

## **THE USE OF INFERENCE IN EFL TEXT COMPREHENSION**

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### **RESUMO**

Este trabalho tem por objetivo examinar o uso da inferência na compreensão de textos em inglês. A inferência é o processo que consiste em usar informação contextual com a finalidade de facilitar a compreensão e a produção da língua. Os dados para a investigação foram fornecidos pelos informantes, alunos do Curso de Letras, que foram entrevistados individualmente enquanto executavam tarefas de compreensão de textos em inglês.

Como a análise mostra, a busca ativa do significado através do uso da inferência promoveu a interação na língua-alvo. A informação contextual foi utilizada para a dedução do significado de palavras desconhecidas, para a interpretação de segmentos que não estavam bem claros e para a antecipação de informação não explicitada pelo texto.

Por outro lado, a análise também mostra que alguns alunos não tiram proveito de suas deduções devido à dificuldade em aceitar a imprecisão decorrente da inferência, insistindo no uso do dicionário para encontrar o significado de palavras desconhecidas. Os dados sugerem que alunos de competência lingüística limitada habitualmente ignoram pistas contextuais preferindo recorrer ao dicionário antes de qualquer tentativa de manipulação do texto.

O trabalho com o texto, especialmente entre os alunos com menor proficiência da língua, foi realizado predominantemente em nível de palavra não havendo a integração em nível de idéias, condição necessária para uma interpretação textual eficiente.

### **I — INTRODUCTION**

The study of the cognitive processes of language learners provides valuable insights into learning mechanisms. Research on mental processes has been developed in cognitive psychology as well as in language acquisition. The existing body of work has a common goal: to find out how individuals learn and to explain the reason why some learners are more effective than others. Findings in cognitive psychology have

contributed to the understanding that successful learners have special ways of processing new information; they use strategies or techniques that lead to effective learning (O'Malley and Chamot 1990).

Within cognitive theory, a successful learning approach is not necessarily dependent on naturally acquired skills. As a matter of fact, learners are perceived as capable of changing the course of their learning through the actions they take and the choices they make to internalize new information. Learners can manipulate the materials in different ways using a variety of learning strategies to cope with task demands. Such strategies, generally attributed to expert learners, can and should be promoted and encouraged by teachers and materials. Therefore, the role of instruction should go beyond the provision of information to include training in the different approaches students can use to enhance their learning.

However, prior to any attempt to implement instructional programs and teaching practices geared to the needs of the less effective students, it is necessary to identify learner strategies, and examine their development and the circumstances under which they are accessed in order to obtain knowledge about the patterns that account for variation in performance. The purpose of such a preliminary step is to provide an assessment of the learning strategies students use spontaneously in their attempts to execute specific learning tasks in order to diagnose strengths and weaknesses in their approaches.

In line with this idea, this paper focuses on the use of inferencing, one of the cognitive strategies commonly employed by language learners, to investigate its role in the performance of reading tasks. The study examines learner performance in EFL reading comprehension in terms of the ability to cope with gaps in understanding either through the inference of meanings or the ignoring of items that are not essential for overall meaning.

Although the interaction between strategy use and learner variables provides valuable data, in the context of this study strategy use is considered regardless of learner characteristics. The importance of investigating the effects of specific language learning strategies lies in the fact that they can be taught to other learners.

## **II — REVIEW OF RELATED LITERATURE**

The strategy of “inferencing”, a term coined by Carton (1971), is defined as the process of using available information (linguistic or nonlinguistic) to guess the meanings of unfamiliar target language elements to predict outcomes or to fill in missing information (O'Malley and Chamot 1990, Oxford 1990). Inferencing is also commonly referred to as educated guessing.

Oxford (1990) regards guessing as a special way of processing new information; it is decoding a passage through the use of contextual clues and the reader's own life experience. Oxford believes that guessing is an essential skill for reading, as it enables the learner to cope with gaps in understanding. Systematic guessing helps learners to

accept the idea that it is not essential to understand every single word of the text to derive its overall meaning.

In current psycholinguistic theories of reading, reading comprehension is achieved through interaction between the reader and the written text. Reading is viewed as an active process that entails reader ability to use cognitive capacities such as generating hypotheses about items, structures, and relationships. Consequently, meaning is created by the readers on the basis of their ability to use certain cues both inside and outside of the passage (Bialystok 1983).

Clarke (1988), Grabe (1988), and Carrell and Eisterhold (1988), advocates of the interactive approach to second language reading, emphasize interaction between “top-down” and “bottom-up” modes of processing for effective reading. Top-down processes refer to higher level skills such as prediction and inference based on prior knowledge, whereas bottom-up processes (lower level skills) refer to the recognition of lexical and grammatical forms based on linguistic knowledge. Efficient readers frequently shift from one mode to the other according to text demands (Carrell 1988).

Less proficient foreign language learners with limited language skills tend to overrely on bottom-up processing as they concentrate on vocabulary and structure. Although linguistic recognition is basic to reading, successful comprehension depends on both top-down and bottom-up processes functioning interactively. (Grabe 1988; Carrell and Eisterhold 1988).

### **III — METHODOLOGY**

Eighteen EFL students enrolled in the Curso de Letras (fourth, fifth, and sixth semesters) at the Universidade Estadual de Londrina participated as informants in this study. The participants were asked to do three reading tasks typically used in EFL classrooms.

The tasks consisted of the reading of a short passage followed by comprehension questions, a cloze test on grammar, and a cloze test on vocabulary. Portuguese, the students' native language, was used during the interviews to avoid difficulties in communication, although the examples presented in this paper were translated into English. Moreover, utterances that the students produced in English are transcribed in italics.

The verbal protocol technique was the method used for data collection. Students were requested to think aloud as they performed the task and were instructed to report everything that went through their minds while they were doing the exercises (concurrent verbal reports). The individual interviews were tape recorded and later transcribed in detail for qualitative analysis.

## IV — DISCUSSION

The process of inferencing entails the use of available information to understand and generate language and is commonly referred to as “educated guessing.” Inferencing emerged as a valuable strategy that was used to reconstruct text meaning from available contextual and linguistic cues. The students used the context to understand unfamiliar lexical items or segments of the text that were unclear. Inferencing was a useful device that assisted the learners in making sense out of the text. The following excerpt illustrates the use of contextual clues to derive the basic meaning of the expression ‘sore throat’ from the text “She has been able to quit twice — once when she \_\_\_ (expect) her baby, and the other time when she \_\_\_ (have) a bad sore throat. Sue \_\_\_ (have) heart problems now. She has to quit or she \_\_\_ (die).”

St: It’s because she-I understood that she had tried to give up one... two, two times, once when she was expecting... I, I think it would be in the sense that she was expecting her, her baby and the other time when she... eh... eh... it’s something bad here, okay.

Int: Okay. How do you know it’s something bad?

St: Eh, it must be some disease or something serious; *‘bad’* gives this idea, okay. Then... the problem... *‘heart problems’* reinforces the idea.

Int: Right.

And then here *‘die’* too. She had something serious here, something... that I don’t know what it is but that... I don’t need this; that’s why I told you that knowing this, I don’t look it up in the dictionary to know exactly what it means but... because I already got the idea, then I wouldn’t go for the dictionary.

The student understands some important features of the meaning of ‘sore throat’ by means of semantic clues. She infers that it is probably a disease and that it must be something bad and serious. Her assumption is based on information conveyed by the words ‘bad’ and ‘die’ and the expression ‘heart problems’.

Although most of the students’ inferences were drawn on the basis of semantic clues, syntactical and morphological clues were often involved as well. Knowledge about English structure was used to narrow down alternatives and correct inappropriate assumptions. The following example shows how a student figures out the meaning of the word ‘inherited’ that appears in the sentence: “In the end, I didn’t go down and they stole the silver tea-service I’d inherited from my mother”.

St: I’m trying... if he... I’d inherited... I thought that he was going to give it [the silver tea-service] to his mother but ‘from...’ there means back [opposite direction], from the mother to him.

The learner realized that her initial assumption could not be correct based on the fact that the preposition ‘from’ indicated opposite direction, that is, from his mother to him and not from him to his mother. In this particular example, the evidence shows that textual redundancy offsets the problem of gaps in understanding. The information

available in the text allowed the learner to proceed with the exercise. This example underscores the importance of linguistic clues and language redundancy for the foreign language learner, who often grapples with limited vocabulary.

Carton (1971:51) notes that clues from linguistic knowledge "... may stimulate and accelerate the student's further exploration of the text rather than allow the unfamiliar term to distract his attention from the text and hinder his progress with it."

Inferencing was particularly helpful for the completion exercises. Cloze tasks require that learners replace items that were deleted from the text. Under such circumstances, it is assumed that information that remains available enables the learner to provide suitable alternatives to replace the missing items (Carton 1971). As a matter of fact, contextual clues were a major source of information helping the students understand the passage and anticipate missing information to complete the exercise. For instance, the segment below shows how a student completes the sentence: "As he was leaving, the \_\_\_ shot a security guard who was trying to ring the alarm."

St: As he was leaving... when he was leaving, okay... well, here... someone who shot... the security guard can be the thief.

The learner concludes that the word 'thief' is a logical choice for the individual who shot the security guard. Another student was able to figure out the missing word despite her difficulty with the meaning of the verb of the sentence.

St: **Robber.**

Int: **Robber**, ah. What gave you... how did you get to this answer?

St: As I don't know... he... I think that this word is a verb.

Int: Mmm.

I never saw this word but I think that it's a verb. Then the idea that I have is that the thief 'something' with the security guard, okay?

Int: Uhuh.

Then... but this 'something' is already here; I... robber, I figured out.

The learner is not familiar with the word 'shot' but she anticipates that it is a verb. Her reaction is to use 'something' to fill in the gap and focus on the meaning of the other words in the sentence. She understands that somebody did something to the security guard and she thinks that the subject of the action must be 'robber.'

The behavior of the learners above contrasts with the way other students handled the same sentence:

St: *As he was leaving, the \_\_\_ shot.*

Int: Do you know the word 'shot'?

St: No, I'm thinking here. It doesn't come [to mind], none comes [to mind]. *As he was leaving...* I don't know what could be here;

Int: uhuh.

*...shot a security guard who was trying to ring the alarm.* [pause] I was thinking about what it could be: he saw a security guard who was trying to ring the alarm.

In spite of the suggestive quality of the text, the student is unable to provide the missing information. Apparently, less effective students did not keep the meaning of the passage in mind as they tried to reconstruct it. As a result, important contextual clues were missed. Ineffective learners made no effort to integrate meaning between words, let alone sentences.

The analysis reveals distinct ways of dealing with unknown vocabulary. The excerpt below provides an illustration of the approach adopted by less effective students who preferred to rely on the dictionary to make sense out of the text.

St: I'm going to start reading then.

Int: Uhuh.

***Holding hand, holding***, I don't know what it is.

Int: Right. You just continued?

St: Uhuh.

Int: Mmm.

[pause] ***Reached***, I don't know what it is.

Int: Uhuh.

So, I'm going to underline it and look it up in the dictionary later.

Int: Right.

St: [pause] ***Scream***, I don't know what it is; ***slapped***, don't know either.

The student goes on reading and identifying words she does not understand and underlining them. Her next step is to look them up in the dictionary one by one. The learner seems to ignore textual information completely as she makes no attempt to use contextual clues. This poor reading performance is characterized by frequent breakdowns in comprehension at the word level. It seems obvious that learners need to expand their vocabulary to improve their reading ability. Oxford and Scarcella (1994) argue that vocabulary should be taught systematically and point out that guessing from context is the most useful strategy for this purpose.

This analysis also shows that some students are able to make good guesses but do not seem to accept the inexactness of the process and do not benefit from their inferences. In fact, interruptions may be unnecessary, as they occur as a result of the learner's reluctance to take risks. The excerpt that follows provides evidence of this behavior. The student is uncertain about the meaning of the word 'measure' that appears in the sentence: "A more \_\_\_ measure would be to improve the service provided by the police".

St: Now, I'm reading again, trying to complete it. I'm not sure if the meaning of this word is what I'm thinking it is. I'm going to check it in the dictionary.

Int: What do you think it is?

St: I think it is 'medidas'.

Int: Do you think that ‘medidas’ does not fit?

St: I still have doubts.

The student correctly infers the meaning of the word, but she decides to resort to the dictionary to confirm her hunch through a source of information she seems to consider more reliable. The learner’s approach was not flexible enough to tolerate the ambiguity typically involved in inferential processes. It appears that systematic training in guessing skills would greatly benefit the students, who would gain more confidence in using them.

Additional evidence of this attitude can be seen in the following example. The student decides to use the dictionary because of the word ‘slapped’ in the sentence: “There was a loud scream, and a woman slapped my face”.

St: So, I’m going to take a look. I already know it’s a regular verb, right?

Int: Ah, because of its ending.

St: Because of its ending in ed.

Int: Right.

*Slap... “strike with the open hand”*-goodness me! He slapped her face; it was somewhat imaginable, wasn’t it?

The learner observes that ‘slapped’ is a regular verb before she looks it up. After reading the explanation in the dictionary, she indicates that the meaning was “somewhat imaginable” implying that she had a good idea of its meaning based on the context. This behavior reveals that students are reluctant to tolerate ambiguity and tend to confirm their guesses through the dictionary even when they have a possible solution in mind. In her discussion of inferencing, Bialystok (1983:111) writes that adults may be more reluctant to accept the idea of retrieving meaning on the basis of the context and suggests that schooling may play a role in discouraging the process “through its reliance on logical relationships and explicit meanings conveyed in decontextualized essays”.

Overall, the use of inferencing yielded reasonable answers. However, contextually inappropriate guesses occurred when students did not adequately connect ideas in the text and when their vocabulary was limited. The following segment illustrates this point. The learner was completing the sentence: “He was carrying a \_\_\_ and wearing a nylon stocking over his \_\_\_”.

St: Well, here since it seems easier to me, I’m going to write...

Int: In the first?

St: Yes, here, in the third blank.

Int: Okay. “*He was carrying a...*”; you found that easy.

St: Uhuh.

Int: You used ‘*bag.*’

St: Yes.[pause] This word here I don’t know.

Int: Which?

St: ‘*Stocking.*’

Int: Uhuh.

I think it can be a nylon raincoat;

Int: Mmm.

So, I could use here: over his... his suit, his something...

The meaning of the word 'stocking' seems crucial to the completion of the upcoming blank. The incorrect assumption about its meaning eventually leads the student to use 'coat' for the blank which, contrary to her expectations, resulted in an incoherent sentence: \*"...and wearing a nylon stocking over his coat." Frequent interruptions in the decoding process due to limited vocabulary disrupted the learners' performance, indicating the crucial role played by language skills in foreign language reading.

Some more efficient students showed a better awareness of the demands of the task by reading the whole passage in search for global meaning. They seemed to be aware that the ideas expressed by sentences are interconnected and contribute to the meaning of the passage as a whole. The next segment contains an illustration of this fact. The student says that she found another unfamiliar word (slapped) in the sentence: "There was a loud scream and a woman slapped my face".

St: Yes, I found another word but... by [looking at] the sentence I don't know what it is; I'm going to go on, I'm going to see if it's possible to find out.

Int: Uhuh.

[pause] So, I finished reading, right, and... based on what the rest of the text says it's possible to know that he was slapped on the face.

Previously, the student had been able to figure out 'reached,' the first unfamiliar word, by looking at the immediate context where the word occurred, but now she reports that the sentence is not of any help in figuring out 'slapped.' Therefore, the learner decides to go on reading to see whether there are clues further in the text. She figures out the meaning of 'slapped,' soon after concluding the reading.

A similar behavior is seen in the example below in which there is evidence that the learner keeps the meaning of the passage in mind during her efforts to complete it. The student was completing the sentences: "Firstly the size of the police force could be increased by improving \_\_\_ and conditions. Equally importantly, the police should receive better \_\_\_ so that they can deal effectively with trouble without becoming unduly violent themselves".

Int: How did you come up with the idea of training, '*training*'?

St: *Training*? Because if he says that they are not psychologically prepared to carry a gun, it means that he sees a weakness in the system; so... to increase the police force they'd better improve this... the conditions, the training, the salary.

Int: Uhuh.

Then there wouldn't be the problem of the policemen themselves becoming violent.

This behavior, integrating the ideas expressed previously in the text and going beyond the immediate context to reconstruct the passage indicates that these students seem to



perceive the text in a more mature way. Effective learners tended to get involved in an active search for meaning, while the less effective ones concentrated their efforts on the decoding of individual words.

Occasionally, clusters of strategies were generated by the students. Some inferences were intertwined with the use of associations (also referred to as elaboration). The example transcribed below contains an illustration of the use of inferencing combined with elaboration.

St: *[What did the author] And his wife do while window shopping?* I, ah! I think that it is while they looked at the [store] windows.

Int: Uhuh.

St: Because... I remember that I read in the text that... one looked at-at the dress in the window, so it must be store window.

.....

Int: So you didn't know this word, *window*, before, right?

St: As, as [store] window, no.

Int: Only as [house] window.

St: Only as [house] window.

In Portuguese there are two words for the English 'window'. The term for house window is "janela", and "vitrina" is used for a store window. The student seems to know the word 'window' only as a house window. In her attempt to find out the meaning of the expression 'window shopping,' the learner first infers the meaning of 'window' as she realizes that, in the context, it does not match exactly her idea of the word 'window'. She remembers that, according to the text, one of them (the wife) looked at a dress in the window. She concludes then that the word window here must refer to the Portuguese word for store window (vitrina) and not to the Portuguese word for house window (janela). After this process, she associates this meaning of the word 'window' with that in the expression 'while window shopping' and accurately concludes that the expression means: while they looked at the [store] windows.

Coincidentally, a similar example was produced by another student in connection with the same expression.

St: No. Right. Only the part... Well, here where I have read to find the questions, I have already found the two phrases that mention '*window*'; so, this *window shopping* must be 'store window.'

Int: Uhuh. Very good.

St: Because she, she stopped; the text doesn't say that she entered, that she asked to see the dress, or that he had asked for the radio, right? So, this '*next window*' here can be understood that they were passing and looking at the '*window*'; *window* of a store can't be *window* of a house, it must be a 'vitrina' [Portuguese word for 'store window'].

As explained above, Portuguese has different words for house window (janela) and store window (vitrina). Apparently, the student is not familiar with the use of the word 'window' for store window. Her idea of 'window' seems to be limited to 'house

window'. The learner figures out 'window,' as used in that particular context, by inferencing. She understands that a window of a store must be a 'vitrina' and not a 'janela'. She observes that the text does not indicate that the couple actually went into the store and asked for the items; therefore, they were merely looking at them (elaboration).

## V — CONCLUSION

The analysis of the data provides supporting evidence of the usefulness of inferencing as a learning strategy. The process promotes the learners' active participation and involvement with the ideas expressed in the text as they try to find solutions to the task.

Although most students were able to generate inferences, qualitative differences were detected. Less effective performance was characterized by a reluctance to accept the uncertainty and imprecision involved in the process and by an insistence on finding the meaning of individual words. Some learners tended to process the text in a "bottom-up" manner concentrating on the recognition of individual words.

Obviously the word-by-word approach adopted by these learners impaired their entire performance. As a matter of fact, the limited scope of the inferences developed by the less skilled learners was additional evidence that their approach was word-bound. Such students failed to keep the meaning of the passage in mind as they tried to complete the task and tended to consider only the immediate context. Thus important clues beyond the sentence under focus were ignored. Lack of integration of ideas at a higher level seriously impaired text comprehension.

Limited vocabulary represented a serious impediment to fluent reading. More effective students capitalized on inferencing to counteract problems with unfamiliar vocabulary. Less effective learners systematically resorted to the dictionary instead of manipulating the text material. These learners tended to select a technique involving more mechanical or receptive language use rather than the more cognitively demanding process of inferencing.

Studies on learning strategies have indicated that learners who play a more active role by engaging in creative processes tend to be more successful than those who rely on less demanding strategies. (O'Malley and Chamot 1990; Rubin 1987). Therefore, a more active approach would benefit the students allowing them to capitalize on more sophisticated strategies that entail reorganization, transformation, or elaboration of the material.

The evidence in this study points to certain aspects of the students' approach that represent important targets for instructional programs. Students need to be encouraged to abandon the tendency to assign meanings to individual words and to process the text in meaningful chunks of language. With the adoption of a more global processing of the text, learners would be more likely to draw on a wider context than that of the word level, so as to generate logical inferences on the basis of the ideas activated by the text as a whole (top-down processes).

Additionally, the analysis shows that the learners' reading ability was severely restricted as a result of their limited vocabulary. Their efforts were expended on word decoding, a skill they still needed to practice in order to recognize lexical items automatically and concentrate their efforts on the generation of meaning.

As a matter of fact, the crucial role played by language skills, especially vocabulary, in effective reading is highlighted by Clarke (1988), Grabe (1988) and Carrell and Eisterhold (1988). Therefore, the findings in this study support the idea that a skilled reading performance requires adequate vocabulary as well as effective reading strategies. Hence the suggestion presented by Clarke (1988:121) that language-skills instruction should be systematically integrated with reading-skills development seems to be a feasible way of helping students improve their performance.

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