The Art of Memory

in the Service of Foreign Language Vocabulary Learning

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DEDICATION

This dissertation is respectfully dedicated to the great historian of the Art of Memory, Frances A. Yates (1899-1981).

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Introduction

Vocabulary is the element that EFL students most often report having trouble with. The testimonies to that effect are many. Typically, a college English teacher in Israel writes that "…the students admit themselves that the hardest part of the course is the amount of new vocabulary that they are expected to learn. …for the vast majority, even the passive knowledge of hundreds of new vocabulary items seems unattainable. (Sapir, 1997). Even advanced students, using the strategy of recording each new word in a notebook and reviewing them regularly, often report their frustration at being unable to remember words from one encounter to the next (Hulstijn, 1997).

Given the frustration expressed by learners regarding vocabulary, it is not surprising that this dimension of language mastery correlates more with successful reading comprehension in English than any other measurable variable (Laufer, 1997). Even the much vaunted reading strategies, such as inferencing ability and the ability to grasp main ideas, are less predictive of comprehension than simple lexical knowledge (Anderson and Freebody, 1981 cited by Laufer, 1997). This observation extends across the board from first language to second language studies. For example, in a second language study conducted by Coady *et al.* (1993, cited by Laufer 1997), increased proficiency in vocabulary improved reading proficiency so dramatically that in a further experiment the researchers were unable to set up a control group without the vocabulary materials, since all the students wanted to use them.

Some specific remarks about the teaching of English in Israel follow. To ascertain whether the situation reported here indeed extends to other countries would take us far beyond the scope of a single dissertation. Suffice it to say that Israel is probably not unique, and the forces which have shaped the teaching of English in Israel (discussed below) have almost certainly produced a similar effect elsewhere.[1] Indeed, a global survey of practices in second language learning supports such a conclusion (Zimmerman, 1993). Thus, the observations and the criticism expressed here may well find application in other countries as well.

In Israel there is no systematic attempt to deal with vocabulary after matriculation. In secondary education students are normally assigned texts in English along with lists of vocabulary to be learned in conjunction with structural drills. This is, of course, the traditional method of teaching foreign languages -- which continues to function despite its many detractors.[2] However, when the students get to college or university, the vocabulary suddenly drops out of the curriculum. Students are typically given texts in academic English to read, usually without glosses in their native languages. They are thus expected to deal with the unfamiliar vocabulary solely with the aid of a dictionary. The syllabus for the course consists of a series of "reading strategies," mainly techniques for inferring the contents of a paragraph from key structural words. Textbooks which embrace the "strategies approach," are frequently assigned to students, thus ignoring recent research which calls into question how effective such techniques could be in the face of a drastically deficient vocabulary (Laufer, 1997). True, word-guessing strategies, such as inferring

[1] The author has taught EFL in a major university in France, where he found a situation similar to the one reported here.

[2] A reformed English curriculum, which was announced by the Israeli Ministry of Education in 1998, has eliminated quantitative vocabulary goals in Israeli schools. Although there has been a great deal of opposition from rank and file teachers, the Ministry seems determined to implement these reforms. Thus, a rigorous approach to the learning of vocabulary may soon be obsolete in this country.

the meaning by an analysis of the parts, are often included in the syllabus, but even these are usually given short shrift.

When the final examination arrives, the students are typically presented with an "unseen", that is, a totally unfamiliar text, and are expected to answer comprehension questions with the aid of a dictionary. On the basis of their performance, they receive a mark which determines whether they pass or fail. *Pass* means that they are promoted to the next level of EFL or, after the highest level, exempted from further English study. *Fail* means that they are forced to repeat the course, usually at heavy financial cost to themselves.

In the light of the importance of vocabulary, as expressed by learners and confirmed by research, its systematic neglect in higher education in Israel is astonishing. The dominant point of view in the EFL departments of Israel's colleges and universities could be summarized thusly: Let us teach reading strategies, and the vocabulary will take care of itself. A corollary of this doctrine is that students will be able to enrich their vocabularies: a) by using context to guess the meanings of a large number of unfamiliar words and b) by making judicious use of the dictionary. Little note is taken of the considerable research showing that: a) for foreign language learners context is quite inadequate as a means of vocabulary development (Laufer, 1997) and that b) without proper training dictionary use fails to benefit vocabulary size and may even be counter-productive (Summers, 1988 cited in Stoller and Grabe, 1993)

The refusal to address vocabulary in higher education in Israel is linked with the insistence that all testing of reading comprehension must be performed *dictionary in hand*. The rationale for this is that such a testing procedure duplicates the conditions under which students will have to use English in their professional lives. Wherever he/she might be, so the argument goes, in the office or in the field, a dictionary (at least pocket size) could always be available. This argument fails to take into account that there are very few academic disciplines in which students are assessed *exclusively* under actual field conditions. Young doctors are tested on their medical knowledge without having a copy of *The Merck Manual* in front of them, although every practicing physician has a copy of this book in his consulting room. Physicists are tested without having lists of Newtonian formulas before their eyes, although in their future laboratory investigations that information will be instantly available. In no other discipline is it assumed that test-conditions must exactly duplicate that which the student will be called upon to do in professional life.

We also may note that the international testing establishments do not share this insistence on duplicating future working conditions. The TOEFL does not allow the use of dictionaries during an examination, nor does the Israeli Psychometric test (similar to the American SAT) which is the principal means of qualifying students for higher education. This may be in part because dictionary use is a separate, testable skill, whose inclusion could seriously impair the validity of an intended test of a English as a foreign language. [3]

How is it that the neglect of vocabulary has been so firmly established in Israeli higher education? Several explanations suggest themselves: a) EFL teachers feel that teaching vocabulary is a pedestrian activity which is beneath their dignity (Coady, 1997); b) The absence of vocabulary in the syllabus may be partly in response to the personnel requirements of colleges and universities. As it is widely perceived that native speakers make the best English teachers, it is logical to delete

[3] We may also note that the proliferation of electronic dictionaries has introduced another variable into the testing situation. There are several such devices on the market in Israel, most of them having been rushed into production without a serious procedure of quality control (Kernerman, 2001). Students are not aware of this difference, and therefore their test results may be affected by their unguided choice of equipment.

from the curriculum that which native speakers (on account of their scant familiarity with the local language) are least qualified to teach, namely, vocabulary; c) The omission of vocabulary may be just a case of *avoidance* of a daunting task, in favor of a more manageable one. Reading strategies are, after all, definable, and what teacher wouldn't prefer to teach a finite set of principles, rather than a seemingly endless list of particulars, with no relief from the students' expression of frustration?

We may never know which of the factors described above is responsible, or whether we have to deal with some combination thereof or some factor that we have not mentioned. It is enough to note for the present the avoidance of vocabulary training is firmly entrenched in higher education in Israel.

In the light of the situation described above, one might wonder why the subject of this dissertation is worth pursuing at all -- at least in the context of the educational needs of Israel, with which I, naturally, am mainly concerned. After all, if vocabulary is considered not worth teaching, then ideas about how to teach it *better* are simply not interesting.

In fact, the *raison d'etre* of this dissertation depends on the third explanation above being correct or at least having a major role. If, indeed, university English teachers avoid vocabulary because it seems so vast and hopeless, then the emergence of a new and dynamic technique for achieving lexical competence might make a difference. Having a really effective tool in their hands might inspire teachers to pursue a goal which was formerly considered unattainable.

Therefore, I propose to examine, with all possible objectivity, a technique which holds the promise of dramatically enlarging students' foreign language vocabularies. This method has been investigated and compared many times under rigorous conditions. The purpose of this dissertation will be to describe this method in the context of its historical antecedents, review the research that supports it, discuss its theoretical underpinnings and make some tentative suggestions for how it might be applied in higher education in Israel.

Chapter 1 - History of Mnemonics

Well before modern brain science had revealed the extraordinary power and potential of the human brain, the ancient Greeks had discovered that by using certain techniques mental performance could be enhanced enormously. The Greeks developed fundamental memory systems called *mnemonics*, a name derived from their worship of the Goddess of Memory, Mnemosene.

The art of mnemonics can be divided into two categories: *verbal* and *image-based* techniques. Preferring a more symmetrical second term, some authors employ the word *imaginal.* However, in this dissertation, I will use the more familiar term *visual.*

1.1 - Verbal techniques.

The examples of mnemonics which are most familiar to the public are verbal. Using easy-to-recall sentences, students can remember lists of unrelated material. The most famous example of this is the rhyme by which generations of English-speaking medical students have memorized the human cranial nerves: "On old Olympus' towering top, a fat-assed German vaults and hops". In this rhyme, the first letter of each word recalls one of the cranial nerves. Thus the "O" of "On" recalls the *olfactory* nerve, the "O" of "old" recalls the *orbital* nerve and so on. A similar procedure consists of taking the first letter of words to be remembered and making up new words from them. For example, the ordering of the colors of the spectrum is suggested by the name *Roy G. Biv* for red, orange, yellow, etc. Thus, if we can remember the coined word or phrase, we can remember the items correctly. Moreover, they can be remembered in a certain order.

However, these mnemonic techniques are of limited value, because they do not maintain the actual items in memory – only the first initials of each item. Thus, medical students may recall the rhyme about the corpulent German long after they have forgotten the names of the cranial nerves. (This is an example of the problem of *decay*, which will be discussed in section 7.3 below.) Nevertheless, this kind of device has shown itself to be of enduring popularity, as almost any English-speaking medical school graduate can attest.

1.2 – Visual techniques

Psychologists have long remarked that images have a special affinity for the human memory. A popular book on memory puts it as follows: "Nature has endowed one of your senses with a greater capacity for impressing the brain than any of the others. An impression made on the brain by the sense of sight is many times stronger than one made there by any of the other senses." (Roth, 1918). Visual techniques generally involve a series of easily memorized objects or places, which are linked by mental images to a second list which the user desires to learn. The main variations are the *loci system* and the *memory peg system*.

1.2.1 The *Loci* System

This most ancient of the visual mnemonic techniques is attributed to a Greek poet, Simonides of Ceos (circa 555 B.C.), who was able to remember the names of the guests at a banquet, after the roof of the banquet hall had collapsed, by visualizing the places in which they had been sitting (Yates). In fact, Simonides's recall of the guests was not an example of any mnemonic strategy,

which must be based on consciously generated mental images. He just happened to remember the places. (Bellezza 1996). Nevetheless, Simonides is credited by legend with having discovered visual mnemonics.

Called the *loci* method (*loci* means *places* in Latin), this technique is first described in *Ad Herrenium*, an anonymous Roman textbook on the art of public speaking written about 85 B.C. (Yates). The great Roman orator and rhetorician, Cicero, discussed the method in his treatise, *De Oratore*. It was mentioned by Quintillian in his influential treatise *Institutio Oratorio*, more than a century after Cicero. These three sources provide our only documentation dealing with mnemonics in the ancient world.

To use this method, you must first establish a list of images in the memory, taken from a familiar route, such as a walk through your house. A familiar building, campus or park would serve just as well. You must be able to visualize clearly and to recite the different distinctive locations on your list. Then, to learn any new list of unfamiliar items, you simply take a "mental walk" through your list of *loci*, placing each item in your list at a different successive location on your route. You should connect the items to your locations by visualizing some vivid interaction between each item and the given location. Concentrate on the image until it becomes fixed in memory, like a snapshot in the mind.

The ancient rhetoricians advised that memory *loci* should not be too much like each other. For instance, the spaces between columns in a temple are not good, because of their resemblance. The *loci* should be of moderate size and not too large, for this renders the images placed on them vague, nor too small, lest the images be overcrowded. They must not be too brightly lit, for then the images placed on them will glitter and dazzle; nor must they be too dark or the shadows will obscure the images. (Ad Herrenium, Book III, part XIX.)

A Roman with a relatively large experience could equip himself with as many suitable *loci* as he pleases. To augment his store, he only had to select another locale, say, a temple devoted to some Olympian deity, and walk painstakingly through it, noting the successive stations with visual precision. Evoking what must have been a familiar scene in ancient times, Yates, our foremost historian of the art of memory, writes: "*Who is that young man moving slowly in the lonely building, stopping at intervals with an intent face? He is a rhetoric student, forming a set of memory* loci" (1966).

A modern application of the *loci* method can be easily devised. Suppose that you need to memorize five items on your shopping list. The first five snapshots of your pre-memorized list of locations might be your front door, your entrance hallway, your favorite easy chair, the TV corner and the dining room table. If, for example, the first item on your list is milk, you might imagine a bottle of milk breaking against your front door. If the second item is meat, you might image a beefsteak flying through the air and coming to hang on the coat rack which stands in your entrance hallway. If the third item is carrots, you might image a giant carrot ensconced in your easy chair. And if the fourth item is laundry soap, you might image an avalanche of white powder covering your refrigerator.

The *loci* method was commonly employed by the Roman to memorize speeches. No Roman senator would have dared to address his colleagues on the podium without a thorough training in mnemonics (Bower, page 64). The Ad Herrenium also mentions mnemonics in the service of the theatre. Apparently, actors used it to memorize their lines.

There is still much that we do not understand about the art of memory in the ancient world. The memory treatises what have come down to us are abundant in general principles, but almost entirely lacking in specific examples. The Ad Herrenium, for instance, contains only one – an account of an image which a lawyer might use to memorize a plea in defense of a client accused of murder. Is there some further secret of memory which the ancients masters kept hidden? Yates, commenting on the example in the Ad Herrenium, admits: "I find this image baffling….it seems to belong to a world which is either impossible for us to understand or which is not being really fully explained to us." Our feeling of something *held back* can only deepen as we follow the art of memory down though the centuries, until in the Renaissance it becomes entwined with mysticism and magic.

Our sources make no mention of the use of visual mnemonics for foreign language learning. This is not surprising, as all three of them are manuals of rhetoric, i.e., the art of public speaking, and other uses of memory are outside their purview. However, the Ad Herrenium speaks in a general sense, declaring that "…those who have learned mnemonics (*mnemonica* in Latin) can set in background what they have heard and deliver it from memory". We may safely suppose that mnemonics was used to absorb the entire body of knowledge – encompassing philosophy, grammar and science – which the Romans possessed. As the study of Greek was a part of the education of every cultivated Roman, a tool bearing such potential (as we shall see in the next chapter) could hardly have been overlooked. It is quite likely that our sources failed to discuss it because it was simply too obvious to mention. Unfortunately, the exhaustive search of classical literature, which would be necessary to confirm this conjecture, is outside the scope of this dissertation.

We may note here that in the ancient world the art of visual mnemonics was not without its detractors. Cicero replies, in *De Oratore*, to "..those who assert that memory is crushed beneath a weight of images and even what might have been retained by nature unassisted is crushed." Apparently, some of his contemparies found the loci system distasteful or even repugnant, preferring the more laborious effort of memorization by rote. The rivalry between natural memory (*memoria naturalis*) and artificial memory (*memoria artificiosa*) has persisted through the centuries and stirs debate even today, as we shall see in Chapter 4 below.

With the decline and fall of the Roman empire, Europe entered the Dark Ages, the art of memory declined in popularity. The reason for this is not entirely clear. One explanation is that, as mnemonics mainly served the art of oratory, its continued cultivation depended on the existence of secure venues for delivering speeches (Yates, 1966). In the Dark Ages, dominated by lawless barbarian forces, such venues became rare, and therefore the need for mnemonics diminished.

Nevertheless, the medieval Christian church made use of the art of memory for religious contemplation. The Dominican order cultivated mnemonics to a high level. How else could the Dominican friars memorize the complex system of virtue and vice which characterized the age of scholasticism? St. Thomas Aquinas was a skilled mnemonist, and wrote a manual on the art of memory. Quite surprisingly, Dante's Inferno may be regarded as a memory system for memorizing Hell and its punishments (Yates, 1966). The adoption of mnemonics by the Church for its own purposes insured the survival of the art of memory during the middle ages.

The Renaissance restored stability and once again elevated the need for persuasion (as opposed to brute force) in European society. Therefore, the art of memory naturally experienced a revival. Influential treatises such as the *Oratoriae artis epitome* by Jacobus Publicius (Venice, 1482) and *Phoenix, sive artificiosa memoria* (Venice, 1491) circulated widely and served to acquaint literate

society with the technique of mnemonics. These Renaissance rhetoricians drew heavily from the *Ad Herrenium* and from the works of Cicero (Yates).

The most popular of these treatises was the *Phoenix, Sive Artificiosa Memoria* by Peter of Ravenna (1491). Peter makes use of the classical principal that, as an aid to retention, the images should if possible resemble people we know. He gives the name of a young lady, Juniper, who was dear to him when he was young and whose image he finds stimulates his memory. We shall note in Chapter 4 how the adversaries of artificial memory seized upon this unfortunate detail in Peter's writings and used it to fuel their opposition.

Alongside the revival of classical mnemonics during the Renaissance, the art of memory became fused with Neo-platonic philosophy and thus entwined in mysticism. "The art of memory became a occult art" (Yates). The Venetian Guilio Camillo constructed a model of the entire universe in the form of a theatre, in which all of physical and spiritual reality could be visually contemplated, leading the mnemonist to heights of transcendental consciousness. The actual theatre has been lost, but its design has been retrieved from history by Yates, who reports that it was "…a vision of the world and of the nature of things seen from a height, from the stars themselves and even from the supercelestial fonts of wisdom beyond them."

The most illustrious name associated with the magical use of memory is that of Giudorno Bruno, who is best remembered for his early advocacy of the Copernican theory. Trained as a Dominican friar, Bruno created a philosophical system expressed by a "wheel", incorporating hundreds of *loci* on which mystical images could be represented. The aim of the system was "…to establish within, in the psyche, the return of the intellect to unity through the organization of significant images" (Yates, 1966). Strange as it may sound to our modern ears, the system worked by *magic*. Its potency was based on the power of the images of the stars, closer to reality than the images of things in on the lower plane and capable of exercising power over earthly events. Not surprisingly, Bruno incurred the disfavor of the Inquisition, and he was burned at the stake for heresy in 1600.

The end of the renaissance saw the art of memory once more fall into decline. The reason for this is not altogether clear. Yates speculates that the emergence of printing reduced the need for mnemonics, as cheap printed material could easily substitute for the corridors of the memory. Mnemonics may also have been stigmatized by its association with the heretical philosophy of Giordano Bruno.

Moveover, the last years of the Renaissance also saw the emergence of a vigorous counter-movement. The French rhetorician, Peter Ramus, abolished memory as part of rhetoric, and with it he abolished artificial memory. Yates recounts that one of the chief aims of the Ramist movement was to provide a new and better way of memorizing all subjects. This was to be done "..by a new method in which the 'general' or inclusive aspects of the subject came first, descending through a series of dichotomized classifications to the 'specials' or individual aspects." Thus Ramus sought to absorb memory into logic.

Ramus was a Protestant and had the misfortune to exist in the tumultuous early years of the Reformation. He was murdered in the Massacre of St. Bartholomew in 1572. His martyrdom helped establish his ideas among Protestants, to whom his pedagogical reforms were also welcome as a means of sweeping out the complexities of scholasticism. Yates also suggests that there was a relationship between the Ramist attack on memory images and the hostility of the Reformation towards images of all kinds. The impassioned Protestant reformer who smashed statues of theVirgin also laid siege to *memoria artificiosa* -- the legacy of Cicero.

In the vehemence of the Ramist opposition to visual mnemonics in the late Renaissance, we may find a precursor of the current attitude of the foreign language teaching establishment toward the keyword method, as I also discuss in Chapter 4 below.

1.1.2 The Memory Peg System

In recent times, visual mnemonics has seen the development of a significant advance, the *memory peg system*, sometimes called the *memory hook system*. There are two principal versions, which, for the present purpose, we may call *elemental* and *elaborated*.

The *elemental* version is sometimes called the Number Shape System. The details may vary, but basically to create such a system, you simply imagine a series of shapes that resemble the numbers from 1 to 10. For instance,

1 = paint brush
2 = swan
3 = two humped camel
4 = yacht
5 = hook
6 = elephant's trunk
7 = flag
8 = snowman
9 = tennis racket
10 = bat and ball

Then, if you wish to memorize the shopping list from our previous example (milk, steak, carrots, laundry powder), you might start out by imagining a paintbrush painting a bottle of milk yellow or purple. Concentrate on the image for a few seconds, until it is clearly fixed in the mind, as described above. Then you could imagine a white swan poking its beak through slice of steak. Next you might imagine a camel galloping up and down a giant carrot. For the next item on your list, you could imagine a yacht sailing through a sea of laundry powder, and so forth.

Finally, when you get to the supermarket, you have only to summon to memory each successive number shape and allow it to remind you of the corresponding item on your list.

Let us note that in the above example each of the images is as exaggerated and peculiar as possible. The anonymous author of *Ad Herrenium* emphasizes that the more exaggerated, bizarre and outlandish your image is, the easier it will be to recall it when the appropriate time arrives. This idea has been echoed by most writers in the field of mnemonics down through the ages. I discuss the value of bizarreness in section 7.1 below.

Obviously, there are two significant limitations to the above system. One difficulty is *quantitative*, i.e., the system can scarcely be used for lists longer than ten items, due to the difficulty of finding objects that resemble numbers consisting of more than two digits. As we shall see below, there are more complex mnemonic systems which address this problem.

A second difficulty, and one which we encounter in other mnemonic systems as well, is that of *interference*. As the number of pegs is limited, I may find that my memorization of yesterday's

shopping list impinges on my memorization of today's list. In fact, the more often I have to go shopping, the less effective this method is likely to be. We may note that these limitations can also be found in the *loci* method.

However, generations of users of the memory peg system, in its various forms, attest that the problem of interference is less daunting than might be supposed. This is because of the phenomenon known to psychologists as *retroactive memory*, which means that "images viewed early in a sequence can get pushed out to make room for those arriving later." (Haseltine, 2000)

The *elaborated* memory peg method, to which we shall now turn, addresses both the limitations of quantity and of interference by dramatically extending the number of memory pegs available. Its earliest known formulation was devised in the mid-seventeenth century by Stanislaus Mink von Wennsshein (Buzan, 1988). This system establishes a correspondence between letters and numbers, thus allowing the memoriser to make words out of any combination of numbers and numbers out of any combination of letters. One of the major implications of this system was extending the array of memory pegs from 10 to 100.

In the eighteenth century the system was modified and improved by an Englishman, Dr. Richard Grey. His work is the basis of most current versions of the memory peg system. The concept was popularized in the USA in the early 20th Century as the *Roth Memory Method*. More recently it has been popularized in the UK by Tony Buzan. It has also been incorporated into the *Silva Mind Control Method*, a system of self-improvement based on auto-suggestion.

For converting numbers to letters, the memory peg system has a special code, which is as follows:

0 = s, z, soft c
1 = d, t
2 = n
3 = m
4 = r
5 = l
6 = j, sh, soft ch, dg, soft g
7 = k, hard ch, dg, soft g, ing sound
8 = f, v
9 = b, p

The vowels and the letter "h" do not have numbers associated with them and are used simply as blanks or fillers.

The number-alphabet code is designed so that by its very nature it can be memorized easily. Thus, the "t" and "d" have a single downstroke. The "n" has two downstrokes. The "m" has three downstrokes, etc.

Once the mnemonist has grasped the special code, it is possible to convert any number into a word. For example, the number "43" translates into the letters "r" and "m". Using the vowel fillers, you can form the word "ram", which immediately translates back to the number "43". Similarly, the number "82" translates back to the letters "f" and "n". Again using the filler, we form the word "fan", which itself translates back to the number "82".

Using this system, it is easy to devise a list of 100 memory pegs similar to the number shape system. These memory pegs should then be learned by rote, although they can easily be retrieved if the rote memorization should fail. Thus, taking for example the list devised by the author of the Roth Memory Course, the first 10 items are

hat
hen
ham
hare
hill
cow
shoe
hive
ape
woods

The possible variations are almost endless. Thus, the English memory expert, Tony Buzan (1988) suggests the following initial ten pegs

dew
noah
ma
rah
law
jaw
key
fee
pa
daze

whereas the Silva Mind Control system suggests

tea
knee
may
ray
law
key
fee
bay
toes

Buzan proposes extending the range of pegs to one thousand, using auditory, olfactory and tactile "images" as well. However, such an extension is well beyond the abilities of the present author and probably of most people. Besides, the mastery of the 1 to 100 list is sufficient for most purposes.

Gordon Bower (1973), a modern expositor of the memory peg system, suggests that this method is superior to the ancient *loci* system, because direct access to individual items can be gained *via* numbers, whereas the *loci* method demands a mental tour of all the locations in order to locate a particular item. For example, if for some reason I should wish to know what is item number five

on my shopping list, this information could be read off directly from my mental map. Under the *loci* system, I would have to start at the beginning and count to five places.

Once the list of memory pegs has been learned, it is fairly easy to memorize any list of arbitrary information in sequence. Let us suppose that, as a student of biology, I wish to memorize the five kingdom system of taxonomic classification. The kingdoms are *monera, protista, fungi, plantae and animalia*.

Let us also suppose that the memory pegs from one to five are available, that is, that they are not currently in use for some other purpose. Then, taking the Sylva Mind Control's list (given above) the mnemonic technique would suggest the following:

For the first kingdom, *monerea*, imagine a tea cup. Now choose some image which will recall to mind the target word. Obviously, a coin of ones local currency, say a five sheckel coin, would serve well. Now imagine some scene in which a teacup interacts in some way with a coin. For example, the teacup turns over and coin falls out. Close your eyes for a few seconds and take a mental "snapshot" of this image.

As noted above, experts who have written about the memory peg system have generally recommended that the images should be as outlandish, striking, and exaggerated as possible, as an aide to retention in memory. (This claim will be discussed in section 7.1 below). Thus, the memorizer might imagine the teacup flying through the air and landing on the coin and smashing itself to bits or punching a hole through the middle of a giant coin.

Now, for the second kingdom, *protista*, the learner should find an object which would suggest this word, for example, an electric cattle prod. Then he should imagine an outlandish scene in which a human knee interacts with the cattle prod. For example, the cattle prod touches the knee and causes the connected leg to kick violently.

For the third kingdom, *fungi*, let the learner imagine a maypole, on which a giant mushroom (assuming that he knows that mushrooms are *fungi*) falls and is impaled. And so forth….

The advanced memory peg system has a solution for the problem of interference, which was noted above. Thus, if the pegs from one to five are not available, because they are "busy" with the memorization of some other information, the learner could choose instead the pegs from 41 to 45, which in the Silva system are

rat
rain
ram
roar
rail

The user could then imagine, as in the first image, a rat taking a bite out of a coin, and so forth.

Our example of using mnemonics to learn taxonomic classification is not merely hypothetical. A study by Levin and Levin (1960) found that students learning the plant classification system using mnemonic procedure performed better than did students learning the classification system in the traditional manner, i.e., by rote (cited Bellezza, 1996). Other investigators have successfully used mnemonics for teaching physical science, history, social science spelling and even mathematics

(Mastropieri and Scruggs, 1991, cited by Belleza 1996). The potential of mnemonics to help students enrich their lexical knowledge in their *own* language was investigated by Sweeny *et al*. (1982) who found that the keyword method was superior to other vocabulary learning techniques held in high regard by researchers and theorists. *Indeed, as the ancient Romans understood, visual imagery is a versatile instrument which can be placed at the service of almost any discipline.*[4]

Let us note an additional feature of the Memory Peg System: It demands that the learner also memorize the material in sequence, which may be or may not be relevant to his needs. For example, in the above example, the student of biology must learn the five kingdoms of life, but he has no need to learn them in any particular order. The element of order might be regarded as unnecessary baggage, which must be carried along if this particular method is to be used. On the positive side, the presence of order means that the learner can mentally rehearse the material without any written aid, just by going from one peg to the next.

The number-based Memory Peg system apparently did not occur to the ancients. However, a Greek mnemonist named Metrodorus of Scepsis invented a complex system employing the twelve signs of the zodiac. Astrologers recognize that each of the twelve signs can be divided into three *decans,* each *decan* having an image associated with it. Metrodorus further divided each decan into ten *loci* according to some arcane code. Thus, he had a system of loci, numbered 1 to 360, which he could use in his operations – considerably more than the modest 100 pegs described above. Metrodorus' system was known to the Romans and is mentioned in the *Ad Herrenium,* but unfortunately it has been lost to us. (Yates).

Other visual memory systems, incorporating images of Greek and Egyptian mythology, were developed during the renaissance. However, as noted above, these became intertwined with mystical and magical philosophies. The scope of the present work does not allow us to pursue further these fascinating developments. We may note that the art of memory became tarred with the brush of magic, which was to the detriment of its service for more mundane purposes, such as the learning of foreign languages.

1.3 Application to Language Learning

The application of imagery mnemonics to foreign language learning can be traced back to the nineteenth century. Bacon (1862) and Loisette (1896) both suggest that mnemonics can be used as an aid to foreign language learning (cited by Gruneberg, 1992). The Roth Memory Course, published in 1918, recommended learning foreign languages by means of mnemonics. More recently, Bruno Furst, the author of a popular book on mnemonics, outlined in 1949 how language learning could be encompassed within the benefits of his method. More recently Tony Buzan in England has echoed this suggestion (Buzan, 1988).

Which of the systems of mnemonics would be most useful in language learning? As we have seen in the previous section, the most evolved mnemonic technique is the elaborated Memory Peg

[4] A personal report might be relevant here: I discovered the memory peg system when I was in high school, and used it throughout my studies, especially for my university courses in biology. I don't suppose that I would have passed my course in entomology if I had not had available such a powerful method for memorizing the hierarchical classification of insects. I can also attest to its principal defect, namely, the problem of decay. That is, material memorized in this way rapidly fades from memory if it is not rehearsed. Fortunately for me and for generations of students who have used this method, the mental images usually remain vivid until the final examination at the end of the semester. (The issue of decay will be discussed below in section 6.3 below)

method, which involves linking unfamiliar objects to items on an established list by means of a number-alphabet code.

Although it would be possible to learn foreign words in sequence, linking both the word in L1 and its L2 counterpart to our memory pegs, the usefulness of this method would obviously be limited to 100 items of vocabulary – an insignificant amount compared to the needs of a fluent speaker. Furthermore, the memory peg method would also require the learner to retain the sequence of words, which would constitute an enormous mass of useless information. One recent writer on mnemonics has actually suggested this (Buzan). However, sequence, *per se*, is of no apparent value in foreign language leaning. It is much more economical in terms of 'memory space' to link words in L1 directly to words in L2. As we shall see in the next chapter, this is what the keyword method attempts to achieve.

We must note here that the memory peg method has nevertheless persisted in the literature of foreign language learning techniques, because it holds the promise of doing what the standard keyword technique does not achieve, namely, to facilitate *productive* recall of new vocabulary items (Paivio 1978). I discuss this topic in Chapter 8 below.

Chapter 2 - Visual Mnemonics in Second Language Vocabulary Learning

Before undertaking a discussion the application of *visual* mnemonics to vocabulary learning, let us note that *verbal* mnemonics is not entirely without value in this domain. It is quite possible to devise memory aids which depend on language alone. The best way to do this is to construct a linking sentence, which sticks in the memory because of rhyme, alliteration or some other feature. For example, an English speaker trying to remember the meaning of the French word *faché,* which means angry, might construct the alliterative sentence "A fascist makes me faché" (example from Hulstijn, 1997). A verbal mnemonic for a Spanish speaker learning the English word chalk could make use of the Spanish word *choca* (strikes) as in *La tisa se choca con la pissara* (The chalk strikes the blackboard) (example from Cohen, 1984).

However, linking sentences of this kind are extremely difficult to devise. Indeed, creating them might almost be considered an artistic activity. The difficulty of devising such sentences for the many hundreds foreign language words necessary for fluency would seem to be a daunting task for human intellects. Therefore, visual mnemonics offers by far the greater promise as a technique in second language learning.

The basic idea is that the words of L1 can, by themselves, serve very well as memory pegs. The word in L1 is linked to its equivalent in L2 by means of a visual image. The fact that these pegs are unsequenced is in practice no drawback whatever.

The first mention of such a technique in the modern field of applied linguistics was an article in 1973 by Ott, Butler, Blake and Ball and Ball entitled "The Effect of Interactive-Image Elaboration on the Acquisition of Foreign Language Vocabulary" in the periodical *Language Learning*. However, this article was scarcely noticed in the scientific world perhaps because the *Language Learning* enjoys a relatively limited readership.

But two years later, in 1975, R. C. Atkinson, published a seminal article entitled "Mnemotechnics in Second Language" Learning in the influential journal *American Psychologist*. In this article, which laid the foundation for the all of the subsequent work in this field, Atkinson reported a study involving a group of English-speaking students learning Spanish. The method involved the teaching of foreign vocabulary by means of images linking the target words to works in the learners' native lexicon. Atkinson called this technique the *keyword method*. He may be considered as its father.

In the same year, anxious to test the method against a non-romance language, Atkinson and his colleague, Raugh (1975) reported in the *Journal of Experimental Psychology* on the successful learning of Russian vocabulary by the keyword method. In that article, he deftly analyzed many of the issues, such as concreteness and receptivity, which are under still discussion today and which figure in this dissertation.

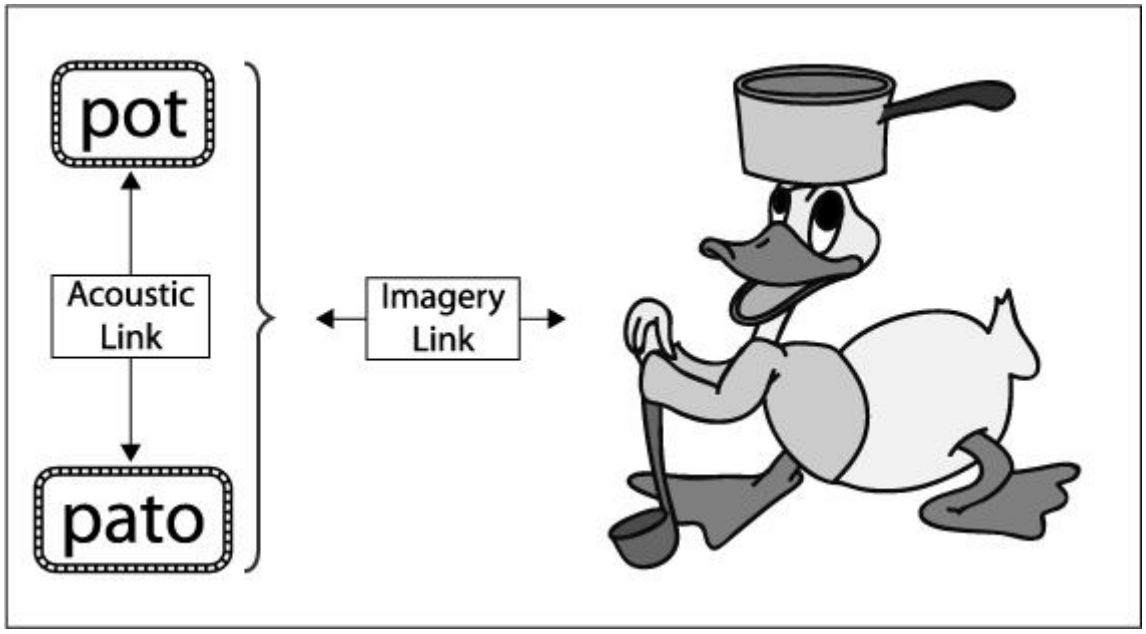
Atkinson's work stimulated numerous studies by other investigators. The keyword method became known particularly through research carried out in the 80's by Levin and Presley. These studies, whose significance was mainly positive, were summarized by Pressley, Levin and McDaniel in an important article in 1987.

How does the keyword method operate, Cohen, one of its clearest expositors, describes it as follows.

> A foreign word (the nominal stimulus) is recorded into a more familiar stimulus, the keyword (the functional stimulus). This keyword – a native language word or phrase – is similar in sound to part or all of the foreign language word. This stage is often referred to as the *acoustic link*. Next, an interacting image is created between the recoded or functional stimulus, the keyword, and the native language word or phrase. This second stage is called the *imagery link*. The intended result is that an encounter with the foreign word will evoke the keyword, which in turn revokes the imagery link, and finally the native language equivalent can be retrieved from this interaction or imagery link.

To take Cohen's example, let us suppose that the learner of Spanish wants to learn the Spanish word for duck, which is *pato.* First he searches for a word, either in L1 or in L2, which sounds like the word he wishes to learn. The English word *pot* will do very well, thus becoming the *keyword*. Then he formulates an image to connect pot and duck -- let's say an image of a duck balancing a pot in its head. Alternatively, the keyword pot and the appropriate image may be furnished by the teacher or by the instructional material. In either case, if the technique is successful, then when he later meets the word *pato*, he will retrieve from memory the image of the pot-wearing duck. The image, of course, will allow him to produce the English word *duck*

The process may be diagrammed thus. .



Although the research that I have surveyed has involved keywords in the users native language, there is no requirement for this. It is quite possible to make use of keywords in the target language, the only necessary condition being that the keyword is already known to the learner. I take up this point in section 5.2 below.

Since its introduction into the academic discussion of foreign language learning, this method has been the subject of a great deal of research. There are now over a hundred published articles

dealing with it (Nation, 1999). The results of this research have been almost uniformly favorable, with a few dissenting cases (in which, in any case, methodology is open to criticism), as will be discussed in the following chapter.

In spite of the overwhelmingly positive results in the research field, the educational establishment has largely spurned the keyword method. This resistance harkens back to a controversy which raged in ancient Rome, where the great Cicero felt impelled to rebut those who scorned mnemonics on the ground of its "artificiality". We have noted how the conflict continued into the renaissance, where it was subsumed under the rivalry between Catholicism and Protestantism. Indeed, our modern controversy between advocates and opponents of the keyword method in foreign language teaching recapitulates a struggle which has existed down through the ages. (The opposition to the keyword method will be discussed in Chapter 4.)

Chapter 3 - Research on the keyword method

In the space of this brief dissertation, it is impossible to describe all of the research which has contributed to our knowledge of the keyword method. Therefore, we must be content to sketch some of the more significant studies.

3.1 - Positive Studies.

As noted above, Atkinson introduced the term *keyword* in his seminal article in 1975. In that study, Atkinson examined a group English speakers learning Spanish. His subjects were divided into two groups: one used the keyword method, with images suggested by the teacher, to learn a list of Spanish vocabulary. The other group used contextual learning combined with associative paired learning. In a post test conducted after six weeks, the keyword method produced retention of 88%, where as the non-keyword group recalled only 28%.

In the same year, Atkinson and his colleague Raugh conducted an experimental study of the results of the keyword method on English-speakers learning Russian. The authors found that the learners were able to retain knowledge of words learned over several months without further reinforcement – dispelling objections that the keyword method might lead to rapid forgetting.

This finding naturally stirred some excitement in the language learning community.
In the subsequent decade, there were a number of studies which tended to confirm Atkinson and Raugh's initial findings.

Merry (1980) conducted a study using 11 and 12 year old English-speakers learning French vocabulary. The keyword group performed significantly better than another group who were not instructed to use any particular method.

The data on keyword learning has been considerably enhanced by a series of experiments carried out by McDaniel and Presley. In one study carried out in 1984 they compared a group of students using the keyword with the another group who were taught to infer the meanings of the target words from the contexts. They found that the keyword learners performed significantly better than context learners when these methods were studied in isolation. However, not surprisingly, when the keyword method was combined with the context method, they found the combination to be superior to the keyword method alone.

An early objection to the keyword method focused on its "artificial " and "unnatural" aspects. It was theorized the learners, although they might be able to perform on "unnatural" classroom recall tests, would be unable to use the words in sentences. In a further experiment McDaniel and Presley (1989) found that there was no difference in the learners' ability to use the target words in actual situations.

One of the most stubborn difficulties in the learning of foreign vocabulary is that many languages, e.g. French, German, Hebrew, assign *grammatical* gender, i.e., gender which is not related to the meaning of the words, to nouns. The obstacle is even greater when the learner's native language does not include this feature, e.g., English. Thus Decrochers *et al*. (1989) designed an study in which the gender information was coded into a image which connected the target word with a word in the user's native tongue. This was done by implanting into the image the figure of a woman in the case of feminine nouns, a man in the case of masculine nouns and a neutral object in

the case of neuter nouns. The additional information of the noun's masculine gender would be coded by imagining a man in distinctive cowboy garb; the feminine gender would be provided by the figure of a ballerina. The study revealed that the technique facilitated the recall of genders as well as of the meanings of the words -- as compared to a control group which did not use imaging. However, the gender-recall effect was stronger, as might be predicted, in the case of French learners, whose language contains grammatical gender, as compared to English speakers, whose language does not. As will be noted below, the gender-image technique has been incorporated into the Linkword foreign language learning materials, with a boxer and golden-haired girl replacing the cowboy and ballerina.

It has become accepted in the last few decades that vocabulary to be learned should never be presented as isolated pairs, but rather in a meaningful context – whether this context be authentic or quasi-authentic. Indeed Hulstijn (1997) mentions this a one of several principles which have been consensually adopted by teachers. Therefore, it is not surprising that in recent research contextualized vocabulary learning should become the yardstick against which the keyword method – or any other method for that matter – must be measured. [5]

Indeed, Levin *et al*. (1992) conducted an experiment in which the image keyword method was compared with the more traditional contextualized method. A group of English pupils studying German constituted the subjects. In the contextualized group, the learners were given the target words embedded in simple sentences in their native language. In the keyword group, the students were told to formulate in their minds' eye an image linking the target word and its meaning. When the subjects' recall was tested subsequently, the subjects in the keyword group significantly out-performed their colleagues in the contextualized group. This effect persisted even in a post-test in which the learners had to fill in the words in sentences which had not been previously encountered. The results are even more striking when we note that the keyword group did not simultaneously employ contextualization. (As we will see later, these two approaches are not contradictory, and may even complement each other.) We may conjecture that if the keyword had been used in conjunction with contextualization, its superiority over contextualization alone would have been even more dramatic.)

In another recent experiment, (Hogden and Lawson, 1994) high school students learning Italian in Australia were evaluated using several methods of vocabulary training. Half of them the keyword group, were trained in making visual associative links to remember new vocabulary. The other half were instructed to use the Multiple Elaboration method, in which students were taught to practice the target words in sentences, taking account of lexical links to other words. Surprisingly the Multiple Elaboration group proved superior in a recall test administered immediately after the learning session. However, when the same test was given after two weeks, the keyword group performed significantly better. This study laid to rest the concern which had been raised that the keyword method might be effective only with younger, cognitively immature learners, as opposed to older students of high school age and up.

The foregoing represents a small sampling of the many studies which have highlighted the advantages of the keyword method.

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[5] Associated pairs without contextualization was soundly defeated in early studies in comparison with the keyword method (Cohen, 1984).

3.2 - Experimental Counter-Evidence

Although the weight of experimental evidence is overwhelmingly in favor of the keyword method, it must be mentioned that a few studies have produced contrary results. Fuentes writing in a unpublished doctoral dissertation quoted by Gruenberg, (1991) found no difference in the subsequent recall of children using the keyword method as compared to another group. However, he used a list of only five words, and allowed ten minute sessions in which to learn the words. Thus it may be the abundance of time allowed the control group to match the level of performance of the keyword group.

A similar study by Hall, Wilson and Patterson (1981) failed to show any advantage of the keyword method over an unspecified method. In fact, there was no difference between the two groups in the subsequent recall test. But, as in the previous study, a very long time was given to both groups. This may have served to mask the inherent difference between the two methods.

A study by Levin *et al*. in 1979 (in Hogben, 1994) failed to find a significant superiority of the keyword method in a population of high school students studying Spanish. The authors concluded that "…the keyword method, as conceptualized to date, cannot be translated directly into practice in actual high school foreign language classes." They theorized that the lack of observed benefit might be due to the fact that the subjects had already developed strategies equivalent to the keyword method, or perhaps the subjects were not really implementing the keyword method in accordance with their instructions.

Beginning in the early 90's, a serious experimental challenge has been marshaled against the keyword method. Wang and Thomas (1992), Thomas and Ouellette and most recently Thomas and Wang (1996) argued that "...although using the keyword mnemonics to learn new vocabulary enhances performance on tests of immediate recall when compared to control strategies, the reverse is true after a delay." (Thomas and Wang, 1996). This assertion is based on a number of experiments, some focusing on the retention of French words and others on the retention of Tagalog words. These studies tended to show that keyword method produced weaker recall than did rote learning when the testing was delayed for two to seven days. However, when the testing was done immediately after the learning, the keyword method revealed a marked superiority. This superiority was retained when the same subjects were retested after an interval of two to seven days.

Wang and his colleagues argue that the earlier experiments had confused the degree of initial learning with subsequent rates of forgetting. That is, the subjects only appeared to be more successful in learning, but, actually, their scores on the delayed tests were higher because their process of forgetting had been retarded by the initial immediate testing. They conclude that "No clear demonstration of a benefit on long term retention with this mnemonic has been reported." (Thomas and Wang 1996 p. 339) This is an attack which goes beyond the two negative studies quoted above, in that it seeks to undercut the entire body of evidence supporting the superiority of the keyword method.

In a rebuttal in the journal Applied Cognitive Psychology, Michael Gruneberg, an advocate of the keyword method, argued persuasively against the relevance of Wang's findings. Although not disputing the data, Gruneberg writes that

> What the evidence of Wang *et al*… shows is that immediate retrieval is necessary to ensure consolidation of the keyword images, and that this produces greater retention

> than re-learning intereaction with testing. [However]…there no evidence whatever that under standard implementation procedures, vocabulary learning by the keyword method is prone to rapid forgetting.

Gruneberg goes on to argue that immediate testing of learned material is a standard procedure, which can be found across the board in virtually all foreign language approaches and methodologies. Therefore, it really makes no difference whether retention after keyword learning is lower when immediate retrieval has been prevented. Certainly, he says, it makes no difference to the learners themselves, who could not justifiably be deprived of the benefits of a highly advantageous pedagogical tool. Indeed, he notes that the natural tendency of those who use the keyword method may be to carry out immediate self-testing to see whether the method is working.

Several commentators have conjectured that the keyword method might work better in a controlled laboratory setting than in a school setting. This might explain the discrepancy between the observations, for example, of Atkinson in 1975 and Levin *et al.* in 1979. A study currently being conducted by Gruneberg may shed some light on this issue. A population of 13-14 year olds in a British school are currently learning French with the keyword method and a comparison is underway with a comparable group using an alternative method. Gruneberg (2001) is optimistic that this investigation will establish the effectiveness of the keyword method in a scholastic setting.

We may profitably close this chapter by quoting Hogden and Lawson (1994), among the most recent contributors to the research on the keyword method, who write:

> In many studies foreign language learning, while use of the keyword method has not always proved superior use of other strategies, no other strategy has consistently surpassed it.

Chapter 4 - Criticism of the Keyword Method

In the light of the overwhelmingly positive findings reported above, one would expect that the keyword method would have found its way into foreign language textbooks and classrooms. However, the record shows an astonishing neglect of this valuable tool. Indeed, there is no country that we know of whose Ministry of Education has approved a foreign language textbook which embodies the principles of the keyword method. Nor is this method taught in the classrooms of any known country. Thus, Hulstijn (1997) writes that

> …the keyword method is only rarely used in the instruction of foreign languages at least in the Western World. In handbooks on foreign or second language instruction and in books on vocabulary teaching, the keyword method is either not mentioned at all or only marginally.

In fact, it might be safe to say that there has been an almost total neglect of the keyword method by the authorities who are responsible for foreign language education worldwide. It might be possible to attribute this neglect to the delay which normally exists between discovery in science and practical application by professionals in the field. However, the stretch of 26 years since the first published reports of the keyword method would seem to render this explanation implausible.

Indeed, out of the ample research into the keyword method in the last 27 years, the only result to serve foreign language learners has been the home-learning Linkword courses, developed by Professor Michael Gruneberg. I discuss this development in chapter 6 below.

The resistance which is evoked by the keyword method is surprisingly vehement. Meara testifies as follows:

> Most teachers that I know have very strong negative reactions to the idea of using mnemonics with their own students, and are unwilling to consider the implications of this research… You explain that a good mnemonic system should allow even weak students to learn *in a couple of weeks all the vocabulary that they expect to teach in a year…* More often, you will be met with a barrage of specious claims, all of which can be countered with clear evidence…but none of this seems to be effective in making teachers willing to vary their practice, even as a short-term experimental procedure. (1997) (Italics mine)

However, such resistance might be considered *benign* in the light of the pure hostility which the keyword method sometimes evokes. Professor Michael Gruneberg, one of the principal advocates of visual mnemonics, has actually received abuse and hate mail from teachers who read his work. (Gruneberg, 2001)

How can we hope to understand the depth of the resistance to visual mnemonics in language learning? Several possible explanations suggest themselves.

4.1 - Opposition to the teaching of vocabulary *per se*

In our Introduction, we noted that vocabulary learning *per se* has been long regarded unfavorably by professionals in the field. Vocabulary learning was neglected by textbook writers in the belief that students would automatically learn it "in context through reading, and therefore needed little

or no direct instruction" Coady (1993). In lieu of direct vocabulary learning, involving lists and some sort of intentional memorization, students were advised to develop skills of guessing by context, or else by applying morphological knowledge of words. Surprisingly, some textbooks even advocated banning dictionaries in the classroom, on the grounds that dictionaries might interfere with the development of students' word guessing skills (Haynes, 1993).

As the focus of this dissertation will be the teaching of EFL in my own country, Israel, it is germane to affirm that the situation with respect to the teaching of vocabulary here faithfully mirrors that of the outside world. Indeeed, Rafael Gefen, now-retired chief inspector of English in the Israeli schools, noted in 1990 that the issue of vocabulary in the nation's textbooks was sadly neglected. Indeed, a teacher who religiously follows a textbook without adding any extra material may actually not teach any vocabulary at all (cited by Sapir, 1997). A more recent survey of textbooks (Sapir, 1997) has reinforced this impression.

The indifference, if not outright opposition, to vocabulary teaching is attested to by several commentators. Writing in 1993, Stoller and Grabe note that "..until recently, vocabulary instruction was something of a lost art in discussion of second language methodology, often being relegated to a secondary status. This disinterest was an unfortunate outcome of developments in English as a Second Language methodology traceable back for at least 50 years".

Among such "influences" must be counted the "Intelligible Input" hypothesis advanced by Stephen Krashen. Although Krashen never specifically opposed direct vocabulary training, many professionals have concluded on the basis of his findings that such an activity would be unwise use of class time. Better instead to give the students maximum exposure to the L2, ideally at the "i+1" level (Krashen, 1982, cited by Ellis, 1985), and their vocabulary needs would be taken care of automatically.

The relegation of vocabulary to second-class status is perhaps best exemplified by the Silent Way, a popular method of teaching foreign languages during the 70's and 80's. Caleb Gattengo, creator of the Silent Way, discouraged teachers from teaching vocabulary *per se*, claiming that after mastering the structure of the language, which his methods claimed to facilitate, the vocabulary would be effortlessly absorbed. Gattengo (1972) argued that learners possessed "inner criteria" that could be invoked to guide them in all aspects of FL learning, including lexis. True, his teaching materials included pictorial wall charts for use during lessons. However, he opposed dealing with lexis in any systematic fashion, preferring to initiate "discussions" and invoke the students' "inner criteria". Although his method never penetrated into the school systems, it was applied in numerous private language schools in the USA and Europe, and it exercised a strong influence on many FL teachers, the present author among them.

During the 90's numerous studies cast doubt on the efficacy of guessing from context as a means of vocabulary learning. Indeed, Stoller and Grabe (1993) write that "the use of context for learning words has not proven to be the great solution that it is sometimes touted to be". Numerous recent studies have tended to downplay the efficacy of guessing from context. In a provocative article entitled "Patterns and Perils of Guessing in Second Language Reading," Haynes (1993) reported that inferring the meaning of unfamiliar words is a procedure fraught with risk of error. Basing her conclusions on a study in which students had to guess the meanings of nonsense words in a text, Haynes found that the subjects were fairly successful when the meanings of the words could be inferred from the local context alone. However, when the meanings had to be inferred from an integrated comprehension of the passage as a whole (a situation corresponding to what FL learners normally face in actual practice) the learners failed spectacularly.

Several studies using the "think aloud" technique have attempted to understand what happens when students attempt to guess words in context. Findings indicate the bottom-up processing plays a greater role than generally believed. Students first attack the word by comparing its form to items in their lexical store. At this stage, wrong guesses are rampant, and the mistaken notion of the meaning of the word tends to resist subsequent experience with the context.[6] The result is disappointment and lowered expectations, which may significantly sidetrack the learners development. Thus Haynes (1993) warns that "...there is a real danger that indiscriminately urging students to guess will result in so much frustration and failure for them that they completely reject the guessing approach, even when the context is sufficiently explicit to allow guessing to be successful."

One approach to this difficulty is that of applying morphological knowledge to the target word. Indeed, the learning of morphological roots has been widely recognized as a powerful aid for students. However, there may be as many as 3,000 to 4,000 affixes in the English language, and to deal with these in a random fashion may serve to confuse rather than to enlighten the students. Graves (1987) suggests in a study dealing with the needs of native speakers that teaching the 100 most common and regular suffixes may be a productive instructional strategy (cited by Stoller and Grabe, 1993). However, the repertory of techniques for teaching affixes directly is the same as that for teaching vocabulary directly. All the conventional procedures, e.g., rote learning, learning in context, etc., are applicable to the learning of affixes. As we have seen, the keyword method certainly qualifies as a candidate for inclusion therein. Therefore, the proposal to teach affixes directly is not an alternative to direct vocabulary teaching. Rather, it is simply a species of direct lexical instruction, and its usefulness is therefore an 'internal" matter for those who affirm the value of teaching vocabulary.

A related finding, which casts doubt on the sufficiency of guessing as a means to vocabulary learning, is the need for multiple exposures. Studies on this topic have yielded diverse findings. Beck *et al.* (1987, cited by Stoller and Grabe, 1993) suggests that a minimum of twelve exposures is needed to develop mastery on the level fluency and precision. Other estimates have pointed to a smaller number. The relevant point is that a syllabus that relies on guessing in context, whether the encounters take place during reading or during aural exposure, is not in a position to provide a sufficient number of encounters with the target words. One way of reducing the number of exposures required would be through "rich teaching" (Nation, 1999), in which the collocations and semantic relations of a word are described in depth by the teacher. However, the limitations of class time in most foreign language courses would allow only a small number of words to be treated in this way.

Given the weaknesses of the alternatives, Haynes (1993) advocates direct vocabulary teaching, in order to "help students to improve the accuracy of their word recognition, so that they can increase the speed and efficiency of their lexical retrieval."

4.2 - Keyword linked with translation

The keyword method belongs to the category of methods which make use of translation. Also in this category we will find the well known grammar-translation method, which characterized

[6] I have heard this called the *spaghetti effect*, on the basis of its resemblance to the process of trying to wrap a mouthful of spaghetti on a fork, and then finding that you've got a short piece that leads nowhere.

foreign language instruction until recent times. We may note that, even unto this day, translation constitutes the principal mode of study for dead languages, such as Latin, ancient Greek, Sanskrit and, until only a century ago, Hebrew.

However, beginning with the audio-lingual revolution in the 1940's and continuing through the heyday of communicative language teaching in the 80's, translation has acquired an exceedingly bad name among language teachers. The Hungarian linguist, Pal Heltai notes that translation

> has always been the whipping boy for complaints about language learning and teaching. It has been made responsible for interference errors, lack of communicative competence, boredom in the classroom, and for learning about the language instead of learning to speak.

While conceding that translation has been overused in the past, Heltai argues convincingly that translation can be integrated into the latest approaches to foreign language teaching (Heltai, 1989).

Such comments fit in with a current tendency to rehabilitate translation as a tool in foreign language learning. This trend is visible in the writings of Paul Nation, who enjoys a pre-eminent reputation in the field of FL vocabulary learning. Professor Nation is the author of what was for a decade the definitive work in the field, *Teaching and Learning Vocabulary* (1990), which has now been superceded by his *Learning Vocabulary in Another Language* (1999), a work of encyclopedic scope. In this recent book, Nation examines the issue of translation as a tool in vocabulary learning. Although elsewhere in his writings, he employs the usual scholarly circumspection, typically expressed by locutions such as "*there are grounds to believe that*.." and "*the evidence supports the view that..",* when it comes to the issue of translation, he takes off the gloves and adopts an uncharacteristic militant tone. Thus Nation writes:

> There is a general feeling that first language translations should not be used both in the teaching of vocabulary and in vocabulary testing. This attitude is quite wrong. (page 344)

He goes on to defend translation on the grounds of its *efficiency*, as compared to other means of conveying meaning, e.g., pictures, real objects, definitions, L2 synonyms and so on.

It may be added, as Heltai also notes, that the hostility to translation may not be altogether ideological. Indeed, there may be also an economic motive, to wit, it allows English language schools around the world to recruit as teachers native speakers who have not been in the host country long enough to acquire fluency in the local language and to pay them very modest salaries for their services, as befits *gastarbeiters*. A deficiency is thus transformed into a virtue (Read, 2000). This motive is not limited to private language schools, but may implicate universities as well. [7]

[7] In the English as a Foreign Language Department of Hebrew University, where I was employed as a teacher for a decade, Hebrew language competence has never been a requirement for employment. Indeed, as a new immigrant teacher, I benefited from that policy, to the undoubted detriment of my students.

4.3 - Keyword Method opposed to the Communicative orthodoxy.

In the last two decades, the Communicative Approach to foreign language teaching has acquired enormous influence in the FLT establishment world-wide. Beginning with the publication of Littlewood's *Communicative Language Teaching* in 1981, this approach is credited with raising the level of competence of learner's of English world-wide. So imposing is the status of CLT that advocates of new techniques or procedures often feel obliged to establish as a preamble that their suggestions are compatible with this doctrine (Heltai, 1989).

The Communicative Approach has been summarized in various ways by various authors, but its most succinct formulation may be credited to one of its critics, Dave Willis, who describes it as follows

> Most teachers would nowadays claim that their approach rests… on the belief that we best learn a language by using that language rather than by producing samples of it for a teacher's inspection and correction. Broadly speaking, such an approach is referred to as *communicative,* as it is based on the use of the language to *communicate*. (Willis, 1989)

We cannot here pause to consider the objection raised by Willis and others that many of the classroom activities which are considered communicative are not really so. Perhaps *communicative* in pedagogy should be considered an ideal such as *truth* or *beauty* which is rarely, if ever, embodied in the real world. Be that as it may, the Communicate Approach commands the allegiance of countless occupants of university chairs in applied linguistics around the world. Indeed, it is reported to be the *raison d'etre* for the founding by Henry Widdowson of the section of the Institute of Education of London University for which I am writing this dissertation.

In the light of the support enjoyed by the Communicative Approach, approaching what might be properly termed an orthodoxy in the field of foreign language teaching, the neglect, and in some instances abuse, of the keyword method is indeed understandable. After all, what could be more *uncommunicative* than a methodology which makes use of images having no organic connection either to the user's native language or to the target language? Adjectives such as *artificial, unnatural* and *inauthentic* spring to mind. The astonishing instances of hate mail received by Michael Gruneberg (see above) can be interpreted only in this context. As Gruneberg himself points out, when you advance something that goes against what people have been taught all their lives, you can get some strong emotional reactions (Gruneberg, 2001).

Taking cognizance of this situation, Jan Hulstijn argues in a recent article that the keyword method has been unfairly stigmatized, and that it is potentially harmonious with the "principles of vocabulary teaching that the L2 teaching profession has adopted in the last decades". Chief among the principles is that "…new vocabulary items should be presented in a meaningful context (preferably authentic or quasi-authentic contexts, preferably allowing enough clues to successfully infer their meaning)." (Hulstijn 1997)

This principle of contextualization, although not specifically part of the Communicative orthodoxy, is closely allied with it in most people's minds (Pincas, 1996). It remains to be seen whether the keyword method is really opposed to contextualization, or whether, as Hulstijn argues, it only appears to be so in the eyes of its detractors.

We may already note that some of the studies cited above have combined contextualization with keyword method, and in some cases have reported better results than by using either contextualization or keyword method alone. Hulstijn (1997) specifically advocates that the keyword method should be "added to the contextual method when applicable and necessary."

Specifically, whenever a new word is presented contextually, whether by a textbook or by the teacher in frontal teaching, the opportunity can be seized to facilitate the students' learning of the lexical item by means of a keyword. This keyword can be supplied ready-made (by the learning materials or by the teacher), or the students can be encouraged and given time to invent their own linking images. Alternatively, short lists of new words *which have already been presented contextually* can be committed to memory using the keyword method. Then the original texts can be profitably reused for rehearsal and consolidation of the vocabulary items.

We can conclude, in agreement with Hulstijn, that the conflict between the keyword method and the FLT orthodoxy is illusory. Whoever believes totally in contextualization can continue to apply this principle without having to forgo the advantages of a learning technique whose effectiveness has so clearly been demonstrated.

Before moving on, it may be noted that some research suggests that the principle of contextualization may be greatly overrated. Paivio , writing in 1983, summed up the findings by saying the "..the research is sparse and the results are mostly negative." In fact, in a review of the subject by Pressley, Levin, Kuiper, Bryant and Michener (1982) several studies showing negative results were cited. On the other hand, in 1979 one researcher, Gipe, compared contextual vocabulary learning with a control method, and reported superior results for the contextual group, but a replication attempt failed to support this finding.

A more recent review of the research by Nation (1999) finds cautiously in favor of contextualized learning. He writes:

> The few well conducted relevant studies do not show a striking superiority of sentence context over isolated word, but because of the extra information that a sentence context can provide and the small amount of effort needed to add a sentence context to isolated words, it is probably advisable to use such contexts… whenever possible.

Indeed, Hustijn, in the highly cogent article quoted above, stops short of outright advocacy of contextualization, being content with noting that this principle has been "adopted" by the English teaching profession in the last few years.

In summation, whether your professional judgment be for or against contextualization, there is no disputing that the keyword method is indeed compatible with this principle.

4.4 - Keyword Method Opposed to Psycholinguistic Theory

For a long time researchers have wondered how lexical knowledge is organized in the human brain. There have been many scientific and scholarly articles dealing with this fascinating issue. Some of the main findings in this field have been presented to the general public by Aitchison in her popular book, *Words in the Mind: an Introduction to the Mental Lexicon. (1987)*

In the article which we have quoted above, Hulstijn reviews the research in this area with a view to overcoming possible psycholinguistic objections to the keyword method. He notes that two findings which have obtained agreement among most theorists in the field. First, it is generally accepted that there is no clear borderline between lexical knowledge and encyclopedic knowledge, that is, between knowledge of *words* and knowledge of *things.* It is self-evident that human knowledge includes facts about words (e.g., the fact that *bachelor* means *unmarried man*) and facts about the external world (e.g., the fact that crows are black). It would be possible to claim that these two kinds of facts are stored in separate mental areas, rather like directories in a computer's hard drive. But the consensus is, on the contrary, that lexical and encyclopedic facts are all mixed up together in a single mental storage area (Aitchison 1987).

Second, it is generally accepted by theorists that words in the mental lexicon are not clear cut entities. Rather, there is a whole scale of possible shadings. At one end there is productive knowledge of a word, its phonological characteristics, its many collocations and an understanding of the concept involved (Nation 1999). At the other end of the scale there may be receptive but not productive knowledge or an absence of understanding of the collocations of a word. As Hulstijn points out, "It is possible that one may know a word form but not be familiar with its meaning: One may even have invented a concept but not [yet] have a word for it."

The key issue which renders the keyword method plausible or not seems to be whether L1 or L2 words are stored in the same mental lexicon (the extended system hypothesis) or separate mental lexicons (the dual system hypothesis). There is a third theory, according to which cognate words of L1 and L2 are stored in a third mental lexicon (the tripartite hypothesis). Again, the analogy of computer directories is helpful.

With this background, we are able to see how the choice of theories might bear upon the feasibility of the keyword method. If one were to accept the dual system hypothesis, which has indeed a certain naïve appeal, it is difficult to see how the mental images which figure in mnemonics could fit in. For example, if the Anglophone learner wishes to use the image of a cow operating a vacuum cleaner to remember the meaning of the Spanish word vaca (cow), then it is unclear just where that image would reside. Which mental store would it belong to? Certainly not the lexicon or L1, nor the lexicon of L2. The absence of a mental store for such images suggests that they might be fragile and ultimately lacking in practical value.

Hulstijn points out that nowadays most theorists accept a developed version of the extended system hypothesis called *subset hypothesis*. According to this view, L1 and L2 words are indeed stored in a single lexicon. However, the words therein are associated with each other in varying strengths. Words belonging to the same language (e.g. *table* and *chair*) are strongly associated with each other, whereas words in different languages (e.g. *meat* and *viande*) are weakly associated. Moreover, the subset hypothesis allows for many different types of associations. As Hulstijn points out

> …words may be linked via only one formal or semantic feature, and still later more features. Furthermore, the strength of all these associations may differ, and the strength of each individual association may even decrease, over time.

The kind of association most commonly found in true bilingualism is that of concept-sharing. i.e., direct linkage of two linguistically diverse words with a certain idea. For example, the reason that I, as a fluent Hebrew speaker, know that *triangle* and *meshulash* mean the same thing is because they are both connected with the concept of a three-sided plane figure in my mind. In traditional

rote-learning of vocabulary, as it is usually practiced by beginners in a foreign language, the words *triangle* and *meshulash* are initially linked directly with each other, with the concept operating weakly in the background. Then, as the learning of the language consolidates, the association gradually shades over into concept-sharing. As Hulstijn points out we may even imagine a final stage in which the learner trains as a simultaneous interpreter, and in that case the words *triangle* and *meshulash* may become once more directly linked with each other, while hardly accessing the concepts at all.

The significant feature of this model is that various kinds of associations can exist at the same time in various degrees in a dynamic process of strengthening and weakening. The kind of associations which are formed by imagery mnemonics thus serve a temporary function. They are meant to "decay", and to be gradually replaced by concept sharing or direct word-to-word associations. The mediating image, once having served its purpose, is then allowed to peacefully fade into oblivion.

With this background, we can see that objections to the keyword method as not being in harmony with psycholinguistic theory are based on a misconception. Indeed, the latest developments in this field serve to explain how the keyword method operates, rendering the whole enterprise quite plausible from a theoretical point of view.

Chapter 5 – Developments in the Private Sector

We noted earlier that the ample research on visual mnemonics in the service of language learning has been largely ignored by the world-wide educational establishment. Indeed, the public's only opportunity to benefit from these findings is through privately-published home-study materials. This dissertation would not be complete without an account of such developments.

5.1 The Linkword Courses.

Linkword is a series of language learning manuals and audio materials, produced and partly authored by Michael M. Gruneberg of Swansea University. Gruneberg is a psychologist specialized in the study of memory, with a large number of publications and an influential book (*Aspects of Memory*, 1992) to his credit. He has also written quite a number of scholarly articles in defense of his system. The essence of his method is that "..the vocabulary in the courses is learned through the keyword technique in which an English word is linked to another English word which sounds like the foreign word."

The Linkword series comprises home-study courses, consisting of textbooks, audio cassettes and (soon to be released) Compact Disks for learning foreign languages. The basic course, encompassing 300 to 400 words, has been realized for 12 languages; an intermediate course, consisting of 500 words, has been complete for four languages: French, Spanish, German and Italian. A more developed course, consisting of about 800 words, exists for French and German. The courses also incorporate grammar and integral sentence-translation exercises, but the emphasis is on lexis, which Gruneberg believes to be the real basis of language. (2001) [8]

The linking image for each word is suggested by the textbook, and the learner is required to picture this image "in his minds eye" for about ten seconds. Normally a group of ten related words are learned in this way. Nouns in French, German and other languages in which nouns carry gender are presented with an image enabling the gender to be learned. For example, German nouns may be either masculine, feminine or neuter. If the noun is masculine, the learner is asked to incorporate the figure of boxer into the image. If the noun is feminine, the image of beautiful golden-haired little girl must be added. If the noun is neuter, the image of a blazing fire is included. Thus the Linkword courses address what is normally an exasperating topic for the language teacher.

The stated goal of Linkword courses is to teach a basic vocabulary which will be useful for a traveler to the country where the target language is spoken. A basic grammar, sufficient to enable sentences to be formed, ensures that the traveler will be able to cope with simple situations that might arise. The courses are intended for beginners and serve to give learners the confidence that they will need to brave the unfamiliar linguistic environment. "The Linkword courses give many people a basis sufficient for their needs and a feeling of confidence which may previously been absent." (Gruneberg and Jacobs, 1991, quoted by Sapir, 1997).

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[8] Gruneberg argues epigrammatically that for the foreign visitor to England knowing the word "toilet" will prove far more useful than knowing the grammatically well-formed words "I want". (Gruneberg, 2001)

Gruneberg has tested his method on several highly diverse groups of subjects: young children (Gruneberg and Jacobs, cited by Sapir. 1997), adults (Gruneberg, submitted for publication), the learning disabled (Gruneberg, 1994) and the elderly (Gruneberg, 1996). In each case groups using the Linkword method outperformed groups using alternative strategies in subsequent tests of word recognition.

Among the many reproaches directed against the keyword method is the charge of instability. The time invested in fixing the images in the memory is judged to be a poor investment, because they are destined to fade rapidly. As we have seen in Chapter 4 above, the appropriate response is that these images are meant to remain in memory only until a direct memory link between the L1 word and the L2 word can be established by the effect of practice. However, the adversary might reply justifiably that sometimes the anticipated practice is not forthcoming, owing to a change of curriculum or of itinerary. It must be admitted that this rejoinder has some justification. Therefore, it is particularly interesting to find among Gruneberg's many contributions of the literature of mnemonics, a study of a ten-year follow up to the study of foreign vocabulary learned by the Linkword method and never reinforced by practice. Specifically, an English subject, who knew no Italian, studied the then-unpublished Linkword course for Italian to prepare for a trip to Italy. He invested a total of 10 hours learning about 350 words of Italian. The intended trip to Italy never materialized, and the subject never practiced or reviewed the foreign language. After an interval of 10 years, the subject was tested, with the following, surprising results: "With no revision, he remembered 35% of the test words. After 10 minutes spent looking at a vocabulary list, recall increased to 70%. After a period of revision lasting a further 1½ hours, recall was virtually 100%" (Beaton, Gruneberg and Ellis, 1995). The authors recognize the danger of generalizing from a single subject. Nevertheless, this case suggests that mnemonic images might be more stable in the mind than intuition would have it seem.

English teachers everywhere are familiar with the negative attitude which their subject instills in a certain number of students. It is an attitude born of failure and frustration, and it develops into a reaction of *avoidance* towards anything connected with English.[9] Therefore it is especially significant that a study of attitudes of students at a technical college in England using Linkword indicated a markedly positive experience. In this study, thirteen subjects participated. Not all the subjects learned the same foreign language. The subjects were asked to fill in questionnaires regarding their feelings about language learning as they had experienced it in school and about Linkword. "In general, the subjects felt that Linkword was faster, more interesting and more enjoyable than school learning, and nine out of the thirteen subjects reported a positive change in attitude towards language learning after having used Linkword (Gruneberg and Jacobs, 1991, cited by Sapir, 1997).

This series is, to our knowledge, the sole manifestation of the keyword method in the commercial language-learning market. Without an aggressive marketing campaign, such as often accompanies self-study foreign language materials, the Linkword series has done "reasonably well", mainly due to word-of-mouth reports of satisfied users (Gruneberg, 2001), in spite of the disdain shown by the educational establishment around the world.

Typical is the review from the British consumer magazine *Which* in September 1990. In that article, which was written by only one linguist, the magazine recommended against the use of the Linkword courses. The reviewer complained that the technique did not teach learners how to use the words in an everyday context and that there was not enough grammar. Sapir (1997) points out

[9] In Israel, this attitude is often referred to as *anglophobia*.

that the linguist who wrote the review may well not have had any understanding of the theory behind the method.

The keyword method is often accused of being a "gimmick" (Cohen, 1984; Sapir, 1997). The use of that word may point to the ultimate reason for the lack of acceptance of visual mnemonics in foreign language learning. Webster's dictionary reports that the original meaning of "gimmick", whose derivation is unknown, is a device for secretly and dishonestly controlling gambling apparatus, which must mean a roulette wheel. The negative meaning of the word, suggesting dishonesty and trickery has stuck in almost all of its modern collocations. Thus, the question "What's the gimmick?" impugns the integrity of whomever has just made a business proposal of some kind. Faced with an accusation of such gravity, the advocates of mnemonics could justly complain of having been falsely accused. Where is the dishonesty in this method? Who is being deceived? Clearly, no one. Moreover, we may note that the accusation cuts across disciplinary lines. If mnemonics in language teaching is somehow dishonest, then such a technique in the service of science or history must be tarred with the same brush.

5.2 The Vocabulary Cartoons

We noted in Chapter 1 above that the visual mnemonics outperformed other highly esteemed methods for acquiring vocabulary in the learner's native language (Sweeny *et al*., 1982). It is not surprising that these findings should come to the attention of private producers of home-study materials. We will offer just a brief glance at these materials, which are cousins to the Linkword courses.

A company which is appropriately called New Monic Books, based in Florida, has recently published a series of three home-study aids – one intended for elementary school, one intended for junior high school, and one intended as preparation for the SAT's – the national American examination which plays a role similar to the matriculation in other countries. The three books are called *Vocabulary Cartoons*. They teach English words in groups of ten, each word is expressed by a mnemonic cartoon, linking it with some acoustically similar word that the learner is likely to know. As in Linkword, there are follow-up activities in the form matching and cloze exercises.

For example, the word *fathom* is linked to a picture of a child with a grotesquely oversized thumb ("fat thumb") and a doctor peering in bewilderment. The caption says "The doctor couldn't fathom the boys fat thumb". Perhaps alert to the charge of "unnatural" which has hindered acceptance of the Linkword method, the publisher claims that "Vocabulary Cartoon books are brain friendly, based on how the brain learns naturally." (Quoted from their web-site.)

Vocabulary Cartoons have gone to the expense of producing a drawing for each of the words to be studied. On the other hand, the Linkword courses rely on verbal descriptions and invite the learner to form his own mental image. In the above example, Linkword would say "Imagine a boy with an enormous thumb and a doctor peering at it and trying to understand it." The reason for this divergence is that Michael Gruneberg believes drawings to be superfluous. He argues that the research does not support a learning advantage of supplying a drawing for each word (Gruneberg, 2001). Be that as it may, New Monic Books apparently believes that the drawings are a positive selling point. Time will prove if they are right or wrong.

The *Vocabulary Cartoon* books are well executed and seem destined for success. If so, some of that success will spill over and contribute to the acceptance of the keyword method among foreign language teachers.

Moreover, many of the keywords which figure in *Vocabulary Cartoons* are potentially useful to the foreign language learner. As we noted in Chapter 2 above, there is no necessity that the keyword must belong to the learners native language; it can easily belong to the target language – on the sole condition that it should be already familiar to the learner. Taking the above example, it is quite likely that a student whose level invites learning a word like *fathom* already knows the words *fat* and *thumb*. However, there is no way of knowing this with certainty in advance, which effectively precludes the publication of Linkword-type materials based on L2 words. But in learner-generated keywords, which are anyway indicated for advanced students (see section 7.2 below), there is no such limitation. The foreign language student who is searching for an image to connect with, say, an abstract English word, would be well advised to have a look at *Vocabulary Cartoons* to see if they offer a solution. If so, and if the keyword is already familiar to him, he should not hesitate to profit from it.

Chapter 6 - Drawbacks of the Keyword Method

Certain critics of the keyword method have focused on its disadvantages – some of which have been admitted even by its proponents – such as the lack of facility for productive memory, reduced amenability to abstract words and propensity to decay. In this chapter we examine these three issues.

6.1 Receptive favored over productive memory

When Atkinson introduced the keyword method into the field of applied linguistics in 1975, he offered it as a means of learning receptive vocabulary only. The reason for this limitation is apparent to anyone who understands the method. To take the example of the English speaker learning Spanish, the link between the Spanish word *pato* and duck may indeed be established by the means of the image of a duck with a pot on its head. A meeting with the word *pato* may well evoke the image and subsequently the meaning of the word. This is called the acoustic link (Cohen, 1984). However, it is quite apparent that the system will not work in reverse.

Suppose the learner enters a restaurant in Madrid and wishes to order *pato asado* (roast duck) for his dinner. He then searches through his inventory of mental images for a duck. Let us suppose that he finds the appropriate image. Then he must recognize the object on the duck's head for what it is, a pot, which may be no easy feat. If successful, all he knows is that the word *pot* is in some way acoustically similar to the Spanish word. He does not know if *pot* resembles the first syllable of the word or some later syllable. He doesn't know if the acoustic resemblance is based only on the consonant sounds, *p* and *t*, or also on the middle vowel sound.[10] There are thus any number of possible words that could be Spanish and that might resemble *pot – pati, patado, aropat, depat, supat, etc.* At best our Anglophone diner might simply blurt out "pot" and hope that the waiter gets the right idea.

The usefulness of the pot-on-duck image would seem to depend on the learner's familiarity with the Spanish word – almost having it on the tip of his tongue. In such a case, the word *pot* might indeed serve to trigger the correct response. However, such a stipulation drastically curtails the usefulness of keyword method. The astonishing potential of the method for receptive learning, as revealed by the numerous studies cited above, lies in its ability to facilitate recall where no previous familiarity existed. It would seem therefore that the power of the keyword method in productive learning is only a pale shadow of its effectiveness in receptive learning (Presley and Levin, 1978, cited by Paivio, 1983).

However, we would be unduly hasty to conclude that receptive learning is altogether useless for productive learning. Most authorities recognize that there is a carry-over effect, in which receptive learning gradually transmutes itself into productive learning. This phenomenon is the basis of the

[10] We may note that this particular keyword may work better for American learners of Spanish than for Britons. This is because the vowel sound of *pot* (pɑ:t) in American English is the same as the vowel sound of the Spanish *pato*, whereas English makes use of the different vowel sound (pɔt).

comprehensible input hypothesis, attributable to Krashen. However, the extent to which this principle operates remains one of the great unresolved questions in our field. Indeed, Nation (1999) writes:

> It is still not clear if readiness for productive use can be reached by receptive "over-learning," for example large quantities of reading or listening, or whether there must be pushed output with learners being made to speak or write .

We may note that this question cuts across methodologies. That is, it can be posed whatever the method of promoting receptive recall, be it imagery mnemonic, rote-learning or contextual learning.

6.2 Concrete favored over abstract

Since it was first described by the ancient Romans, visual mnemonics has relied upon physical objects which can be seen. When Cicero memorized his speeches by means of the *loci* method (see Chapter 1), each concept had to be represented by some object. Thus, when the great orator spoke of the need for defense of the Empire, he may have visualized a sword at a particular point in his mental map. If the same speech called for the praise of virtue, he certainly must have had some image which would recall that idea. But what image would have worked?

Therefore, it comes as no surprise that the keyword method works better for words whose referent can be visualized, that is, concrete words rather than abstract words. Hulstijn (1997) notes that "…one should try to find a keyword with a concrete meaning; that is, the keyword should refer to objects in the real world…" We may demur in passing that whether these objects be real or imaginary is of no importance. A unicorn would serve as well as a donkey for an image. The important thing is that they should be capable of being pictured by the human imagination.

The privilege accorded to concrete words is not limited to mnemonics. In the psycholinguistic literature, it has been consistently found that subjects perform better on tasks involving concrete words than on abstract words. Such tasks include paired-associate learning, word recognition, free recall of words, lexical decision and pronunciation (Nelson and Schreiber, 1992). Numerous hypotheses, which we cannot pause to consider, have been offered to explain this phenomenon.

Therefore, however enthusiastically one may advocate the keyword method, it is difficult to escape the conclusion that the success of this technique depends on the nature of the words being learned. Concrete words, e.g., *table, book, duck,* are most amenable to this method whereas abstract words, e.g., *peace, happiness, anger*, are the least amenable.[11] The reason for this is apparent to anyone

[11] In addition to concreteness-abstractness, other aspects of target words have been shown to make a difference. Cohen notes that nouns have been found to be the easiest to learn by the keyword approach, then verbs and then adjectives. (1987). The reason is intuitively evident: Even in the case of the most concrete verbs, i.e., verbs describing visible actions such as drinking, running, jumping, etc., the visual image must forcibly involve some agent performing the action. Moreover, in the case of transitive verbs, the image must involve some object. The danger is that the meaning of the target word may be confused with the agent or object. Thus, the Spanish verb *beber* (drink) may successfully call to mind an image of a baby drinking a bottle of milk. But what assures the learner that *beber* does not mean *bottle*? There does not seem to be any cure for this difficulty. Bellezza (1981) a firm advocate, of the keyword method, notes that when there does not exist a one-to-one link or transformation from the native language to the second language word, "pure memory" is necessary to some extent to make the link that will supply the meaning" (cited by Cohen, 1987).

who has ever tried using this method. In our earlier example of remembering the Spanish word *pato* (*duck*) by means of an image of a duck under a pot, it is difficult to go wrong once the image has been recalled to mind. However, let us suppose that, as an Anglophone learning French, I have memorized the French word for anger (*colere*) by means of an image of a general wearing an enormous collar and shaking his fist angrily. When I later meet the word *colere* and recall the image, the opportunities for misinterpretation are numerous. I may infer that *colere* means *uniform* or perhaps *general* or *war*. Indeed, I have only the context to preserve me from error, and we have noted in Chapter 4 above what a fallible guide context may be.

We may note the that problematic nature of abstract words is not specific to foreign language learning. All the other disciplines in whose service visual mnemonics is invoked must face this difficulty. We saw in Chapter 1 that the earliest memory manual which has come down to us, the *Ad Herrenium*, is in fact only a small section of a treatise devoted to the art of public speaking. As we have seen in our historical survey, the need for public oratory has been one of the principle motors which has kept alive the art of memory during some periods and allowed it to dwindle during others. The Roman senator preparing his speech before his colleagues had to know how to render abstract ideas "visible".

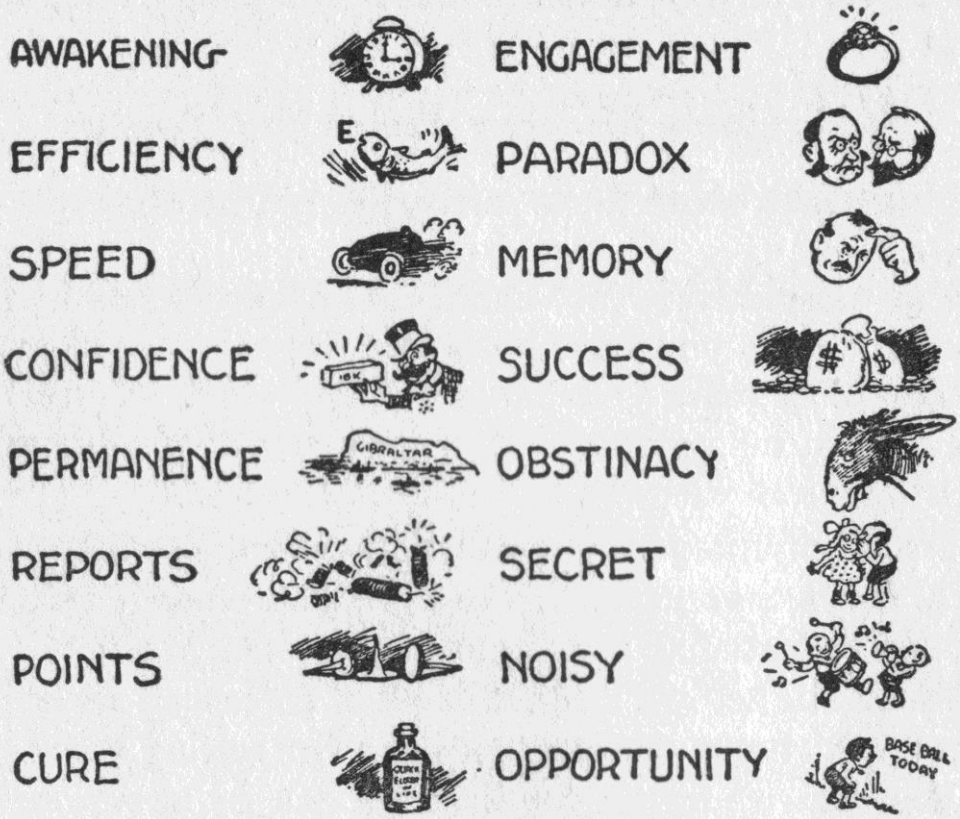
In more recent times, the author of the popular Roth Memory Course devotes a lengthy section of his book to demonstrating the value of visual mnemonics for public speaking. Aware that the reader may be daunted by the prospect of picturing the many abstract words which might figure as topics for oratory, Roth reassures us that "There is no limit to the use of mental pictures. Any word can be made the basis of a picture by using the imagination."

Then, in order to assuage any remaining doubt, Roth gives us sixteen drawings, showing how easily abstract words can be pictured. As the relevance of this issue to language learning has now been established, I believe that it would be relevant to reproduce on the following page these sixteen illustrations as they appeared in Roth's original book.

Picturing Abstract Words

There is no limit to the use of mental pictures. Any word can be made the basis of a picture by using the imagination.

The accompanying sketch shows that it is possible to convert any abstract words into pictures.



Reproduced from The Roth Memory Course, Sundial Press, New York, 1918

We note that the author is compelled to make use of a play-on-words (for *paradox*) and a rebus (for *efficiency*), so, in spite of his assurance, we may not be persuaded that picturing abstract words is quite so easy.

Nor is it altogether clear how the ancients managed this. In Cicero's system of rhetoric, for instance, Virtue was divided into four parts, namely, Prudence, Justice, Fortitude, and Temperance. Memory was considered as a part of Prudence, the other parts being Intelligence and Foresight. We may suppose that these qualities figured frequently in Cicero's speeches before the Senate. How did he imagine them? What physical forms did he place in his *loci*? Yates, our eminent historian of the art of memory, admits that "..we have no way of knowing how the 'things' Prudence, Justice, Fortitude, Temperance and their parts would have been represented in artificial memory. Would Prudence, for example, have taken on a strikingly beautiful mnemonic form, a persona like someone we know, holding or having grouped around her secondary images to form her parts…?" (Yates, 1966).

A study by Hogben and Lawson (1994) looked at Australian high school students learning Italian by means of the keyword method. Subjects were required to make up their own keywords. The words to be learned were equally divided between concrete and abstract. The concrete words were more readily recalled, but the abstract words also resulted in a "reasonable" level of recall, leading the authors to conclude that the keyword method is suitable for all types of words.

As we leave this topic, we may paraphrase Earnest Hemingway who once wrote that, as a young soldier going into battle, he was reassured by the realization that he had only to do what all men before him had always done. Thus, the task of the modern student of foreign vocabulary is no greater than that of the Roman student of rhetoric. If the ancient scholar, by the bare power of his own imagination, could devise concrete images for the many abstract concepts required by oratory, then today's language learner, being no less intelligent and creative, can hope to manage equally well.

6.3 Rapidity of Decay

All memory decays, and the visual links provided by the keyword method are no exception. As we saw in Chapter 3, research has demonstrated, *against intuition*, that the links formed by the keyword method are as durable as those formed by rote learning. Indeed, as saw in the case of the adult learner of Italian (Chapter 5), they may exhibit amazing stability. Notwithstanding, there is no denying that these images must fade in time.

However, the role of the image is to promote the establishment of a direct association between the target word's form and meaning. Its disappearance from memory is therefore not to be regretted after it has served its purpose. Hulstijn notes that

> …the keyword is not meant to live forever, but only has to serve temporarily. Of course, learning L2 vocabulary involves much more than committing name to memory. Learning a word…may be seen as an incremental process. The keyword method does not claim to offer a substitute for this entire process of adding all semantic and formal features a node in the mental lexicon. It functions only to help establish *one* of the necessary links in the *initial* phases of learning.

How long must the mnemonic link last before a stronger more permanent connection can be established? The answer must depend upon the number of subsequent exposures to the foreign word. But how many exposures is enough? Where rote learning is concerned, one study has indicated that a minimum of 12 exposures is necessary to develop fluent and precise word knowledge (Beck *et al.*, 1987 cited in Stroller and Grabe, 1993). Intuition suggests that words learned by the keyword method would require fewer rehearsals than would be needed with rote learning. This is a point which must be clarified by future research.

Whatever the number might be, the danger is that the minimum number of rehearsals might not occur. Then the image link would be lost and, in the absence of a substituting direct link, the target word would be effectively forgotten. In a classroom situation in which the keyword method is used with the keywords ready-made, the teacher's role is to ensure that the L2-L1 link is practiced enough times to prevent such an outcome. This can be achieved by maximizing the students' exposure to the target words, using graded readers, multi-media, computer activities and guided conversations. However, in a setting in which the keywords are generated by the students themselves, as must be the case in higher education (see Chapter 9 below), the responsibility lies with the learners themselves to ensure sufficient exposure, mainly through copious reading, thereby establishing direct memory links to replace the more fragile mnemonic ones.

Chapter 7 - Internal Issues in Keyword Methodology

When advocates of the keyword method meet, there are a few issues which are likely to appear in discussions. These are matters of internal debate, and could scarcely interest anyone who was not convinced of the value of this technique. This chapter, therefore, is added in the hope that the case for visual mnemonics in language learning has been sufficiently established as to warrant the inclusion of these particular topics.

7.1 Is bizzareness a positive feature?

Author's of books on mnemonics have emphasized that the process of memorization is substantially enhanced if the images are as ridiculous, bizarre or ludicrous as possible. Thus, the anonymous author of *Ad Herrenium* writes that we

> …ought to set up images of a kind that can adhere longest in memory. And we shall do so if we establish similitude's as striking as possible; if we set up images that are not many or vague but active; if we assign to them exceptional beauty or singular ugliness. If we ornament some of them with crowns or purple cloaks, so that the similitude may be more distinct to us. Or if we somehow disfigure them, as by introducing one stained with blood or soiled with mud or smeared with red paint, so that its form is striking, or by assigning certain comic effects to our images, for that, too, will ensure our remembering them more easily. (Book III, xx)

More recently, David Roth writes in the popular Roth Memory Course that

> Exaggeration is a most practical principle, and the use of it enables us to make lasting impression on the mind… Take advantage of the fact that things out of the ordinary impress us more than those that are commonplace. In order to retain your visual associations, you must make them unusual. Some of us find it necessary to make these associations grotesque and ludicrous…

One popular writer on memory improvement, Tony Buzan, has even suggested that the images should have some explicitly sexual content, as an aid to engraving them in the memory. (Buzan 1988).[12]

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[12] Whatever, the merits of such an idea, its direct expression is clearly a sign of the permissive times in which we are living. In the puritanical America of the early 20th century, the author of the Roth Memory Course could scarcely have dared to make such a suggestion. Buzan's advocacy of libidinous images might remain an amusing footnote to our subject, if it were not an echo of technique which has been known to mnemonists from the earliest times. We find it alluded to in the writings of Peter of Ravenna, author of a renaissance treatise on memory, who admitted incorporating the image of his fiancé into his theatre of the mind (See Chapter 1 above). During the renaissance, the adversaries of visual mnemonics were aware of this practice, and used it as ammunition in their attacks. Thus, William Perkins writing in 1585, pressed the Ramist attack against the visual memory system which had become popularized by the work of Girodano Bruno, declaring:

> The artificial memory, which consists in places and images, will teach how to retain notions in memory easily and without labour, but it is not to be approved…because it calls up absurd thoughts, insolent, prodigious and the like, which stimulate and light up *carnal affections*. [quoted by Yates 1966, italics mine]

Thus the art of memory, whose potential in the service of foreign language learning we have noted in this dissertation, was pilloried at a crucial time in its history for its alleged prurient tendencies. Yates noted the irony therein when she wrote that the "…whirligig of time has transformed the medieval Tullius [Cicero], who worked so hard at forming

Advocates of imagery mnemonics for vocabulary learning have naturally echoed the preference for bizarreness in imagery. Thus Andrew Cohen (1987), in his comprehensive review of the literature on the keyword method, cites four studies showing that bizarre mental images improved recall performance.

However, Cohen notes that studies whose purpose was to separate the effects of bizarreness from those of imaging *per se* (e.g. Wollen, Weber & Lowry, 1972) have failed to find any added benefit from this feature, concluding instead that the positive effects attributed to the use of bizarre imagery were actually due to confounding of the bizarreness of the image with interaction between the cognitive mediator and the target item. A similar study by Higbee (1979, cited by Pressley, 1982) failed to establish any connection between effectiveness and bizarreness. Pressley, whose extensive review of the keyword method we quoted earlier, flatly denies the value of bizzareness, branding it as mere "mnemonic folklore" (Pressley, 1982).

How can we reconcile the hoary tradition affirming the value to bizzareness with the opposing recent studies? First, we may note that the issue cuts across disciplinary lines, having equal import for teachers of history, biology and other subjects. Therefore, we may look outside the literature of applied linguistics for a solution. Indeed, in a comprehensive review of the role of mnemonics in education, Bellezza (1995) suggests that it may depend on *who* is doing the learning. In the mind of the learner who is new to the art of memory, a typical and mundane image may serve very well. However, in the mind of the practiced mnemonist, there may be so many stored images that the process of retrieval may be enhanced by bizarreness. Thus, we may understand why the subjects of recent experiments, who were all novices, failed to display the advantage of bizarreness, while the ancients, who were masters of the art of memory, confirmed the opposite conclusion.

Hulstijn, who is perhaps the most recent writer to deal with the keyword method in a truly authoritative manner, is not convinced by the detractors of bizarreness, and in his suggestions for metacognitive training, which we will summarize below, he recommends making the images bizarre and striking (1997).

In the absence of further data obtained from research, it is probably prudent to withhold judgment on this point. We may only note that the value bizarreness is part of the folklore of the mnemonics, with a history dating back thousand of years. Therefore, as bizarreness does no possible harm, it is probably wiser to bow to the force of tradition, and make our images as weird, striking and outlandish as possible.

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memorable images of virtues and vices to deter the prudent man from Hell and lead him to Heaven, into a lewd and immoral person deliberately arousing carnal passions.."

It may seem from the media that we are living in a New Age of frankness and openness. However, a glance at history shows that Puritanism and sexual repression are resilient forces in culture and should not be hastily dismissed. Whatever might be the merit of sexual images in mnemonics, such a technique would be better treated with discretion. Perhaps, indeed, the less said about it the better.

7.2 Teacher-supplied vs. Student-created images

Another issue of discussion among advocates of the keyword method is whether the linking images should be supplied by the teacher or created by the learner. Intuition suggests that self-created images ought to be more effective. After all, we would expect a poet to be more successful at recalling his own poems than those of his fellow poets. There is, however, some evidence to the contrary. Wang and Thomas (1996, cited by Gruneberg, 1997) conducted research showing that images devised by the experimenter lead to higher retention than images devised by the learner. Other research, based on small amounts of information and student populations, has shown the opposite effect (Presley, 1982).

The difficulty in resolving this point is that making up images is a creative act, and like all creative acts, some people are better at it than others, and those who are better produce "better" images. Any study which seeks to compare teacher-supplied with student-created images must take into account the quality of the images. It might be objected that the above-cited study by Wang and Thomas prejudiced the outcome by supplying images which were not "good" enough. To resolve this issue would lead us into a discussion of what constitutes a "good" image (in addition to the criterion of bizarreness raised above). The assessment of any product of human creativity raises difficult issues, in which objective standards become entangled with subjective values.

Surprisingly, Michael Gruneberg, who, as we saw in Chapter 5 above, is the author of a series of self-study language courses using the keyword method, is quite neutral on this issue. He points out (1997) that the invention of 700-800 images is bound to be beyond the ability of some learners of foreign languages. Therefore, the only way to produce a product that can be supplied to learners over the counter is to do the image-making for them. Thus, potential customers can see at a glance what is being offered. The alternative of supplying only a list of words in a book or a CD along with a guide to the method "would be much less sellable." Anyway, Gruneberg notes that students often make up their own "idiosyncratic" images to supplement those supplied by the Linkword courses.

Focusing on the needs of university students, Hulstijn (1997) notes that it is quite unrealistic for the teacher to attempt to supply the keywords, due to the large quantity of lexis involved. Advanced students of foreign languages are often subject to the need to increase a vocabulary of about 1,000 items (a low intermediate level) to about 5000 items (an advanced level). Rather than being supplied with images, Hulstijn suggests that students who are beginning the study of a foreign language should have an orientation session in which they learn the keyword method. Learners are thus trained to create keywords for themselves as the need arises. (See Chapter 9 below).

The issue of teacher-supplied vs. student-created images cuts across disciplinary lines. The same question might be raised by, say, a teacher of biology who employed visual mnemonics to teach hierarchical classification.

In a broad review of the mnemonics in education, Bellezza distinguishes between mnemonic materials (teacher-provided) and mnemonic strategies (student-generated). He argues that the

choice may depend upon the difficulty of the material to be learned. Thus, Belleza concludes that the

> …general rule seems to be that when the encoding task is easy, it is better for the learner to generate the mnemonic representation. If the encoding is difficult for the learner, externally provided mnemonic words or pictures may be of better mnemonic quality and therefore more memorable than the encodings the learner can generate on his or her own.

Chapter 8 – The "Memory Hook" method of Learning Productive Vocabulary

In Chapter 1 we described the memory peg system of mnemonics (a descendent of the ancient *loci* system), and we considered whether it might be of use for foreign language learning. Our provisory conclusion was negative, and this would remain our last word on the subject if it were not for a remarkable study carried out by Allan Paivio *et al.* in 1979 and reported in the Canadian Journal of Psychology.[13] In that article Paivio described experimental validation of a vocabulary learning technique, called the *hook technique*, which makes use of the memory peg system.[14]

The reader will recall that the pegs are "pictureable words that translate into numbers by means of a consonant-number code based on visual or acoustic similarity" (Paivio 1979). We noted in Chapter 1 that the memory pegs constituted unnecessary baggage in foreign language vocabulary learning, finding in favor of the more streamlined method of linking words in the target language directly to words in the learner's native language by means of the acoustically determined keyword. Paivio's work gives us grounds to revise that early assessment.

In order to simplify our review, let us first describe the technique as it was practiced by Paivio, himself, in his own study of French. Then we will report how he tested the method with a population of anglophone students at a Canadian university.

First, Paivio made use of an array of memory pegs in the target language, while preserving the now traditional number-consonant code, i.e., *t* or *d* = 1, *n* = 2, *m* =3, *r* = 4, etc. Thus, he made use of a series of words which were already known to French practitioners of visual mnemonics, beginning with *thé, noeud, mat, roi*, etc. Paivio notes that in this array "only the pronounced consonants of the printed words are relevant to the numerical position of the words. Thus, *noeud* represents 2 because *n* is the only consonant that is pronounced.".

Next, Paivio assembled a list of several thousand French words in their approximate order of frequency. For this, he made use of the Canadian publication, *Les Indices d'utilité du Vocabulaire fondamental français (1970).* Little by little, as the need arose, he assigned English translations to these words, making use of a simple bi-lingual dictionary.

Next, Paivio selected an initial series of common French words. Starting with the first word in the list of memory pegs, he selected a French word randomly and formed a mental image of a link between the first memory peg and the chosen French word. For instance, if the word was *oiseau* (bird), he might imagine a teapot (representing *thé*) breaking over the head of a bird. Then he would say to himself, while holding the image in his mind, the word *oiseau*. Then he selected a second French word and imagined a link between it and the second memory peg, noeud, and he proceeded thusly until all 100 pegs were used.

Now Paivio had a serviceable method for mentally rehearsing 100 words of vocabulary "without relying on any written prompts". He would mentally go over the vocabulary thus learned while doing his regular jogging, shaving, walking to work or any other activity which would normally be

[13] It may be noted that Paivio had established his credentials as an expert in the field of visual memory by the publication of the influential book, *Imagery and Verbal Processes* in 1971.

[14] The system was first described by Paivio in an article in *Visual Thinking, Learning and Communication* edited by Randhawa in 1978.

"wasted".[15] The French words were attached to the images without any acoustic link whatever. While rehearsing, Paivio would frequently find that he was unable to recall the French word corresponding to a particular image. Then he would simply go on to the next image, and later he would verify the word that had escaped him.

Surprisingly, Paivio found that he was able to remember a very high proportion of the French words on the first rehearsal. With each run-through, he was able to increase the number of words correctly recalled.

Although the French word was not visually linked to the image, the fact that an image was involved seemed to facilitate the process of recall. I do not know of any explanation for this phenomenon, nor has Paivio suggested any such explanation. He simply ascertained that the procedure worked successfully.

In this method, there seems to be no compelling reason why the memory pegs have to be in the target language rather than the learner's native language. However, Paivio comments that the choice of French memory pegs created a "complete foreign language context" (Paivio, 1978).

Paivio experimentally tested the procedure in 1979 with a group of Anglophone students at a Canadian University. The students were instructed to learn the 96 out of the 100 French memory pegs by heart before participating in the study. Then they were told to learn a series of French words using the hook method as described above. They were told to learn another series of French words purely by rote. The French words were controlled for familiarity and concreteness so as to eliminate any bias on that score. On subsequent testing, the recall was approximately three times higher for words learned by imagery than by rote.

The usefulness of the method would seem to be restricted to the first 100 words of French vocabulary. If the learner attempted to go beyond that initial list, would there not be a problem of interference between two or more images linked to the same peg? However, as noted in Chapter 1 above, multiple-use mnemonic devices are useful precisely because the most recently learned list is remembered most vividly (Belleza, 1996. Haseltine, 2000). Therefore, it is not surprising that, as Paivio reports that in his own study of French, he was able to "erase" the first series of images and "recyle" the memory pegs. Thus, using the same framework, he was able to learn a second 100 French words and then repeat the process again and again. Thus, over a period of several months, he was able to learn between 2000 and 3000 French words (Paivio, 2001).

In Chapter 1 we conjectured whether the ancient Romans had used the keyword method for learning foreign languages, and our answer was a cautious yes. However, if we ask whether the hookword technique, as per Paivio, was known to them, we can dispense with caution and answer affirmatively. True, the number-alphabet code was unfamiliar to the Roman student, but he had an equally serviceable instrument in the *loci* system, which offered a greater number of hooks than our modern system. If need be, he could add to his store of *loci* simply by taking a careful walk through the nearest Olympian temple.[16] A Roman who relied upon the *loci* system to memorize speeches and poetry would naturally use such a system for learning Greek, which was, of course,

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[15] Paivio appreciated being able to put his mind to work during those otherwise idle times, but not all language learners would consider this to be an important advantage. Some might feel that the mind deserves time for an unrestricted flow of images, freed from the requirements of any task – in a word, for daydreaming.

[16] And if he happened to run out of available temples, he had at his disposal the now lost zodiacal system of Metrodorus, with its 360 memory places. (See Chapter 1)

the sole foreign language esteemed worthy of such effort. While walking to work, shaving (which all male Romans did) or just sitting alone in his *domus* (without the distractions of the media), he could use the time to rehearse his Greek vocabulary. No doubt, Paivio has rediscovered a system which was current in the ancient world.

Paivio's intriguing findings have been greeted with silence by the academic community. He described his method in a publication in 1978, again in 1979 and once more in 1985, but to my knowledge, no other researcher has commented on this procedure or attempted to replicate his results. We may sum up that the *hook method* is certainly deserving of further investigation and hope that such research will not be postponed much longer.

Chapter 9 – A Keyword Method for Hebrew-Speaking learners of English – Some suggestions for an Israeli syllabus.

We began this dissertation by highlighting a deficiency in the teaching of English in Israel, to wit, the systematic neglect of vocabulary. Our review of the literature concerning the keyword method was undertaken to ascertain if this technique might prove a sufficiently powerful instrument to tempt the EFL establishment in this country to remedy this neglect. Now, in conclusion, we can declare that this method warrants the high hopes that have been placed in it by its advocates. It remains to make some concrete suggestions about how the keyword method might be integrated into the existing curriculum.

Our introduction established our focus as consisting of higher education in Israel. Before proceeding, a few words of background concerning our educational system would be in order.

Students normally enter colleges and universities in Israel only upon completion of a baccalaureate certificate, called the *bagrut*. Due to the existence of several grades of *bagrut*, varying greatly in difficulty, this certificate may signal a vocabulary ranging from a few hundred to several thousand word families.

Most colleges and universities test their students' reading comprehension and group them into classes according to their levels. The placement is may be performed according to scores obtained on the nationally administered Psychometric examination. At some colleges, limited enrollment prevents grouping the students by level, and thus classes may contain students of highly mixed achievement levels. It should be noted that the declared objective of the compulsory EFL courses in higher education is to bring each graduate up to the level where he will be able to read professional literature in his particular field – be it science, technology or the humanities.

Before considering the possible integration of the keyword method, let us offer suggestions on two closely related issues. First, the syllabus of the course should continue to consist of authentic articles, graded as appropriately as possible, but supplied to the students with *glosses* in their native language. Hulstijn (1996) and others have shown that having students read glossed articles facilitates incidental vocabulary learning. Glossing increases the time that teachers must take to prepare instructional materials. As we have seen above, it compels educational institutions to hire teaching personnel who are competent in the students' language, which may entail additional salary expenses. However, there is no pedagogical justification for not glossing.

Second, the students should be informed that their final examination will be undertaken *without dictionaries*. By a single stroke, this will serve to restore vocabulary to its rightful priority. Students will realize that the words that they meet in their practice readings, both glossed and unglossed, are deserving of careful attention. The stage will be set for the vocabulary-learning strategies which will be presented in the introductory lesson of the course.

The following ideas rely heavily on Hulstijn's article in *Second Language Vocabulary Acquisition*, to which I have frequently referred. In that article, Hulstijn makes the bold suggestion that the syllabus for foreign language study should include a metacognitive component. The subject matter of the course should encompass not only the target language itself but should also include *how to learn*.

The idea of devoting precious class time to the *art of memory* may intimidate many teachers. After all, teacher training courses rarely mention the subject. (Sapir, 1997) However, Hulstijn argues

persuasively that "time spent on a confrontation with the vocabulary learning problem in such a metacognitive way is time well spent."

The teacher who dares to train his students to operate as autonomous learners of lexis may also claim the authority of the author of the *Ad Herrenium*, who wrote that the duty of the instructor is to teach the method of making images, give the student a few examples and then encourage the student to form his own (Yates, 1966). More recently, Paul Meara (author of over 30 articles on FL vocabulary learning) writes that " …if the world was rational all courses of instruction in foreign languages would include an introductory session that showed learners how to generate mnemonic images, and how to use them to learn words in the course." (1997)

Pincas (1996) remarks how "puzzling" it is that memory has never featured in theories of language learning or teaching. Even in the literature which discusses storage of words in mental networks and different kinds of retrieval… "no attempt is being made to consider the most efficient method of making sure that it is held in the memory". Such an attempt would undoubtedly lead to the conclusion that techniques of memory should be included in the syllabus of a foreign language course.

Hulstijn suggests that the metacognitive contents of the course should be presented in the introductory lesson. He writes

> …ask your students to mention examples of words they have learned spontaneously, incidentally. Then ask them why they think these words have been retained in memory without their conscious effort to learn and remember them…. Then ask them to give some examples of word forms whose meanings they have had to look up several times, words that they have had particular difficulty learning and remembering. Help them to become aware of the fact that they have not forgotten the forms of these words, nor their meaning, but the link between form and meaning. Point out to them that it is necessary to find a mediator between the two.

Following this introduction, the teacher should discuss various vocabulary learning strategies. Ask the students which strategies they normally use to learn new words. The techniques which the students mention themselves invariably include the following.

a) Identifying true cognates, i.e., forming an association between an L1 word and an L2 word similar in sound and meaning

b) Analyzing a morphologically compound word, which is especially helpful in "transparent" compounds, that is, compounds whose meanings can be deduced from their constituent parts.

c) Forming associations with familiar words based on some sort of sound or similarity, such as rhyme.

d) Forming nonverbal sound associations (e.g., the noise made by objects, animals or humans, associated with various sorts of affective responses of pleasantness, unpleasantness, etc.)

Finally, introduce the keyword method to the students. Say a few words about the history of visual mnemonics, emphasizing that the students are about to learn a time-honored technique which has proven itself during three millennia. Having thus set the stage, the technique can be effectively

presented by selecting a list of ten quite uncommon English words, which the students are unlikely to know and which appear in an upcoming assignment. Administer a brief "pretest" to establish the unfamiliarity of the lexical items for all to see. Then suggest keywords drawn from Hebrew, and explain to students how to form a mental snapshot of the image linking the keyword with the targeted English word. Then, at the conclusion of the same lesson, give a little "quiz" to test the students' recognition of the meanings of the ten words used in the demonstration. The students will almost all get ten out of ten, which will provide a dramatic presentation of the power of this method. A touch of harmless showmanship could be fruitful in this initial demonstration.[17]

However, the teacher should not exaggerate the value of the technique, nor present it as a magic formula. Hulstijn notes that

> Students should realize how difficult it often is to come up with keywords satisfying both requirements, i.e., (1) form similarity and (2) a semantic characteristic allowing for the establishment of a salient (preferably bizarre)…link with the meaning of the target word. Emphasize that using mnemonics in general and using the keyword method in particular (1) is often not necessary, because more natural links between form and meaning have established themselves in their memories and (2) is often not possible, because a suitable keyword cannot be found.

Hulstijn adds that the discussion should not be limited to the keyword method only. Research has shown that "multiple elaboration", consisting of a repertory of techniques including the keyword technique are better than the keyword technique alone (Hogben and Lawson, 1994).

Throughout the course, after each article assigned, ask the students to share with the class the words they learned by means of the keyword method. Invite students to reveal their keywords *in their respective native languages* and to describe the accompanying images.[18] Encourage the students to feel that the keyword method has become an integral part of their lifelong strategy for dealing with foreign vocabulary. Point out that this technique can also be used to expand their vocabularies in their native language (Sweeny, 1982).

The presentation and development of the keyword method during the course should not detract from the more familiar vocabulary acquisition strategies. The most common morphological components should be learned and practiced. In some cases, the keyword method may be useful in learning the meanings of those components. Students should also receive some training in the strategy of guessing the meaning of a word by its context, although recent research has shown such strategy to be far less effective that teachers tend to suppose (Laufer, 1997).

By supplying texts which are suitably glossed and by informing the students that their final examination will be undertaken *sans* dictionary, the teacher will, in effect, have demanded that vocabulary strategies be accorded their real importance. The students' former complacency about vocabulary will be dispelled.

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[17] In my recent EFL classes at Hebrew University and the Jerusalem College of Technology, I have taught such an introductory lesson Although no quantitative assessment was attempted, the students indicated that they found the session stimulating and edifying.

[18] At Hebrew University, the native languages represented in a single class will usually include Hebrew, Arabic, Russian and Amharic. In my classes, students were intrigued to be asked to disclose *their* keywords and to write them on the board in their respective alphabets.

In such a milieu, the keyword method could take its rightful place as the *prince* among vocabulary learning strategies. Visual mnemonics would thus be rescued from centuries of neglect and restored to its role as an aide to language learning, as it undoubtedly was in ancient Rome. History will have come full cycle. The *Ad Herrenium* and the writings of Cicero will have found their place in the modern world as sources of inspiration for further generations of students. And the modern student of foreign languages will hearken back to that solitary student of rhetoric, moving slowly through a world of images in the temple of the mind.

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