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When Do Foreign-Language Readers Look Up the Meaning of Unfamiliar Words? The Influence of Task and Learner Variables

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RESEARCH ON READING IN A SECOND or foreign language (FL) constitutes a young but rapidly expanding discipline; so rapidly that review articles and textbooks are needed to help us gain an overview and an understanding of the pertinent issues in the field (3; 4; 13; 17; 25; 26). When we look at these reviews from the perspective of the methodologies used in relation to the questions asked, what strikes us is the focus on the product of reading and the lack of attention to the process of reading. Most studies use methods by which the product of reading is elicited: readers are asked to answer comprehension questions, to fill in omitted words (cloze procedure), or to reproduce the text contents (recall). Some years ago, Gupta and McLaughlin argued that the static orientation towards reading in these studies needs to be complemented with a more dynamic orientation. Some studies have attempted to do so by investigating the reading process. First of all, some off-line measures have been used, such as the administration of questionnaires eliciting self-reported strategy use (2; 22). Furthermore, we are witnessing an increasing interest in the use of on-line measures, such as the observation of eye movements (5; 21), the measurement of word reading times and sentence reading times (24), the recording of reading aloud behavior (11; 18), and the recording of thinking aloud during reading (1; 7; 8).

As has been pointed out by Segalowitz et al., processing research is pertinent first of all to fundamental theoretical issues in the study of FL reading processes. However, processing research is potentially important for FL instruction as well. In particular, it may give us a deeper understanding of which strategies FL readers use in order to reach their reading goal. The present study contributes to FL reading research both on the level of methodology and on the level of understanding reading strategies.

The *methodological* purpose of our study was to explore the possibilities of using computers for the unobtrusive observation of one aspect of FL reading behavior, namely looking up the meaning of unfamiliar words encountered while reading a FL text. (For a similar computer-aided exploration of FL writing behavior, see 6.) The text which the subjects in this study read was available not only on paper but also on the screen of a personal computer. If readers wanted to know the meaning of a difficult word in the text, they moved the cursor to the desired word and pressed the Enter key. A window opened showing the word's translation in the subjects' first language. Pressing the Enter key again made the window disappear. The computer registered subjects' look-up actions by composing log files. Subjects were not told in advance that the computer registered their actions. Nor could they be aware of this since it was done invisibly and inaudibly for them. Some years ago, Pugh and Ulijn called for the use of realistic tasks in FL reading research, rejecting the use of highly artificial procedures

which constitute a threat to the validity of the investigation. We reasoned that the technique we applied can hardly be considered artificial but, on the contrary, constitutes a possibly valid means of investigating one aspect of the reading process. Thus, instead of placing a video recorder near the FL reader and instead of having a note-taking researcher sitting next to the FL reader, we employed a non-interfering observation technique of which the FL readers remained fully unaware.

On the level of *understanding FL reading strategies,* and bearing in mind the increased importance of self-monitoring in the theoretical and pedagogical FL reading literature (7; 9; 10; 13; 22), we investigated FL readers' look-up behavior from two perspectives. Our first aim was to assess the influence of some task variables on FL readers' look-up behavior, in particular the influence of reading goal, word relevance, and word inferability. Our second aim was to determine the relationship between word look-up behavior on the one hand and two learner variables on the other: readers' FL vocabulary knowledge and their ability to infer the meaning of unfamiliar words from information contained in the context.

To study these issues, two experiments were conducted. Experiment One addressed the reading goal issue, Experiment Two addressed the issue of word relevance and inferability, while both experiments addressed the relationship with the two learner variables. In addition, we looked at individual readers' look-up behavior in a more in-depth manner. Below we first report the method insofar as it is shared by the two experiments. We then report on each of these issues consecutively.

METHOD

Subjects. Since the experiments partly had a correlational design, we aimed at testing subjects who were likely to differ on the dimensions measured (FL reading comprehension, FL vocabulary knowledge, and inferring ability). We therefore selected students from two different grade levels (ten and eleven), who had had four and five years of instruction in English as a foreign language respectively, and from two different streams within the Dutch high school system (the lower HAVO and the higher VWO stream[1]). Altogether, eighty-two students participated in the study (forty-four in Experiment One and thirty-eight in Experiment

Two). They participated on a voluntary basis and were paid for their participation.

Measures & Procedures. Subjects performed three tasks: first an FL reading comprehension task, then an inferring ability test, and finally a FL vocabulary test.

FL Reading Comprehension. Subjects read the second chapter (772 words) of Tim Sebastian's *The Spy in Question* (Bantam Books, 1989). The text was available not only on paper but also on the screen of a computer. If they felt they would like to know the meaning of an unfamiliar word, they used the computer as already described. Just before the administration of this reading comprehension task, subjects had been made familiar with this consultation technique in a five minute instruction and warm-up session, in which another English text was used.

For 109 words of the text, the translation facility was available. For the remaining 663 tokens this facility was not necessary, since these were high frequency words which did not pose any problems to the subjects, who had had at least four years of EFL instruction. (In a pilot test, none of these tokens had been marked as being unfamiliar.) No time limit was set for the completion of this reading task.

Inferring Ability. Inferring ability was measured with a self-designed test. This test consisted of passages taken from thirteen different fictional and nonfictional Dutch books. In these passages, fifty words were replaced by pseudowords. Subjects were instructed to read the passages and infer the meaning of the fifty pseudowords from the information contained in the contexts, and to write their responses on an answer sheet. The reliability of the measurement of this learner variable was .75 (Cronbach's alpha; N = 82).

English (FL) Vocabulary Knowledge. For the measurement of English vocabulary knowledge, the ninety-item matching test developed by Nation (19) was used. This test begins with high frequency words and ends with low frequency and academic words. The reliability of the measurement of this learner variable was .91 (Cronbach's alpha; N = 82).

Procedure. The study was announced to students as an investigation of English reading comprehension. Students were tested in small groups (between three and eight students at a time) in a computer room of their school, after normal school hours. They worked at their own speed. The entire session, consisting of instruction and warm-up, FL reading, inferring ability, and FL vocabulary testing, lasted between

one and one-half to two hours per student. After the last group of students had been tested, all students received a debriefing letter, explaining the purposes of the experiments and presenting the main results. The letter also explained why they had not been told in advance that their translation consultation behavior was being registered during the completion of the FL reading task.

RESEARCH ISSUE ONE: READING GOAL & LOOK-UP BEHAVIOR

The first research question to be investigated was whether differences in reading goal, operationalized by giving subjects different reading tasks, would influence the use of the word consultation facility. This question was investigated in Experiment One. In the FL reading task in this experiment, subjects were randomly assigned to a summary group (N = 22) or a question group (N = 22). The summary group was instructed to write, in Dutch, a text summary of about ten lines. The question group was instructed to write, in Dutch, the answers to twelve comprehension questions which were handed out before subjects began to read the text. We expected to find that subjects in the summary group would look up fewer words than subjects in the question group. Since summary writers had to write a very short summary only, they needed to read the text only globally in order to reach their reading goal. Subjects who had to answer the twelve questions, however, had to thoroughly read the entire text, since these questions pertained to almost all its paragraphs.

Results. We found enormous individual differences in the use of the translation facility. The number of words consulted ranged from one to 103, with a mean of forty-one (SD = 24). Contrary to our initial expectations, we did not find that the summary group consulted fewer words than the question group (t = .07; df = 42; p = .95). During test administration, however, we noticed that students in both groups alike took their task very seriously. Thus subjects in the summary group read the text just as carefully as subjects in the question group, taking as much time and consulting as many words as the question group did, before writing their summary. This behavior is probably due to the fact that the text contained a somewhat mysterious story. (In other words, it was not an overtly structured expository text.) Subjects in the summary group therefore may

have had difficulty establishing which facts were and which facts were not relevant for a global summary. Thus our instruction to the summary group had not elicited the intended global, superficial reading behavior. Furthermore, it occurred to us in retrospect that most of the questions which the question group had to answer pertained to facts which were relevant to the summary group as well.[2] One difference in word consultation between the groups was found, however. This difference pertained to the words in one paragraph, in which the appearance of a Mr. James Dawling is described. One of the questions to be answered by the question group was: "What does Mr. Dawling look like?" Subjects in the question group consulted the relevant words in this passage (fastidious, balding, scrubbed, pink, complexion, tall, stiff necked) much more often (eighty-five times) than subjects in the summary group (fifty-five times).

The quality of subjects' responses (summaries and answers to the comprehension questions) was assessed with the use of a seven-point rating scale. No significant differences were found between the mean scores of the summary (M = 4.3) and the question group (M = 3.9). Furthermore, no group differences were found on the two other tests administered, the inferring ability test and the FL vocabulary tests. Thus the random assignment of subjects to the summary and the question group had been successful in that the two groups did not differ in abilities, which might otherwise have explained the similarity or dissimilarity in their look-up behavior.

In conclusion, we had not been very successful in manipulating the reading goals of the two groups differentially. The results show that subjects in both the summary and the question group read the text exhibiting the same translation look-up behavior. However, one passage, being relevant to the question group but evidently not relevant to the summary group, elicited different quantities of look-ups, providing some positive evidence for a task effect.

RESEARCH ISSUE TWO: WORD RELEVANCE, WORD INFERABILITY & LOOK-UP BEHAVIOR

The second research question that we investigated was whether the relevance and the inferability of words in the text to be comprehended would influence subjects' look-up behavior. If

readers approach a text strategically, they will use their reading goal as a yardstick to determine how much attention to pay to the text's individual paragraphs, sentences, and words. Hence we may expect that FL readers are more likely to look up the meaning of words they find relevant (in terms of reaching their reading goal) than of words they find irrelevant. Another issue which is often emphasized in the literature on the development of good reading comprehension skills is that readers must be encouraged to try to infer the meaning of unfamiliar words on the basis of contextual information (20). A sound reading pedagogy not only shows students how to infer the meaning of unfamiliar words, but also sees to it that students verify their inferences by consulting an authority, such as a dictionary. Poor reading pedagogy, however, often makes the following three errors in this respect. First, it wrongly leads students to believe that the meaning of all unfamiliar words can be inferred on the basis of contextual cues. Second, it encourages students to adopt a wild-guessing behavior rather than a critical inferring behavior. Finally, it fails to teach students to conduct the necessary final step in the inferring procedure, namely to check the correctness of their inference, in cases of doubt, by consulting a dictionary (12; 15; 16).

Not all FL learners have equal inferring abilities, nor are they equally critical. Hence it is difficult to predict whether words whose meaning can easily be inferred will be looked up less frequently than words whose meaning is difficult to infer, since easy unfamiliar words may not be so easy after all for some FL learners. Also, even if word meanings are easy to infer, some truly critical learners will still look them up. Furthermore, the decision to check the correctness of the inferred meaning of an unfamiliar word may interact with the word's estimated relevance: if a word's meaning is deemed relevant, it is more likely to be looked up than if deemed irrelevant. On the basis of these considerations, we made the following predictions: 1) relevant words are more likely to be consulted than irrelevant words; 2) words whose meaning can easily be inferred will be looked up less frequently than words whose meaning cannot easily be inferred only if they are deemed to be irrelevant. If deemed relevant, words whose meanings can and words whose meanings cannot easily be inferred will be looked up equally frequently.

In Experiment One it had not been possible to test these predictions, since although we had administered a general FL vocabulary test, we had no way of knowing for each individual word in the text and for each individual subject whether the word's meaning was known to the subject. We therefore designed a second experiment, in which we made sure that no subject could know the meaning of some words by replacing them by pseudo-words (using the same text as in Experiment One). All subjects in Experiment Two were given the same task; they were to write, in Dutch, the answer to eight comprehension questions, pertaining to paragraphs three, six, seven, nine (two questions), ten, eleven, and thirteen (the final paragraph). In these paragraphs, we replaced eight words by pseudo-words in such a way that it was almost impossible to correctly answer each question without knowing the meaning of the corresponding pseudo-word. In the remaining paragraphs, we also replaced eight words by pseudo-words. The former group of eight words were labelled plus relevant, the latter group of eight words were labelled minus relevant. Thus we had operationalized the relevance factor by the presence or absence of comprehension questions directing subjects' reading goal.

In order to operationalize the inferability factor, we chose the eight plus relevant and eight minus relevant words in such a way that the meaning of four words of each group could easily be inferred, whereas the meaning of the four remaining words could not easily be inferred. To back up our intuitions concerning their inferability, we gave the text with the sixteen pseudo-words to a number of expert readers (native and nonnative speakers of English), asking them to infer the meanings of these sixteen words. On the basis of the responses of these experts, we slightly modified some items until we were confident that we had effectively operationalized the inferability factor. Here are some examples of pseudo-words with their categorization as plus or minus inferable and plus or minus relevant.

Example One. Pseudo-word "gaired," plus inferable and minus relevant (no question asked about this passage): "The atmosphere seemed to settle. They gaired their cigarettes and chatted like old friends" ("gaired" = lit).

Example Two. Pseudo-word "buls," plus inferable and plus relevant: "A few miles from the prison Stuart looked for a phone-box, dialled a London number and gave a detailed buls of the way he'd spent his morning" ("buls" = ac-

count). Comprehension question: "What did Stuart do after leaving the prison?"

Example Three. Pseudo-word "lished," minus inferable, minus relevant (no question asked about this passage): "Stuart could see he was balding rapidly. It made him look almost baby-like, with his lished pink complexion" ("lished" = scrubbed).

Example Four. Pseudo-word "musp," minus inferable, plus relevant: "I thought we might go back to that summer. Just a few weeks before you left the musp in Moscow. That sound right?" ("musp" = embassy). Comprehension question: "What topic is it that Dawling wants to talk about?"

For the pseudo-words, we chose word forms that sounded and looked quite natural for intermediate level nonnative speakers of English. Since the results of Experiment One had shown that the text contained many unfamiliar words for our subject population, we reasoned that subjects in Experiment Two would not notice our substitution of sixteen original words by words that, according to their spelling, could well have been natural words in English.[3]

In this experiment, we administered the FL reading task as well as the inferring ability and FL vocabulary tasks to thirty-eight students. Experiment Two differed in two respects from Experiment One: 1) all subjects were given the same task (answering eight comprehension questions) in Experiment Two, whereas subjects had been assigned to a summary and a question group in Experiment One; 2) sixteen words were replaced by pseudo-words in Experiment Two, without students knowing or noticing this, whereas in Experiment One, no pseudo-words had occurred in the reading text.

Of the sixteen pseudo-words, eight were relevant (related to a comprehension question) and eight were not; the meaning of four of both the plus and minus relevant words was easy to infer, and the meaning of the remaining four words was difficult to infer. Thus Experiment Two had a 2 × 2 design, with four pseudo-words in each of the four cells, created by crossing the two levels of the factor Relevance (plus vs. minus, i.e., high vs. low) with the two levels of the factor Inferability (plus vs. minus, i.e., easy vs. difficult).

Results. Subjects' consultations of the pseudo-words were coded in two ways. The first coding was whether subjects had looked up each of the sixteen words, regardless of how often they had done so. Thus the maximum mean score per cell is four (see top of Table I). The second

TABLE I

Mean Number of Pseudo-Words Consulted in Experiment Two

Repeated consultations excluded. Maximum per cell = 4.

| | | Relevance | |
	Plus	Minus	Mean
Inferability			
Plus	3.3	1.8	2.6
Minus	3.5	2.3	2.9
Mean	3.4	2.0	

Repeated consultations included. No maximum per cell.

| | | Relevance | |
	Plus	Minus	Mean
Inferability			
Plus	4.4	1.9	3.1
Minus	4.6	2.5	3.5
Mean	4.5	2.2	

coding included subsequent consultations, i.e., when subjects returned to a word at a later time and looked it up again.[4] Thus this second method of coding has no maximum value per cell (see bottom of Table I).

For each of the two data sets, a MANOVA was conducted with repeated measures on the two independent factors, Relevance and Inferability. Both analyses yielded a highly significant main effect for the Relevance factor: F $(1,37)$ = 58.07, p < .001 (repeated consultations excluded), and F $(1,37)$ = 112.49, p < .001 (repeated consultations included). The factor Inferability also had a significant effect: F $(1,37)$ = 8.63, p < .01 (repeated consultations excluded), and F $(1,37)$ = 4.74, p < .05 (repeated consultations included). No significant Relevance x Inferability interaction was found in either analysis.

A comparison was made between the quality of subjects' responses to the eight comprehension questions and the presence or absence of a consultation act concerning the corresponding pseudo-word. Generally, subjects answered most questions correctly. To derive the correct answer, the corresponding pseudo-word was not the only important word; conversely, subjects sometimes avoided our intended answer by giving an answer slightly off the point. However, in no case did subjects use the Dutch equivalent of the pseudo-word in their response without having looked up the pseudo-word's meaning.

The results of this experiment, as far as our

second research question is concerned, can be summarized as follows. We found clear evidence for our first prediction: relevant words were substantially and significantly more often consulted than irrelevant words. Secondly, no support was found for our second hypothesis, predicting that inferability would be more influential in the case of minus relevant words than in the case of plus relevant words, although the values in Table I are in accordance with this prediction: the differences between plus and minus inferable words are small in the case of plus relevant words, but they are much greater in the case of minus relevant words. Thus, in the case of plus relevant, minus inferable words, the relevance of these words prevailed over the tendency not to interrupt the reading activity by looking up their meaning. Consequently, rather than finding a significant Inferability × Relevance interaction, we obtained a significant main effect for Inferability. However, although significant, this difference was small.

From these results we draw the following conclusions: 1) the FL readers in this study did not look up the meaning of all words with which they were unfamiliar, not even the meaning of all relevant words (a mean score of 3.4 = eighty-five percent), even though subjects were working under no time pressure at all, and even though looking up a word's meaning had been made an extremely simple and an extremely quick affair with the aid of the computer; 2) the translation look-up behavior of our subjects was far from random. Subjects were capable of reading a FL text in a strategic manner, not looking up all unfamiliar words in an uncritical fashion, but deciding on the relevance, and to a lesser extent the inferability of unfamiliar words in relation to their reading goal before taking or not taking action.

RESEARCH ISSUE THREE: INFERRING ABILITY, VOCABULARY KNOWLEDGE & CONSULTATION

The third issue which we investigated was the relationship between the two learner variables, inferring ability and FL vocabulary knowledge on the one hand, and word consultation behavior in the FL reading task on the other. We expected that students with high scores on the inferring and vocabulary tests would consult fewer words in the reading task than students with low scores on these two measures. This

question was investigated with the data of both Experiment One and Two.

Results. A large variance was found in all three measures: inferring ability (M = 23, SD = 5, Max = 50), English vocabulary (M = 55, SD = 11, Max = 90), and number of words consulted in the reading task (M = 46, SD = 28) for all eighty-two subjects in Experiments One and Two together. Thus there was plenty of room for substantial relationships to show up, if existing. We found positive, albeit modest, evidence for the hypothesis that subjects with greater vocabularies would look up fewer words than subjects with smaller vocabularies (Pearson r = -.37, p < .001). However, subjects with greater inferring ability did not look up fewer words than subjects with poorer inferring ability (Pearson r = -.17, NS). The correlation between inferring ability and vocabulary knowledge was .50 (p < .001). In order to obtain some insight as to the direction of this relationship, subsequent independent *t* tests were conducted. These tests showed that subjects with inferring ability scores above the mean were substantially and significantly better in English Vocabulary (M = 57) than subjects with inferring ability scores below the mean (M = 44). However, no significant difference on inferring ability was found between subjects with English vocabulary scores above and below the mean. These results provide support for the intuitively plausible idea that individuals who can infer word meanings well pick up words and their meanings easily, and therefore extend their vocabulary more readily, than individuals who cannot infer word meanings well. The inverse, however, is not necessarily true: individuals with large vocabularies need not have good inferring skills, since they may have attained their high word knowledge level by other means than inferring (e.g., by memorizing word lists).

With respect to research issue two, we have already mentioned that FL readers with good inferring skills may end the process of inferring the meaning of an unfamiliar word by consulting a dictionary in order to verify their self-generated meaning. Thus high inferring ability need not result in less dictionary use than low inferring ability. In retrospect, then, the absence of a substantial relationship between word consultation in the FL reading task and inferring ability (measured with pseudo-words in L1 contexts) may well be explained by subjects' decision to use the look-up facility to verify their self-generated inference.

RESEARCH ISSUE FOUR: INDIVIDUAL DIFFERENCES IN LOOK-UP BEHAVIOR

Our fourth and final research aim was to analyze all subjects' log files of consulted words in order to explore their look-up behavior in detail. We first examined the order of consulted words. Without exception, all eighty-two subjects apparently adhered to a strict linearity principle between paragraphs. However, they often skipped entire paragraphs and they did not necessarily look up words linearly within paragraphs. (Note that the 772 word text consisted of thirteen paragraphs, the longest one consisting of ninety-seven words. Thus paragraphs were short enough for subjects to overview them momentarily in their entirety.)

Inspection of the log files furthermore allowed categorization of subjects into two groups: those who, as far as word consultation is concerned, went through the text only once (N = 53), and those who went through the text twice (N = 29). Finally, we explored possible profiles of the thirty-eight subjects in Experiment Two in terms of their consultation of the eight plus relevant and eight minus relevant pseudo-words. Ten subjects could be identified as having a "maximal" strategy, i.e., they had looked up (almost) all sixteen words. Nine subjects were identified as having a "minimal" strategy. Minimal subjects had looked up none or only one of the eight minus relevant target words. No significant differences were found between maximal and minimal subjects in English vocabulary knowledge nor in inferring ability (independent *t* tests). Six of the ten maximal strategy users made two look-up cycles, whereas only one minimal strategy user made two cycles. Twelve out of thirty-eight subjects had looked up words (almost) exclusively in the seven (out of thirteen) paragraphs to which the questions referred. Seven of these twelve subjects had been classified as having adopted a minimal strategy.

These in-depth findings complement the quantitative results reported earlier. They provide further evidence for students' individually different, but always strategic ways of dealing with their reading comprehension assignment.

CONCLUSIONS

This study set out to explore a new on-line observation technique in order to gain some insight into a question pertaining to FL reading processes, namely "When do FL readers look up the meaning of unfamiliar words?" Technically this study has been successful in that we were able to observe subjects' look-up behavior in a truly unobtrusive way without technical problems. Also, Experiment Two has proven the usefulness of the insertion of pseudo-words, perceived by readers as genuine words, for the study of the influence of text factors on reading comprehension.

More important, however, is what we have learned about the reading strategies in general and the look-up behavior in particular of these FL readers, Dutch high school students of fifteen and sixteen years old with four or five years of EFL instruction. The most important finding of this study, as we see it, concerns the differential influence of task and learner variables on look-up behavior. Let us summarize the influence of task variables first. In this study, we found that words which were deemed relevant in terms of reaching the goal of reading were looked up more frequently than words deemed irrelevant. The evidence comes first of all from Experiment Two, showing a substantial relevance effect for pseudo-words; secondly from one passage in Experiment One, in which students who had to answer a question pertaining to that passage looked up more words than students who had to write a text summary; and finally from both experiments in that the incidence of word consultations per paragraph did not show a steady decrease, but increased and decreased with the relevance and lexical difficulty of the paragraphs. Furthermore, we found that words whose meanings could easily be inferred from contextual information were looked up somewhat less frequently than words whose meaning could not easily be inferred (Experiment Two). Far from using the consultation facility in a blind or random fashion then, our subjects approached their task in a strategic manner, taking into account their reading goal (determined by their task), the relevance, and to a lesser extent the inferability of the words they encountered.

The influence of learner variables can be summarized as follows. Students with greater vocabulary knowledge generally looked up fewer words than students with smaller vocabulary knowledge. However, it was not the case that students with higher inferring ability looked up fewer words, not even the minus inferable nor the minus relevant words in Experiment Two, than students with lower inferring ability.

We conclude that inferring ability is related

to word consultation in a less straightforward manner than is vocabulary knowledge. The post hoc explanation which comes to mind is that possibly FL readers with high inferring ability approached their reading task in a truly critical manner, or perhaps too cautiously in the case of minus relevant words: they guessed the word meanings and subsequently checked their own inferences by making use of the consultation facility.

The results of this study show that, whereas the decision to look up the meaning of a word in a FL text is clearly influenced by the perceived relevance of the word, it is only modestly influenced by the reader's vocabulary knowledge, and it is not influenced by the reader's ability to infer word meanings from contextual information. Further research would need to show whether these conclusions can be extrapo-

lated to other types of FL learners than the high school students in our sample.

Finally, FL readers in this study reached their reading goals not by using the same strategy, but by following different routes. Thus some went through the text once, others twice. Some used a minimal, others a maximal strategy. Yet these process differences were not related to qualitative differences in the product (answers to the comprehension questions). Perhaps, in the FL classroom we should show our students some prudent ways of trying to comprehend the meaning of a text, but leave them considerable freedom in choosing whether they want to try to infer the meaning of an unfamiliar word before deciding whether to look up its meaning, or to look up the word right away, or even to ignore the word altogether.

ACKNOWLEDGEMENTS

NOTES

[1] High school students with a HAVO certificate can continue their studies at a school of higher vocational training but their certificate does not give access to a university. For university entry, a VWO certificate is required.

[2] The question group had to answer the following questions (rendered here in English): 1) What do you know about Dawling's past? 2) In the second paragraph it says "The letter never arrived." Which letter is meant here? 3) What does Mr. Dawling look like? 4) What is Dawling's opinion about Stuart? 5) Where does the conversation between Dawling and Stuart take place? 6) Why does the conversation between Dawling and Stuart take place? 7) Does Stuart like this sort of conversation? 8) What is the first topic of discussion? 9) How does Dawling feel during the conversation? 10) How does the conversation end? 11) What does Stuart do after the conversation? 12) Which individual might have been meant in the last sentence of this text?

[3] A distinction must be made between the meaning of the label "pseudo" in the case of the FL reading task (Experiment Two) and the meaning of "pseudo" in the case of the inferring ability task. In the former task, to be performed in the weaker, foreign language (English), subjects were not at all aware of the presence of sixteen pseudo-words in the text, nor had they been told that there were any pseudo-words in it. In the latter task, however, to be performed in the stronger, first language (Dutch), subjects were told that the texts contained fifty pseudo-words, printed in bold face, and that they were to infer their meaning.

[4] If subjects had consulted the same word more than once immediately after another, this was not coded, because these consecutive consultations were probably caused by subjects inadvertently having pressed the Enter key (with which the translation window was made to appear as well as to disappear) one time too often. Only when one or more other words had been consulted in the meantime were repeated consultations of the same word coded as such.

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