 Untutored Vocabulary Acquisition and L2 Reading Ability

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While vocabulary knowledge is often recognized as necessary for successful reading in a foreign language, research on the procedures appropriate for the systematic teaching of vocabulary in an EFL reading program is still lacking. This article describes a self-instruction procedure designed to provide students of science and technology at tertiary level with a basic vocabulary of around 1000 items. In general, the technique, known here as untutored vocabulary acquisition, appears to be an efficient method for bridging the gap between the vocabulary which beginning L2 students possess and that required to read L2 scientific and technical texts with ease.

INTRODUCTION

Goodman's metaphor that 'reading is a guessing game' (Goodman, 1967) has exerted great influence on EFL/ESL reading research. Such influence has been felt at three instructional levels: (1) the design of reading course design (2) the methodological procedures used in the teaching of reading courses, and (3) the evaluation of students' reading comprehension.

Models based on Goodman's notion of reading (see for instance, Clarke and Silberstein, 1977 and especially Coady, 1979) hold that fluent readers predict as they read and do not rely on word by word decoding. While these models, known as top-down models, place greater emphasis on conceptually-driven aspects of the reading process, they tend to underestimate the role of data-driven aspects of reading. In dealing with word knowledge, for instance, advocates of top-down models have been telling teachers that guessing the meaning of unknown words provides both a rich way into comprehension and an efficient method for vocabulary learning. The effect of this advice on EFL reading programs is that curriculum designers and teachers feel that they need not be concerned with forms of vocabulary development other than those through which the guessing game is played. As a consequence, (1) objectives on vocabulary development are seldom, if ever, considered a vital part of reading programs; (2) direct and systematic methods of vocabulary teaching/learning have been ignored; and (3) items testing quick, automatic access to word storage are generally absent from reading comprehension tests. So it does not seem an exaggeration to claim that vocabulary development has been excluded from the three above-mentioned instructional levels.

However, with the advent of interactive models of reading, vocabulary is beginning to gain a more positive status. Essentially, what interactive models posit is that

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rapid vocabulary recognition (and grammar knowledge) play a crucial role in good reading in concert with other higher level cognitive skills (e.g., predicting) required for the interpretation of the text (Eskey, 1986). According to interactivist pedagogy, vocabulary instruction is justified because lack of quick access to receptive vocabulary 'may be the greatest single impediment to fluent reading by EFL students' (Grabe, 1988:63). I find this position appealing for several reasons.

In my experience as a reading teacher at the Universidad Simón Bolívar (USB), Caracas, Venezuela, I have noticed a growing dissatisfaction and a sense of frustration among reading students who lack strong knowledge of vocabulary words. This observation has been confirmed by informal as well as formal studies. In 1988, I gave 84 incoming students of the first trimester at the USB a short text written in English, and asked them to state in writing what in the text caused them difficulties. The text is a description of how the brain works, and was taken from a popular, scientific magazine. The level of difficulty, in my judgement, was appropriate for beginning students. A high 83% reported that the vocabulary in the text was the main aspect with which they had difficulties. 12% reported that unfamiliarity with some grammatical constructions caused them most difficulties in reading. Another 4% indicated that unfamiliarity with the text theme offered some difficulty in reading the text. Informal surveys administered in the following years reflect a similar pattern of responses. It would seem that incoming students identify lack of vocabulary knowledge as a serious problem in reading materials written in English. In addition, locally designed survey studies have further corroborated this notion. In a recent program evaluation study conducted at USB, a great majority of students who self-report having low and intermediate level of English proficiency agreed with the statement that 'lack of vocabulary knowledge is still my greatest problem in reading effectively in English'. The survey was conducted with students of the last of three reading courses of the USB reading program. Respondents were selected randomly from a population of around 1000 students. These students have all received instruction in the identification of rhetorical functions used in scientific written discourse and in reading strategies. Thus, it would appear that reading students may continue to perceive their lack of vocabulary as an impediment to reading fluently in English even after receiving instruction on reading strategies.

If reading programs are to correct this situation, how can teachers best help students to acquire the vocabulary knowledge they perceive they lack? More precisely, how do we teach vocabulary in a manner that doesn't hinder instruction in reading strategies?

The answers I have found involve (1) the use of well-known vocabulary teaching techniques (keyword method, context enrichment techniques, semantic mapping, identification of word parts, etc.); (2) an extensive reading activity (Pino-Silva, 1992) and (3) methods that, although defying teachers' intuitions, seem to work well with students. The objective of this paper is to present one such method. In the remainder of this article, I will try to state the problem at hand in a more precise manner and I will describe a student-centred approach to vocabulary learning whose objective is to increase significantly students' word knowledge.

THE PROBLEM

Students and teachers alike know that many of the reading comprehension breakdowns experienced by students involve word recognition and lexical access. Students may either lack a concept or an English label for a concept familiar to them (i.e., an English word). Sometimes these problems can be solved by contextual analysis, aided by previous, schematic knowledge. This is the approach favoured by most top-down advocates, one that is beginning to be challenged by theorists as well as practitioners (see, for instance, Stanovich, 1980; Haynes, 1984). Interactive theorists, for instance, argue that guessing (and predicting and inferencing) requires vast vocabularies and that it is the good readers who guess least from text because they don't have to: they already know the vocabulary. Not being able to automatically recognize English words, good readers in the native language are prone to do excessive guesswork in the second language, thus slowing down the process of reading, precisely because they possess deficient vocabularies (Eskey, 1988).

Teachers, on their part, know that average readers in the L1 can recognize some 50,000 words, a size of vocabulary at least 5 times greater than that of their L2 students. In addition, L1 readers of English texts can pronounce most of the words in print. Non-native college students who are learning to read texts written in English generally possess underdeveloped vocabularies and lack knowledge of the L2 phonology as reading programs cannot offer training in linguistic skills other than reading. Thus, in many cases L2 vocabulary items are learned, stored and retrieved by the students without their being able to pronounce them with native-like quality.

Because the learning task is so great, it is unlikely that the size of vocabulary needed to read efficiently in English can be acquired solely by the so-called word-attack skills. Direct acquisition of a great number of lexical items is a must, especially in the early phases of learning to read.

THINKING ABOUT WHAT TO DO

From what has gone so far, it seems clear that methods aiming at developing basic, threshold-level vocabularies are needed. In designing one such procedure my objective was to help students learn the essential, high-frequency words that they need to read with relative ease, a basic word power that could facilitate automatic lexical access of word meaning during reading. In trying to accomplish such an objective I had three constraints.
First, I did not want to send the message to my students that word-knowledge was all that was needed to read well in English. Second, my students’ lack of vocabulary was serious. I was shocked to learn that the kind of words that needed attention were common, highly frequent words, not specialized or technical words as I first suspected. Third, class time was short even for the teaching of reading strategies and known methods of vocabulary teaching would take up class time needed for strategy training.

As is often the case, solutions to problems may come from those who have to deal with the problem on a daily basis. And one possible method to deal with building word power came from direct observation of my students at work. I noticed that some good students kept a word list in their notebooks as a strategy to fix word meaning. One ‘word-list keeper’ told me: “I then study these words at home using a dictionary, trying to classify them, and write them down over and over again. I also translate them into Spanish”. (Pedro Alvarez, personal communication)

There are at least two reasons why some teachers may want to disregard this comment. First, the mere mention of word-lists makes many reading teachers I know nervous. They fear that listing items out of context can only confuse students, for words acquire meaning only in relation to a well-defined context. Second, providing Spanish translations for unknown English words has long been dismissed as being an ineffective method of building word knowledge. The use of L1 knowledge to assist L2 learning is deemed plain wrong and reading pedagogy is in no mood to listen to statements made by lay-persons who may be opting for the use of an approach to learning vocabulary which may be easy but is nonetheless unhelpful. Despite these caveats, I had several reasons to ponder Pedro’s statement.

First, verbal reports have been a tool of potential value for the study of the language learning process, and they have been especially useful in pinning down the conscious processes or strategies the learner uses (Cohen, 1984; 1987). This research has informed teachers that it could be a gross error to ignore what reflective students have to say about their learning strategies. Secondly, both translation and making word lists are listed in such well-known inventories of language learning strategies as Oxford’s (1990) and O’Malley and Chamot’s (1990). In neither of these works was I able to find negative comments as to its inefficiency as a language learning strategy. Third, Pedro’s comment hinted that good language learners can learn vocabulary outside class-time, i.e. that vocabulary is amenable to self-instruction. The following sections of this article attempt to show that untutored, self-instructed vocabulary acquisition may provide a path to build basic word power in a relatively short time. Along the way, I hope to make clear that the capacity of typical reading students to work on their own cannot be underestimated by the reading teacher. What follows is a description of the procedure I will call untutored acquisition of reading vocabulary.

UNTUTORED VOCABULARY ACQUISITION: PROCEDURE

Untutored Vocabulary Acquisition is a self-instruction technique especially designed for students of scientific and technological courses at USB who are learning to read scientific texts written in English. It aims at providing beginning readers of scientific texts with no less than 1,000 words which they must automatically recognize from texts when reading. Rather than being unknown words to be guessed at, the words in the list are to be part of the context from which the meaning of other words may be inferred. The design includes material (word list and vocabulary tests), instructional strategies and a set of directions.

A. MATERIALS

1. The word list

I compiled a vocabulary list using two sources. The first source was the teacher in the USB reading program. I passed around a sheet of paper with a single instruction: ‘Please write the words which your students often ask you to explain.’ When I put this list together I had collected 106 words. Some of these were however, rain, overall, stairs, mirror, etc. One teacher handed down her own collection of words she had kept for years to help her students with vocabulary learning. I learned very quickly that this wheel had already been invented.

The second source I used was the students’ reading materials. I asked students to read one text each from their class materials and make a list of the items which (1) they did not know, (2) appeared very often in their texts and (3) they thought were valuable to them. In this way, I collected more than 900 words. This student-centred procedure gave me a general idea of the vocabulary my students needed to learn very quickly if they were to read without having to put extra attention to decoding, guessing extensively or embarking on repeated trips to the dictionary. From the two above-mentioned sources I was able to collect around 1,000 units (e.g. words and lexical phrases). A sample is provided in Appendix A.

The list was arranged alphabetically with the help of a computer. No effort was made to categorize the words. This and other tasks will be left to the learners themselves.

2. The vocabulary tests

I designed 4 vocabulary tests based only on the 1,000 words in the list. East test contained 20 multiple choice items. Very simple sentences were constructed with one missing word. The students were asked to complete these sentences by selecting one of four alternatives. Alternatives included words in the list only. The first test contained the first 200 words only, the second one the next 300 words, the third
They worked very hard and in their reports indicated that they had learned many hundreds of the words on the list.

b. **Motivation.** Students showed an increasing motivation towards their learning situation. I was impressed by the effort that went into vocabulary study and the number of innovative ways students used to learn the words. For instance, three students formed a team and tested each other on word knowledge. They soon were ready to challenge other teams. In general, students felt that they could handle the task and developed a positive attitude towards the task at hand. It was also the first time my reading students felt they had something to study before the exams. Reading teachers know that it's hard to tell students how exactly to prepare for comprehension exams, especially when they are written in multiple choice format. Untutored vocabulary acquisition gave them the chance to improve in the one aspect students themselves identify as a weak one.

c. **Assisted Retrieval.** A common strategy among students is to ask teachers for assistance when they find unknown words in their texts. Reading teachers spend time answering questions of the sort “What does X mean?” I quickly began to observe that there were fewer and fewer questions of this type. This is a positive sign since it indicates that students may have the answers to the questions I used to answer in class. This could also suggest that students were beginning to gain autonomy from their instructor, an often distant but valuable goal in reading instruction.

d. **Dictionary Use.** Dictionary use is another parameter by which one can visually assess lexical knowledge in the class. Towards the end of the term, there were far fewer trips to the dictionary to look up the meaning of highly frequent words. This again is another positive sign that untutored vocabulary acquisition was helping students develop some basic word power.

e. **Guesswork.** Guessing was beginning to make sense now that students knew more words. Words added to the lexicon and automatically recognizable from print could now be seen as part of the context or text redundancy that may aid students to either guess or ignore a number of other unfamiliar words. The fact that *Untutored Vocabulary Acquisition* may have been instrumental in helping students to construct the kind of scaffolding that can motivate them to take risks may well be another factor in its favour.

f. **Reading Comprehension.** Overall, performance on multiple-choice reading comprehension tests was better than that of a control group but fell short of reaching statistical significance. This is a good result considering that vocabulary knowledge is but one of the many factors that influence performance on reading comprehension tests. It is quite likely that factors other than an improved vocabulary knowledge may have had a contributing impact on these results. Control of these factors in
future studies is necessary before one can conclude that lexical knowledge had a significant impact on reading comprehension.

g. **Self-rating.** Students were asked to self-rate their vocabulary knowledge and text comprehension at the beginning and at the end of the term. Students' self-ratings of their ability to recognize words and comprehend texts showed a significant improvement.

h. **Reading and Vocabulary.** Untutored vocabulary acquisition showed that acquisition of vocabulary and reading can go together. Most of class time was devoted to reading strategies and most vocabulary was learned outside class-time. Pre- and post-reading activities dedicated entirely to vocabulary learning were only occasional.

**DISCUSSION**

The gains in vocabulary knowledge and the positive signs associated with it might be due to the fact that students themselves were the main responsible parties for their learning, a rather old idea which is more thoroughly discussed in relation to language learning by Dickinson (1987). This author defines self-instruction as situations in which a learner, with others or alone, works without the direct control of a teacher, and states that self-instruction thus defined can be of two types: learner-centred and material-centric. In the former method, responsibility is entirely placed on the learner, while in the latter the teacher's role relates to the materials. The self-instruction technique reported here relies heavily on the design of good materials and since this experience was first carried out, perfecting the word lists and tests has been a constant preoccupation. If materials are optimal, students willingly accept the extra burden of the learning task without the teacher's direct attention.

It is important to stress that self-instruction seems quite effective in reading instruction because the teacher's responsibility lies within the organization of materials, lessons, practice, tests and classroom management. In self-learning teachers transfer some of their responsibility to the students and in gaining autonomy the learner is the one responsible for the decision-making process, and the implementation of the procedures and actions that follow after a decision has been made. Vocabulary learning lends itself to self-instruction since its study can be organized in terms of discrete units (words and lexical phases) allowing teachers and students to categorize items by semantic fields, functions, ranking, and multiple listing by a number of different criteria. In addition, vocabulary learning challenges the science-oriented mind. Students of science and technology are often bothered by the fact that questions they ask cannot always be answered in the precise manner they expect. Because increments of vocabulary knowledge can be more precisely assessed in terms that both teachers and students can visualize with some precision, such students find vocabulary learning quite appealing.

I also find vocabulary self-instruction applicable to reading classes because it copes well with the problem of individual differences. It is well-known that some individuals learn at faster rates than others. Since learning is done at each student's pace, competition from smarter students and a host of factors leading to class anxiety are greatly minimized by self-instruction modalities. Besides, since individuals have different cognitive styles the format of reading lessons, as we know it, cannot always provide a context capable of accommodating the cognitive orientations of all the learners. Carefully designed self-instruction in the teaching of reading certainly gives students an edge.

Self-instruction is also in agreement with a vigorous movement towards student-centred, cognitively-oriented instruction. In this approach, learners are seen as experts who plan, monitor and evaluate outcomes of their actions. It is not a coincidence that the task of learning vocabulary on their own allows students to behave like experts solving problems, since it was designed to meet the students' needs and challenge their cognitive ability.

**CONCLUSIONS**

The objective of this article was to describe an untutored vocabulary learning procedure to bring beginning readers of scientific texts a bit closer to the vocabulary demands imposed by automatic recognition of words in texts written in English. Students showed gains in lexical acquisition, a slightly improved overall reading comprehension, and a favourable attitude towards their instruction as L2 readers. Untutored vocabulary acquisition in its present format benefited from the advantages of self-instruction, mainly in that the active involvement of the learners in the decision-making process as to when to study, how to study and how much work they must put into their task of learning vocabulary, may have had some potential effect on motivation and achievement. In recent years, I have complemented untutored vocabulary acquisition with semantic mapping, with a number of techniques destined to train students to guess from the context, and with a program which asks students to read extensively in class (see Pino-Silva, 1992). This complementary material may be crucial in shaping students' basic reading vocabularies. When it is used in this manner, teachers may feel confident that untutored vocabulary acquisition may well serve the purposes of a good reading course.

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1 The USB reading program has recently adopted the interactive model as the theoretical foundation of its reading program. The program has incorporated several objectives that stress both vocabulary development (i.e. direct acquisition of words) and guessing ability. A team of teachers are writing lists of vocabulary to assist students with their learning of basic reading vocabulary. Special attention is given to words that signal discourse/rhetorical functions. Many top-down reading skills (i.e. predicting, inferencing, etc.) that are equally
central to fluent reading are adequately treated in the design of the program according to the postulates of interactive models of reading.

REFERENCES


APPENDIX A

Sample of vocabulary items

| abiding        | advice         | ancient        | assertion    |
| about          | a few          | and so on      | assess       |
| above          | after          | aneroid        | assist       |
| above all      | afterwards     | angle          | assume       |
| abrupt         | against        | another        | assumption   |
| absent         | age            | answer         | astonish     |
| absolute       | ago            | ant            | astonishing  |
| accelerate     | a great deal of| antibody       | astounding   |
| acceleration   | ahead          | any            | at first     |
| accomplish     | aid            | any longer     | at least     |
| according to   | aim            | appear         | at random    |
| accordingly    | airliner       | appearance     | at that time |
| account        | algorithm      | apply          | attach       |
| account for    | alike          | approach       | attain       |
| accuracy       | a little       | appropriate    | attract      |
| accurate       | allot          | approval       | autumn       |
| achieve        | allow          | approve of     | available    |
| acknowledge    | alloy          | apt            | average      |
| acquaint       | almost         | argument       | avoid        |
| across         | along          | arise          | away         |
| act as if ...  | along with     | arm            | awful        |
| actual         | already        | around         | awkward      |
| actually       | also           | arrange        | back         |
| acute          | alter          | arrangement    | backwards    |
| adapt          | alternatively  | as far as      | bake         |
| add            | although       | as follows     | balance      |
| addition       | altogether     | as regards     | banish       |
| address        | amazed         | as soon as     | banishment   |
| adequate       | amazing        | as well as     | barred from...|
| adhere         | among(st)      | ascending      | barrier      |
| adhesion       | amount         | assemble       | base(is)     |
| adhesive       | amount to      | assembly       | based upon   |
| adjust         | analyze        | assent         | batch        |
| adjustment     | ancestor       | assert         | be           |
be applied
be arranged
be part of
beam
beany
bear in mind
beaver
because
become
bees
before
beforehand
behave
behavior
behind
being
beings
belief
bellow
below
bend
beneath
beside
besides
best
better
between
beyond
bind
birth
birth rate
bite
bizarre
blank
blast
bleed
blend
blind
block
blond
blood
bloodstream
blow
body
boil
bold
bond
booth
borrow
boss
both
bottom
bounce
bounce-back
boundaries
bow
brain
brain power
brake
branch
break
break down
breakdown
breakthrough
breath
breed
bridge
brier
bright
brim
brimming
bring
bring about
brittle
brilliant
broad
browse
bubble
bug
build
circle
circuit
bulk
bump
burn
burst
busy
by-product
by means of
bypass
cage
cane
cane sugar
care
carefully
carry (out)
case
cast
catch up with
category
cause
cease
cell
certain
chain
challenge
chance
change
channel
chaos
charge
chart
check
cherish
chill
chilling
chip
choice
claim
clear
clear-cut
climb
clock
clue
coax
coherence
collapse
collision
colorblind
come
come down
command
commit
compare
complain
complain
complete
completion
consumption
concept
concern
conclusion
conditioning
confident
configuration
comfortable
conscious
consequently
consistent with
content
content
tention
content
tention
convection
convergence
conversely
convict
cook
cool
cope with
copper
core
correlate
costly
cotton
counteract
counterbalance
couple
court
crack
crawl
create
crib
criteria
criterion
crop
crush
cut
cut down
damage
damp
darken
data
date
dead
deaden
dead
defeat
deficit
deficiency
deficient
degree
delay
delete
delight
delimit
deliver
denot
depth
derive
descending
design
detach
despite
deter
determine
develop

APPENDIX B
Sample of test items.

1. Aerodynamics is the branch of science that deals with air in motion and bodies moving ______ the air.
   a. safe  b. through  c. once  d. near

2. Einstein's theory of relativity made many ______ predictions about the universe.
   a. accurate  b. abrupt  c. sharp  d. ragged

3. Because archaeologists have other work to do and because it is not always easy to obtain the necessary money, digging ______ are very long.
   a. walls  b. temperature  c. seasons  d. spots

4. In most uses, the cost of liquid helium ______ benefits of superconducting technology.
   a. realizes  b. disturbs  c. outweighs  d. intends

5. As the temperature ______, several scientists took careful measurements of a compound inside a thermos-like container.
   a. searched  b. dropped  c. withdrawn  d. collapsed

6. In 1970, the physicist Carlo Rubbia - an Italian Nobel prize winner in 1984 championed a conclusion erroneously ______ from an experiment to measure the probability of particle collisions in an accelerator.
   a. bypassed  b. forecast  c. drawn  d. delayed