

Text Accessibility: raising awareness about the complexity of the Written Page

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This research explores the written page, aiming to identify obstacles that may hinder the reader's understanding of the message. The view adopted here advocates that not only linguistic but also paralinguistic factors influence accessibility of written texts. More importantly, it is paramount that a study investigating obstacles for reading comprehension should be able to account for the effect that the interaction of linguistic and paralinguistic elements may have on the reader's understanding of the message. The present work also explores relevant aspects about reading, including discussions about the text itself, the reader and the writer. The textual analysis presented here is aimed at L1, L2, and EFL teaching contexts as well as at the production of texts for the general public.

Palavras-chave: Text accessibility, paralanguage and language, reading theories, reading comprehension problems, reading effectiveness.

INTRODUCTION

In today's technologically advanced societies, the number of genres that exploit both linguistic and non-linguistic features simultaneously has been escalating rapidly. Easier access to written materials, via schooling, libraries or even inexpensive reading materials, or to computer resources have yielded enormous changes in reading habits. They have influenced the way readers interact with the extremely diversified written page. Paralinguistic features began to be explored side by side with language, complementing, illustrating, communicating parallel meanings, clarifying them, or organising the textual content and presentation.

The view adopted here advocates that not only linguistic but also paralinguistic factors influence accessibility of written texts. As suggested by Kress (1993:187) "there is no language other than through the co-presence of another semiotic medium". When investigating obstacles for reading comprehension, it is necessary to observe linguistic structures side by side with paralinguistic features, interacting with each other, creating new meanings according to their different combinatory occurrences. To investigate the effect of

the interaction of such devices on the reader's understanding of the message is the objective of this work.

Accessibility is defined here as a quality of text which allows the message to be conveyed clearly to the reader, allowing her¹ to process it quickly and easily. Accessibility may affect the reception or production of (written) texts. An inaccessible text may be the result of the use of specialised technical language, for example. In this case, one option to improve understanding could be to teach the reader to deal with the particular subject matter it encompasses and, consequently, its specific lexical and syntactic choices. However, the larger the target reading audience, the less plausible this option becomes. Alternatively, the text itself may be modified and made more comprehensible to a wider non-specialist audience. The present discussion supports this latter paradigm. It alleges that once problematic textual features are uncovered, they can be avoided or modified, making the text more accessible to the benefit of highly proficient and less proficient readers² alike.

Paralanguage is defined here as non-linguistic features that may emphasise, complement, illustrate and organise spatially the linguistic message conveyed on a written page.

THEORETICAL BACKGROUND

Before the seventies, in the areas of ESL (English as a Second Language) and EFL (English as a Foreign Language), reading was seen as an aid to spoken language (Fries 1963). The audiolingual method helped to emphasise this view, focusing on listening and speaking, leaving reading and writing to second place. As Carrel (1988:02) puts it, 'decoding sound-symbol relationships and mastering oral dialogues were considered to be the primary steps in the development of reading proficiency'. Although background knowledge, especially culture-specific knowledge, was recognised as an important factor for a non-native reader to be able to understand written texts (Fries 1963; Rivers 1968), the theories of second language reading at that time were still very much focused on decoding.

The idea of reading as an interactive process was first thought of in native language reading studies (Goodman 1967; Rumelhart 1977), while reading in a second or foreign language still continued to be seen as a passive process. Problems in understanding written passages were then perceived as caused by the inability of non-native language readers to

decode the writer's intended meaning through the perception of the units at the "bottom" (letters and words) as well as the those at the "top" (phrases, etc.) (Rivers 1968).

It was only later that the view adopted today started to be developed. Goodman (1967, 1971)'s psycho-linguistic model of reading contributed to change this position, presenting reading as an active process, which emphasised psycho-linguistic aspects as well as socio-linguistic ones. The reader began to be perceived as the one who constructs meaning, making use of her background knowledge of the world as well as of her linguistic knowledge. Goodman's model shows information processing as a cyclic process that builds up meaning continuously and interactively. According to Goodman (1973, 1988), the reader processes the text by dealing with the symbol system, the language structure, and the semantic system interdependently to create meaning.

Although Goodman himself did not relate his theory to second language readers, others made this connection (Eskey 1973), highlighting the inadequacy of the decoding model. However, it was only in 1979, that a model for ESL reading was actually proposed (Coady 1979; Carrel and Eisterhold 1988).

The top-down perspective changed dramatically the way reading began to be dealt with in first, second and foreign language research. The reader was no more seen as a passive decoder; instead she began to be perceived as an active participant creating meaning out of the text. She brings to her reading her schematic and systemic knowledge as well as her knowledge of the rhetorical structure of the text. This interactive model of language reading assumes bottom-up and top-down processes working interactively (Rumelhart 1980; Sanford and Garrod 1981).

The reader, the writer and the written text

As suggested by Widdowson (1979:174), the reading activity cannot be seen simply as a reaction to the meanings in a text. It is instead an interaction between writer and reader mediated through the text. Comprehension of a text depends as much on the process of decoding its message by the reader as on its adequate encoding by the writer.

In contrast to face-to-face spoken interaction, where the participants may adjust their message during the exchange, reading imposes a non-reciprocal exchange between the parties communicating. In spoken interaction, addresser and addressee may adjust their conceptual

worlds as the conversation proceeds, they may rely on the co-operative principle (Grice 1975) to achieve an agreement. In written texts, none the less, the use of the co-operative principle is rather different. The writer has to anticipate the type of reader that his text is aimed at and imagine a covert dialogue with her while writing his text. However thorough the writer may try to be, it is unlikely that his text will be totally in accordance with his reading audience's conceptual world. As suggested by Widdowson (1979:180), "since conceptual worlds do not coincide, there can never be an exact congruence of encoder's and decoder's meanings. Communication can of its nature be only approximate".

The reader's prior knowledge and purpose play a decisive role in what and how much of the information provided in the text will be apprehended and consequently stored (Anderson 1980:33-37). Language may have this transactional function, when it serves as a vehicle for transmitting factual information, as in emergency texts, but it may also have an interactional one, when it is used to establish social relations and attitudes (Brown and Yule 1983:01). Even though written language may be vastly used with the purpose of informing, as Brown and Yule (1983:04) suggest, there are written genres interested primarily in maintaining relationships, as in 'thank you' and love letters, for example.

The reader has to be aware of the distinct communicative purposes of different text types in order to understand the meanings they convey effectively. In spoken discourse, a speaker may say one thing and mean another, expecting that the listeners share his knowledge and expectations concerning appropriate speech behaviour (Stubbs 1983:41). In written discourse, there may also be a similar demand on the receiver's (or reader's) interpretative skills. The knowledge needed to understand a newspaper article, for example, might differ radically from that necessary to interpret a fairy tale. It is not simply a matter of recognising the vocabulary contained in each text, but being able to differently attribute denotations and connotations to them.

The context of occurrence of a written message is another determining factor for its appropriate interpretation. Reading passages are aimed at different types of readers and contexts of occurrence. Consequently, their purpose varies basically according to these factors. A prescription from a doctor in a EFL textbook may have the purpose of teaching students a particular structure or to exemplify a specific text type, while the same text will have a distinct purpose if read by a patient in a doctor's office. In fact, it is not only the place

where it features that is crucial; factors such as the typeface and layout, as well as colour and materials may also influence the reader's perception of it. These and other paralinguistic features may affect the interpretation of the message from different angles. They contribute not only to the conveyance of the intended and appropriate text appearance, but also to its communicative purpose. As Wallace (1992:26) puts it, 'reading involves not merely the interpretation of a text in its physical environment but the interpretation of the whole situation in which we encounter it'.

Dealing with the written text as product

Alderson and Urquhart (1984) make use of a distinction between the product and the process of reading. Text as product is the physical output created by a writer. Text as process is related to discourse, it refers to what happens when the reader interacts with the text and constructs meaning from it. As reading is "a silent, private activity" (p. xix), as they put it, it is quite difficult to gain access to the invisible processes that go on when an individual reads a written text. Approaches such as the miscue analysis (Goodman 1973) and protocol analysis (Ericsson and Simon 1984) can be effective instruments to gain access to some of the processes that go on when reading. However, these are not complete and faultless methods of analysis.

The present study is concerned with the product, but without disregarding the process. Other approaches have also explored the text as product in an attempt to improve its comprehension by the reader. A brief overview of such approaches is presented herein with the purpose to shed light into the discussion on text accessibility.

Studies on readability (Klare 1963, 1978), for example, constitute one of them. Difficulties in readability may be established to different types of readers through the application of multiple choice questions or cloze tests to a selection of written passages. Word difficulty and sentence structure have usually been presented as the best predictors of difficulty. Word difficulty is often associated with frequency lists, which contain words determined to be less or more used than others. They can also be judged difficult by their length, words with more syllables being usually associated with more difficulty in processing. In the beginning of this century, word frequency lists and discussion of their suitability for different stages of learning can already be found. The following quotation from West

(1932)'s *Language in Education*, for example, shows a categorisation of frequency lists for a child who is learning to read.

We may predict with absolute certainty that the child will need all the Class 1 words [“essential words”, e.g. A, The, Who, Is, etc]. We may be fairly sure as to the first part of Class 2 [“general words”, e.g. Reply, Question, Suggest, etc]: but the later words in Class 2 will not be needed unless the child is going to study the language in its literary aspect. (West 1932:86)

Difficulty in decoding sentence structure, on the other hand, may be measured by the number of transformations needed from a deep to a surface structure (Chomsky 1965). A sentence may also be judged difficult by the simple fact of containing too many words, since longer sentences may have more chance of being more complex, containing embedded and subordinate clauses.

In order to establish with more precision levels of difficulty, readability formulae have been developed. Other criteria for measuring readability may be found in the literature (Urquhart 1984).

Depending on how readable a text is, its structure may be made simpler to a reader. That is the purpose of another, though related, area: text simplification (Davies 1984; Widdowson 1978). This technique aims to maximise the comprehension of written texts through the simplification of their linguistic structure. It may involve simplifying lexical and syntactic structures.

Simplification may be achieved in spoken and written communication. When a teacher adjusts his language to the learner's needs and proficiency, he may consciously simplify the language (Davies and Widdowson 1974). Simplification of reading materials, however, refers to the selection of a restricted set of features from a full range of language resources for the sake of pedagogic efficiency (Davies 1984:183).

Simplification can be an effective option to provide readers with a version of a text that may be more suitable for their systemic knowledge if they are, for instance, beginning to learn a foreign language. None the less, it is necessary to consider carefully the needs of the particular audience the text is aimed at. Readers whose L1 is a Romance language might find “combat” easier than “fight” (Davies 1984:197). In addition, simplification, rather than

making the text more accessible, may cause confusion when it incurs a lack of textual coherence or cohesion.

Widdowson (1978) favours simple accounts instead of simplified versions of texts. He defines simplified versions as “passages which are derived from genuine instances of discourse by a process of lexical and syntactic substitution (...) to produce a version which is judged to be within the linguistic competence of the learner” (p.88). Simple accounts, on the other hand, are said to represent ‘not an alternative textualization (*sic*) of a given discourse but a different discourse altogether’. That means that, when using simple accounts, the writer recast the information that he abstracts from some source or other to suit a particular kind of reader (p.89). Simple accounts may convey a more authentic discourse than the modified version provided by simplified texts.

Another method of dealing with the text as product, in order to make it more accessible to the reader, is proposed by the Plain English campaigners in Britain and the USA. This Movement emerged in the late 1970’s as a reaction to the unclear language used in government and business forms and documents. These texts are usually impregnated with obscure expressions such as “revenue enhancement tax-based erosion control” instead of its more accessible counterpart “tax increase” (Crystal 1987:379). The Plain English Movement aims at improving text comprehension through the elimination of linguistic obstacles, conveying a more comprehensible version of a text to the general public. They also set guidelines on how to use paralinguistic features to maximise reading effectiveness.

The main criticism against the material proposed by the Plain English Movement comes from the legal profession and other specialised areas. They claim that the precision obtained through the use of technical language and specialist’s jargon cannot be replaced without running the risk of incurring ambiguity. Besides, lack of lexical knowledge in specialised vocabulary by the reader cannot always be compensated by easier and longer explanations without sacrificing concision in conveying the message, which is a crucial factor for some text types. Furthermore, paraphrasing may not always be possible without losing the specific meaning intended by the original text.

Translation is another method of dealing with the written text as product in order to tackle reading difficulties for non-native speakers, even if it is restricted to cases of comprehension problems in foreign language texts. Although it may be a feasible option, it

can be quite costly and at times not available at all. In addition, it usually relies on the capabilities and understanding of a single individual: the translator.

The present work looks into the issues involved in the accessibility of written texts through a comprehensive method of investigation. Instead of focusing on linguistic aspects only, it also explores paralinguistic features on the page. More importantly, it investigates the effect of the interaction of such devices on the reader's understanding of the message.

TEXT ACCESSIBILITY

Several studies in reading comprehension, dealing with native and foreign language readers, have focused on different aspects of the reading process. Some have focused on establishing the need for a threshold level of competence before foreign language readers can be able to perform efficiently (Cummins 1979; Clarke 1979), others have focused on readers' different abilities to use reading strategies (Cowan & Sarmad 1976), others on readers' ability to use syntactic, semantic and discourse constraints (Cziko 1978), while some have tried to establish the difference between native and foreign language readers' abilities to use conceptual knowledge (*i.e.*, the meaning of words and subject matter) (Ulijn and Kempen 1976), just to mention a few. These and many other studies, however, have taken into account the readers' difficulties in decoding and mastering the content of the written text based mainly on the reader's ability to deal with the linguistic code. The way the paralinguistic structure on the page shown to readers is organised did not seem to be of concern to them.

However, the written page is an intricate system of meaningful interwoven verbal and non-verbal features, forming a net of graded and discrete (Ellis and Beattie 1986:143; Cook 1992:67) signs. These signs possess the potential of combining themselves in an infinite number of ways. Such combinatory occurrences gather elements from the linguistic as well as from the paralinguistic facets of communication. These elements are manipulated according to their reading audience, communicative purpose and function, and also to the applicable conventions associated with the genre that the text containing them subscribes to.

Distinct text types express their intentions not only via a particular linguistic choice and style but also through a distinctive design. A novel, for instance, may have an attractive cover, but its text is composed of continuous, colourless blocks of words. An educational

book, on the other hand, usually has a less motivated audience and a more limited time to be read. Its design, then, often incorporates certain paralinguistic components that are supposed to break the narrative (*e.g.*, headings, pictures, diagrams) and work as instruments to facilitate the process of taking in the information.

The appropriate use of paralinguistic features may facilitate genre recognition and predictions. Once the reader can recognise the layout of a text as belonging to a particular genre, she may use this knowledge to activate the necessary schema to interpret it. She may be able to anticipate some default elements or its typical order of presenting the subject. She might also become more capable of recognising different layout components as expressing specific communicative purposes, as in the case of newspapers main headlines as opposed to headings used in the used cars sale section, for instance.

Although textual display techniques may not transform a poor or inadequate text structure into a totally comprehensible text, they may help somehow to compensate for linguistic deficiencies via organisational devices that are supposed to enhance text clarity. One of the ways in which textual display techniques may contribute to this end is by establishing sectors and structural hierarchies on the page, via different type-sizes and spacing techniques (Hartley 1994). Among other factors, these resources provide a signalling system to the reader that helps her to understand the different parts that compose a text and how they relate to each other. The use of such features may provide a clear organisational framework that might facilitate the reading process, supplying tools for the reader to browse through the text more quickly (Benevides Lobianco, 1999).

Therefore, linguistic cues are not the only ones explored by the reader when trying to make sense of written pages. Spatial and typographic cues may also contribute to the understanding of the passage, signalling its form, function, sequence, content and importance of its segments (Jonassen and Kirschner 1982:123). Jonassen and Kirschner (1982) claim that these cues are intended to capture and focus attention during reading.

Studies on reading comprehension should consider the richness of linguistic and paralinguistic resources present on the written page. Text accessibility can only be achieved if elements from both verbal and non-verbal forms of communication are seen interacting and conveying meanings that are beyond the sign. Observing the effect of such interaction on the

reader's perception of the message is crucial for finding out the causes for reading impairment.

A case study will be presented in the next section with the purpose to exemplify how research on text accessibility could explore the interaction of language and paralinguistics on the page and investigate the effect of particular combinations of features on the reader's perception of the message.

A CASE STUDY

A study carried out by Benevides Lobianco (1999) explores several combinations of elements from verbal and non-verbal structures interacting on a written page. Here, we shall use part of this research to exemplify how this interaction can be observed and to prove how relevant this subject can be for using the resources available on the page more effectively.

In the work presented here, a particular text type was chosen – *emergency procedures* – because it provides a rich source of linguistic and paralinguistic structures. Moreover, accessibility in emergency texts is paramount, because lives may depend on their clarity and effectiveness in conveying the message. Furthermore, the selection of emergency procedures was also motivated by their minimum political, religious, or ideological factors.

A collection of different kinds of emergency procedures was compiled. This collection of texts is referred to as the *corpus of emergency procedures*. It is composed of 126 exemplars.

Emergency texts can be categorised in three different groups, according to their place of occurrence and their distinct immediate objectives. Those belonging to Group A are to be displayed in corridors of buildings, underground stations, colleges, and so on. Texts from Group B may occur in various circumstances, *e.g.* on aeroplanes or carried in wallets. Both types are to be consulted in actual emergency situations. Those from Group C are to be found in first-aid books or files, usually to be consulted in a first-aid training course, or at home. In all three groups, accessibility is essential. The differences that categorise these three groups are reflected in their distinct linguistic choices. They determine their appropriateness.

Selected Linguistic and Paralinguistic Structures

The linguistic structures explored here were selected by virtue of their frequent occurrence in emergency procedures and their presupposed relevance for the conveyance of the message in this text type.

Two types of paralinguistic devices are recognised here. The first one relates to paralinguistic features that inevitably accompany writing. They are the vehicles for the representation of letters, and consequently words (*e.g.* typeface and type-size). These are referred to here as *written paralanguage*.

The second type comprises those paralinguistic features that are meaningful but not necessarily inherent in the linguistic message. These are referred to here as *paralinguistic layout components*. They may add to and clarify the message expressed in the written text (*e.g.* pictures), among other functions, but they are optional.

Interaction of Language and Paralanguage

There are a number of possible combinations of linguistic and paralinguistic features to be observed in the Corpus, as shown in Table 1. Due to limitations of space, this paper cannot provide a complete description of how all the elements interact and affect the reader³. One specific combination of linguistic and paralinguistic features shall be selected and discussed in detail. The data analysis provided subsequently shows how the interaction of these features affects the understanding of the message by native and non-native readers alike.

LANGUAGE INTERACTING WITH WRITTEN PARALANGUAGE		
aspects of		
lexis		labelling mechanisms (<i>typeface, type-size</i>)
(e.g., <i>acronyms, technical terms, imperatives</i>)		highlighting mechanisms (<i>capitals, bold, italics</i>)
		illustrating mechanisms (<i>font features</i>)
aspects of		
syntax		labelling mechanisms (<i>typeface, type-size</i>)
(e.g., <i>simplified clauses</i>)		highlighting mechanisms (<i>capitals, bold, italics</i>)
		illustrating mechanisms (<i>font features</i>)
LANGUAGE INTERACTING WITH LAYOUT COMPONENTS		
aspects of		
lexis		labelling mechanisms (<i>headings</i>)
(e.g., <i>acronyms, technical terms, imperatives</i>)		highlighting mechanisms (<i>lines, boxes, space</i>)
		illustrating mechanisms (<i>pictures</i>)
aspects of		
syntax		labelling mechanisms (<i>headings</i>)
(e.g., <i>simplified clauses</i>)		highlighting mechanisms (<i>lines, boxes, space</i>)
		illustrating mechanisms (<i>pictures</i>)

Table 1: Linguistic and Paralinguistic Features

Written paralinguage interacting with lexis

This section shall examine the interaction of technical terms with written paralinguistic features that have the function of highlighting (capitals, bold, and italics).

Technical terms may be defined as those specific to a particular field, determining its objects, operations, methods and the like. The frequent application of such lexical items reveals that these texts may not be aimed at the general public, but at a specific reading community, which shares the knowledge conveyed through their particular form of language structure and lexical choice.

Certain texts are made unclear on purpose, because they are the tools of a specific *office* ⁴ (Gremmo, Holec, and Riley 1985) and may only be fully understood and manipulated by the members of that particular group. When a text is aimed at a large heterogeneous (non-specialist) audience, however, as an emergency procedure, the widespread use of technical language may cause it to be obscure and communication may fail. Emergency texts are in principle aimed at every member of any literate discourse community, provided that they are able to understand the language the text is written in. However, very often this is not the case.

They sometimes may overestimate the average reader's knowledge of the subject matter and refer to procedures and specific terms that cannot be understood without proper training in the area, nor from the context, due to the brevity that the points are mentioned.

Some technical terms may have to be used in a text aimed at the general public, because there is no equivalent in laymen's terms that could replace them. In other cases, nevertheless, technical items might have synonymous equivalents to replace them, thus allowing the text to become at times more accessible.

Written paralinguistic highlighting features (bold, italics, and capitals) interacting with technical terms may signal different meanings to the reader, according to their context of occurrence and purpose.

Although capital letters may interact with technical terms, the corpus shows that in most cases the use of technical terms is accompanied by bold or italics. Capital letters, nevertheless, may be used for cross-reference, as in Extract 1 below, in which case this paralinguistic feature modifies the usual definition of the term "resuscitation", adding a technical meaning to it. The information that follows in parentheses reinforces this point, leading the reader to the place where she may find an explanation for the particular "alien" term or procedure.

'Check pulse and breathing every two to three minutes, and be prepared to carry out RESUSCITATION (page 2) if necessary.'

Extract 1: Capital Letters for Cross-Reference

The interaction of bold with technical terms in emergency texts usually has the effect of modifying what might have been otherwise a loose term on the page into a beacon to the reader, signalling to her the subject to be discussed in subsequent sections of the text (Figure 1).

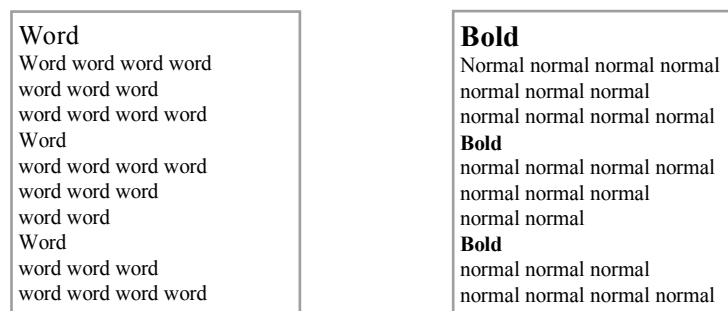


Figure 1: Bold Interacting with Technical Terms

Bold may also convey relevance to a signifier through the use of different weights. The combination of different weights and type-sizes may signal to the reader the nuances from general to specific contained in main titles and sub-titles.

Italic is a lightweight effect that may differentiate technical terms from the flux of words in the text, adding a different meaning to the usual way the term may be interpreted. The interaction of technical terms with this type of written paralinguistic mechanism often signals to the reader that there is something extra to be understood from a particular term. The following sentences may exemplify this argument.

- Establish unconsciousness and position the victim appropriately in the recovery position.
- If the victim is not breathing, immediately begin *mouth-to-mouth breathing*.
- Check and re-check the victim's carotid pulse, in the neck.

“*Mouth-to-mouth breathing*” features in italics, and as such it conveys the meaning of being a specific procedure to be carried out by the reader. The use of italics in this case may also signal relevance. However, technical terms such as “recovery position” and “carotid pulse”, which may be even more obscure to the layman, are not highlighted. Had they been differentiated through the addition of italics to them, they might have signalled to the reader that they are technical terms and the reader would then adjust her comprehension skills to perceive them as terms of a specific office. Furthermore, in some cases, the fact that the term features in italics may draw the reader to some other place (*e.g.* an illustration or a box) on the page where its explanation may be found.

THE METHODOLOGY

This section presents the material and method used in the case study to examine the interaction of language and paralinguage in emergency procedures. After selecting a

particular text type and a specific grouping of linguistic and paralinguistic structures to be observed, a method of investigation was chosen: a combination of verbal protocols and interviews.

Using Verbal Protocols and Interviews to Elicit Data

In the research, verbal protocols compose the main tool to get access to readers' interpretation of emergency texts. The material used here is not composed of problem-solving tasks, but of emergency procedures read out aloud, in a controlled environment.

Verbal protocols require a kind of reading practice that is different from the “normal” way of reading a text, *i.e.*, the reader is asked to read a text aloud, commenting on every detail that crosses her mind. She is asked to think and talk aloud while reading. Although this instrument of looking into the reader's mental process may have its drawbacks (Ericsson and Simon 1984; Cohen 1994), it allows the observer to gain access to underlying processes that might otherwise be hidden in the resulting outcome of the task (Dechert 1987).

The type of interview selected for this research is classified as semi-structured, because it contains a set of pre-determined questions. However, depending on the points mentioned during the verbal report sessions, the observer may adapt the questions in order to elucidate or explore a relevant raised subject.

The informants

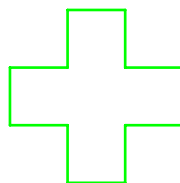
The verbal report sessions are carried out with eight naive informants, whose age ranges from 20 to 26 years. The group is composed of three men and five women. The difference in sex, however, is not taken into account in the assessment.

The informants belong to two different groups. The first group is composed of four native speakers of English. The second is composed of four highly proficient Brazilian readers of English. Both groups have similar educational level, with native and non-native informants being post-graduates engaged in teacher training courses (in EFL) in England.

The material

The following text ('First Aid') was presented to the informants in the verbal report session. It was given to the informants the option of reporting in their L1 or L2.

FIRST AID



Basic Rules

- Do not move the patient
- Open and maintain the victim's airway
If the patient is not breathing begin mouth-to-mouth breathing. If breathing, place in *recovery position*.
- Check the victim's *carotid pulse*, in the neck
- Do not give anything by mouth
- Loosen any tight or restrictive clothing
- Reassure the patient
If you have doubts about injury call ambulance

Bleeding

- Raise the wound
- APPLY PRESSURE to wound with hand or a clean dry cloth until bleeding has stopped
- Apply a dressing

Burns

- COOL SKIN immediately with running water and continue this treatment for a full 10 minutes
- REMOVE any restrictive JEWELRY
- Apply a CLEAN DRESSING

THE CAROTID PULSE

This Can be felt at the neck in the hollow between the voice box -Adam's apple- and the large neck muscle beside it, just under the jawbone.

Data Analysis

Prior to their reading, a hypothesis about the effect of the selected linguistic and written paralinguistic features on the reader's understanding was raised. Its validity was subsequently verified against the analysis of the verbal reports results.

Hypothesis: If technical terms such as ‘recovery position’ and ‘carotid pulse’ are differentiated through the addition of italics, they will signal to the reader their status as technical terms and the reader will then adjust her comprehension skills to perceive them as terms of a specific office.

An assessment of the informants’ reading performance in the verbal report sessions and interviews shows that, although there is some support for this hypothesis, several cases did not confirm the impact and significant effect of this interaction on the reader’s perception.

- Interviewer:* When you saw the term ‘carotid pulse’ there, did your eyes go looking for some explanation on the page or...
- EM: No, no.
- Interviewer:* ...or just went through and found some explanation at the bottom?
- EM: I read it through uhm down the page and I came to the explanation at the bottom.
-
- Interviewer:* On the fourth line, for instance, ‘recovery position’ is in italics, did attract your attention, did it mean anything to you?
- BR.: ‘Recovery position’...? Yeah, it presupposes that you know what recovery position is...
- Interviewer:* When you saw ‘carotid pulse’ in italics, did it affect your reading?
- BR.: No, ‘carotid pulse’ refers to the “carotida” !
- Interviewer:* Did the fact that it is in italics affect your reading?
- BR.: It seems to me that these terms in italics are two important things: ‘recovery position’ and ‘carotid pulse’. But it also seems to me that the ‘carotid pulse’ is in italics because if you don’t know what it is, there is an explanation down here.
- Interviewer:* Did you notice that when you were reading the text?
- BR.: Yeah, but I wanted to read it only after finishing everything else.

The study reported that none of the Brazilian informants mentioned the italics effect added to the term “carotid pulse” in their on-line reading. Dechert (1987:103) notes that “when no conscious attention must be paid to the translation process, no insight into the underlying mental processes is provided”. Even those who had not seen the term before managed to decode its meaning from its etymological and phonological similarity to its translation in Portuguese: ‘carotid’ = ‘carotida’, ‘pulse’ = ‘pulso’. When the following Brazilian informant (BR) was asked in the interview about the term “carotid pulse” and its explanation in the box, this is how she replied:

- Interviewer:* What did you think when you saw ‘carotid pulse’ and you saw the box at the bottom of the page?
- BR.: I thought it was an explanation about ‘carotid pulse’, but as the explanation was/, I thought I knew what ‘carotid pulse’ was, then I... didn’t want to go down there to find out about it. When I read, I assumed it was what I thought it was from the beginning: a way of feeling the “carotida” pulsing.

The following extract endorses the point that the pause observed in some informants’ reading may have more to do with the fact of finding an unexpected (e.g. ‘breathing’ instead of ‘resuscitation’) or unknown term (e.g. ‘carotid pulse’), than by a known term in italics (e.g.

‘recovery position’, which this particular reader reported to be familiar with during the interview).

EK: ‘If the patient is not breathing begin mouth-to-mouth .. breathing’, I would expect that to be resuscitation because you’re always used to hearing it, resuscitation... there’s quite a large gap ‘If breathing, place in recovery position. Check the victim’s ..carotid puls/’ I don’t know how to pronounce that ‘in the neck’.

To conclude it is possible to assume that the hypothesis that the use of italics leads to prompt recognition and attribution of an extra meaning to a technical term does not find unreserved support. The data from the verbal report sections show that, in some cases, the pause observed in some informants’ reading was related to their being faced with an unexpected or unknown term and not by the impact of seeing a known term in italics. Besides, it has been observed that, when a technical term is etymologically and phonologically similar to its translation in Portuguese, Brazilian readers did not even mention the italics effect added to it. In the verbal report sections, a box containing a text explaining the meaning of the technical term ‘carotid pulse’, which features in the main text body in italics, was not consulted at the appropriate moment, *i.e.* soon after reading the term, by seven out of eight informants. This fact suggests that although the study did report cases of a term in italics being noticed by readers, their occurrence does not suffice to confirm a significant effect on the readers’ perception.

Moreover, the research has found that the different treatment of technical terms with similar importance may lead the reader to confusion. If two terms are presented in italics and only one is explained in a box, some readers might fail to interpret the other as having a similar status and function.

CONCLUSION

The findings obtained with this study aim to contribute to enhancing accessibility not only of emergency procedures, but also of other written text types aimed at a heterogeneous reading audience.

Awareness of factors that influence the understanding of technical terms, for example, leads to a more effective application of such lexical items in written texts in general. It is important to know for instance, that, when dealing with narrow columns, technical terms may be split in two lines without impairing comprehension. Besides, even though a text producer

concerned about accessibility should avoid terms that are rare and specific of an *office* whenever possible, when the term is irreplaceable, it may be also crucial to know that paralinguistic features, such as a box, may prove to be an effective mechanism to explain its meaning. The effective application of such feature, none the less, should be maximised through the use of directing features.

Although the scope of this research is to provide information on accessibility obstacles, so that they can be avoided or modified prior to the text production, these findings are also of relevance for the consumption of written texts in the teaching environment.

Implications for Teaching

When dealing with written texts, teachers and learners may be often confronted with some of the problems discussed in this study. Awareness of the accessibility issues raised here and in other studies may, on the one hand, equip the teacher with tools to comprehend better his students' interpretative deficiencies and, on the other hand, may provide the learners with the knowledge for dealing with textual obstacles.

The teacher can explore textual features that may help the reader to deal with the text content more efficiently. Textual display techniques are tools to help more effective reading through the use of headings, lines, spaces, columns, bold, italics and many other features. Although some of the skills necessary to deal with such features in interaction with language may be developed at some later point in the reader's life, the earlier a student can use them in her reading activities, the more she will benefit from them. The proficient readers that took part in the verbal report sections, for example, demonstrated lack of skills in dealing with some of the paralinguistic elements presented to them (*e.g.*, the explanation of a technical term in a box). Had they been taught how to deal with them, they might have used the textual resources in the texts to overcome difficulties in the texts with less effort and more efficiency.

Teachers may provide students with knowledge to perceive the features that allow the readers to select, comprehend and retain information in memory. Hand (1982:114) mentions that paralinguistic features may "alert the reader to those items the author considers most important, and help the reader develop a logical mental ordering of the information". The teacher can teach the learners to recognise and deal with such elements so that they become

more capable of, for instance, skim read the text whenever necessary, selecting which parts might be more relevant to their reading purposes.

As far as typeface and type-size are concerned, the teacher can help the learners to recognise that highlighted information usually refers to the parts that the writer considers most important. He can teach them to attribute appropriate status to different type-sizes in headings and, as a result, recognise their distinct specificity of content.

Moreover, learners can also be taught how to use directing features at the appropriate time, thus using the resources being offered in the text to elucidate doubts. The teaching of such reading skills may maximise the potential of the material available to the readers' advantage.

Finally, when readers are aware of the general conventions of the genre of the text they are reading, they may be more capable of grasping the meanings expressed by these structural devices more quickly. Learners can be taught the signalling system used in a text so that they may be able to use it to help them find their way around the text more effectively and to predict many of the occurrences that they are bound to meet on the page.

NOTES

1. Throughout this paper, to avoid misunderstandings, the *reader* is referred to as 'she' and the *writer* as 'he'. This choice is motivated by the fact that I, the author of this work, am a woman and find myself more often placed in the role of the reader.
2. In this work, the terms *highly proficient* and *less proficient* are often employed. They refer to readers' knowledge of the target language, in particular their mastery of its written form. Although controversial, the terms *native* and *non-native* (Rampton 1990) speakers are also used, because they are well known and more promptly accessible.
3. A complete analysis of the elements that compose Table 1 can be found in Benevides Lobianco (1999).
4. *Office* here should be understood according to Gremmo, Holec, and Riley (1985)'s definition of the term, *i.e.*, "class of positions in the social structure which is usually ascribed by appointment, attainment or professional qualification" (p.39).

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