Predictive Strategies In Teaching Reading Comprehension

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ABSTRAK   *Kertas ini membentangkan satu pemerian kategori- kategori ramalan dengan menganalisis rencana-rencana penyelidikan sains dengan harapan ia dapat digunakan untuk pengajaran di dalam kelas. Perspektif saling berinteraksi pembaca-penulis dalam teks melalui kaedah peramalan (Tadros, 1988) akan digunakan sebagai dasar perbincangan.*

Peranan beberapa kaedah peramalan telah dikaji dan hasil kajiannya menunjukkan bahawa sesetengah kategori peramalan memainkan peranan penting dalam penyusunan teks. Kategori peramalan ini merupakan ciri umum yang mungkin menjadi sebahagian daripada pengetahuan skema yang ada pada pembaca berpengalaman. Hasil daripada kesedaran tentang pentingnya membantu pelajar memperoleh pengetahuan skema untuk membaca rencana penyelidikan sains menyebabkan kami membuat kesimpulan bahawa pendekatan peramalan mempunyai implikasi yang penting dalam pengajaran kefahaman membaca dan penulisan untuk kursus Bahasa Inggeris Keperluan Khas dan Bahasa Inggeris Keperluan Akademik bagi pelajar universiti.

Kaedah-kaedah peramalan yang digunakan oleh pengarang rencana penyelidikan sains dan ahli bahasa dalam bidang kajian ini dapat diajarkan dengan menyerapkannya ke dalam aktiviti pengajaran dan bahan pengajaran yang digunakan di dalam kelas. Dengan ini pelajar akan mengetahui ciri-ciri serta susunan skema rencana yang berunsurkan penyelidikan. Melalui cara ini, kefahaman dan penulisan pelajar tentang genre jurnal sains akan dapat ditingkatkan lagi.

Introduction

A key factor underlying the development of reading comprehension courses at the tertiary level is the need to assist undergraduate students whose ability to cope with academic texts is affected because of inadequate English. The last decade has seen the proliferation of English Specific Purposes courses in addition to general English Language Teaching courses in tertiary institutions. In such ESP courses, language skills are taught in combination with content from specific disciplines. The courses are essentially concerned with the language and content typical of the specific kinds of texts that students of, for example, science or medicine are required to read. A large proportion of these courses utilize texts from the specific discipline as the focus for reading comprehension. The courses have to be designed to help develop a reader's ability to interpret and extract, with speed and efficiency, information required from University textbooks and reference articles.

One might expect that an important objective of ESP courses would be to bring about a development of general reading comprehension skills and strategies so that, eventually, learners are able to acquire such texts independently. However, very often, the activities and tasks to exploit these texts focus on

isolated and local features of the particular text immediately facing the learner. They do not lead the learner to develop appropriate schemata and generalised approaches and strategies which can be transferred and applied to any kind of reading that he/she is confronted with in the real world. More specifically, it is necessary to help the readers become familiar with the organisational structures and patternings of the particular types of written discourse characteristic of their disciplines.

Ineffectual reading comprehension is often attributable to the learner-reader's lack of skill in calling up the appropriate schemata, the structures and patternings referred to above, to allow adequate comprehension of these text types.

The notion of schemata (Bartlett,1932; Rummelhart, 1984; Sanford and Garrod, 1981) is one that is central to the theoretical basis underlying ESP type reading comprehension courses. It refers to the mental store of expectations, abstract concepts and prior knowledge developed on the basis of our experiences in the world around us. Such knowledge acts as a framework for the interpretation of new information. There are **content** schemata and also **formal** or **rhetorical** schemata (Carrell, 1983). Our concern in this paper is with the latter, which relates to the structures and patterns of the organisation of texts. If the learner-reader already possesses the appropriate schematic frameworks for processing texts, then the task of reading and comprehending new texts is facilitated to a much greater extent.

One aspect of research into language in use which has particular relevance for language teaching applications is the genre analysis of recent years. This is an approach which attempts to distinguish different text types in written discourse by identifying how particular linguistic features take on different functional roles and values in these text types or genres. Genre analysis is thus concerned with the formal or rhetorical schemata typical of different text types. The insights provided by such research findings and the clearer understanding of the nature of texts should provide the basis of pedagogic decisions and teaching materials in ESP courses. The effectiveness of reading comprehension and writing courses are enhanced if learners are helped to develop appropriate schemata about the text types in their specific disciplines. Thus it is essential that reading comprehension courses have a firm foundation based on a careful and detailed study of the nature of the texts that one is dealing with.

The journal article is one specialist genre which undergraduate and postgraduate learner-readers and writers in ESP contexts need to master in order to progress in the study of their disciplines. These readers are generally familiar with the textbook genre but not with the journal article which has quite different text features and organisational patterns. Thus they may not have had opportunities to develop the formal schemata necessary for effective reading comprehension of journal articles.

The Study and Its Purpose

The present study intends to investigate and describe some of the key features of journal articles which form part of the rhetorical schemata that learner-readers need to be familiar with to enable them to read such texts quickly and efficiently. Such a study is considered to have an eye to pedagogic application in making decisions in developing teaching materials for ESP courses at the tertiary level.

The Literature and Theoretical Framework

Current research into the interactive nature of written discourse has focused on features shared by texts in general (Hoey 1983, Winter 1977) and also on generic features and organisational patterns which are typically associated with particular text types with the intention of accounting for the purposes and communicative goals the texts set out to achieve (Swales 1990, Bhatia 1993).

The generic descriptions generated by some of these studies have helped in the identification of their rhetorical structures considered important in helping learner-readers acquire the necessary schemata for reading and quick comprehension. One such study which has developed a particularly specific approach to identifying text features, and the only one which focuses on the important feature of prediction, is that of Tadros (1981). This model was developed for examining the interactivity of written texts and the ways in which writers set up expectancies in their readers. The basic assumption is that written texts involve interaction between reader and writer. The text is written with the reader in mind. One aspect of interaction is the feature of **prediction** in written texts.

According to this notion, the writer shows his awareness of and consideration for the reader by setting up signals and cues which hint at the organisation and presentation of subsequent information. It is awareness of such organisational patterns and signals which make up the rhetorical schemata of a skilled reader. The reader picks up these signals and on this basis is able to actively predict the kind of information the writer will present next.

Tadros identifies six categories of prediction and sets up the criteria for classifying them. These predictive devices are particular linguistic signals that predict the occurrence of following texts with particular functions. Tadros claims that prediction is fundamental and pervasive and that it accounts to a large extent for the organisation of all kinds of texts.

Six categories of prediction have been identified:

1) **Enumeration**

   This is a device by which a writer indicates an intention to list a number of items. It predicts a specification of these items. An example of this type of prediction is: **Three factors can be identified.**

2) **Advance Labelling** : This is a predictive device which the writer uses to spell out what he is going to do in the next part of the text. This statement of intention thus predicts what will follow the text. It helps the writer prepare the reader for what is to come. An example is: **It is necessary to define consumption**. This kind of advance labelling predicts that the following text will contain the definition of the term **consumption**.

3) **Reporting:** This is a means of attributing some idea to another source by direct speech, indirect speech and other modes. This then predicts that the writer will evaluate what was reported. An example is: **It has been claimed that ...** The predicted evaluation will generally be a negative evaluation of whatever has been claimed.

4)   **Hypotheticality**

When writers wish to lead in to some kind of generalisation they often do this by creating a simplified set of circumstances which do not exist in reality. By doing this they can consider only those factors that allow the generalisation to be drawn. Hypotheticality predicts the occurrence of a generalisation in the subsequent text.

5)   **Question:** This is an interactive device by which the writer detaches himself by asking a question. The predicted element which the writer is obliged to provide is the Answer to the Question.

6)   **Recapitulation**

The writer refers the reader backwards to information he has already provided. The predicted element is a follow-up of new information related to it. Tadros identified these categories of prediction specifically for Economics textbooks, but considers that these also occur in other text-types and are general organisational features of all types of texts.

Other models of Interactivity in Text

The model referred to above adopts an approach which has certain basic assumptions in common with research by Winter (1977), Hoey (1979), Swales (1984) and others. One is that written text is a form of communicative interaction between two participants , both of whom have active roles. Thus the reader of a text has to make his/her own vital contribution to the processes involved in comprehension, just as the writer actively produces the discourse. This interactivity can manifest itself in different forms, one of which has been identified as the feature of prediction.

Corpus and Procedure

The study is based on a corpus of ten scientific research articles drawn from different issues of the journal *Animal Behaviour*. They were selected at random. The procedure adopted was to analyse the articles for the ways in which writers adopted an interactive stance by using devices of prediction and then followed them up with the kind of information that the signals predicted. The criteria set up in the literature for each of the six categories of prediction were applied to test if the features in these research articles conformed to the requirements.

Results and Discussion

The analysis of the ten articles for the categories of prediction showed that the phenomenon of prediction is a feature of journal articles although some categories are more typical than others. More specifically, some categories - Enumeration, Advance Labelling, Question and Reporting - occurred frequently enough to warrant some attention. On the other hand, there were practically no instances of Recapitulation and of Hypotheticality. Table 1 in the Appendix shows the spread of the categories for the ten articles.

The rest of this section will discuss the types of predictive devices that the analysis showed to be significant for this genre of research articles.

1.   **Reporting**

Reporting is an organisational device used by writers of research articles to signal Evaluation of the reported information. An example of this in our data is :

Example 1:

1. Mackintosh showed that male mice may form territories in a small area of 3.24 m^2, having previously been separated from their fellows by a physical barrier.

2. But our results show that mice may spontaneously set up independent territories in even smaller complex areas.

Sentence 1 above is the reported information. This predicts evaluation and Sentence 2 presents contrasting results from the writer's own research, thus serving as negative evaluation of Mackintosh's results.

2.   **Question**

This is the second type of predictive category which was found to operate in research articles, though it was of a lower frequency than Reporting. The writer detaches him/herself by posing a Question and thus sets up a prediction that the following part of the text will supply the answer to the question. An example of this is given below.

Example 2:

Does this merely reflect dynamic differences, say in terms of synaptic activity or does it involve structural differences, say in terms of synaptic connectivity? Based on admittedly circumstantial evidence, I am inclined to think that structural differences must be seriously considered.

The first sentence is an "or/not" question in which two alternatives are presented - **dynamic differences or structural differences**. The predicted Answer follows in the second sentence and is recognized easily enough in the picking up of one of the alternatives - **structural differences**. Here the writer provides the answer without any delay.

It is perhaps useful to consider the function of such Question - Answer pairs in the contexts in which they appear. In the example above the writer need not have posed a question and then provided the information as answer. It would have been possible to provide the information directly, having omitted the question.

So why then has the writer used this technique of asking a Question and then providing an answer himself. One possibility is that the writer is here putting himself in the reader's position and trying to anticipate the kind of questions a reader might ask at that point if he/she had a chance.   Since, in written discourse, the writer is in control, he/she makes the decision as to

what he/she thinks a reader might ask.   This would then demonstrate that reader/writer interactivity is an essential feature of texts and that the writer is not merely presenting a series of propositions for readers regardless of whether he has prepared them adequately for reception and comprehension of the ideas in the way intended.   In general the findings of the analysis is that the writer uses the Question-Answer pair as a vehicle for dealing with key points and issues in the discussion.

A consideration of the functions served by the Question-Answer parts indicates that in the context of scientific articles, questions served an important organisational function. They set up relationships between parts of the text which might cross sections. In this way the structure of large portions of the text are revealed to the reader, who is thus enabled to find his way through the text better than if the Question-Answer pair had not been set up. The Question serves as the hinge on which the rest of the section hangs.

3.   **Advance Labelling**

The data showed that of the four categories of prediction which occur in these texts, Advance Labelling was used to predict far more frequently than the others.

If prediction is regarded as a feature of the written text which reveals the interactivity between reader and writer, then Advance Labelling must surely be one of the most explicit ways of doing this. In Tadros's terms, the writer labels the act he is going to perform in discourse and is thus committed to the performance of the act labelled. In doing this, we see the reader as being uppermost in the writer's mind. The interest is not merely presentation of a series of propositions but equally in ensuring that the message is received and interpreted in the way intended. Thus the writer takes it on himself to indicate to the reader in advance, what he intends to do next. This serves a particularly useful role in complexly organised written discourse, where the writer, in his capacity as the one with the information, attempts to lead the reader through the discourse. In written texts, such declarations of intention serve to keep the reader's attention on what the writer is doing, stage by stage. The reader expects the writer to be acting in good faith when he labels his intention and this creates the prediction of the labelled act in the subsequent text.

The analysis of the data showed that by far the greatest proportion of Advance Labelling was of non-linear texts. Diagrammatic presentation of information is a characteristic of these articles, and this accounts for the writer's signaling the presence of tables and figures. Generally, the labelling signals the presentation of a summary of results/data in a table or figure. An example of this is:

Example 3: Fig. 4 shows the frequency of wrestling play in males and females plotted against age.

Apart from the labeling of non-linear text, writers also seek to label discourse acts realized in linear text.   These appear to play an important role in helping the reader organise the information being presented and they serve as a useful aid to comprehension. An example of this is:

Example 4: A section summarising the observations on the agonistic behaviour of normal, unstimulated birds precedes the account of the experimental results.

4.   **Enumeration** This category is an important predictive device in the research articles analysed. The most frequent way in which Enumeration is expressed is by the use of a structure in which there is an Enumerable noun which refers to items in the text, i.e. other stretches of language. This is qualified by a numeral which can be exact or inexact. **Type** was found to be the most popular choice for Enumerable and the numerals used were generally exact except for two instances of **several**. The example below illustrates the use of Enumerable with exact numeral:

Example 5: Three types of vocalisation were distinguishable in play: ... When the colon was present, the predicted items follow in immediate sequence and is usually recognisable by numbering or lettering. So the predicted part of the example is as follows:

1) Laughing is a staccato panting noise characteristic of vigorous play and which never occurred outside play. 2) Gecking expresses mild discomfort or fear. 3) Screaming expresses more intense discomfort or pain and was often accompanied by the facial expressions of fear.

Pedagogic Implications

The approach we have described above suggests that one aspect of interaction in written discourse is a writer's co-operative endeavour to provide predictive signals which facilitate text organisation and text comprehension for the reader. The writer maintains an explicitly marked interaction with his reader by prediction. By this is meant that the writer inserts particular kinds of clues in his text which reveal to the reader what he will be doing in the subsequent part of the text. Since these are the kind of discoursal clues that an efficient reader depends on, it is apparent that a study of prediction in research articles will have potential utility from the point of developing reading comprehension skills in students.

The notion of prediction in reading comprehension has sound backing in the evidence of psycholinguistic research into the nature of the reading process. Smith (1978), in particular, has given us valuable insights as to what is involved in reading and comprehension. In brief, his view of reading is that it is a process of prediction by asking relevant questions- implicit questions - of the text. Comprehension, then, is the process of extracting the information which will answer the questions. Such a picture of the nature of the reading process could suggest ways in which aspects of this analytic approach to discourse can be applied for improving reading skills in language teaching.

Any language teaching course which claims to have the general objective of developing the ability to read fluently and efficiently will have to adopt the basic principle of the central importance of prediction in fluent reading.   The pedagogy will have to be designed to help learners become more aware of and improve skills of prediction in reading in a second language.

Our analysis revealed that only a limited range of the categories of predictive signals have been found in this genre of scientific research article, but these can be usefully exploited for language teaching purposes. Students need to learn how to process the information in research articles or in other genres, as rapidly as possible. If he/she has clues which help to predict the organisation and presentation of subsequent

information, he/she can proceed to read more fluently and with greater comprehension than if he/she had no basis for hypothesising what will come next. In the section below, we consider briefly, how an awareness of the types of signals which occurred in the articles can be developed to help reading skills.

a) **Reporting**

Reporting featured prominently in the articles. It is important for learner-readers to be able to judge the writer's attitude in relating to the information he is reporting. If he is not aware that there are signals in the context that reveal the writer's attitude of detachment and intention to evaluate, then there is a strong possibility that he will interpret the report as having the same kind of writer-support as other propositions expressed in the text.

Thus, if a reader can be helped to recognize certain kinds of Reporting as signals , then he can predict that an evaluation of the report by the writer will follow soon after. thus it would be necessary for language teaching materials to be based on findings of studies which identify the means which writers use to show their intention of evaluating. This investigation of scientific articles suggests that some of the areas that learners will have to be acquainted will include:

i)   the different types of discourse notions reported (e.g. reporting a previous hypothesis or reporting an experimental finding).
ii)   kinds of reporting verbs and their effects
iii) Role of tense choice and changes in tense from report to evaluation.
iv) Different ways in which Evaluation can be expressed and the purposes served by Evaluation in its context of occurrence.

In general, Reporting is a complex text feature and the language teacher's investment here is bound to have pay-off in more efficient comprehension.

b) **Question**

This category is not likely to present great problems to readers in revealing the kind of information that will follow. However, it can be used to demonstrate the interactional nature of the discourse -- the explicit introduction into the text of a reader's potential questions and the writer's provision of information to answer the questions.   Furthermore, since the Question-Answer pair often deals with key points and issues in the discussion, development of this might be worthwhile.

The Question-Answer pair often serves to organise the structure of long sections of the text, and since the answers to the questions span large parts of text, the learner-reader is likely to need help to recognize and focus on the important generalisations which draw together all the details and serve to summarise the answer. As the recognition signals are often not very obvious, teaching materials can be introduced to develop skills of recognizing clues as to the generalisations which answer the questions. This might include means such as Repetition and Paraphrase of the question in the general statement, which serve as the answer.

Advance Labelling

This appears to be an obvious area for pedagogical exploitation, particularly as it is featured so frequently in this genre of research article. This device can firstly be used to show a writer's interaction with his reader at its most explicit - he specifies in advance exactly what he is going to do next in the text.

A reader who has been familiarised with the technique of labelling discourse acts and who recognises the commitment they place on the writer can then predict that the performance of the discourse act will be presented soon after. This gives him a handle on the discourse as he becomes aware of what the writer is doing. Awareness of the signals which indicate the point of a stretch of text can be particularly useful when a reader is confronted with complexly organised discourse, since such signals direct him through the parts.

More specifically, some of the findings of this study could conceivably provide useful guidelines for teaching materials intended to develop the predictive ability and reading comprehension. For example, the main types of Advance Labelling and the different types of discourse acts they predict can be distinguished for the reader. In particular, in the Advance Labelling of non-linear information, the important role of the statement labelling the act must be emphasised. It not only labels the act in advance(e.g. that there is going to be a table) but also tells the reader what information the table will convey. This is important for the reader in realising the purpose served by the inclusion of the diagram.

Similarly, Advance Labelling of linear text is intended to help the reader organise the information being presented and it is important to ensure that learner-readers are aware of and make fullest use of this aid to comprehension.

Enumeration

Enumeration, like the other categories , serves to predict the organisation of information to come in the rest of the text and it would facilitate comprehension if students were aware of the kinds of nouns used to predict Enumeration. The distinction between Enumerables and open-set nouns has to be demonstrated before students can recognize that the former predicts Enumeration while the latter does not.

Conclusion

An awareness of the existence of the kind of predictive signals discussed above and the ability to use them to predict the subsequent information may not be conscious knowledge in the fluent native-speaker reader. Nevertheless, they are able to handle the reading of texts effortlessly because of their possession of such vital skills.

However, in the case of non-native readers who need to comprehend articles in a second language, the ways in which such signals work in that language have to be introduced and taught in a deliberate and planned manner and this provides the justification for pedagogical utilization of findings which reveal the nature of the scientific research article genre.

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