themes in total. Besides these two books, there is a "reference" book for 5- and 6-vwo, which is comparable to the "checkbook" or "reference guide" of *New Interface* and *Of Course!*. Since the setup of the programmes and their units was fairly similar, it was decided to select the final unit of each programme for analysis, i.e. unit 4 of *New Interface*, unit 5 of *Of Course!* ("A code of ethics"), and theme 4 of *Stepping Stones* ("Enigma").

4.2 Operationalisation of criteria

The literature review in chapter 2 and 3 resulted in the following nine criteria for effective foreign language vocabulary teaching: (1) target words are presented in a meaningful context; (2) explicit vocabulary instruction is given for high-frequency words; (3) students are repeatedly exposed to target words in various contexts; (4) target words are used in listening, speaking, reading, and writing activities; (5) vocabulary tasks have a high involvement load; (6) target words are presented in thematic or unrelated sets rather than semantic clusters; (7) word lists are used to revise rather than to start learning; (8) students are trained in using word learning strategies; and (9) students are encouraged to read outside the classroom. To analyse the selected materials of the three educational programmes, these nine criteria were operationalised into measurable factors, which will be described below. The factors were scored separately for each unit or theme that was examined.

1) Target words are presented in a meaningful context
When new words are presented for the first time, this should happen in the context of a meaningful text or audio recording, which makes students focus on the message rather than the form of the language that is used. Thus, the goal of reading or listening in a meaningful context is to comprehend the information that is provided by the text or audio recording as a

whole. The first criterion was scored as present (1) when 75% or more of the target words were presented in a meaningful context, and as absent (0) when this happened for less than 75% of the words. Although an isolated sentence that explains the meaning of a target word is more meaningful than a word list in which target words are paired with translations or definitions, neither of these were counted as meaningful contexts in this study.

2) Explicit vocabulary instruction is given for high-frequency words

The goal of vwo-education is to reach the B2-level of the Common European Framework of Reference ("Eindtermen havo/vwo," n.d.). This implies that vwo-students should leave secondary school with knowledge of the 4,000 most frequent word families of English. Explicit vocabulary instruction should therefore focus on high-frequency words. Leech, Rayson, and Wilson's (2001) online frequency list was used to look up the frequency with which target words appear in the British National Corpus (BNC). The complete list consists of 794,771 word forms, and gives the "rounded frequency per million word tokens" for each word in the list (Key). The words were ordered by frequency, with the most frequent words appearing on top. Ordered like this, the first 7,948 words constitute the 1% most frequent word forms in the BNC. The frequency of these words ranged from 61,847 to 19. For each educational programme, the percentage of target words belonging to the 1% most frequent word forms in the list of Leech et al. was calculated. The second criterion was scored as present (1) when 75% or more of the words receiving explicit vocabulary instruction were part of this segment, and as absent (0) when this percentage was lower than 75%. Explicit vocabulary instruction was defined as the provision of word meanings through L1 translations or L2 explanations. To facilitate the analysis, only words included in the word list were incorporated in the calculations.

3) Students are repeatedly exposed to target words in various contexts

Each encounter with a word in a different context leads to the acquisition of new knowledge. Students need many exposures to words to become lexically competent. The third criterion was measured by calculating the average number of different contexts in which students were exposed to target words. The benchmark was defined as four contexts. While four exposures is still relatively little, it seems to be a realistic number within the short time frame of one unit. Thus, when target words appeared on average in four or more different contexts, the third criterion was scored as present (1), and when the average number was lower than four, the criterion was scored as absent (0).

4) Target words are used in listening, speaking, reading, and writing activities

To provide enough opportunities for students to practise newly acquired word knowledge on both a receptive and a productive level, and to promote automaticity in use, each target word should be used in listening, speaking, reading, and writing activities. When the fourth criterion was met for 75% or more of the target words in a unit, a score of 1 was assigned; when the criterion was not met for at least 75% of the words, it was scored as 0.

5) Vocabulary tasks have a high involvement load

Students should be involved in tasks with a high involvement load, which stimulate deep processing and the creation of elaborate associations between new and existing knowledge of words. The involvement index of tasks was calculated by measuring the dimensions need, search, and evaluation, as defined by Laufer and Hulstijn (2001). *Need* is the necessity to obtain linguistic knowledge, and can be either extrinsically or intrinsically motivated. Need is moderate when it is imposed by the teacher, for example when the teacher asks the student to produce a sentence in which a new word has to be used. Need is strong when it is self-imposed, for instance when the student is writing a composition and needs to know the word that is required to express a certain concept. *Search* indicates the effort that is required to find out what an unknown word means or to look up the foreign word that expresses a certain concept. Search is either present or absent in a task. When a word is glossed, for instance, there is no need to search. *Evaluation* is the student's assessment of whether a certain word or meaning fits a specific context. Evaluation is moderate when the context is given, for example in a blank filling task. Evaluation is strong when the student creates an original context, like in sentence writing and composition exercises. For each vocabulary task in the educational materials, the involvement index was calculated by scoring the absence of a factor as 0, a moderate presence as 1, and a strong presence as 2; and by subsequently adding the scores for each of the three factors. The fifth criterion received a score of 1 when 75% of the tasks or more had an involvement index of 3 or higher; when this percentage was lower than 75%, a score of 0 was assigned.

6) Target words are presented in thematic or unrelated sets rather than semantic clusters

Presenting words in semantic clusters, which are related both semantically and syntactically (e.g. *apple, pear, nectarine, peach, apricot, plum*), has a detrimental effect on word learning as it leads to interference between words. Thematic clusters on the other hand, which share a thematic concept, but are not related semantically or syntactically (e.g. *frog, pond, swim, hop,*

green, slippery), have been shown to ease the learning burden of new words. Since word lists that are based on stories may include all sorts of words, clusters may not be fully thematic, but may also contain unrelated words. Therefore, to measure the sixth criterion, the percentage of words presented in semantically related sets was compared to the percentage of words presented in thematically and/or unrelated sets. If semantic clusters received the largest percentage, a score of 0 was assigned, whereas a score of 1 was given if the majority of words were presented in thematic and/or unrelated clusters.

7) Word lists are used to revise rather than to start learning
Word lists can be useful for revising words that have been learned in a meaningful context, but should not be used as a starting point for learning. This seventh criterion was either met or not met in the educational materials. If word lists were used as a starting point for learning, a score of 0 was assigned; if word lists were used to revise learning, a score of 1 was assigned.

8) Students are trained in using word learning strategies
To help students increase their vocabulary independently from the teacher, strategy training should be part of a vocabulary development programme. Examples of strategies that could be trained are the use of context, word parts, dictionaries, word cards, or mnemonic techniques. The eighth criterion was either scored as present (1) or absent (0) in the educational materials.

9) Students are encouraged to read outside the classroom
Extensive reading has a positive influence on L2 vocabulary acquisition, as it can help to consolidate word knowledge and to learn new words. Although extensive reading is generally part of a separate programme, the educational materials in this study could still encourage further reading, for instance by including tips for books related to a certain text or theme, which students could read outside the classroom. If the educational materials encouraged extensive reading, a score of 1 was assigned; if they did not, the ninth criterion received a score of 0.

4.3 Data analysis

All nine criteria were scored separately per unit or theme for each of the three educational programmes. For criteria 1 to 6, quantitative data were collected, which were used to make qualitative judgments about whether the criteria were met or not. For criteria 7 to 9, no

quantitative data were collected; these criteria were simply scored as being present or absent in the educational materials under examination. In the end, for each unit, a total score was calculated by adding the scores for each of the nine criteria. This score could vary from 0 to 9, with a higher total score indicating a more effective approach to foreign language vocabulary teaching.

For the calculations of criteria 1, 2, 3, 4, and 6, it was necessary to clearly define what is understood by the concept *target word*. In all three educational programmes, the words that were supposed to be learned by students appeared in a word list at the end of a unit, where these words were translated, paraphrased, and/or used in example sentences. Only the words appearing in these word lists were included in the calculations of criteria 1, 2, 3, 4, and 6. Words that received explicit vocabulary attention in texts or exercises, but were not part of the word list, were not considered to be target words and therefore not included in the calculations.

With regard to the calculation of criterion 3 – the number of contexts in which target words appear – it would have been extremely difficult to check the whole unit for the recurrence of words, since the educational materials were only available on paper, and digital searches were impossible. It was therefore decided to limit the search for the recurrence of target words to the exercises that belonged to the same text or audio fragment from which the target words were drawn. Some of the target words may have recurred again at a later moment in the unit. However, since this seemed to have been the case only for a limited number of words, the omission of these contexts will probably not have influenced the results very much.

As was stressed in section 3.4.1, academic words and collocations deserve explicit attention in foreign language courses for secondary school students. Because it was difficult to draw any conclusions on the basis of quantitative data with respect to these (combinations of) words, they were not included in the calculations for criterion 2. However, for informative purposes, both the percentage of collocations and the percentage of academic words in each unit were measured and reported in the results. Collocations were defined as frequently occurring combinations of target words and other words that were printed in bold in the word list, whereas Coxhead's (2000) Academic Word List was used to check whether target words in the educational programmes were important academic words.

Finally, it is important to note that the present study only investigated the content of educational materials for teaching English in Dutch secondary education, and not what a particular teacher might do with these materials. A teacher might pay more attention to

strategy training, for example, than is prescribed by the programme. However, teacher behaviour was not examined in this study.

5. Results

In this section, the results of the analysis will be discussed for *New Interface*, *Of Course!*, and *Stepping Stones* respectively. For each educational programme, the available quantitative and/or qualitative data for the nine criteria of effective foreign language vocabulary teaching will be presented, and a total score will be calculated.

5.1 New Interface

Unit 4, the final unit of *New Interface* for 5-vwo, consisted of sections focusing on reading, listening, speaking, and writing respectively. The four texts and two audio fragments in the unit had the following titles: "Interview survival guide," "It's no laughing matter why we laugh," "Accidental family," "Internet doctor suspended for nine months," "Ideals of womanhood in Victorian Britain," and "Have your say." The unit ended with exam training and a section focusing on professional and academic skills (debating). Since these latter parts were optional, they were not included in the analysis.

1) Target words are presented in a meaningful context
The unit provided students with 101 target words to learn. These were all introduced in the context of a text or audio recording, which provided a meaningful context. Criterion 1 was thus assigned a score of 1.

2) Explicit vocabulary instruction is given for high-frequency words
The target words were represented in a glossary in the checkbook, in which they were ordered per text or audio fragment, with the English words shown on the left and their Dutch translations on the right. Of the 101 target words receiving explicit vocabulary instruction, 12% (12 words) were collocations. Examples of collocations in the list were "to take cues from," "to set someone at ease," "to raise a subject," "to revolve around," and "to draw strength from" (p. 132). Of the 89 non-collocations, 19% (17 words) were academic words, occurring in Coxhead's (2000) Academic Word List, for example "consistent," "to reinforce," "devotion," "widespread," and "to occur" (p. 132-3).

The frequency list of Leech et al. (2001) was used to look up the frequency with which target words appear in the British National Corpus (BNC). The higher the frequency in this list, the more often a word appears in the BNC. Because frequency data were not available for

most of the collocations in the unit, frequencies were only looked up for the 89 non-collocations in the glossary. The results are presented in Table 1.

Frequency range	Number	Examples of target words
0 – 25	65	bigheaded (0), to further (4), mammal (12), harsh (17), to suspend (24)
26 – 50	12	infant (26), to practise (29), wages (37), to restore (40), to appreciate (45)
51 – 75	3	to inform (54), to belong (64), to demonstrate (68)
76 - 100	2	vote (80), influence (94)
101 – 200	3	argument (122), to obtain (127), to occur (157)
201 – 300	2	history (201), evidence (215)
301 – 400	1	able (304)
401 – 500	1	to hold (481)

Table 1: Frequency ranges of target words in *New Interface* according to Leech et al. (2001).

The average frequency of the target words was 33.13 (sd = 68.59), with a minimum of 0 and a maximum of 481. Thus, on average, target words appeared 33 times per million word tokens in the BNC. 39% of the target words (35 words) belonged to the 1% or 7,948 most frequent words in the list of Leech et al. Since this percentage was lower than 75%, a score of 0 was assigned to criterion 2.

3) Students are repeatedly exposed to target words in various contexts
The average number of contexts in which a target word appeared was 2.48 (sd = 0.56). The minimum number of contexts was 2 and the maximum 4, with only 3% of the target words appearing in four different contexts. Criterion 3 was thus not satisfied, and a score of 0 was assigned. Although students did not seem to receive enough exposures to target words throughout the unit to acquire lexical competence, the programme did pay attention to the repetition of words, which helps to foster the automatic retrieval of words. Exercise 38 of unit 4 tested whether students remembered the English meanings of 40 Dutch words from units 1 to 3 (p. 106). A similar exercise was included in unit 3, in which students were asked to write down the Dutch meanings of 40 English words from unit 1 and 2 (exercise 34, p. 79).

4) Target words are used in listening, speaking, reading, and writing activities

The target words in the unit appeared on average in 1.75 modes (sd = 0.79), with a minimum of 1 and a maximum of 3 different modes. Students encountered 46% of the target words in one mode (reading), 32% of the words in two modes (reading and listening / reading and writing), and 22% of the words in three modes (reading, listening, and writing). The maximum number of modes in which target words were used being only three, criterion 4 was not satisfied, and thus assigned a score of 0. Typically, target words were never used in speaking activities. Although students were provided with useful phrases for giving a monologue and commenting on someone's opinion, which were subsequently practised in speaking exercises, they were not encouraged to use target words during such exercises.

5) Vocabulary tasks have a high involvement load

There were 15 vocabulary tasks in the unit, which are described in Table 2. Some of these tasks involved target words from the word list, while others (also) used different words. For each task, the involvement index was calculated.

Exercise	Vocabulary task	Index
3	E-D dictionary information of words from text; which translation fits the context best?	3
4	Translate two paragraphs from text into Dutch (use dictionary and make word list)	4
11	Write down synonyms for words from text (look up the ones that you cannot guess)	2
12	Match English definitions with English target words	2
19	Break down words into parts and write down Dutch meanings of words	2
20	Crossword puzzle: fill in opposites of English target words	2
23	Blank filling exercise with English target words	3
24	Word association game in whole group	2
30	Write down unknown words from text and guess meaning from context	2
33	Check meanings of unknown words in dictionary	3
34-A	Create blank filling exercise with Dutch translations, based on your own word list	3
34-B	Fill in blank filling exercises of classmate	3
37-A	Blank filling exercise with English target words (different meanings)	3
37-B	Write down meanings of words in new contexts	3
41	Create word webs around three topics in small groups	3

Table 2: Vocabulary tasks and their involvement indices in unit 4 of *New Interface*.

The average involvement index of the vocabulary tasks was 2.67 (sd = 0.62), with a minimum of 2 and a maximum of 4. The percentage of tasks with an involvement index of 3 or higher was 60%. Since the benchmark of 75% was not reached, criterion 5 was assigned a score of 0.

6) Target words are presented in thematic or unrelated sets rather than semantic clusters
In the word list, target words were presented together with words that appeared in the same text or audio fragment. Some of these words were thematically related because of the shared thematic concept, like "editorialist," "unbiased," "newsworthy," and "to inform" in the audio fragment "Have your say," whereas other words in the same sub list were unrelated, like "coupled with," "scolding," "to occur," and "bigotry" (p. 133). None of the target words were presented in semantic clusters. Consequently, a score of 1 was assigned to criterion 6.

7) Word lists are used to revise rather than to start learning
The target words were introduced through the texts and audio fragments in the unit, rather than through the word list. The glossary was only used to revise learning. A score of 1 was therefore assigned to criterion 7.

8) Students are trained in using word learning strategies
Strategy training was an important component of the unit. In between the exercises, various "tackling tips" were mentioned, which provided information about how to interpret dictionary information, how to choose the correct translation of a word from various alternatives, and how to use knowledge of word parts to infer word meanings. Students were given the opportunity to apply these strategies in the exercises that followed. In addition, there were other exercises in the unit that provided practice with regard to the inference of word meanings through context and dictionary use. The various tackling tips and exercises focusing on word learning strategies are summarized in Table 3.

The explicit attention to strategy training resulted in a score of 1 for criterion 8. All tackling tips were also represented in the checkbook. Besides strategies with regard to dictionary use and the inference of word meanings (by using knowledge of word parts, similarity to other words, and context), the checkbook included tips with regard to studying or remembering words. Students were advised to use word cards and internet tools for recycling words, to rehearse words frequently for short periods of time, to use mnemonic techniques to facilitate learning, and to pay special intention to spelling by writing down words.

Tip / practice	Vocabulary learning strategy
Tackling tip	*Interpreting abbreviations and numbers in dictionaries* (p. 90)
Exercise 3	E-D dictionary information of words from text; which translation fits the context best?
Tackling tip	*Subtle differences between various translations of a word* (p. 92)
Exercise 4-A	Translate two paragraphs from a text into Dutch
Exercise 4-B	Discuss different translations in small groups
Tackling tip	*Prefixes and suffixes in words and their functions* (p. 99)
Exercise 19	Break down words into parts and write down Dutch meanings of words
Practice	*Inferring word meanings from context* (p. 103)
Exercise 30	Write down unknown words from text and guess meaning from context
Practice	*Consulting a dictionary* (p. 104)
Exercise 33	Check meanings of unknown words in dictionary

Table 3: Word learning strategies in unit 4 of *New Interface*: tackling tips and exercises.

9) Students are encouraged to read outside the classroom

The unit did not include any encouragement for students to read English texts outside the classroom. No attention was paid to fictional works that might incite students to read more of a particular author or theme, and no suggestions were given for further reading. Thus, criterion 9 was assigned a score of 0.

Total score

All scores that were assigned to the nine criteria for effective foreign language vocabulary teaching for unit 4 of *New Interface* are collected in Table 4. The total score was 4.

	Criteria	Score
1	Target words are presented in a meaningful context	1
2	Explicit vocabulary instruction is given for high-frequency words	0
3	Students are repeatedly exposed to target words in various contexts	0
4	Target words are used in listening, speaking, reading, and writing activities	0
5	Vocabulary tasks have a high involvement load	0
6	Target words are presented in thematic or unrelated sets rather than semantic clusters	1

7	Word lists are used to revise rather than to start learning	1
8	Students are trained in using word learning strategies	1
9	Students are encouraged to read outside the classroom	0
	Total	**4**

Table 4: Vocabulary teaching scores assigned to unit 4 of *New Interface*.

5.2 Of Course!

The final unit of *Of Course!* for 5-vwo was unit 5, "A code of ethics." The unit contained sections focusing on reading, listening, speaking, writing, and fiction respectively. There were five texts and one audio fragment, which were titled: "Tests at 11 to decide places at university," "Straight dope," "Cartoon wars," "Cloned pigs raise transplant hopes," "The real moral maze," "Saturday" (an episode from the corresponding novel by Ian McEwan), and "Control of drug abuse." The exam training at the end of the unit was optional and therefore not included in the analysis.

1) Target words are presented in a meaningful context
The total number of target words in the unit was 204. These words were all introduced in a meaningful context, namely through one of the texts in the source book or through the audio recording. Thus, the first criterion received a score of 1.

2) Explicit vocabulary instruction is given for high-frequency words
The target words were included in a glossary in the source book at the end of the unit, ordered per text or audio fragment. The English words were represented in the context of a phrase or short sentence, which was paired to the Dutch translation of the word. For each section, a distinction was made between words that had to be learned productively or receptively. Thus, for about half of the words, the English phrase or sentence was placed on the right, while for the other half, it was placed on the left. Of the 204 target words receiving explicit vocabulary instruction, 22% (44 words) were collocations, for example "with a view to," "to play truant," "at the expense of," "to hinge on," and "to opt out of" (p. 84). Of the 160 non-collocations, 23% (36 words) occurred in Coxhead's (2000) Academic Word List. Examples of academic words in the unit were "to establish," "enhancement," "coherent," "to expose," and "reliable" (p. 84-5).

The frequency list of Leech et al. (2001) was used to look up the frequencies of occurrence in the BNC for the 160 non-collocations in the unit. The results are presented in Table 5. The average frequency of the target words was 44.54 (sd = 74.21), with a minimum of 0 and a maximum of 505. This means that target words appeared on average 45 times per million word tokens in the BNC. 43% of the target words (69 words) belonged to the 1% or 7,948 most frequent words in the list of Leech et al. Since this percentage was lower than 75%, criterion 2 received a score of 0.

Frequency range	Number	Examples of target words
0 – 25	104	undetectable (0), to enrich (5), explicitly (13), gender (20), vulnerable (25)
26 – 50	16	constraint (26), to expose (32), to urge (39), to view (44), convention (47)
51 – 75	13	to cope (52), scientist (56), intention (62), entirely (69), additional (74)
76 - 100	5	impact (77), trust (87), failure (88), review (89), to gain (89)
101 – 200	16	surface (103), skill (126), standard (152), to establish (176), to apply (193)
201 – 300	4	stage (203), including (230), available (272), to consider (289)
301 – 400	0	
401 – 500	1	really (481)
501 – 600	1	to provide (505)

Table 5: Frequency ranges of target words in *Of Course!* according to Leech et al. (2001).

3) Students are repeatedly exposed to target words in various contexts
Target words appeared on average in 2.81 contexts (sd = 0.71), with a minimum of 2 and a maximum of 5 contexts. The percentage of target words appearing in four or more contexts was 11%. Thus, criterion 3 was not satisfied, and a score of 0 was assigned. Although the variety of contexts in which students were exposed to target words was not enough to realise lexical competence, the programme did encourage the repetition of target words. The workbook included several references to an online word trainer, which could be used to rehearse all words in the programme, and listen to their pronunciation.

4) Target words are used in listening, speaking, reading, and writing activities
The average number of modes in which target words appeared was 1.71 (sd = 0.72), with a minimum of 1 and a maximum of 3 different modes. Students encountered 44% of the target words in one mode (reading), 41% of the words in two modes (reading and writing / reading and listening / reading and speaking), and 15% of the words in three modes (reading, writing,

and listening / reading, writing, and speaking). None of the target words appeared in four different modes, and criterion 4 was thus assigned a score of 0. Although target words appeared in all four modes, the occurrence of words in listening and speaking activities was rather low, namely 16% and 12% respectively. This can be explained by the fact that there was only one audio fragment in the unit, and just a few speaking exercises in which students were encouraged to use target words, besides useful expressions for speaking.

5) Vocabulary tasks have a high involvement load
The unit included 15 vocabulary tasks. Most of these tasks involved target words from the word list, but some (also) used different words. Table 6 describes the various vocabulary tasks in the unit, and their involvement indices.

Exercise	Vocabulary task	Index
4	Translate target words in sentences into English	2
5	Match English target words with synonyms in sentences	2
10-A	Translate target words in sentences into English	2
10-B	Blank filling exercise with English words	3
11	Choose correct synonyms (out of three) of English target words in sentences	2
17-A	Translate target words in sentences into English	2
17-B	Blank filling exercise with English target words	3
18	Match English descriptions with English target words in sentences	2
23	Find words in text with similar meanings as given English words	1
24	Translate target words in sentences into English	2
25	Match English target words with synonyms in sentences	2
29	Translate target words in sentences into English	2
30	Crossword puzzle: fill in synonyms of English words (given in sentences)	2
38	Blank filling exercise with English target words	3
39	Paraphrase English words in sentences	2

Table 6: Vocabulary tasks and their involvement indices in unit 5 of *Of Course!*.

The average involvement index of the vocabulary tasks was 2.13 (sd = 0.52), with a minimum of 1 and a maximum of 3. The percentage of tasks with an involvement index of 3 or higher was 20%. Thus, the benchmark of 75% was not reached, and criterion 5 received a score of 0. As can be seen from Table 6, the unit included a high proportion of exercises that asked

students to translate target words or match them to synonyms or descriptions. There were hardly any tasks in which students had to evaluate the appropriateness of a word or meaning in a specific context, like in composition writing.

6) Target words are presented in thematic or unrelated sets rather than semantic clusters

Target words were presented in the glossary together with words from the same text or audio fragment. While some of these words were thematically related because of the shared thematic concept, for instance "to cheat," "performance," "competitor," and "to get an edge to" in the text "Straight dope," other words in the same sub list were unrelated, like "additional," "entirely," "pregnancy," and "to convert" (p. 133). There were no semantic clusters in the word list. As a result, a score of 1 was assigned to criterion 6.

7) Word lists are used to revise rather than to start learning

The target words were introduced through the texts or audio fragment in the unit. The word list was only used to revise learning. Criterion 7 thus received a score of 1.

8) Students are trained in using word learning strategies

The unit did not pay any explicit attention to training of word learning strategies. Most vocabulary tasks were blank filling or matching exercises, and students did not get much practice in the inference of word meanings or dictionary use. In exercise 23, for example, students were presented with eleven words and phrases, and asked to "[f]ind words in the text that mean about the same" (p. 159). With regard to strategy learning, it would have been more meaningful to use the words in the text as a starting point rather than the other way around. The lack of attention to word learning strategies resulted in a score of 0 for criterion 8.

9) Students are encouraged to read outside the classroom

The section "fiction" in unit 5 centred on a passage from the novel "Saturday" by Ian McEwan, which was available both as a text and an audio recording. The learning goals of the section were to determine the content of the literary text and to give a personal reaction to the passage (p. 174-5). Since this experience with a modern work of fiction may inspire students to read the whole novel or other work by the same author outside the classroom, criterion 9 was assigned a score of 1.

Total score

All scores that were assigned to the nine criteria for effective foreign language vocabulary teaching for unit 5 of *Of Course!* are collected in Table 7. The total score was 4.

	Criteria	Score
1	Target words are presented in a meaningful context	1
2	Explicit vocabulary instruction is given for high-frequency words	0
3	Students are repeatedly exposed to target words in various contexts	0
4	Target words are used in listening, speaking, reading, and writing activities	0
5	Vocabulary tasks have a high involvement load	0
6	Target words are presented in thematic or unrelated sets rather than semantic clusters	1
7	Word lists are used to revise rather than to start learning	1
8	Students are trained in using word learning strategies	0
9	Students are encouraged to read outside the classroom	1
	Total	**4**

Table 7: Vocabulary teaching scores assigned to unit 5 of *Of Course!*.

5.3 Stepping Stones

The final theme of *Stepping Stones* for 5-vwo, theme 4, was named "Enigma." The unit paid attention to reading, listening, speaking, writing, and literature. In addition, there were an online self-test and a task (writing a paper) at the end of the unit. The unit included five texts and two audio fragments, with the following titles: "Elvis is alive!!," "Bermuda triangle: Behind the intrigue," "Did King Arthur really exist?," "John Titor, time traveller," "The death of Marilyn Monroe," "The tale of the Koh-i-noor," and "The man in the iron mask."

1) Target words are presented in a meaningful context
Students were provided with 120 target words in the unit. All target words were introduced in the context of a text or audio fragment, which provided a meaningful context. Criterion 1 was thus assigned a score of 1. Besides the 120 target words, the word list included 5 "sayings & proverbs" (p. 62). It was not clear where these phrases were derived from, nor did the word list include any explanation about their meanings. The sayings and proverbs were not considered to be target words, and therefore not included in the criteria calculations.

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2) Explicit vocabulary instruction is given for high-frequency words

The target words were represented in the section "vocabulary," which was placed at the end of the unit, before the self-test and the task. The words were ordered according to the context in which they were introduced, which were a crossword puzzle, texts, and audio fragments respectively. All English words were represented in the context of a sentence, with the Dutch translations of the words in the right hand column. Of the 120 target words receiving explicit vocabulary instruction, 7% (8 words) were collocations. Examples of collocations in the unit were "to assign to," "to make sense," "to lay claim to," "at its height," and "to shed light on" (p. 60-1). Of the 112 non-collocations, 14% (16 words) were academic words, occurring in Coxhead's (2000) Academic Word List, for instance "to brief," "involved," "feature," "hence," and "to derive" (p. 60-3).

For the 112 non-collocations in the unit, frequencies of occurrence in the BNC were looked up in the list of Leech et al. (2001). The results are presented in Table 8. The average frequency of the target words was 29.54 (sd = 44.58), with a minimum of 0 and a maximum of 250. 36% of the target words (40 words) belonged to the 1% or 7,948 most frequent words in the list of Leech et al. Since this percentage was lower than 75%, a score of 0 was assigned to criterion 2.

Frequency range	Number	Examples of target words
0 – 25	79	velvet (0), persuasive (5), heir (14), trace (19), to weigh (24)
26 – 50	9	to request (27), to exceed (30), disaster (34), depth (41), hence (48)
51 – 75	9	to derive (52), to influence (59), to reject (64), threat (70), additional (74)
76 - 100	6	merely (76), annual (81), league (85), review (89), involved (96)
101 – 200	8	memory (102), proposal (111), feature (135), to achieve (169), account (200)
201 – 300	1	force (250)

Table 8: Frequency ranges of target words in *Stepping Stones* according to Leech et al. (2001).

3) Students are repeatedly exposed to target words in various contexts

On average, a target word appeared in 2.12 contexts (sd = 0.45). The minimum number of contexts was 2 and the maximum 6, but no words appeared in 4 or 5 contexts. With only one word appearing in 6 contexts (1%), criterion 3 was not satisfied and thus scored 0. Although there was insufficient exposure to target words in the unit to foster lexical competence, the

programme did promote the repetition of target words. Students were encouraged to rehearse the vocabulary in the glossary before doing the online self-test.

4) Target words are used in listening, speaking, reading, and writing activities
The target words appeared on average in 1.28 modes (sd = 0.47), with a minimum of 1 and a maximum of 3 different modes per word. Students encountered 73% of the target words in one mode (reading), 26% of the words in two modes (reading and listening / reading and speaking), and only 1% of the words in three modes (reading, listening, and writing). Since no target words appeared in four different modes, criterion 4 was assigned a score of 0. The occurrence of target words in speaking and writing activities was very low; only one target word was used in each of these modes. Although the unit contained several speaking and writing exercises, these did not stimulate students to include target words in their language production. Only the use of certain phrases mentioned in "language help" boxes was encouraged.

5) Vocabulary tasks have a high involvement load
There were only 3 vocabulary tasks in the unit, which are represented in Table 9 together with their involvement indices. The vocabulary tasks included a few target words, but also other words.

Exercise	Vocabulary task	Index
5	Write down Dutch translations of words from text, and check with a dictionary	2
11	Rewrite sentences by putting phrases in italics in different words	3
13	Match target words and synonyms; use a dictionary	2

Table 9: Vocabulary tasks and their involvement indices in theme 4 of *Stepping Stones*.

The average involvement index of the three vocabulary tasks was 2.33 (sd = 0.58), with a minimum of 2 and a maximum of 3. Only one of the tasks (33%) had an involvement index of 3. Since the benchmark of 75% was not reached, criterion 5 received a score of 0.

6) Target words are presented in thematic or unrelated sets rather than semantic clusters
In the vocabulary section, target words were grouped together with words that appeared in the same text or audio fragment. Some of these words were thematically related because of the

shared thematic concept, like "disaster," "to survive," "nil," and "wreckage" in the text "Bermuda triangle: Behind the intrigue," whereas other words in the same sub list were unrelated, like "feature," "imaginary," "review," and "to yield" (p. 60-1). None of the target words were presented in semantic clusters. Consequently, a score of 1 was assigned to criterion 6.

7) Word lists are used to revise rather than to start learning

All target words were introduced through the texts and audio fragments in the unit. The vocabulary list was only used to revise learning. Thus, criterion 7 was assigned a score of 1.

8) Students are trained in using word learning strategies

The unit did not pay any explicit attention to the training of vocabulary learning strategies. Although two of the vocabulary tasks encouraged the use of a dictionary, there was no explanation about how to use this tool for learning words. Exercise 11, which asked students to rewrite sentences by putting italicized phrases into different words, included the following tip: "You can look up the phrases in the text for more context" (p. 47). However, no further information was provided about how to derive meaning from context. The reference book did pay attention to strategies for learning words, like the use of contextual clues and knowledge of word parts to guess the meaning of unknown words, and the use of a dictionary. Moreover, strategies for remembering words were described, like the use of mnemonic techniques and the creation of word maps and personal word files. However, since these sections in the reference book were not referred to in the unit, criterion 8 was assigned a score of 0.

9) Students are encouraged to read outside the classroom

The unit ended with the section "literature," in which students studied literary passages from various periods. They were introduced to William Pratchett's novel *Wyrd Sisters*, Rad Bradbury's novel *Fahrenheit 451*, William Shakespeare's sonnet "Since Brass, Nor Stone, Nor Earth, Nor Boundless Sea" and his play *Macbeth*, John Donne's poem "Death Be Not Proud," Zora Neale Hurston's novel *Their Eyes Were Watching God*, George Orwell's novel *1984*, and Flannery O'Connor's short story "Everything That Rises Must Converge" (p. 65-73). The section ended with "your literary portfolio" (p. 74), which gave students the following suggestions for further reading of Renaissance and Modern Literature:

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- **Renaissance**

Drama

Read a play by William Shakespeare. Afterwards watch a performance of this same play (or watch a film version of the play).

Suggestions *Macbeth, Hamlet, Romeo and Juliet, A Midsummer's Night Dream*

Poetry

Read at least three poems from the Renaissance. Write a summary afterwards and write down what you (don't) like about the poems.

Suggestions Poems by William Shakespeare, John Donne, George Herbert, Edmund Spenser

- **Modern literature (1930 – 1960)**

Prose: the novel

Read a dystopian novel. Write down what your opinion is of this kind of literature.

Suggestions George Orwell (*1984*), Aldous Huxley (*Brave New World*), Ray Bradbury (*Fahrenheit 451*), John Wyndham (*The Day of the Triffids*)

Prose: the short story

Read a short story and summarize it.

Suggestions Stories by Flannery O'Connor, John Steinbeck, Ernest Hemingway, Graham Greene

Collect your assignments in your portfolio.

</div>

The experience with various literary works as well the suggestions for further reading provide a stimulus for students to continue reading outside the classroom and to explore more literary works by themselves. Criterion 9 was thus assigned a score of 1.

Total score

All scores that were assigned to the nine criteria for effective foreign language vocabulary teaching for theme 4 of *Stepping Stones* are collected in Table 10. The total score was 4.

	Criteria	Score
1	Target words are presented in a meaningful context	1
2	Explicit vocabulary instruction is given for high-frequency words	0
3	Students are repeatedly exposed to target words in various contexts	0
4	Target words are used in listening, speaking, reading, and writing activities	0
5	Vocabulary tasks have a high involvement load	0
6	Target words are presented in thematic or unrelated sets rather than semantic clusters	1
7	Word lists are used to revise rather than to start learning	1
8	Students are trained in using word learning strategies	0
9	Students are encouraged to read outside the classroom	1
	Total	**4**

Table 10: Vocabulary teaching scores assigned to theme 4 of *Stepping Stones*.

6. Discussion

In this section, the results will be interpreted in light of the research question of the study. The findings for the nine criteria of effective foreign language vocabulary teaching will be summarised, and the scores of the three programmes for teaching English in 5-vwo will be compared. Moreover, recommendations will be formulated with regard to improvements that can be made within the three educational programmes. The chapter ends with a discussion of the limitations of the study and suggestions for further research.

6.1 Conclusion

The research question of this study was: to what extent do educational programmes for teaching English in Dutch vwo-education correspond with research findings about the most effective ways for enhancing lexical competence in a foreign language? To answer this question, the final units of three programmes for teaching English in 5-vwo – *New Interface*, *Of Course!*, and *Stepping Stones* – were analysed on the basis of nine criteria for effective vocabulary teaching in the foreign language classroom, which were derived from an extensive review of studies on L2 vocabulary learning. On a scale from 0 to 9, all three programmes received a score of 4, as can be seen in Table 11. This means that their approach to foreign language vocabulary teaching was not very effective.

	Criteria	*New Interface*	*Of Course!*	*Stepping Stones*
1	Meaningful context	1	1	1
2	High-frequency words	0	0	0
3	Various contexts	0	0	0
4	Listening, speaking, reading, and writing	0	0	0
5	High involvement load	0	0	0
6	Thematic or unrelated clusters	1	1	1
7	Word lists used for revision	1	1	1
8	Training in word learning strategies	1	0	0
9	Encouragement of reading	0	1	1
	Total	**4**	**4**	**4**

Table 11: Vocabulary teaching scores assigned to the three educational programmes.

The patterns of scores for the nine criteria were almost similar for the three programmes. They all received a score of 1 for criteria 1, 6, and 7, and a score of 0 for criteria 2, 3, 4, and 5. The programmes only differed from each other with regard to their scores on criteria 8 and 9. While *New Interface* received a score of 1 for criterion 8, the other two programmes scored 0. For criteria 9 on the other hand, both *Of Course!* and *Stepping Stones* scored 1, whereas *New Interface* received a score of 0. Besides the differences with regard to the final two criteria, there were some other differences between the three programmes that deserve attention. The similarities and differences for each of the nine criteria will be described below.

1) Target words are presented in a meaningful context
All three programmes presented 100% of the target words in a meaningful context, which was either a text or an audio fragment. This implies that students were focused on the message rather than the form of the language when they encountered the target words for the first time. The context provided them with the opportunity to extract semantic, syntactic, and morphological information about the target words.

2) Explicit vocabulary instruction is given for high-frequency words
The percentage of high-frequency words receiving explicit vocabulary instruction was similar for all three programmes, namely 39% for *New Interface*, 43% for *Of Course!*, and 36% for *Stepping Stones*. Thus, for all programmes, a rather large percentage of target words were lower-frequency words, which are less useful for students to learn. This is also reflected in the average frequency scores of the target words according to Leech et al. (2001), which were 33.13, 44.54, and 29.54 respectively.

All three programmes provided students with the Dutch translations of target words. However, while *Of Course!* and *Stepping Stones* presented the English words in the context of a phrase or sentence, *New Interface* presented the target words without context. Another difference between the three programmes concerned the number of words receiving explicit vocabulary instruction. While *New Interface* included 101 and *Stepping Stones* 120 target words, *Of Course!* provided students with 204 target words, which were divided into words that had to be learned receptively and words that had to be learned productively. The latter programme also included a larger percentage of collocations: 22% in contrast to 12% for *New Interface* and 7% for *Stepping Stones*. The percentage of academic words was fairly similar for the three programmes: 19% for *New Interface*, 23% for *Of Course!*, and 14% for *Stepping Stones*.

3) Students are repeatedly exposed to target words in various contexts

The average number of contexts in which target words appeared was 2.48 for *New Interface*, 2.81 for *Of Course!*, and 2.12 for *Stepping Stones*. Only 3%, 11%, and 1% of the target words in each of the three programmes appeared in four or more different contexts, which is unsatisfactory for attaining lexical competence. Nevertheless, all three programmes encouraged students to recycle words through exercises, an online repetition tool, or by studying the word list, which contributes to the automatic retrieval of words.

4) Target words are used in listening, speaking, reading, and writing activities

Target words in *New Interface*, *Of Course!*, and *Stepping Stones* appeared on average in 1.75, 1.71, and 1.28 modes respectively. The percentage of words that was encountered in all four modes was 0% for all three programmes. This implies that students did not receive enough opportunities to practise newly acquired word knowledge on both a receptive and a productive level. Especially the occurrence of target words in speaking activities was very low. Although students were stimulated to use certain useful phrases in these exercises, they were only sporadically encouraged to incorporate newly acquired target words in their speech.

5) Vocabulary tasks have a high involvement load

There were no great differences between the three programmes in the average involvement index of the vocabulary tasks, which was 2.67 for *New Interface*, 2.13 for *Of Course!*, and 2.33 for *Stepping Stones*. The percentage of tasks with an involvement index of 3 or higher differed considerably per programme, however. While this percentage was 60% for *New Interface*, it was only 20% for *Of Course!*, and 33% for *Stepping Stones*. Thus, although none of the programmes met the benchmark of 75%, *New Interface* was much closer to it than the other two programmes. This programme contained relatively more tasks that stimulate deep processing of words and the creation of elaborate associations between new and existing knowledge. There was also a substantial difference in the number of word-focused exercises in each programme. While *New Interface* and *Of Course!* each included 15 vocabulary tasks, *Stepping Stones* contained only 3 tasks that focused explicitly on vocabulary.

6) Target words are presented in thematic or unrelated sets rather than semantic clusters

In all three programmes, target words were presented in clusters of words that were derived from the same text or audio fragment. As a result, all target words were presented in thematic or unrelated sets, which eases the learning burden of words.

7) Word lists are used to revise rather than to start learning

Since the target words in each programme were introduced in meaningful contexts, the word lists were only used to revise learning.

8) Students are trained in using word learning strategies

The programmes received different scores for the eighth criterion. Whereas the units in *Of Course!* and *Stepping Stones* paid no explicit attention to word learning strategies, *New Interface* distinguished itself from the other two programmes through its strong emphasis on strategy training. Students received information and practice in interpreting dictionary information, and in making use of context and knowledge of word parts to infer word meanings. These strategies help students to increase their vocabulary independently from the teacher. Although *Stepping Stones* did pay attention to word learning strategies in the reference book, these sections were not referred to in the unit that was examined in this study.

9) Students are encouraged to read outside the classroom

Different scores were also attributed to the ninth criterion – encouragement of reading English texts – which can help to consolidate word knowledge and to learn new words. While both *Of Course!* and *Stepping Stones* stimulated students to read English texts outside the classroom, *New Interface* did not include any encouragement for further reading in its unit.

Thus, the common strengths of the three programmes are that target words are introduced in a meaningful context, that words are presented in thematic or unrelated clusters, and that word lists are used to revise rather than to start learning. However, there is still much room for improvement: explicit vocabulary instruction should be given for a larger percentage of high-frequency words; students should be exposed to target words in a greater variety of contexts; target words should be used in reading, listening, writing, and speaking activities; and more vocabulary tasks with a high involvement index should be included in the units. The programmes differed with regard to their scores on criteria 8 and 9. While *Of Course!* and *Stepping Stones* failed to provide sufficient strategy training, *New Interface* offered a good example of how training in word learning strategies can be successfully incorporated in a unit. Moreover, whereas *New Interface* did not include any stimulation for further reading, *Of Course!* and *Stepping Stones* showed how reading outside the classroom can be encouraged through activities in the unit.

Besides the differences with regard to the final two criteria, there were some other noticeable differences between the three programmes. First of all, the total number of target words in the unit was a lot larger for *Of Course!* than for the other two programmes. In view of the lack of exposure to target words in different contexts, it would be recommended to diminish the number of target words and make sure that the remaining words are encountered in a greater variety of contexts. Secondly, while target words were explained in Dutch in all three programmes, *Of Course!* and *Stepping Stones* also presented the English words in the context of a phrase or sentence, while *New Interface* did not. The presence of L2 context provides students with syntactic information about the target words, and is therefore a valuable addition. Thirdly, there was a large difference between the programmes with regard to the number of vocabulary tasks in the units. *Stepping Stones* contained only 3 vocabulary tasks, whereas the other two programmes included 15 tasks. A greater number of tasks is evidently preferable as it gives students more opportunities to expand and consolidate their knowledge of target words. Finally, although none of the programmes met the benchmark of 75% of tasks with an involvement index of 3 or higher, *New Interface* was much closer to it than the other two programmes, and thus superior with regard to this factor.

In view of the findings of this study, it must be concluded that Dutch secondary school teachers should not rely solely on educational programmes for teaching English to 5-vwo students, as these programmes correspond only to a limited extent to research findings on effective L2 vocabulary teaching. A critical attitude towards these programmes is necessary to make sure that students acquire lexical competence in a sufficient quantity of useful words before they leave secondary school. First of all, it is important that teachers are aware of the kinds of words that receive explicit vocabulary instruction in the educational programme that they use. Since valuable instruction time should only be invested in words that are most useful for students to learn, it is advisable to critically evaluate the glossaries of the programme to determine which of the target words are high-frequency and academic words, and which are not. The frequency list of Leech et al. (2001) and the Academic Word List of Coxhead (2000) can be helpful for this task. Obviously, it is no realistic aim for teachers to check every single word in their programme, but the use of the aforementioned lists can make teachers more sensitive with regard to the usefulness of particular words for 5-vwo students. Furthermore, teachers could try to create more contexts in which target words are encountered and practised. It is especially worthwhile to add vocabulary exercises with a high involvement load to the units, like sentence and composition writing. Besides the fact that a high involvement load encourages deep processing and the formation of elaborate associations

between new and existing knowledge, writing activities also provide students with the opportunity to practise the use of target words on a productive level. This has a positive effect on the automaticity with which words are retrieved, and contributes to the acquisition of lexical competence. Moreover, strategy training deserves more attention than it gets in most educational programmes. Since time is limited in the secondary school classroom, teachers should train students in using strategies to learn new words, so that they can increase their vocabulary independently from the teacher or programme. For instance, teachers could explain to students how to infer word meanings during reading by using context, knowledge of word parts, or a dictionary. Also, strategies for strengthening the associations between word forms and their meanings in the mental lexicon, like the use of word cards or mnemonic techniques, can positively influence students' vocabulary growth. Strategies are learned best when they are modelled by the teacher, and gradually taken over by the students as they gain proficiency. Finally, it is important that teachers encourage students to read English texts outside the classroom, as extensive reading is beneficial both for consolidating newly acquired vocabulary and for encountering and learning many new words that cannot be explicitly taught in the classroom.

6.2 Discussion

Although this study has resulted in valuable information with regard to educational programmes for teaching English in Dutch secondary schools, several limitations of the study should be noted. First of all, the assumption was made that one 5-vwo unit is representative for the whole programme. Although the units in each programme were built up in a similar way, the results for certain criteria might have been different if another unit had been examined. Especially the scores for criteria 8 and 9 may have been influenced by the selection of a particular unit. For example, *Stepping Stones* paid attention to word learning strategies in the reference book, but did not refer to these sections in the unit that was examined, and thus received a score of 0. Yet, another unit in the programme may have referred to these same sections, which would have resulted in a different score. Moreover, although the unit of *New Interface* that was studied did not include any encouragement for further reading, other units in this programme may have stimulated students to read English texts outside the classroom.

Secondly, the operationalisations of criteria 4 and 5 may have been too strict. With regard to criterion 4, none of the programmes managed to use target words in four different modes, i.e. in reading, writing, listening, and speaking activities. Especially the occurrence of

target words in speaking exercises was very low. This is not so strange as spontaneity is an important aspect of speaking in a foreign language. Speaking activities help students to practise the automatic retrieval of L2 vocabulary, and it may therefore not be desirable to prescribe what specific words must be used. Furthermore, with regard to criterion 5, the benchmark of 75% may have been a little too high. Although *New Interface* came very close to reaching the benchmark, it received a score of 0, while it was clearly superior to the other two programmes regarding the percentage of high involvement tasks. A lower benchmark may therefore have to be set for this criterion. Moreover, the number of vocabulary tasks should also be taken into account. The fact that *Stepping Stones* only included 3 vocabulary tasks, whereas the other two programmes included 15 tasks, should be expressed in the score for this criterion.

A final limitation of this study concerns the fact that new editions have recently been published for *Stepping Stones* and *Of Course!*. Because these were not available for examination, the older editions were included in this study. Yet, some of the conclusions that were drawn may not be applicable to the newer editions. This calls for additional research. Nevertheless, the results of this study are still valuable, as many schools will probably use the older editions.

7. References

Alali, F. A., & Schmitt, N. (2012). Teaching formulaic sequences: The same as or different from teaching single words? *TESOL Journal*, *3*(2), 153-180.

Coady, J. (1997). L2 vocabulary acquisition: A synthesis of the research. In J. Coady & T. Huckin (Eds.), *Second language vocabulary acquisition: A rationale for pedagogy* (pp. 273-290). Cambridge: Cambridge University Press.

Coxhead, A. (2000). A new academic word list. *TESOL Quarterly*, *34*(2), 213-238.

Day, R. R., Omura, C., & Hiramatsu, M. (1991). Incidental EFL vocabulary learning and reading. *Reading in a Foreign Language*, *7*(2), 541-551.

De Bot, K., Paribakht, S. T., & Wesche, M. B. (1997). Toward a lexical processing model for the study of second language vocabulary acquisition: Evidence from ESL reading. *SSLA*, *19*, 309-329.

Eindtermen havo/vwo. (n.d.). In *Europees Referentiekader Talen*. Retrieved from http://www.erk.nl/docent/streefniveaus/havo.

Erten, I. H., & Tekin, M. (2008). Effects on vocabulary acquisition of presenting new words in semantic sets versus semantically unrelated sets. *System*, *36*(3), 407-422.

Hazenberg, S., & Hulstijn, J. (1996). Defining a minimal receptive second-language vocabulary for non-native university students: An empirical investigation. *Applied Linguistics*, *17*(2), 145-163.

Hill, M., & Laufer, B. (2003). Type of task, time-on-task and electronic dictionaries in incidental vocabulary acquisition. *IRAL*, *41*, 87-106.

Huang, S., Eslami, Z., & Willson, V. (2012). The effects of task involvement load on L2 incidental vocabulary Learning: A meta-analytic study. *Modern Language Journal*, *96*(4), 544-557.

Hulstijn, J. H. (1997). Mnemonic methods in foreign language vocabulary learning: Theoretical considerations and pedagogical implications. In J. Coady & T. Huckin (Eds.), *Second language vocabulary acquisition: A rationale for pedagogy* (pp. 203-224). Cambridge: Cambridge University Press.

Hulstijn, J. H., Hollander, M., & Greidanus, T. (1996). Incidental vocabulary learning by advanced foreign language students: The influence of marginal glosses, dictionary use, and reoccurrence of unknown words. *Modern Language Journal*, *80*(3), 327-339.

Hulstijn, J. H., & Laufer, B. (2001). Some empirical evidence for the involvement load hypothesis in vocabulary acquisition. *Language Learning*, *51*(3), 539-558.

Jiang, N. (2000). Lexical representation and development in a second language. *Applied Linguistics*, *21*(1), 47-77.

Jiang, N. (2002). Form-meaning mapping in vocabulary acquisition in a second language. *SSLA*, *24*, 617-637.

Jiang, N. (2004). Semantic transfer and its implications for vocabulary teaching in a second language. *The Modern Language Journal*, *88*(3), 416-432.

Krashen, S. (1989). We acquire vocabulary and spelling by reading: Additional evidence for the Input Hypothesis. *Modern Language Journal*, *73*(4), 440-464.

Kroll, J. F., & Stewart, E. (1994). Category interference in translation and picture naming: Evidence for asymmetric connections between bilingual memory representations. *Journal of Memory and Language*, *33*, 149-174.

Laufer, B., & Hulstijn, J. (2001). Incidental vocabulary acquisition in a second language: The construct of task-induced involvement. *Applied Linguistics*, *22*(1), 1-16.

Leech, G., Rayson, P., & Wilson, A. (2001). *Word frequencies in written and spoken English: Based on the British National Corpus*. Retrieved from UCREL References and Publications: http://ucrel.lancs.ac.uk/bncfreq.

Levelt, W. J. M. (1989). *Speaking: From intention to articulation.* Cambridge, MA: MIT Press.

Lu, M. (2013). Effects of four vocabulary exercises on facilitating learning vocabulary meaning, form, and use. *TESOL Quarterly*, *47*(1), 167-176.

Malmberg (2009). *Of Course! Engels voor de tweede fase.* 's-Hertogenbosch: Malmberg.

Mason, B., & Krashen, S. (1997). Extensive reading in English as a foreign language. *System*, *25*(1), 91-102.

Meara, P. (1996). The dimensions of lexical competence. In G. Brown, K. Malmkjær & J. Williams (Eds.), *Competence and performance in language learning* (pp. 35-53), New York: Cambridge University Press.

Min, H. (2008). EFL vocabulary acquisition and retention: Reading plus vocabulary enhancement activities and narrow reading. *Language Learning*, *58*(1), 73-115.

Nation, P. (2000). Learning vocabulary in lexical sets: Dangers and guidelines. *TESOL Journal*, *9*(2), 6-10.

Nation, P. (2001a). How good is your vocabulary program? *ESL Magazine*, *4*(3), 22-24.

Nation, I. S. P. (2001b). *Learning vocabulary in another language*. Cambridge: Cambridge University Press.

Nation, I. S. P. (2006a). How large a vocabulary is needed for reading and listening? *The Canadian Modern Language Review*, *63*(1), 59-81.

Nation, I. S. P. (2006b). Vocabulary: Second language. In K. Brown (Ed.), *Encyclopaedia of language and linguistics* (2nd ed.) (pp. 448-454). Oxford: Elsevier.

Nation, P., & Meara, P. (2002). Vocabulary. In N. Schmitt (Ed.), *An introduction to applied linguistics* (pp. 35-54). London: Arnold.

Nation, P., & Newton, J. (1997). Teaching vocabulary. In J. Coady & T. Huckin (Eds.), *Second language vocabulary acquisition: A rationale for pedagogy* (pp. 238-254). Cambridge: Cambridge University Press.

Noordhoff (2009). *Stepping Stones: 2^e fase*. Groningen/Houten: Noordhoff Uitgevers.

Paribakht, T. S., & Wesche, M. (1997). Vocabulary enhancement activities and reading for meaning in second language vocabulary development. In J. Coady & T. Huckin (Eds.), *Second language vocabulary acquisition: A rationale for pedagogy* (pp. 174-200). Cambridge: Cambridge University Press.

Pigada, M. & Schmitt, N. (2006). Vocabulary acquisition from extensive reading: A case study. *Reading in a Foreign Language*, *18*(1), 1-28.

Pitts, M., White, H., & Krashen, S. (1989). Acquiring second language vocabulary through reading: A replication of the Clockwork Orange study using second language acquirers. *Reading in a Foreign Language*, *5*(2), 271-275.

Rodríguez, M., & Sadoski, M. (2000). Effects of rote, context, keyword, and context/keyword methods on retention of vocabulary in EFL classrooms. *Language Learning*, *50*(2), 385-412.

Sagarra, N., & Alba, M. (2006). The key is in the keyword: L2 vocabulary learning methods with beginning learners of Spanish. *The Modern Language Journal*, *90*(2), 228-243.

Saragi, T., Nation, I. S. P., & Meister, G. F. (1978). Vocabulary learning and reading. *System*, *6*(2), 72-78.

Schmitt, N. (2007). Current perspectives on vocabulary teaching and learning. In J. Cummins & C. Davison (Eds.), *International handbook of English language teaching* (Vol. 11, pp. 827-841). New York: Springer.

Schmitt, N. (2008). Review article: Instructed second language vocabulary learning. *Language Teaching Research*, *12*(3), 329-363.

Schmitt, N. (2010). Key issues in teaching and learning vocabulary. In R. Chacón-Beltrán, C. Abello-Contesse & M. Torreblanca-López (Eds.), *Insights into non-native vocabulary teaching and learning* (pp. 28-40). Clevedon: Multilingual Matters.

Schmitt, N., & Schmitt, D. (2012). A reassessment of frequency and vocabulary size in L2 vocabulary teaching. *Language Teaching*, 1-20.

Shin, D., & Nation, P. (2008). Beyond single words: The most frequent collocations in spoken English. *ELT Journal*, *62*(4), 339-348.

Sonbul, S., & Schmitt, N. (2010). Direct teaching of vocabulary after reading: Is it worth the effort? *ELT Journal*, *64*(3), 253-260.

Sunderman, G., & Kroll, J. F. (2006). First language activation during second language lexical processing: An investigation of lexical form, meaning, and grammatical class. *SSLA*, *28*, 387-422.

ThiemeMeulenhoff (2009). *New Interface: Tweede fase vwo*. Utrecht/Zutphen: ThiemeMeulenhoff.

Thijs, A., Trimbos, B., Tuin, D., Bodde, M., & De Graaff, R. (2011). *Engels in het basisonderwijs: Vakdossier*. Retrieved from SLO: http://www.slo.nl/downloads/2011/engels-in-het-basisonderwijs-vakdossier.pdf.

Tian, L., & Macaro, E. (2012). Comparing the effect of teacher codeswitching with English-only explanations on the vocabulary acquisition of Chinese university students: A Lexical Focus-on-Form study. *Language Teaching Research*, *16*(3), 367-391.

Tinkham, T. (1997). The effects of semantic and thematic clustering on the learning of second language vocabulary. *Second Language Research*, *13*(2), 138-163.

Tschirner, E. (2004). Breadth of vocabulary and advanced English study: An empirical investigation. *Electronic Journal of Foreign Language Teaching*, *1*(1), 27-39.

Waring, R. (1997). The negative effects of learning words in semantic sets: A replication. *System*, *25*(2), 261-274.

Waring, R., & Takaki, M. (2003). At what rate do learners learn and retain new vocabulary from reading a graded reader? *Reading in a Foreign Language*, *15*(2), 130-163.

Wesche, M. B., & Paribakht, T. S. (2000). Reading-based exercises in second language vocabulary learning: An introspective study. *Modern Language Journal*, *84*(2), 196-213.

Wolter, B. (2001). Comparing the L1 and L2 mental lexicon: A depth of individual word knowledge model. *SSLA*, *23*, 41-69.

Wolter, B. (2006). Lexical network structures and L2 vocabulary acquisition: The role of L1 lexical/conceptual knowledge. *Applied Linguistics*, *27*(4), 741-747.

Wolter, B., & Gyllstad, H. (2011). Collocational links in the L2 mental lexicon and the influence of L1 intralexical knowledge. *Applied Linguistics*, *32*(4), 430-449.

Zareva, A. (2007). Structure of the second language mental lexicon: How does it compare to native speakers' lexical organization? *Second Language Research*, *23*(2), 123-153.

Zimmerman, C. B., & Schmitt, N. (2005). Lexical questions to guide the teaching and learning of words. *The CATESOL Journal*, *17*(1), 1-7.