The role of interest and text structure in professional reading

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ABSTRACT

Students can be regarded as professional readers: they have to attend to, comprehend and remember the most important information in instructional texts, often about topics they are not readily interested in. Optimising such instructional texts has been the subject of much reading research. This research has shown robust effects for the influence of text structure: information highlighted by a strongly organising structure is retained better than seemingly less important information. Hidi and Baird (1986) suggest that such effects of structure are artefacts, because of the dullness of texts used in such experiments. They argue that readers mainly use interest instead of structure as their guide for attention and learning. In this article three related experiments using Dutch instructional texts are reported. Both interest and text structure were manipulated as within-item factors, and on-line as well as off-line methods were used to measure effects on the reading process and product. The outcomes show no support for the hypothesis of Hidi and Baird: students learn better from texts that are well structured, regardless of the interest of the text or its topic.

RÉSUMÉ

Le rôle de l'intérêt et de la structure du texte dans la lecture de praticiens

On peut considérer les étudiants comme de futurs praticiens: ils ont à prêter attention, comprendre et mémoriser les informations les plus importantes de textes informatifs souvent relatifs à des questions auxquelles ils ne s'intéressent pas vraiment. Optimiser ces textes informatifs a été le propos de nombreuses recherches

en lecture. Ces recherches ont mis en évidence des effets robustes de l'influence de la structure du texte: une information mise en évidence par une structure organisationnelle puissante est mieux retenue qu'une information qui semble moins importante. Hidi & Baird (1986) suggèrent que de tels effets de structure sont des artefacts dus au caractère ennuyeux des textes utilisés dans ces expériences. Ils soutiennerent que l'attention et l'apprentissage des lecteurs sont guidés par l'intérêt plutôt que par la structure. Nous présentons dans cet article trois expériences voisines utilisant des textes informatifs en hollandais. On a manipulé à la fois l'intérêt et la structure du texte comme facteurs inter-items, et des méthodes on-line aussi bien que off-line pour mesurer les effets sur le processus de lecture et sur le produit. Les résultats ne sont pas favorables à l'hypothèse de Hidi et Baird: les étudiants apprennent mieux avec des textes bien structurés, quel que soit l'intérêt du texte ou son sujet.

Introduction

Reading in an educational setting requires special skills. It is no exaggeration to claim that students have to become professionals in reading texts. Whereas other working people read texts about topics they are professionally trained and interested in, students make the reading process itself as their profession. Constantly confronted with instructional texts in their studies, they have to learn how to filter and retain the most important information. Moreover, students are not yet very knowledgeable on the topic of these texts, and they are not always immediately interested in it. It comes therefore as no surprise that optimisation of school book texts has been the subject of much reading research.

An influential model of learning through texts by Reynolds and Shirey (1988), sketches two routes to learning: an attention-intensive route and an attention-extensive route. In the *attention-intensive* route, also known as the route of *selective attention* (Anderson, 1982), the amount of learning is determined by the amount of attention paid to the text by the reader. The amount of attention, in turn, is determined by the importance that is attributed to the different parts of the text: parts of the text that are rated as important receive more attention and are therefore retained better. What is conceived of as important is dependent on a range of variables, such as the reader's purpose (e.g. is the reader trying to find some specific information or is he or she reading for entertainment?), text signals (e.g. headings and advance organisers) and reader properties (e.g. motivation, interest). According to this model, there is a positive correlation between importance, attention and learning.

The alternative, *attention-extensive* route is *schema based* learning. In experiments, Reynolds and Shirey found that if readers have significant interest in the topic of a text, they can read that text with little cognitive effort, and yet still learn from that text. Reynolds and Shirey's explanation is that interested readers have much background knowledge and consequently elaborate schemata that help them process the information in the text very effectively.

This model isolates several factors that determine the reading process, some of them text-internal, such as the structure of the text; others text-external, such as the reader's interest in the topic of the text. The relevance of these factors has been attested by much of the reading research of the past decades. For instance, text structuring as a major determinant of the cognitive processes that take place during

the processing of textual information, is reflected in the so-called 'levels effect' (Singer, 1990, p. 40–41). Information high in the text structure is retained better than information low in the structure. This finding can be explained in terms of the Selective Attention Model, because higher level information is interpreted as more important than the lower level information and therefore receives more attention from the reader.

Hidi and Baird (1986) were among the first to suggest that the effects of structure reported in the literature are artefacts. These authors argue that in the experiments corroborating such effects, the materials used – adaptations of instructional texts from school books – are so boring that it may well be that the subjects had nothing but the text structure to hold on to in determining what information was to be retained. This supposedly contrasts with what people do when reading everyday texts, in which case such decisions are based on the interest of the information. The work of Hidi and her co-workers has put the role of interest in the reading process high on the agenda of reading research.

In particular, the research on the 'seductive details' effect appears to confirm Hidi and Baird's (1986) claim that interest is a better predictor of text processing compared to text structure. In several investigations it has been found that structurally unimportant but interesting text parts (so-called seductive details) were recalled better than important information (see, for example, Garner et al, 1992; Wade and Adams, 1990). However, these investigations are disputed (e.g. Goetz and Sadoski, 1995). A major problem with these studies is that the importance of information as well as the level of interest of information was observed rather than manipulated, making these tests of the seductive detail-effect at best indirect (Goetz and Sadoski, 1995, p. 504). Wade and Adams (1990), for instance, had subjects rate the text parts' importance and interest. In the main experiment, the recall of different parts of the text was compared. But the parts did not only differ in level of interest and in importance, but also in their syntax and semantics. A more stringent test of the 'interest as most important predictor' hypothesis would be to compare the processing of an identical sentence, and to use both on-line and off-line measures of learning.

Sanders (1992, Chapter 4) conducted such a study with respect to the effects of text structure on text processing. He manipulated the relationship between an identical target sentence and its preceding context in a constructed set of Dutch instructional texts. The target sentence was either the solution to a problem or an item on a list. *Problem-Solution* relations are known as strongly organising relations, whereas *List* relations are weakly organising (Meyer, 1985). Sanders measured reading times for the target sentences – reading time indicates the amount of attention paid to the target sentence – as well as the extent to which target sentences were verified and recalled correctly. He found strong effects of text structure: subjects spent less reading time on target sentences presented in the *Problem-Solution* context and yet showed better verification and recall than for target sentences in the *List* context. This is a surprising result. Reynolds and Shirey predict *longer* reading times for important information, which then leads to better retention. Apparently their model needs some adjustments to account for Sanders' results.

The schema based route to learning provides such an account. Readers not only have topical schemata stored in memory, but also structural schemata, which help to process incoming information (Wilson and Anderson, 1986). The amount and elaborateness of processing schemata increases with experience. Proficient readers

can be expected to have expectations concerning the structure of a text. Upon encountering a problem in a text, they will expect to find a solution to this problem. If this solution is indeed presented, it can effortlessly be linked to the representation built so far. However, with respect to the structure of lists, readers do not have such precise expectations, if only because they do not know how long a list in a text will be.

Sanders' (1992) study provides an excellent opportunity for testing the 'interest as most important predictor' hypothesis. If the hypothesis is correct, the structure effects reported by Sanders would disappear if the texts were made more interesting. That other factors can outweigh texural variables has been shown by Salager-Meyer (1994). In her research, conducted within a second language setting, variables such as exposure to reading materials, background knowledge and L2 competence seem to outweigh the importance of structural variables. According to Hidi and Baird (1986), interest has similar effects. This raises the question of what makes a text more interesting. Hidi (1990) distinguishes between two types of interest, individual interest and situational interest. The difference between these two types of interest has been described by Hidi (1990, p. 551) as: 'Personal, individual interest develops slowly over time and tends to have long-lasting effects on a person's knowledge and values. Situational interest, on the other hand, tends to be evoked more suddenly by something in the environment and may have only a short term effect, marginally influencing an individual's knowledge and values.' A sub-type of situational interest is text-based interest.

Anderson et al (1987) claim that text-based interest can be generated by using, amongst other things, a high activity level in the description of events (e.g. 'The student ran to the library' instead of 'The student went to the library') and the inclusion of characters with whom the readers can identify (e.g. 'The strong third-grader put the bag of potatoes on the shelf' instead of 'The bag of potatoes was put on the shelf'). In the first two experiments reported here, these strategies were used to manipulate the interestingness of texts.

The definition of individual interest suggests that whereas some readers may regard a specific topic (e.g. sports) as very interesting other readers may regard the same topic as extremely boring. However, Schank (1979) claims that there is a limited number of topics that are interesting to all readers. According to Schank, all readers are interested in information about (for instance) sex, death, wealth and violence. In a third experiment reported here, text interest is manipulated by writing texts which are either about an interesting topic (e.g. the owner of a whorehouse) or about a less interesting topic (e.g. the owner of a hotel).

The three experiments are designed to test the same hypothesis: an effect of text structure occurs only for uninteresting texts. The research reported here differs in a number of ways from previous inquiries into the relationship between text structure and text interest. In most research that has discussed this relation, the difference between the conditions is a between-item difference: the parts of a text are usually rated for interest and for structural importance and then recall of each text part is measured. In this article we will discuss research in which the difference between the conditions is a within-item factor: identical information is presented in contexts that are manipulated systematically with respect to interest and text structure.

The experiments also differ from previous experiments in that they include on-line as well as off-line measures of the processing of the text. In each experiment, the

reading time on the target sentence as well as its recognition are measured. In Experiment 2, secondary task reaction times were employed to investigate whether interest or structure did influence the intensity of the reading process apart from its length. The aim of the experiments was to find out whether there is evidence for Hidi and Baird's suggestion that effects of text structure are artefacts. If so, one may expect an interaction effect of text structure and text interest: effects of text structure will only be found in low interest texts.

METHOD

Subjects

All subjects were students from the Humanities and Economy Department of Tilburg University, The Netherlands. They participated voluntarily in the experiments. The number of subjects were: 61 in Experiment 1 (28 male, 33 female), 52 in Experiment 2 (26 male, 26 female), and 34 in Experiment 3 (17 male, 17 female). The age of the subjects varied from 18 to 29 years in Experiment 1, from 18 to 38 years in Experiment 2, and from 18 to 41 years in Experiment 3.

Materials

The texts were manipulated along two dimensions: text structure and interest. In Experiment 1, the 24 texts of Sanders (1992) were employed: these had already been manipulated with respect to text structure. The target sentence (e.g. 'Soon, Texas Instruments will introduce a mini computer that will make office material cluttering desks superfluous.') described either a solution to a problem, for example the kind of mess one usually finds on an office desk (Problem-Solution relationship), or an item on a list of new electronic products such as personal computers and CD-players with remote control (List relationship). The interest of the context was manipulated by employing two of the strategies suggested by Anderson et al (1987), namely 'character identification' and 'activity level'. These strategies can alter the text's interest without altering its content. To test whether the manipulations were successful, a pretest was conducted. The results showed that the interesting texts were rated as more interesting than the non-interesting texts and that the target sentences in the problem-solution structure were rated as more important than the ones in the list structures. (See the Appendix for a complete text.)

In Experiment 2, the same 24 texts were used but now the level of interest of the target sentence was manipulated as well. Again, 'character identification' and 'activity level' were used as strategies to make the target sentences more interesting. Furthermore, the target sentence was extended with a subordinate clause, which was identical in each of the two versions. This subordinate clause was used to measure secondary task reaction times. To mask the status of the clause, other subordinate clauses were added to some of the sentences preceding the target sentence. The interesting and non-interesting target sentences about the Texas Instrument computer read as follows: 'You don't need any old fashioned paper mess on your desk any more, because you can store all information in a clever mini computer *that Texas Instruments put on the market last month*.', 'There's no need for any

superfluous paperwork to lie on the desk, because all information can be stored in a mini computer *that Texas Instruments put on the market last month*' (the subordinate clause is in italics). In a pretest, it was found that subjects reliably detected differences between the two versions of the target sentence. With respect to all other aspects, the texts were identical to the ones used in Experiment 1.

In Experiment 3, four new texts were written. They differed from the previous texts in three ways. First, interest was manipulated by choosing either a topic of absolute interest, for example the problems of an 18th-century brothel-keeper, or a topic that was not of absolute interest, for example the problems of a 18th-century hotel-keeper (see the Appendix for the complete text). The problems were similar. For example, owing to the increase in rival brothels (hotels), the Parisian keeper of such a brothel (hotel) had trouble earning a living. The solution was also identical. She made her brothel (hotel) more exclusive, and, thereby, more attractive to the rich. Second, the text structure was manipulated through presenting the same target sentence as the only solution to the problem ('She decided to double her prices.'), or an item on a list of three solutions ('She had her brothel (hotel) painted gold. She decided to double her prices. Finally, she had announced that only guests of the highest standing would be admitted to her brothel (hotel).') Third, a sentence that signalled the text structure was added. For instance, in the case of the problem-solution structure the target sentence was preceded by the sentence 'Confronted with this apparently inevitable disaster, Madame de Sauvigne decided on a daring solution'. In the case of the list structure, the sentence read: 'She decided to take several steps'.

Pretests revealed that the texts about topics of absolute interest were rated as more interesting than the texts about the other topics, and that the target sentence was rated as more important when presenting the only solution than when presented in a list of solutions.

Design and procedure

In all three experiments a complete within-subjects design was used. A balanced latin-square design was employed to ensure that each subject read texts in all four conditions (interesting and problem-solution, interesting and list, non-interesting and problem-solution, non-interesting and list) but about different topics, and that each condition of each topic was read by an equal number of subjects. In Experiments 1 and 2, each subject read 26 texts (24 experimental and 2 practice texts); in Experiment 3, each subject read 10 texts (4 experimental and 6 filler texts).

The texts were presented sentence by sentence on the monochrome monitor of a personal computer. In Experiment 2, the subordinate clauses were also presented separately. By pressing the space-bar, a sentence (or clause) was replaced by the next sentence. The reading time for a sentence was measured as the time between two key presses. In all three experiments, the reading time on the target sentence was measured in this way.

Only in Experiment 2 was a secondary task technique used. When some of the subordinate clauses were read (but always when the target subordinate clause was read), a tone was presented. Subjects had to press a key labelled 'tone' on the key board as quickly as possible. The intensity of attention was measured as the latency between the presentation of the tone in the target subordinate clause and the pressing of the key.

In all three experiments, the recognition of the target sentence was measured. Either directly after the experimental text was read (Experiments 1 and 2), or after a filler text was read (Experiment 3), three sentences were presented. One of these sentences was the target sentence. For each sentence, subjects had to indicate whether or not the sentence was true with respect to the text read. The item about the target sentence was always correct. The other items were either true or untrue. There were just as many true as untrue recognition items.

Subjects were run individually. They were told that the experiment was about the reading of expository texts. The experiments started with two practice texts in order to enable subjects to get used to the presentation mode.

RESULTS

For the reading times and secondary task responses, means and standard deviations were computed for each subject and for each target sentence. To correct for differences in sentence length, reading times were calculated per letter. If a score differed more than two standard deviations from these means, it was replaced by a missing value.

The dependent variables were analysed using two-way analyses of variance with Structure and Level of Interest as (within-subjects) factors. Following the discussion by Clark (1973), separate analyses were carried out, one entering subjects as random factor (F_1) and one entering texts as random factor (F_2). In Experiment 3, only four experimental texts were used. Therefore, no analysis with texts as random factor was conducted.

Table 1 contains, for each of the three experiments, the mean scores on the dependent variables as a function of Text Structure and Level of Interest.

Table 1. Mean reading times, proportions of correct recognitions and response times for the secondary task, for the target sentence as a function of Text Structure and Interest (standard deviations in brackets).

	Interesting		Non-interesting	
	Problem-solution	List	Problem-solution	List
Reading time *(milliseconds per letter)*				
Experiment 1	47.63 (15.82)	51.71 (16.76)	47.94 (13.98)	51.66 (16.50)
Experiment 2	46.47 (12.14)	48.19 (12.04)	44.37 (13.31)	46.64 (12.34)
Experiment 3	60.09 (38.88)	57.02 (20.43)	61.72 (27.22)	53.75 (18.04)
Recognition *(proportion correct)*				
Experiment 1	0.90 (0.13)	0.87 (0.17)	0.87 (0.16)	0.87 (0.15)
Experiment 2	0.92 (0.12)	0.92 (0.12)	0.89 (0.15)	0.89 (0.15)
Experiment 3	0.91 (0.29)	0.77 (0.43)	0.94 (0.24)	0.82 (0.39)
Secondary task *(response time in milliseconds)*				
Experiment 2	475.24 (112.12)	485.41 (112.50)	472.95 (96.06)	461.89 (104.28)

According to Hidi and Baird (1986), text structure should only influence the processing of the uninteresting texts. However, only for the secondary task in Experiment 2 did a significant interaction between Text Structure and Level of Interest arise, and then only in the subject analysis: F_1 (1, 51) = 4.19, $p < 0.05$; F_2 (1, 23) = 1.90, $p = 0.18$. None of the other interactions even approached significance (all F's < 1). Furthermore, the interaction pattern obtained for the secondary task was different from that predicted by Hidi and Baird. There was an effect of Interest for the List-structure, but not for the Problem-Solution structure.

There were main effects of Text Structure on reading time in Experiments 1 and 2. The target sentence was read faster when presented within a Problem-Solution structure than when presented within a List structure: Experiment 1, F_1 (1, 60) = 18.57, $p < 0.001$; F_2 (1, 23) = 9.21, $p < 0.01$; Experiment 2, F_1 (1, 51) = 5.56, $p < 0.05$; F_2 (1, 23) = 3.56, $p < 0.05$ (one-tailed test). There was no effect of Text Structure on reading time in Experiment 3 (F (1, 33) = 2.01, $p = 0.17$), but it did affect the recognition scores. When presented in a Problem-Solution structure, recognition of the target sentence was more accurate compared to presentation in a List structure ($F(1, 33) = 5.38, p < 0.05$). In Experiments 1 and 2, Text Structure did not influence the recognition scores (Experiment 1: F_1 (1, 51) = 1.18, $p = 0.28$,; F_2 (1, 23) = 1.13, $p = 0.30$; Experiment 2: $F_1 < 1$, $F_2 < 1$), nor did it influence the secondary task performance in Experiment 2 ($F_1 < 1$, $F_2 < 1$).

There was only one significant main effect of Level of Interest. When responding to the secondary task, subjects were slower when reading interesting sentences compared with responding to uninteresting sentences. However, this effect was only significant in the subject analysis: F_1 (1, 51) = 7.29, $p < 0.01$, F_2 (1, 23) = 2.45,; p = 0.13). Interest did not influence the reading times (Experiment 1: F's < 1; Experiment 2: $F_1 < 1$, F_2 (1, 23) = 2.74, $p = 0.11$; Experiment 3: $F < 1$), nor did it influence the recognition scores (Experiment 1: F's < 1; Experiment 2: F_1 (1, 51) = 3.51, $p = 0.07$; F_2 (1, 23) = 2.15, $p = 0.16$; Experiment 3: F (1, 33) = 1.00, $p = 0.33$).

The interaction between Level of Interest and Text Structure found in Experiment 2 (effect of text interest only in the case of weakly organising text relations), was also found in a *post hoc* analysis of the recognition scores in Experiment 1. The theory predicts that interesting versions of target sentences should be better verified. Information on the interest of the target sentences was obtained in the pretest. Correlations were calculated for the interest ratings of the target sentence in the pretest and the verification scores in Experiment 1. This was done separately for Problem-Solution versions and for List versions. It was found that in the case of Problem-Solution versions there was no correlation between number of correctly identified recognition items and judgments of interest, whereas in the case of List versions there was such a correlation ($r = 0.40$, $n = 24$, $p < 0.05$): the List target sentences were better recognised if they were judged more interesting.

Discussion

Hidi and Baird's (1986) remarks lead one to expect an interaction between text structure and interest, to the extent that effects of text structure will only be found in uninteresting material. None of the experiments reported here showed that

interaction. The only interaction found here was for the secondary task reaction times in Experiment 2. But this interaction ran counter to expectation. What was expected was an effect of text structure for the uninteresting text versions, but what we found was an effect of interest, but only for the List versions: readers were slower in responding to the secondary task in the case of interesting List versions than with uninteresting List versions. It is as if the reader lets differences in level of interest play a role in the reading process only in the case of a weakly organising text structure. The same finding was obtained in the *post hoc* analysis of the recognition scores of Experiment 1. Again, it looks as if only when the structure is weakly organising, do differences in level of interest determine the reading process.

The results of the first two experiments show a consistent pattern. In the first experiment only effects of text structure on the reading times were found. Problem-Solution versions were read faster than List versions. This is similar to the results of Sanders' study (1992). Unlike Sanders, we did not find an effect of text structure on the recognition task, but this difference may well be only apparent. Scrutinizing Sanders' results one sees that his effect of text structure on the recognition scores (Problem-Solution: 0.94 correct, List: 0.89 correct), is much stronger in the marked condition (marked condition: Problem-Solution: 0.97 correct, List: 0.87 correct; unmarked condition: Problem-Solution: 0.93, List: 0.91). (Sanders does not give information about an interaction between the factors 'markedness' and 'type of text relation', but the means suggest that such an interaction does exist.) In our experiment we used unmarked versions of the text.

In the second experiment the interest manipulation was strengthened, to the extent that the wording of the target sentence was made more or less interesting. This again led to an effect of text structure on reading times. Problem-Solution versions were read faster than List versions. Secondary reaction times were measured as an alternative to reading times, to find out whether effects of interest show up in intensity rather than in duration of attention. Subjects were slower in the case of interesting text versions, suggesting that they were processing the information more intensely, but this did not lead to better recognition.

In the third experiment the manipulation of interest was even more drastic, consisting of a difference of content rather than of style. The result pattern was somewhat different, but again no interaction was found. The only effects were effects of text structure (no effects of text structure on reading times, but higher recognition scores for Problem-Solution versions). This deviating result pattern may be attributed to the different way in which the text structure was manipulated. The explanation for the difference in reading times found in the first two experiments was in terms of an integration effect. Readers have expectations concerning text structures, and once a problem is mentioned in the text, one expects to read about a solution to that problem. If such a solution is provided, the information can be easily integrated. In the third experiment the Problem-Solution versions and the List versions did not differ in this respect. In each case the context sketches a problem and the target paragraph gives either one solution (Problem-Solution) or a number of solutions (List), which makes the integrative advantage of Problem-Solution versions disappear. If this is so, why did Experiment 3 show an effect on the recognition scores? This may well be attributable to the marking of the text structure in Experiment 3 (as opposed to Experiments 1 and 2). Note that

Sanders' (1992) effect of text structure on recognition scores was mainly found for marked versions.

Crucial to our interpretation of these results is the manipulation of the factor Level of Interest. Given that interest is an individually varying notion, to what extent can we say that the manipulation resulted in texts that are more interesting for various individuals? The answer to this question is twofold. Firstly, the manipulation was based on findings in the literature on effects of interest (Anderson et al, 1976; Schank, 1979; Kintsch, 1980; Hidi and Baird, 1988; Hidi, 1990; Wade, 1992; and many of the other contributions in Renninger, Hidi and Krapp, 1992), and was carried out in two ways: in Experiment 1 and 2, we manipulated the *style* of the texts; in Experiment 3, we manipulated the *content* of the texts. Secondly, in all three cases the success of the manipulation was established empirically, by having the various versions of the texts rated for interest by subjects from the same population as the ones participating in the experiments. It seems therefore safe to conclude that the manipulation of the factor Level of Interest was successful.

It might be contended that the subject groups we have used are atypical, in that students of economics and, especially, the humanities, can be considered to be very sophisticated readers who may have acquired specialist reading strategies. Even though our choice for this subject group limits the generalisability of our results to students of economics and the humanities, the reason for choosing this subject population was twofold. First, as already noted, university students can be described as professional readers in that they are constantly subjected to instructional texts, and are therefore a typical instantiation of reading for professional purposes. The second reason is that we wanted our research to be comparable with other research on text interest and text structure, in which, to our knowledge, university students have always been used as adult subjects.

The results of the three experiments reported in this paper are important from a theoretical as well as a practical point of view. From a theoretical perspective, the results directly relate to Hidi and Baird's (1986) claim that interest is a much more important determinant of the reading process than text structure. To our knowledge, the experiments reported here are the first to manipulate differences in text structure and interest while keeping the target sentence constant in all conditions. As such, the results make possible a much more stringent test of the interest claim than do the experiments which compare the processing of sentences differing in both structural importance and interest. The results of our experiments reveal that, contrary to Hidi and Baird's suggestion, the effect of text structure on the reading process was much more prominent than that of interest.

From a practical perspective, the results of these studies are of importance to writers of instructional texts. If what readers remember was typically determined by interest alone, both readers and writers of educational texts would be in trouble. The topics about which writers have to write are determined by curricular goals. Therefore, they cannot always resort to writing about interesting topics. For instance, writers trying to teach readers the functioning of the blood circulation system would probably find it difficult (or impractical) to write about topics such as sex, death, and money. However, they can use the text structure to signal to their readers which information is important and has to be remembered. The results of our experiments show that text structure is an important help to a professional reader to learn about relatively uninteresting as well as interesting topics.

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APPENDIX: EXAMPLES OF EXPERIMENTAL TEXTS

Experiment 1

Interesting Problem-Solution version
Because of the enormous quantities of memos, notes, agenda and writing material, office desks often resemble a flat wastebasket. They are crammed and everything is really a muddle. You can lose a lot of time and energy because of frustrating searches in and on desks. You sometimes retrieve important information at the expense of beads of sweat and palpitations. Soon Texas Instruments will introduce a mini computer that will make office material cluttering desks superfluous. The computer is smaller than an office agenda and can contain addresses, telephone and fax numbers. Appointments and meeting dates can also be stored in it.

Interesting List version
All sorts of inventions make our lives easier and easier. Fifteen years ago you could make quite an impression on birthday parties with a calculator equipped with a memory. Nowadays even your aunt has a personal computer on her desk. And nobody is surprised to see a cd player with remote control and memory. Soon Texas Instruments will introduce a mini computer that will make office material cluttering desks superfluous. The computer is smaller than an office agenda and can contain addresses, telephone and fax numbers. Appointments and meeting dates can also be stored in it.

Experiment 3

Prostitution (Travelling) is as old as humanity. And brothels (hotels) have been around from time immemorial. The Romans had buildings in which love was for sale (in which travellers could sleep in return for money). Ever since, such buildings have existed.

One of the most successful brothel-keepers (hotel-keepers) was a woman, Madame de Sauvigne. She had a brothel (hotel) in 19th-century Paris. It was a beautiful, sumptuously decorated building, with over 30 prostitutes (rooms), an enormous number for those days. The charm and beauty of her 'employees' (rooms) were renowned in many countries. Princes, politicians, and cardinals as well, visited her brothel (hotel).

However, Madame de Sauvigne narrowly escaped being completely forgotten. In the mid-19th century, the number of brothels (hotels) boomed. Each week, a new brothel (hotel) was opened, and a street without a brothel (hotel) became as rare as a rose without thorns. A fierce competition arose because the number of lovers (travellers) did not keep up with the increasing number of brothels (hotels). A price war broke out. Within four months, prices were halved.

Problem solution paragraph
As a result of this price war, many brothels (hotels) were closed. Madame Sauvigne's famous brothel (hotel) appeared to be heading for disaster. Poverty was inescapable. Confronted with this apparently inevitable disaster, Madame de Sauvigne decided on a daring solution. She decided to double her prices. The news spread fast through the metropolis, and it provided her with an unassailable aura of exclusivity. An aura that proved irresistible to the 19th-century man of means. Within a month, Madame de Sauvigne made a complete financial recovery; within a year, she was among the twenty richest ladies of France.

List paragraph
In this time of crisis, Madame de Sauvigne's remarkable marketing talent surfaced. She decided to take several steps. Madame de Sauvigne had her brothel (hotel) painted gold. She decided to double her prices. Finally, she had announced that only guests of the highest standing would be admitted to her brothel (hotel). The news spread fast through the metropolis, and it provided her with an unassailable aura of exclusivity. An aura that proved irresistible to the 19th century man of means. Within a month, Madame de Sauvigne made a complete financial recovery; within a year, she was among the twenty richest ladies of France.

Apart from the world of brothels and sex clubs (hotels and guest houses), Madame de Sauvigne lives on in the memory of the modern marketeer. Her tactics are still used, and are as successful as ever.