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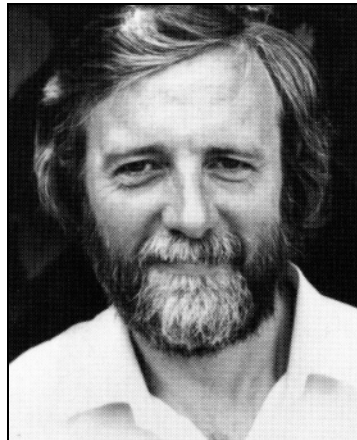
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## **Ten Top Principles in the Design of Vocabulary Materials**

**Michael McCarthy's Ten Commandments for the Teaching of Vocabulary**



An applied linguist called Ray Williams published in the *English Language Teaching Journal* a paper called "Top Ten Tips for the Teaching of Reading." It consisted of ten principles which, in Williams' opinion, every teacher of reading should follow. From this comes the idea that one could have a whole book consisting of nothing but chapters of ten principles. Chapter one, would be ten principles for the teaching of grammar; chapter two, phonology; chapter three, writing skills, etc. It has never been done, but what has been written is a paper in which the ten principles for the design of vocabulary teaching are put forward. What this discussion would like to do is to look at those ten principles and to consider their theoretical justification and their practical implications for the classroom. It is hoped that they will elicit commentary and perhaps contributions from others for commandments eleven, twelve, thirteen, etc., for there are certainly more than ten.

The origin of these ten principles is the work that has been done on several projects for Cambridge University Press. First, there is the book *English Vocabulary For Use*. Then, there is the work on a bilingual French-English thesaurus, which will be explained later. Finally, having been an advisory editor for various other things connected with vocabulary, has meant working with people - teachers, writers and researchers – on practical problems of designing materials for the teaching of vocabulary. We have tried to be faithful to these ten principles. As with any attempt to follow ideals, or principles, we have probably failed to follow those principles in all of our productions. But they remain good guiding principles.

The structure of this discussion will be to work through the ten points one by one but they should not be looked on with the same awe and wonder as the decalogue from the Old Testament. The principles are relatively simple in their enunciation here. The theoretical background to them is, nonetheless,

sometimes satisfyingly complex. Though we hover uncertainly between the terms principles, commandments and criteria, for the moment they can all be treated synonymously.

***Principle 1: Organising the lexicon, the learners' task***

Principle number one says quite simply that organising the lexicon is the learners' task where possible. In order to outline what is meant by this, let us go back thirty years to the mid-sixties when the science of the teaching of vocabulary was synonymous, at least in Britain, with the science of semantics. The organisational principles of the lexicon, which were translated into pedagogical practice, were those provided by semanticists. In the textbooks used during the period, the organisation of the lexicon for the learning of the language was imposed externally by semantic principles. There were lexical fields, families of words connected semantically, hyponymic sets with their superordinates, autonyms, maranymy, etc. This sounds like a good theoretical basis for pedagogy, but reality proves otherwise.

The language learner is, of course, not a semanticist. What we need to do, therefore, is to actually look at learners' principles of organisation and take advantage of those. One simple experiment which can be carried out is to take at random any ten, or dozen, words. Just get them from anywhere, out of your head, out of a dictionary. It does not matter where. It does not matter what word class they are. Throw at a group of students ten or twelve randomly chosen words and ask them to organise them into groups. The extraordinary thing is that everybody can do this. No student ever says they cannot do it. All human beings, it seems, have a very good talent to organise random data. In fact, it is as if we do not like random data. We are naturally disposed to organise it. When the students are asked what it is that they have used as their principle of organisation, what sort of answers can we expect? What sort of categories? Sometimes it is themes and topics. Sometimes it is word classes, like nouns and verbs, even things like orthographic factors. Sound patterning is very strong for some. Some people have a strong visual association with words. A case which stands out was the student that organised the words into groups based on "nice" words and "nasty" words. This example tells us something fundamental and that is that the power of idiosyncratic organisation should not be underestimated. Individual learning styles, individual abilities to organise vocabulary totally idiosyncratically by personal associations, by sound associations, by lexical or grammatical associations, orthographic associations, all of these types of associations are powerful learning tools. They also have the advantage that they are personalised. The individual investment in creating one's own system of organisation leads almost inexorably to better learning. Another thing that comes from this way of proceeding and which is useful, in a very practical sense, is that it enables the learners to organise more efficiently their own

record of learning. In this is avoided the, all too familiar, student's notebook in English which consists of a vertical list of words.

To sum up briefly, a very important point is that, years ago, we made the mistake of equating the organisation of the lexicon with a semantic organisation. In other words, there are a variety of ways in which the lexicon can be organised and associated into networks. And not least important are the ways that individual learners prefer to do this. Therefore, any good vocabulary teaching material must include activities which enable the learners to do their own organising of data. Any book that does not include this kind of thing is falling into the old trap of associating learning organisation with the external organisation, as viewed by linguists and other external observers of language.

***Principle 2: The multi-word lexicon, the importance of phrasal units***

If principle one sounds a bit anti-linguistic - and it is not - principle two is totally committed to a linguistic view of vocabulary. Principle number two arises from eight years of working with the Cobuild people of the University of Birmingham (Sinclair and his associates). This point here about the multi-word lexicon (single words and multi-word units are the data) really relates to the fundamental contribution that descriptive linguistics has made to our understanding of vocabulary in the last twenty years. All the research evidence, whether it comes from computational linguistics, in the case of projects such as Cobuild or the British National Corpus or the corpus of English at the University of Nottingham, all that corpus evidence, all the psycholinguistic evidence from first and second language acquisition studies, particularly first language acquisition (one thinks of such studies as Gene Acheson's book published in 1987, *The Mental Lexicon*), additionally all the pedagogical research from people like Nattinger and DeCarrico in their book *Lexical Phrases in Language Teaching*, all these strands of evidence converged into one very important fact about the lexicon of a language, such as English or French or any other. That fact is the overwhelming importance of phrasal units of the lexicon. The lexicon is as much phrasal as it is single words.

Now the immediate temptation here is to think that we are talking about "kick the bucket", "hit the sack", "take the biscuit", "raining cats and dogs", all the good old favourite idioms which language teachers love and which students love. The interesting thing is that when you look at corpus, especially a spoken English corpus of everyday conversation, you realise two things. Number one, those traditional idioms, the verb and complement idioms are very rare. Indeed, as we well know, it is only language teachers and language learners who ever say them. Their frequency is very low. But the other thing you learn when you look at corpus is that there is a vast range of other phrasal and idiomatic types which are very frequent, which we have underestimated in our teaching of vocabulary.

One example of this would be binomial structures. A binomial is very simply two words joined by a conjunction which operate as a single unit. For example we have, "rough and ready", "give and take", "here and there", "part and parcel". Those kinds of units are in fact frequent in everyday conversation. It is surprising how frequent. Trinomials also exist in examples like "cool, calm and collected", "lock, stock and barrel", "hook, line and sinker", "men, women and children", "morning, noon and night". Those are very rare but the binomials are much more common than we have, in the past, given them credit for.

The interesting thing, pedagogically, about binomials is that they are actually quite a good thing to teach and to use in interaction with one's students. There are several reasons. Their internal structure is often patterned quite regularly. For example there is a whole group of binomials which are patterned to sound: "prime and proper", "wine and dine", "rough and ready", "part and parcel" have repetition of sounds. This makes them easier to learn. Then, there is a whole group of binomial structures which actually consist of synonyms: "pick and choose", "push and shove", "leaps and bounds", "rest and recreation". Now, this is something quite useful because our learners love synonyms even if they do not know what they are for. This is a good example of a bridge between something which they feel attracted to, the idea of synonymy, and a very practical fact about the usage of synonymy. One could go on all day about binomials. They are fascinating. Another group of binomials, for instance, is composed of grammar words, of function words, that is small prepositions and particles: "hither and thither", "to and fro", "down and out", "out and about", "here and there", "this and that", "back and forth". These are words which learners already know. They are generally not new words. They take advantage of vocabulary that is already known to create new units.

So the principle here that I would hold to is that we should turn on its head the old principle of giving vocabulary lists which consisted of single words with a couple of phrases or idioms for good measure and give as much attention to the different phrasal types in the language. Any vocabulary material that does not do that is falling down on a fundamental feature of language. The first language acquisition studies show that this is an important way that children learn their language. With most British children, amongst some of the very first things to say are phrases like "all gone". When food is finished they say "all gone". When mummy or daddy goes out of the room, they say "mummy all gone", "daddy all gone" or whatever. Now we cannot say that a two-year-old child knows that he or she is working with an adverb and a past participle. The evidence points to the fact that children work naturally with phrasal units and only analyse them much later. So the first language evidence is strongly pressing towards this phrasal view of the language.

Sinclair of Cobuild says that from the evidence that he has looked at over the years he is prepared to turn the paradigm of language, as offered by

Chomsky, entirely on its head. Chomskian linguistics proceeds from the supposition that language is basically syntactic structures with lexical items fitted in according to their grammatical specification. Sinclair is prepared to say that language production consists mostly of phrasal units occasionally stitched together by something called grammar. Now this is a strong view, which we do not totally subscribe to, but it has an attraction. Fluency cannot exist without "off the peg" language. Fluency is one of the most poorly defined categories in applied linguistics. To define it would make for an excellent research project. But one of the definitions of fluency must include ready-made "off the peg" language it would seem.

### *Principle 3: Collocation*

The third principle follows from the second and is to do with collocation. A simple pedagogical principle is that collocation should be included from the earliest stages of language learning. The principle exists because of the common tendency to think of collocation as an advanced level skill. It is something you do in year five or six of your French course or your English course. All the linguistic evidence points to the opposite. Collocation or collocational restrictions permeate all levels of frequency of vocabulary, from the most frequent everyday words to the rarest words. There is no justification for talking about collocation just as a phenomenon attached to low-frequency words. The most common everyday dilexical verbs like "take", "go", "come" have collocational restrictions. We "go" grey, but we "get" angry. We "do" our homework, but we "make" mistakes. We "have" an experience, we do not "make" an experience. Now, these collocational restrictions are broad at the level of high frequency. They are very broad indeed but they are still restrictive.

Teaching the difference in meaning semantically between "do" and "make" is almost impossible, but we can distinguish between the two in terms of their collocational restrictions. The same can be done with "go" and "get" as a contrastive pair, as with "say" and "tell", "little" and "small", "big" and "large", and "begin" and "start". I cannot see any semantic explanation for the difference between "begin" and "start", but I know that I cannot say or I should not say in English, "I'm sorry I'm late. I couldn't begin my car." So the restriction is purely collocational it seems. Notice that the words we are talking about are not obscure advanced-level words. They are frequent everyday words. As we go down into lower frequency then, of course, we come upon even more arbitrary restrictions. The fact that I can say "beige" carpet but not "beige" hair or that I can say "blond" hair but not "blond" wallpaper, these are rather arbitrary distinctions, which get more and more restricted as we go through the frequency. So when we get to a low-frequency word such as "torrential" we know that it is almost certain to be followed by "rain" or "downpour" or "storm" or one of a small number of restricted words connected with "rain". We do not

normally talk about people having "torrential" hair or "torrential" passion for somebody. In fact, if you do this you are called either a language learner or a poet. So poets are people who break the collocational restrictions.

Collocation therefore, it seems, should always be there right from the earliest stages. Vocabulary materials that push this away to the advanced level are making a fundamental mistake. Vocabulary teachers should be devising a wide variety of activities connected with collocation. If you look at most of the vocabulary books that are available, they are not actually very good on exercises and activities connected with collocation. One notable exception was the *Words You Need* series published by Macmillan many years ago, in the early 1980's. Students found those very difficult to work with. Those were the ones that used matrix diagrams where you had a horizontal axis with words like "make", "take", "go", "come" and a vertical axis with words like "grey", "happy", "sad", "twenty-eight", "banana", "duck", "camel" or whatever. You had to put a cross or a tick whether the horizontal and the vertical matched. This is a very good visual idea, but learners generally, after a while, can take no more of it. There is a very low saturation point with those things.

#### ***Principle 4: Going beyond topics***

The next principle, going beyond topics, is something that needs to be talked about a lot. In the past, if vocabulary teaching was not considered synonymous with semantics, it was often considered synonymous with topics. Therefore, vocabulary was organised in terms of the vocabulary of holidays, the vocabulary of education, the vocabulary of religion, the vocabulary of banking and finance, the vocabulary of sports, the vocabulary of food and restaurants, the vocabulary of travel, etc. One interesting question to ask ourselves is what other kinds of vocabulary are needed to communicate, once all the vocabulary connected these individual topics has been learnt (in the world of economics *images* are innumerable). If we take this interesting point about the need for understanding images, it can be manipulated around to better understand principle four. One of the things found in the putting together of *English Vocabulary in Use* was that, in addition to the vocabulary of the different topics, we found that we need something called notional concepts. There is a familiar word here, notional. Remember the winds of change of the 70's when, overnight, teaching changed to the teaching of notions and functions. It was a bit of an embarrassment because nobody knew what notions meant.

Now, if you go back to the original literature on notional-functional approaches to language we find that David Wilkins, in his book *Notional Syllabuses*, makes a very clear fundamental distinction between functions and notions. Everybody seems to know what is meant by functions. Thus the sixties and seventies were spent teaching students how to get other people to open windows, how to get them to stop smoking, how to apologise, how to persuade,

how to request, how to complain, etc. That was the functional side of communication. What then was the notional side? These were the concepts that underlay everything: time, distance, speed, intensity, brightness, ways of imaging the world, in other words. This is why the point about imagery is very important. Even if it is economics or sports, you cannot escape the location of those concepts within a world that consists of density, volume, distance, time, weight, ease, difficulty, brightness, darkness, sharpness, fuzziness. These are notional concepts. And you need these quite independently of topic vocabulary. Underlying the topical vocabulary, whatever the topic may be, is the notional vocabulary. Therefore a good vocabulary teaching syllabus, or a set of materials, will have units or lessons devoted to this type of vocabulary. It is a very economical way of learning because you can use it in almost any topical framework. This is the power of it. *English Vocabulary in Use* has nine chapters on notional vocabulary.

Equally, of course, one could say that another mistake was made in the 1970's and 1980's in espousing the notional-functional syllabuses because the affective domain was ignored. The fact is, we never talk about anything without representing our stance, our attitude, our feelings and emotions in relation to that thing. The problem with the notional-functional teaching was that it looked upon the learner as a kind of functional robot. In some sense, he or she did not have much in the way of feelings, but just spent all of his or her life getting windows opened and telling people to stop smoking in railway compartments and that sort of thing. So the vocabulary of feelings and actions is fundamental. This, again, is a common core vocabulary which underlies functional vocabulary.

We could go on, of course, there are many other things you need extra to topic. What more should we have that underlies topic? In *English Vocabulary in Use* there is a whole section on variation where all kinds of nuances such as formality and informality and so on, the connotative aspects of word meaning, are brought out. Another area that is found, for example, is the vocabulary of connection and linking of ideas. This is an enormous vocabulary. For anything which I wish to talk or write about I need to be able to connect propositions.

Take a simple example such as cause and effect. "The lorry skidded, it crashed." This is cause and effect with no linking. "The lorry skidded and it crashed." "The lorry skidded, so it crashed." Or, "because the lorry skidded, it crashed." "The lorry skidded, then it crashed." Those are examples of connection with grammatical words. It is very easy to express connection using a wide variety of other types of vocabulary. "The cause of the crash was the skidding". "The result of skidding was a crash," or whatever. So words like "cause", "result", "consequence", "effect", a huge vocabulary just connected with one function, cause and effect. And think of all the linking functions that there are: there is chronological linking, there is contrastive linking, there is



adversative linking and so on. So we have a vast area of vocabulary just connected to connecting. And the good vocabulary syllabus will add this to the topical context.

### ***Principle 5: Word grammar and word formation***

Principle five is another underestimated area. This is what is called word grammar. There are two aspects to this, word grammar and word function. Take word formation first, because this seems to be a fascinating area. Thirty years ago, the principles of word formation were quite respectable as a part of teaching. Morphology was considered an important part of teaching vocabulary of any language. However, anything to do with morphology had the effect of killing the interest of the pupils. It seems that the reason for this is that in those days the students would be dragged through the whole apparatus of English word formation - all the Latin and Greek roots and bits, all the prefixes and suffixes, and types of compounds and types of this, that and the other. If you ask yourself, "What do I want to know about a foreign language that I am learning, with respect to word formation?" the answer is quite different. You do not want to know what are all the roots and prefixes and suffixes only. The most important thing is, which are the ones I can do something with? And which are the ones I need to know, but I cannot actually do anything with?

To illustrate, take two extreme cases. One is the pseudo suffix "-aholic" which is not a true suffix but operates like one in modern English. It is marvellous, one can do whatever one wants with it. It started with "alcoholics" for people who drink too much. Then we have "drugaholics". Recently we have had "tellyholics", "radioholics", "videoholics". You can actually use that suffix with anything. Everyone is an "aholic" of some sort. "Aholics" is already one of those pieces of word formation which the learner can use quite freely, quite safely and will always get it right. At the other end of the scale, we have a suffix such as "-ose": "jocose", "verbose", "bellicose". It is interesting to know that that is an adjective suffix, but dead as a door nail. You cannot actually do anything with it. It cannot be used to create new words.

So good teaching of word formation does not just say how words are formed, but says how you can form words. An obvious example is the "-er" suffix, which is very productive. You can add "-er" to almost any verb to produce a doer, an agent word. So, in recent years, we talk about "viewers", people who watch television. The Swedish language gives a striking example of prefix productivity. By putting the sound [ou] before any adjective, its negative or opposite is formed. By the simple fact of being told this, the language learner can double his adjectival vocabulary instantly. To know what is productive in English, we need again to look at language use, at actual corpora. One cannot just sit back and think, "Oh, this is a good one, that is a bad one". One has to be

honest and say, "Let us look at current written and spoken English and see what the productive word formation processes are".

For example, there are noun/noun compounds, which are very easy to make in English and very productive. Verb/verb compounds, on the other hand, are very rare. It is quite dangerous to try to invent a verb/verb compound because people will call you a poet or a foreigner. English, and certainly French as well, hardly ever invents new words. There are simply new arrangements of old elements. But that is what word formation is about. The most useful thing to be done with learners is to give them the kind of information that is useful, that is useable and that is why teaching word formation as a monolithic, undifferentiated fact is likely to just send them to sleep. Used properly it can be a very powerful instrument for increasing the vocabulary.

Word grammar, incidentally, was the other part of this principle. This includes familiar things such as "countable" and "uncountable", but also, again, things which are not often talked about, for example, nouns in English which are only used in the plural. There are quite a lot of them. Obviously there are the words for tools and instruments, like "shears", "binoculars", "clippers", "pliers", "pincers", but there are also many others which are purely arbitrary. We talk about the "acoustics" of a room and not the "acoustic". In English, we talk about the "contents" of a book while in Spanish the singular is used. These are purely arbitrary facts about different languages. As teachers, where can we go, where can we find a list of nouns which are only used in the plural? This is one of the neglected areas of the vocabulary. There is a lesson in the book *English Vocabulary in Use* devoted entirely to that problem because it was thought very important.

### ***Principle 6: Limits for receptive and productive use***

With this principle, let us shift the emphasis a little bit towards language learners and away from language. A question which crops up is, how many words should be taught? So, this principle is about the limits to receptive and productive use of vocabulary by the learner. If you consult the research that has been done into how many words learners can learn, how well they can retain them and how well they can use them productively it points to a very depressing conclusion. In fact the number of words that one can realistically teach in one hour is very small. Most research points towards a figure of about between ten and twelve for active productive use per average one hour or one and a half hour lesson. For passive receptive vocabulary the number can safely be doubled to twenty-five or thirty, but no more. Anything more seems counterproductive, actually having the opposite effect. This means that, at the end of the course, you have taught very little. *English Vocabulary in Use*, for example, has a hundred lessons but it tries to stick to the rule of a maximum of thirty words per

lesson. Even in a thick book like that there are only three thousand taught items, which is not very much.

Most English speakers function, especially educated mature adults, with a working vocabulary of twenty or thirty thousand words. Some people have even bigger passive vocabularies. Productive vocabulary is probably between five and ten thousand, it depends on whether you are talking about spoken or written production. There are huge differences between spoken and written. The thing that needs to be done is to look more at the evidence of spoken language because most of our conclusions to date have been based on written language. A good project would be to look at the actual vocabularies used by real speakers. But what this rather depressing scenario of small bits of vocabulary per hour, totalling up to a rather small amount of vocabulary overall does, is lead us on to another commandment.

### ***Principle 7: Learning to learn***

Even if you have your students for seven years, let alone the seven weeks or seven months that is normal, you can only possibly cover a very small part of the vocabulary. Now, this is different from grammar. One of the fundamental differences between grammar and vocabulary is that grammar is a finite set of structures, which can be covered in a syllabus. You cannot do the same with vocabulary. One should teach one's learners to be good vocabulary learners. This is what is meant by learning to learn. In other words, when the students leave, they have all the good habits which will enable them to increase their vocabulary. Now, this is also contingent on the fact that most learners come to the task of vocabulary learning with ideas quite different from the fashionable and exciting ideas that professionals talk about. So the education of the learner into thinking about vocabulary learning as something they can do is quite a huge obstacle to overcome.

Cambridge University Press has a good book, called *Learning to Learn English* by Barbara Sinclair and Gail Ellis. It can help a lot. It has a lot of ideas for this learner training, learner autonomy notion. But it does seem that the good vocabulary book, the good vocabulary syllabus will necessarily contain learning to learn elements. Any book that only teaches words is only doing half the job. This leads on to the next principle.

### ***Principle 8: Developing the learners' knowledge about vocabulary***

Principle number eight involves lexical awareness, that is developing the learners' knowledge about vocabulary. It seems that we are a profession of double standards. And one of the double standards that we operate by is that we happily expect our learners to embrace the metalanguage of grammar. We expect our learners to know what a "noun" is, what a "verb" is, what an "adjective" or a "preposition" is. We have the expectation that sooner or later

they will know what these things are. We are not afraid of the metalanguage of grammar.

Most teachers use words like "preposition", "adverb", "sentence", "subject". On the other hand, if you suggest to a teacher to talk about "binomials" or "collocation" or "hyponyms" they think that to go into a classroom talking like that will frighten the students to death. So, there is a funny double standard of being prepared to use the metalanguage of grammar but of shying away from the metalanguage of lexis, of vocabulary. There is no justification for this. Either say no metalanguage at all or the metalanguage of vocabulary is just as useful as the metalanguage of grammar. The task of defining an adverb is almost impossible yet we accept this metalanguage without question. Defining collocation is a much easier task. If we are committed to the current trend towards language awareness, that is the reflective learning of language, then we have to find non-threatening ways of introducing the metalanguage of vocabulary. Not just learning words, but learning about words. We must share with the pupils the perspective that we have on the lexicon, but it is not easy to do that of course. It cannot mean going into class and saying, "Today collocations, maranym, hyponyms, superordinates, binomials, trinomials and frozen synanase". This is almost guaranteed to pull the shutters down between teachers and students. But there is no justification for saying that the metalanguage of vocabulary cannot be tackled but the metalanguage of grammar can.

***Principle 9: A variety of activities and exercise types, open-ended combined with close-ended***

The next principle takes us back to semantics. It is clear that we should provide a variety of activities and exercise types of an open-ended nature combined with others of close-ended nature. This seems like a fairly simple pedagogical principle. Why, in the teaching of vocabulary, should we insist that open-endedness be a principle? There is a very good reason for this and that is that lexical meaning is fundamentally different from grammatical meaning. Grammatical meaning is, largely speaking, deterministic. We can state its boundaries. We can state the boundaries between "the", "a" and the "∅" definite article. We can state the boundaries between "this", "that", "these" and "those". And we can state them in grammatical terms. Try and do the same thing with vocabulary and you find another quick route to madness.

An activity to do which illustrates the reason open-endedness is an important principle is this: write the word "vehicle" on the board. Ask your group of students or trainees to list all those things which belong to the category "vehicle". The results you get are very interesting. The whole group will agree that a "car" is a vehicle, a "bus", a "lorry" or a "truck" and a "van" too. Beyond that core of items, wholesale war develops. No one in the group can agree on

what the other members of that category are. There will be someone in the group who will insist on having a "sleigh", a "tractor", a "horse and cart", a "helicopter", a "canoe" and a "camel". There will be others who will reject these as a definition of vehicle. What this exercise tells us is, firstly, vehicle is not a special word, all words operate in this way. What it tells us is that lexical meaning is inherently fuzzy. It is inherently open-ended and boundaries between words are not clearly demarcated. The problem is that our students think they are. Our students think there is a meaning for the word "chair" and that it is going to be sharply defined.

Fuzzy is a quite respectable term which comes from semantics. We can talk about fuzzy semantics, fuzzy meaning and capture something inherent about vocabulary. The vocabulary is inherently open-ended. Therefore good vocabulary teachers or books, from the beginning, encourage the learner to think in terms of fuzziness as well as sharpness, because all learners come to the task of vocabulary learning thinking that vocabulary meaning is going to be sharply defined, that there will be a right answer, one word, "le mot juste", or whatever it's called in French. It is not like that. The problem is that, if you do open-ended exercises, you need a good key for the benefit of the non-natives which tells the differences between alternatives and why there are alternatives. This can be voluminous. A second problem is that, every time you do open-ended exercises in class, some student will remain behind, after the others have left, to ask for the right answer. Here we come back to the relationship between principle nine and principle number seven - learning to learn. Learning that meaning is fuzzy is an obstacle that we have to help learners overcome.

### *Principle 10: The problem of reference skills*

Last, but not least, we encounter the problem of reference skills. The major publishers of language teaching materials have put vast amounts of research, resources, money, investment, time and energy into the production of reference materials. We are invited to buy them and use them, but are there problems? A first problem which could elicit some controversy is that, as a profession, we have accepted without any scientific evidence whatsoever that a monolingual dictionary is the best tool for learners. The reason why monolingual dictionaries are better has to do with something they contain. There is nothing inherently better in the fact that they are monolingual. What therefore is needed, the perfect instrument for learning, combines monolingualism and bilingualism because both have their virtues and their uses.

Then, we have a further point and that is that dictionaries are not the only way of organising reference. We are all familiar with thesauruses, the most famous, Roget's, was published in 1852. That is an alternative to a dictionary. The problem with Roget is that he was a philosopher. Roget tried to organise the language according to philosophical categories. As an example, the word

"stomach" is found in the category for containers. The point of the example is that a philosophical organisation of the vocabulary is not the same as a useful system of organisation for the learning of the vocabulary. Therefore, one needs to look at different models for organising the vocabulary for reference works for the learner. Those who have studied semantics may be familiar with the term "frame" semantics. It is possibly the most promising way of looking at the problem of organising reference. "Frame" semantics includes, not only semantic information, but encyclopaedic and cultural information in its classification of words as well.

A good example of a semantic frame for places where you can live are different things like "cottages", "houses" and so on. The characteristics of the words are not only their semantic features, such as that it is a dwelling, but that they are affective and cultural features, such as the association with warmth and comfort. Whereas we find something like "cabin", which has a cultural feature, of somewhere you stay overnight, in modern-day America. These clusters, with which frame semantics operates, are obviously encyclopaedic, cultural clusters, not semantic ones. The primary purpose is an overnight stay. The primary function is rural setting. The frame semanticist uses a combination of semantic information with encyclopaedic real world information.

This points to two things. Firstly, the design of reference materials needs to address the question of what kinds of organisation are useful for learners. What are there in the way of alternatives to the alphabetical dictionary? What are there in the way of combining bilingual with monolingual? What kind of principles are likely to be the most useful apart from the philosophical ones of Roget? The other point is, as we know from research by Henri Béjouis, that the way users use dictionaries is a pathetically impoverished way. Most learners will not use them. Students tend to restrict themselves to the little *Pocket Larousse* under the desk. If they do not get help in using a big dictionary they will not use it for more than looking up meaning and spelling. All the invaluable information on collocation, on word grammar, register information on formality/informality, restrictional information, etc., all of that will simply pass over their heads. There must be teacher intervention to train them in good reference skills. That is not just how to use a learner's dictionary. It is to actually expand their horizons to look at other possibilities such as encyclopaedias, thesauruses and word finders and various other ways in which they can get at reference materials. Dictionaries should become for them encoding instruments as well as the simple decoding instrument that they are today.

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