

SELF-STUDY METHODOLOGY AND MOTIVATION IN READING COMPREHENSION

Dennis Huffman
Universidad Autónoma Chapingo

Background

At the Autonomous University of Chapingo, reading comprehension courses for technical English are obligatory in seven of the eleven departments which give degrees in Agricultural Engineering. Although the Language Center offers three different reading programs, during one, two, or four semesters, at either the undergraduate or post-graduate level, there is one factor common to all the programs. That is, the problem of low motivation.

The majority of our students have studied English both at the secondary level with general English courses and at the preparatory level with specific reading courses. This means they have had contact with the language during more than 400 hours of classroom instruction. However, their passive knowledge of English is still very limited and they are able to read with ease only at what Rivers (1968) calls stage three. With guidance from the teacher, they can handle material which is within their limited lexical and syntactical knowledge, containing a minimum of unknown elements, of which their meanings can be inferred from drawings, tables, context etc. Nevertheless, a large proportion of the bibliography available for their studies is in English. In some departments this proportion is over 60%. Motivation, therefore, should not be a problem. Our students need to work with authentic material which requires the ability to use the whole context to decode the meaning of unfamiliar words, and to understand semantic relationships created by subordinators, sentence connectors and lexis in order to extract specific information accurately and in detail.

Unfortunately, this need has not been sufficient enough to ensure a high level of motivation. The objectives of the reading programs include improving the students' vocabulary and their procedures for recognizing unknown content words, and, as Berman (1984) suggested, reaching a point where students understand both the meaning of words and how they interrelate within a given text. It was concluded that part of the problem was the teaching methodology. The course under study relies on the comprehension of short simplified texts in order to organize information extracted from these passages to complete a table, label a diagram or fill in sentences. Extra materials were designed to relate the textbook activities to the students' specialty area (see Appendix 1) and to increase motivation. However, large groups, disinterest in the textbook material, repetition of certain types of exercises, insufficient knowledge of grammar and the lack of what Ulijn (1978) calls "conceptual knowledge" all contributed to lower student motivation.

In order to raise this, the present research project was carried out to determine the effect of a self-study methodology with that of direct classes in reading comprehension courses. During the spring semester of 1984, a self-study course combined with programmed consultation was offered in an optional pilot course. The students were required to do the course work individually and come to consultation sessions with the teacher at regular intervals. The objectives of these sessions were to:

1. Review the students' work.
2. Discuss problem areas.
3. Practice a written evaluation over the units covered.
4. Present the material to be used in the preceding unit and clear up doubts in relation to the activities to be done.

Three main types of students enrolled in the course. There were students who could not take other optional courses offered by the Center due to irregular class schedules.

Some students were taking the course to make up for a previously failed technical English course which their department required. The third type of student enrolled in the self-study program due to personal problems, such as family responsibilities or the need to work after classes, which made it difficult for them to take their required English courses at the time set by their department.

The results obtained from this trial period were varied. The material used lent itself to a self-study methodology and the students' performance on departmental tests compared favorably with those from other groups using a direct-class methodology (mean 75.5, standard deviation 7.3). However, the dissertation rate was over 65% and only those students who were required by their department to take technical English finished the course. Attendance during the consultation sessions was sporadic for most of the students and discussion of problem areas between student and teacher was limited. Motivation still remained a serious problem.

Purpose of Study

After analyzing these results, it was decided to continue the investigation with a group of students who were required to take a basic reading comprehension course and modify the teaching methodology. The objectives and materials utilized in the pilot course were used without modification. The difference was a combination of independent work sessions and direct classes. By joining these two methodologies, it was hoped to increase motivation without detriment to the students' overall improvement. The following hypothesis was formulated:

Teaching methodologies combining self-study sessions and direct classes will generate more motivation than those using only direct classes, without causing any significant differences in the students' overall improvement in reading comprehension courses.

Procedure

The study sample was selected from a population of 290 first year undergraduate students. A placement exam which consisted of 74 multiple choice items testing grammar and lexical knowledge was applied. The students were placed into four levels and groups were formed according to the departments to which they belonged. Two beginning level groups were chosen at random, one from the Department of Plant Science and one from the Department of Forestry. Both groups had approximately 15 students. One was designated the experimental group and the other the control group.

The teaching methodology utilized with the experimental group consisted of 26 direct classes and 39 individual work sessions (see Appendix 2). Each unit was divided into two or three direct classes with the following objectives:

1. Presentation of the concepts and grammatical patterns to be practiced in the unit.
2. Demonstration of these concepts and patterns in pair and group activities.
3. Revision of the work done during the individual work sessions.
4. Extension of the course to the students' area of speciality utilizing material designed by the Language Center's teaching staff.
5. Evaluation of the students' progress.

There were also three to five individual work sessions per unit. Unlike the direct classes, attendance was not obligatory during these sessions. The students had to resolve the exercises that had been previously discussed in the preceding direct-class and do a written homework assignment to be handed in. The teacher was available for consultation during these sessions and the students could either work individually or with other classmates.

The teaching methodology used in the control group was based on the same material and course objectives as the experimental group. However, all of the activities, except for the homework assignments, were carried out in the classroom individually, in pairs or in groups.

A modified cloze exam was utilized as a pretest and posttest (see Appendix 3). The text was chosen for its general agricultural content and for its length (662 words). The deleted words were placed in random order on a separate list and the students had to place these words in their original position. An exact word scoring procedure was used. This method of testing was chosen because cloze evaluation is frequently associated with the ability to handle syntax and vocabulary for the non-native speaker (Anderson 1978). This ability was considered to be one of the principal difficulties for our students at the beginning level.

A comparison of means was also done with five partial exams which were applied during the course to both groups (see Appendix 4). These departmental exams were used to measure the students' progress at specific intervals and the activities required of the students were in agreement with their classroom activities.

Finally, a short questionnaire was applied to both groups (see Appendix 5) in order to compare motivation levels at the end of the course. The aspects covered in the questionnaire were organization, course content, extra material used, teaching methodology and a student self-assessment of his/her improvement in vocabulary, grammar and process strategies.

Results

A students' t-test was used to compare the results obtained from the cloze exam (see Table 1). The t value of the gain scores was 0.49. Fortunately, this was not enough to reject the researcher's null hypothesis, at a significant level of .05. In other words, there was no significant difference statistically between the experimental and control groups.

A matched t-test was used to compare the results obtained from the partial exams (see Table 2). The t value for the difference between the pairs of means was 0.19, too low to be considered significant at the .05 level. Once again, the difference between the two groups under study was minimal.

However, the results from the questionnaire showed a significant difference between the experimental group which was considerably superior in most of the categories evaluated.

Table 1 Scores from the cloze exam

	\bar{X}_e	\bar{X}	s_e	s_c	t_{obs}
Pre-test	7.50	5.00	2.38	1.90	1.92
Post-test	11.50	8.46	3.32	1.94	1.74
Gain scores	4.0	3.46	2.16	0.66	0.49

\bar{X}_e = mean for experimental group

\bar{X}_c = mean for control group

s_e = standard deviation for experimental group

s_c = standard deviation for control group

t_{obs} = obtained value for t

Table 2 Mean scores from partial exams

Matched pair	Gain scores			
	Experimental	Control	D	D^2
A	90	100.00	-10.00	100.00
B	94	90.11	3.89	15.13
C	98	93.95	4.05	16.40
D	93	97.47	13.53	183.06
E	89	96.32	- 7.32	53.58

$$X = 464 \quad \bar{X}_e = 459.68 \quad D = 4.15 \quad D^2 = 368.17$$

$$n = 5 \quad n = 5$$

$$\bar{X} = 92.8 \quad \bar{X} = 91.97$$

D = difference between the pairs of means

Table 3 Course evaluation

Categories	Experimental Group			Control Group		
	Good	Regular	Bad	Good	Regular	Bad
General opinion	75%	25%		50%	50%	
Course organization	50%	50%		56%	38%	6%
Course content	100%			63%	31%	6%
Extra material used	50%	50%		44%	25%	31%
Teaching methodology	100%			75%	25%	
General level of improvement	25%	75%		56%	38%	6%
Improvement in vocabulary	50%	25%	25%	19%	75%	6%
Improvement in grammar		100%		25%	50%	25%
Improvement in reading strategies	100%			37%	63%	

Conclusion

The results from this investigation led the researcher to consider the differences between the two groups in terms of overall improvement in reading comprehension as not sufficient enough to reject the null hypothesis. In contrast, the students from the experimental group evaluated the course considerably better than those from the control group. Perhaps this was due to the fact that the experimental group were more intensive than in the control group.

On the administrative side of this investigation, the advantage is obvious. Normally, our teachers can handle only three to four groups with a direct - classes teaching methodology only. If you consider that during the individual work sessions between 25% to 50% of the students from the experimental group were present at any given time, the teaching staff at the Language Center could easily double the number of groups a teacher is capable of handling. The individual work sessions could combine two groups while the number of direct classes for the teacher could be divided between different groups.

Given the problem of low motivation in most reading comprehension courses and the lack of trained teachers in this type of course, the researcher recommends the use of a teaching methodology that places emphasis on self-study activities combined with programmed consultation sessions in which direct classes are kept to a minimum. Reading is essentially an individual activity and courses which train students to improve their reading comprehension should rely more on the students than on the teacher.

Appendix 1: Example of extra material.

UNIVERSIDAD AUTONOMA CHAPINGO
DIRECCION ACADEMICA
CENTRO DE IDIOMAS
TEG 1.3/F-MATCH/4.2/ /ST/RW/ 981

NAME: _____ GROUP: _____
Design: Carlos Cano DATE: _____

Instructions: Read the text and complete Table 1.

THE CELL

The cell is a functional mass of protoplasm which contains or at one time contained, a nucleus.

A cell is composed of five basic parts: cell membrane, cytoplasm, nuclear membrane, nucleus and processes.

Table 1

System	Parts

TEG 1.3/F-MATCH/4.2

Instructions: Read the text and match the parts of the cells and their descriptions.

The cell membrane forms the outermost limits* of the cell and separates it from other cells. The cytoplasm is the protoplasmic mass surrounding the nucleus. It contains the structures necessary for the specific functioning of the cell. The nucleus is the life center of the cell. It is usually located centrally and is ordinarily separated from the cytoplasm by a nuclear membrane. It contains the genes, chromosomes and other structures typical of the species and necessary for the reproduction of the cell. The cell processes are extensions of the cell which are derived* from the cytoplasm and which are covered by the cell membrane.

* outermost limits = edge

* derived = come

<u>Parts</u>	<u>Description</u>
1. nucleus	a. protoplasmic mass
2. cytoplasm	b. separates the cell from other cells
3. nuclear membrane	c. extensions of the cell
4. cell processes	d. life center of the cell
5. cell membrane	e. separates cytoplasm and nucleus

TEG 1.3/F-MATCH/4.2

Instructions: Complete the table.

Table 2

Main Part	Other Parts
	genes

Instructions: Read texts one and two again and complete these statements.

1. The _____ are inside the cell membrane.
2. The nucleus _____ in the center and is _____ by the _____.
3. The entire cell is _____ by the _____.
4. _____ are found _____ the nucleus.
5. The _____ are _____ within the cytoplasm.

Appendix 2: Example of the class scheduling.

UNIT ONE

1st Direct class: Course introduction (objectives, methodology, materials, grading system etc.) and Handout (H.O.) # 1.

2nd Direct class: Presentation of the concepts to be practised and group work with part one.

3 individual work sessions to do parts 2, 3 and 4. Part 4 is to be handed in.

3rd Direct class: Review of the work done individually, H.O. # 2 and go over the homework.

UNIT TWO

4th Direct class: Presentation of the concepts to be practised and group work with part one.

4 individual work sessions to do parts 2, 3 and 4. Part 4 is to be handed in.

5th Direct class: Review of the work done individually, H.O. # 3 and go over the homework.

UNIT THREE

6th Direct class: Presentation of the concepts to be practised and group work with part one.

3 individual work sessions to do part 2, 3 and 4. Part 4 is to be handed in.

7th Direct class: Review of the work done individually,
H.O. # 4 and go over the homework.

8th Direct class: Partial exam over units 1 and 2.

Appendix 3: Cloze exam.

UNIVERSIDAD AUTONOMA DE CHAPINGO
DIRECCION ACADEMICA
CENTRO DE IDIOMAS
TEG 4.4/F/Diagnostic Exam/ /ST/R/884

Nombre: _____ Grupo: _____

Diseño: Dennis Huffman Fecha: _____

INSTRUCCIONES: Lea el texto y completa las oraciones con las siguientes palabras:

economic	development	their	invention
which	study	associated	Berkeley's
the	of	and	Settled
when	times	food	a
in	of	of	greater
and	his	Leeuwenhoek's	modern
with	and	vast	the
embryology	linking	which	necessary
the	destruction	wild	countries
date	gradually	shifting	seventeenth

Biology And The Production of People

Man must always have taken an interest in his own body and in the plants and animals he used as food or as a source of medicines, but as a result of discoveries in the biological sciences in the nineteenth and twentieth centuries we now have a better understanding of disease control, of the food needs of the human body, and of the techniques of food production.

Advances in biology frequently follow upon the development of new techniques or the _____ of new instruments, (1) and there is no better illustration of this than the _____ (2) of the microscope and its use in the observation of living organisms and _____ parts. (3) The first microscopists simply wished to learn more about the world in _____ (4) they lived. Theirs was pure research and they could not have foreseen the _____ consequences of their discoveries. (5)

The first microscope was invented by Leeuwenhoek in the _____ century, (6) and with it he saw bacteria and other very small organisms for _____ first time. (7) In the eighteenth century cellular tissue was recognised as the basis _____ all organization in living things, (8) and the egg and the spermatozoon as cells _____ generation (9) to generation in sexually reproducing organisms. These observations provided the foundations upon _____ (10) genetics, the study of the mechanism of inheritance, has been built. Cytology (the _____ of cells), (13) histology (the study of the organization of cells into tissues) and _____ (12) (the study of the development of an egg

into a multicellular organism) all _____ from these
(13)
first observations of cells. In all these ways, the inven-
tion of _____ microscope opened up new fields of scien-
(14)
tific investigation, and marked the beginnings of _____
(15)
biology.

The study of micro-organisms, called micro-biology by
Pasteur in 1882, began with _____ observations, but
(16)
the first convincing evidence that micro-organisms may cause
a disease was _____ demonstration in 1846 that
(17)
the downy mildew of blight of potatoes was constantly _____
(18)
with the presence of the fungus Phythopthora Infestans.
With the work of kock _____ Pasteur some thirty years
(19)
later, it became clear that bacteria climax vegetation, how-
ever, _____ early man probably used deliberated burn-
(20)
ing as a means of providing grazing for _____ animals
(21)
near to his home, and so made hunting easier. In many tropi-
cal _____, grassland are still maintained by deliberate
(22)
burning.

As a _____ gatherer, a man selected certain
(23)
kinds of plants, and seeds from these plants in _____
(24)
rubbish heaps were perhaps the beginnings of cultivation.

It was not until Neolithic _____ with the develop-
ment of agriculture, that man started to destroy natural eco-
systems. A _____ cultivation involved a 'cut and
burn' agriculture with the clearing of vegetation by burning
_____ then years of cultivation in which the mineral
resources of the soil were _____ used up. Cultivation
then gave such a reduced return as to make it _____
for the farmer to move on, with his domestic animals, to re-
peat his _____ in another place. This method of
shifting cultivation is still practised over much _____
tropical Africa, south of the Sahara desert.

It is still as a farmer _____ all parts of the
world, that man has the most profound effect on _____
landscape. He destroys the natural vegetation, grows just
one kind of plant over _____ areas, and eliminates
weeds and pests as best he can.

It was probably _____ the first development of
settled agricultural communities in the Iron and Bronze Ages,
_____ better tools made possible more effective farm-
ing, that human populations started to grow. _____
agriculture, which depends upon soil conservation and the

maintenance of soil fertility, ensured _____ more
(38)
regular food supply and a more settled existence. This in
turn permitted a _____ division of labour and so
(39)
made possible developments in medicine and other fields
_____ human endeavour. Man began to destroy eco-
(40)
systems not only with his agriculture but also by the very
abundance of people and the growth of settled communities.

Appendix 4: Example of partial exams.

UNIVERSIDAD AUTONOMA CHAPINGO
DIRECCION ACADEMICA
CENTRO DE IDIOMAS

TEB 1.4/F/1.2/ /ST/RW/881

Name: _____ Group _____

Diseño: Patricia D'Esposito B. Date _____
y Dennis Huffman

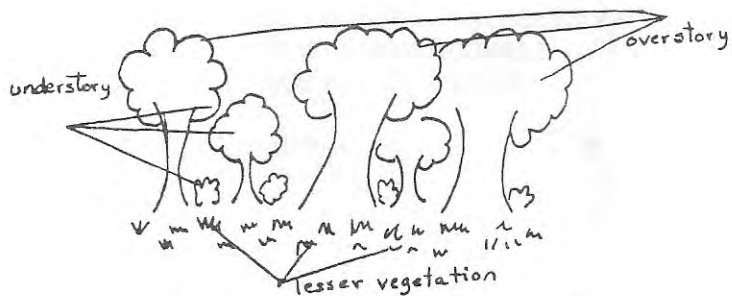
Instructions: Read the passage and complete Tables 1 and 2.

THE TREE AS A MEMBER OF A COMMUNITY

A forest community is a group of trees consisting of one or more species that grow in a specific area. Trees that grow in a forest community compose a complex environment of plants, animals, soils, air and water. This vegetative cover type is called a forest ecosystem and is constantly modifying in space and time.

A forest ecosystem consists of three layers: overstory, understory and lesser vegetation. The overstory consists of the dominating tree species of the main canopy. The understory from the ground to the intermediate crowns

and consists of: shrubs, vines and smaller trees. Grasses, forbs, fungi and other plant forms occupy the ground and are called lesser vegetation.

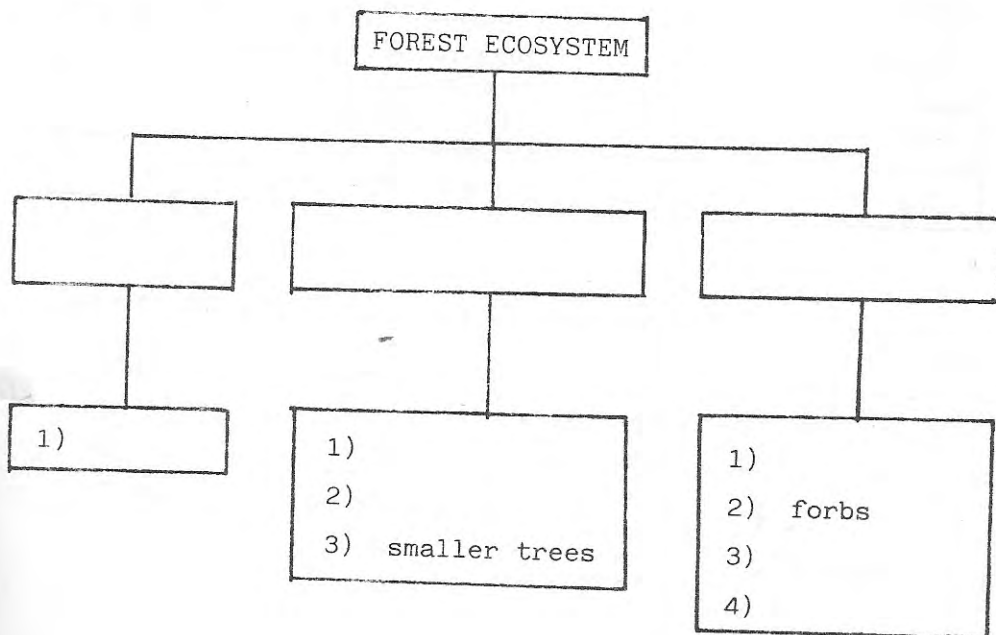


TEB 1.4/F/1.2

TABLE 1

SYSTEM	PARTS
A _____ _____	1) 2) 3) animals 4) 5)

TABLE 2



TEB 1.4/F/1.2

Instructions: Study the table and complete the passage.

CHARACTERISTICS OF THE SHORTLEAF PINE-PINUS ECHINATA

FAMILY	PINACEAE
NEEDLES	5 inches long
COLOR	dark yellow-green
CONES	1.5 - 2.5 in long
HEIGHT	80 - 100 feet high
DIAMETER	2 - 3 feet wide
CROWN	narrow & pyramidal
SOIL	light and dry
USE	lumber

The shortleaf Pine (*Pinus echinata*) is a member of the _____ . Its _____ are 5 inches _____ and have a dark yellow-green _____. _____ 80 to 100 feet and a diameter of _____. Its crown _____ and _____. It grows in light, dry _____ and is useful as _____.

TEB 1.4/F/1.2

Instructions: Match the sentences with the concepts.

Sentences

Concepts

- | | |
|--|--------------------------|
| 1. The metric unit of force is called the Newton. | a) general properties |
| 2. The cardio-vascular system consists of the heart and the blood vessels. | b) class-members |
| 3. Hydrogen is a gas. | c) equivalent terms |
| 4. Boron has an atomic weight of 10.81. | d) measurable properties |
| 5. Aluminium is ductile and extremely malleable. | |

INSTRUCTIONS: Match the vocabulary items with the topics.

Vocabulary Items

Topics

- | | |
|-------------|----------------------|
| 1. earth | a) the body |
| 2. eye | b) living things |
| 3. reptiles | c) solar system |
| 4. width | d) classes of things |
| 5. machine | e) dimensions |

Appendix 5. Course evaluation questionnaire. The original was written in Spanish.

AUTONOMOUS UNIVERSITY OF CHAPINGO

ACADEMIC DIRECCION

LANGUAGE CENTER

Design: Jesús Burgos and Dennis Huffman

Instructions: Answer the following questions truthfully.
Do not write your name on this questionnaire.
Your answers will help us to improve our
Technical English programs. Mark your answer
with an x.

1. What is your general opinion of the course?

Good ()
Regular ()
Bad ()

2. How would you evaluate the course in the following categories?

a) Organization Good ()
Regular ()
Bad ()

b) Content Good ()
Regular ()
Bad ()

c) Extra material used Good ()
Regular ()
Bad ()

d) Teaching methodology of
the teacher Good ()
Regular ()
Bad ()

Technical English - Course Evaluation

- e) General level of your improvement Good ()
Regular ()
Bad ()

3. How would you evaluate your improvement in the following areas?

- a) Vocabulary Good ()
Regular ()
Bad ()

- b) Grammar Good ()
Regular ()
Bad ()

- c) Reading strategies Good ()
Regular ()
Bad ()

References

- Alderson, J.C. 1978. A Study of the Cloze Procedure with Native and Non-native Speakers of English. Unpublished Ph. D. thesis, University of Edinburgh.
- Berman, Ruth A. 1984. "Syntactic Components of the Foreign Language, Reading Process." In Reading in a Foreign Language, edited by J. Charles Alderson and A. H. Urquhart. New York: Longman.
- Rivers, Wilga M. 1968. Teaching Foreign Language Skills. Chicago. The University of Chicago Press.
- Ulijn, J.M. 1978. Conceptualisation in Second Language Reading. Paper presented at the 5th International Congress of Applied Linguistics, Montreal, August, 1978.