Reading strategies: Caught or taught?

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ABSTRACT

The objective of this study was to investigate the reading methods students brought with them to the university. In the process, it also attempts to provide an answer to the question about whether reading strategies are caught or taught. It is generally assumed that since students 'can' read, they should know 'how to read' and that they are bound to pick up the necessary reading skills along their academic path. This study is based on the premise that while students do pick up some of these skills, this does not necessarily make them strategic readers. The study advocates explicit teaching of reading strategies. It attempted to examine some of these skills that the students had acquired. Data was collected using both oral and written instruments, such as the think-aloud protocol and written answers respectively. They were examined for evidence of local/content, global/metacogintive and genre/ discourse reading strategies. Both qualitative and quantitative data show a dominant use of local and content-based reading skills as opposed to other strategies. Skills refer to repeated practice or simple directives and connote an automatic, mechanical and consistent cognitive behaviour. Strategies are procedural, purposeful, effortful, willful, essential, and facilitative in nature (Alexander, Graham and Harris, 1998). Implications for teaching are suggested.

Introduction

While a great deal of emphasis is given to the teaching of writing strategies in English for Academic Purposes (EAP) courses, little or no attention is given to the teaching of reading strategies. It is generally assumed that since students 'can' read, they should know 'how to read'. This is further confirmed by Feathers (1993; as mentioned by Lee 1996, p. 2) that:

> (A)t the secondary level, reading instruction is not particularly emphasized. There seems to be a common pre-supposition that at some point we stop learning how to read, and having successfully learned how to read, we should be able to read anything, thereby enabling us to read to learn.

As such, students read and also read to learn by resorting to and developing their own reading methods as they confront their academic reading demands. The questions that confronted this researcher, teaching an academic writing and proficiency module at the Centre for English language Communication, National University of Singapore, was to find out more about these reading methods which were perhaps 'caught' and in the process also find out the strategies that needed to be taught.

Research questions

The two questions that this study attempted to find answers to are as follows:
- What reading methods do students bring with them to the university
- What implications do these findings have for the teaching of reading?

Subjects

The student participants involved in the study were first year undergraduates from the Arts and Social Sciences Faculty, National University of Singapore, with diverse subject combinations such as History, Political Science, Philosophy and Economics. These students were assigned to an academic reading, writing and English proficiency module called EA1101 at the Centre for English Language Communication. The EA1101 is a 12-week remedial module focusing mainly on academic reading, writing skills and English proficiency and consisting of two two-hour sessions per week. These students had been through 12 years of schooling in the local education system. Students with a B4 grade and below in their 'A' level General Paper had to sit for a Qualifying English Test (QET) conducted by the Centre. Students who fail to satisfy the requirements of the test are assigned to do EA1101. Ten local students emerged as the main focus of the study[1].

Data instruments

Two types of data collection methods were used: oral and written. The first was a think-aloud procedure consisting of verbal protocols of students' reading methods recorded in the language laboratory. The second procedure used was a set of written answers to three questions based on paragraph-thesis support and function and an organization summary. Since the texts used in the course were mainly expository texts—discussion, and information type of texts, students were given a similar type of text. Data was collected in the language laboratory at the end of the second week of the 12-week semester, when student numbers had stabilised. See Appendix 1 for the text used both for the think aloud and for the three questions.

Data instruments: Rationale

Instruments used in reading and writing research guided the choice of data collection procedures

Use of the think-aloud

Think-aloud protocols provide direct information about the processes or sub-set of processes involved in reading, particularly when the focus of attention

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[1] This paper is an extract from a larger study involving intervention training. During the course of the training, ten students were present for all the five sessions of the training and they turned out to be local students. Hence, the use of the word "emerged".

is in the short-term memory and when these processes are easily verbalizable. As Radford and Burton (1974, p. 395) note: "it yields data otherwise inaccessible". According to Faerch and Kasper (1987, p. 15) "with immediate retrospection, traces of the original cognition are still present in short term memory…"

Insights from think-aloud studies provided directions for data collection on students' reading processes. It has been used by an increasing number of researchers (e.g., Hosenfeld, 1976; Block, 1986; Wenden, 1987b; Carrell, 1989; Andersen, 1991; Young & Oxford, 1997). Hosenfeld's (1977) ground-breaking study of reading strategies used by ESL readers using "think aloud" has had an important impact in this field. More recently Block (1992) in her extension of her 1986 work, used the think-aloud with her students to report on their processes of monitoring during comprehension; Anderson (1991) used this method with adult second language learners. An impressive number of studies using verbal reports (Block, 1986; Cohen, 1986; Sarig, 1987; Carrell, 1989, 1991; Young and Oxford, 1997) have produced many important empirical findings about text comprehension and reading.

Two procedures were followed in the use of the think-aloud, following previous studies on reading (Hosenfeld, 1977; Block 1986, 1992; Anderson, 1991; Parry, 1993, 1995, 1996). Students in these studies were asked to think-aloud during their reading, especially when they paused. This was based on the assumption that students maintain information about the last sentence in their short term memory (Faersch & Kasper, 1987) because they will have to resume reading after the pause. Every time they paused, they were asked to give reasons why they paused and what they did after pausing. The second procedure was to ask for a retrospective report of the thoughts evoked during reading at the end of each paragraph. By instructing subjects to think-aloud every time they paused during their act of reading, and at the end of each paragraph, it is possible to obtain a recollection of strategies used or deduce strategies used from the information content. These "post-process observations" (Hosenfeld, 1977; Block 1986, 1992; Anderson, 1991; Parry, 1993, 1995, 1996) should give us the closest approximation to the actual memory structure. Data was collected in the second week of the course. The session, lasting 40 minutes, was recorded in the language laboratory for later transcription and analysis.

Use of written answers

In addition to the think-aloud, three types of written activities were used to obtain information about students' reading methods for two reasons. There seems to be some consensus that combining think-aloud with some other methods is one of the effective approaches available for the study of reading comprehension processes (cf. Lee, 1986) because it is well known that there is no single method to get a complete, unbiased account of what has been comprehended. Besides, the different data instruments enable a triangulation of data collection and to look at data from different angles. For example, while the think-aloud protocols can provide insights into the various reading methods used across the text, answers to questions at the paragraph levels provide insights into students' understanding of part-whole relationships in a text, while the organisation summary provides

insights into students' global understanding of text. Cognitive and social perspectives about reading and writing literacy contributed to the design of these written tasks as there is an "inseparable connection" (Nelson, 1993, p, 315) between the cognitive and social dimensions in reading literacy.

Research design: The cognitive perspective

The concepts of text structure, schema, the constructive nature of reading and text as discourse from the cognitive perspective influenced the design of the data collection instruments.

Text structure and schema theory

As a cognitive process, reading has been characterised as building a mental representation of text. Readers possess schemata that represent their knowledge of conventionalised texts such as stories and psychological reports (Kintsch & van Dijk, 1978). For example, knowledge of the schema of expository texts will enable students to act on the different propositions at the level of the paragraphs to come up with a thesis or the macro-gist of the writer and to see the connections between the gist and the propositions. Van Dijk (1980) uses still another term 'schematic superstructures' to refer to global forms of discourse. Schematic superstructures show the relationship between propositions in a text and also establish guidelines for the processing of a text.

The top-level organization of text is believed to be "the most promising and most important level of comprehension" Kintsch (1987, p. 12) because the comprehension process is the product of an interaction between the reader's formal schema of rhetorical structures and the text's information organized by its top-level structure. Therefore the successful reader needs to decode text at the "overall, between-paragraph" level (Kintsch, 1987, p. 7) to arrive at this coherent whole. Both van Dijk and Kintsch (1978) and Kintsch (1987) mention the concept of schema and also present text as a "coherent whole" with connections between the overall text and between paragraphs.

Another aspect of cognition which has informed this study is that reading is a constructive process. According to the constructionist model of reading (Spivy, 1987) readers build a mental representation of texts by selecting, connecting and organizing ideas into a coherent organized whole (Stein, 1990). Termed "cognitive constructivist vision of learning" (Mayer, 1996, p. 364), studies based on such a view occurred in authentic contexts and viewed the learner as an active participant and "a sense maker" (Kamil et al, 2000 p. 653). These researchers agreed that learning strategies embodied the essential cognitive and metacognitive processes necessary for college students to make meaning or sense of the world of academia (e.g., Mayer, 1996; Mckeachie, Pintrich, Smith, & Lin, 1986; Thomas & Rohwer, 1986; Weinstein, 1994). The design of the organization summary was to see if students had an understanding of "this coherent whole". Similarly, the design of written answers was meant to see if students had an understanding of the connections between 'the macro gist' and the different parts of the text.

Text as discourse

In addition to these concepts, the concept of text as discourse is very relevant to this study. Writers write for a purpose and texts are the result of certain communicative acts or discourse. Here texts came to be seen not just as text-based hierarchy of information but also as communicative acts intended by the writer. The search for the writer's communicative goal or purpose during reading is an assumption derived from Mann and Thompson's (1988, 1992) Rhetorical Structure Theory (RST) which came to be incorporated in the written answers. A claim made by RST is that readers nearly always look for more central parts in a text and this process occurs at various levels in a text. They range from the text as a whole to subsections, paragraphs and clauses. Readers also interpret the relationship of a nuclear part of the text to a supplementary part as a rhetorical relation which came to be incorporated in the written answers.

Similar views have been expressed by other researchers. Callow and Callow (1992) believe that texts should be analyzed top-down with the purpose of the writer as the starting point. The largest unit is the message with a particular reference and purpose. Kintsch (1998, p 67) too contends that "for comprehension and memory, the gist of a text....is usually what matters most". The smallest unit is the proposition contained in a clause. Between them is a range of configuration of different sizes and complexities containing related propositions. These propositions are supporting ideas of the same thesis. For the text to make sense, all the units must be related. All these concepts were considered in the design of the written answers.

In summary, it can be seen that all discourse analysis approaches refer to a macro-gist of the writer's main message at the global level supported by several macro-propositions at the paragraph levels of the text which are in turn supported by the micro-propositions at the sentence level.

Research design: The social perspective

The social perspective on literacy provided a tangible framework for the theoretical concepts. Bizzell's (1982) as cited in Swales (1990b, p. 4), about writing not being an "individually-oriented, inner-directed cognitive process", but "an acquired response" is just as relevant for reading. Students as readers need to be aware of the many rules and conventions which arise from "preferred ways of creating and communicating knowledge" and which give texts their genre-specific schematic structure. It is an awareness of these "conventions" and shared knowledge that bind the act of reading in these social settings. The implication for the research design of this study was to find out if students brought an awareness of these conventions with them.

The concept of genre-specific schematic structure provides the link between the cognitive and social dimensions on reading. Schema theory from the cognitive dimension about students building a mental representation of text is further extended in the Genre school to include the role of text in context, as this would determine the kind of schema required and the reading method to be adopted. Swales (1990b), in the area of English for Specific Purposes, argues that textual

production and interpretation are interactive processes based on the notion of schemata covering prior knowledge of content and information structures which "contribute to a recognition of genres and so guide the production of exemplars" (1990b, p. 86). Bhatia (1993, p. 29) uses the term "cognitive structuring" in a slightly different way to refer essentially to regularities of textual organization and the "structural interpretation of the text genre" as the social context and purpose also contribute to the cognitive structuring in texts. Cognitive structuring "reflects the accumulated and conventionalised social knowledge available to the academic community" which the reader needs to be aware of (Bhatia 1993, p 21). It is in the genre-specific schematic structure that this knowledge is represented. While all these concepts have been used with reference to teaching writing, they are just as relevant for teaching reading. As such, they have been incorporated in the research design of this study to see if students brought with them an awareness of these conventions.

The concept of 'cognitive structuring' is similar to the concept of 'formal schemata' of schema theory. As such, a genre approach to teaching reading is an extension of schema theory and is bound to include the purpose of academic texts and the context in which they occur. Similarly, "as a genre-centred approach gives particular attention to the rhetorical organization of texts, a relevant set of issues concerns the role of schemata, their characteristics and their relationships to genre acquisition", (Swales, 1990b, p. 83). This is where there is an overlap between cognitive and social theoretical constructs with both contributing to the socio-cognitive theoretical framework. Concepts of schemata and textual regularities make it possible to see texts as genre and reading as being familiar with conventional features associated with these genres.

For a tangible description of these features, this study drew upon the generic or schematic structure of expository texts put forth by the Australian Systemic School as expository texts of the discussion, argumentative type formed part of the EA1101 module curriculum. This generic structure is based on the concept of the social purpose of expository texts and their corresponding division and divisibility into different stages (see e.g. Halliday, 1985, 1994, Halliday & Hasan, 1989, Martin, 1989). Expository texts through explanation and exemplification evoke a system within which each part relates to the other. Each of these stages performs a distinct function in achieving the overall purpose of the text which is to explain and inform. Macken-Horarik (2002) explains these stages as follows:

Proposing a viewpoint ⟶ providing support ⟶ reiterating position

Framing issue ⟶ providing different points of view ⟶ recommending final position

These correspond to the three identifiable stages of expository texts as espoused by Martin (1989, 1993) and Rothery (1994, 1990) from the Australian Systemic Hallidayan School. These are:

Thesis ⟶ Arguments ⟶ Conclusion

"The Thesis is that part of the text which presents the proposition to be argued,

Figure 1
Genre-specific explanation of expository texts

Description of stages	Social purpose	Generic-schematic structure stages
Thesis: proposes a viewpoint on a topic or issue.	An exposition gives reasons to support a thesis and elaborates this using evidence.	Thesis
Arguments: the arguments are asserted and elaborated	Argues for a particular point of view on an issue.	Arguments
Conclusion: reiterates and returns to the thesis and concludes.	OR	Conclusion
States issue and gives information about the issue and how it is to be framed.	Discusses an issue in the light of some kind of "frame" or position.	Thesis
Arguments for and against: canvases points of view on the issue, (similarities and differences or advantages and disadvantages).	Provides more than one point of view on an issue.	Arguments
Recommends a final position on the issue.		Conclusion

explained, interpreted or evaluated; the Argument, in the broad sense of the term, consists of the writer's information, evidence or data developing the Thesis and the Conclusion is the closing stage of the discussion" (Drury & Gollin, 1987, p. 210). This genre-specific schematic pattern reflecting the social purpose and description of the different stages in expository genres is given above as a modified version from Macken-Horarik's (2002) original table which looked at eight key genres. The focus here is on expository curriculum genres which are similar to the texts used in the teaching of EA1101 module (see Figure 1).

Based on all the theoretical concepts explained so far, the rationale for the two written answers can be seen clearly. The first question aimed at assessing students' understanding of how adjacent paragraphs in a text support the writer's thesis and the second question at students' understanding of the effect of different paragraphs on the writer's thesis, should they be removed. While assessing paragraph-thesis support in adjacent paragraphs may have been sufficient, it was felt an additional and alternate way of assessing the role of different paragraphs in a text may pose a challenge both for students' understanding and the findings of this study. A summary writing task reflecting macrostructure organization was also used to ascertain students' holistic and integrated understanding based on the writer's thesis, the paragraph-level integration of arguments showing support for the thesis and as also the writer's concluding move and strategy (see Appendix 1 for samples of these questions). These written activities were also conducted in the language laboratory after the think-aloud and took about 45 minutes.

Methods of data analysis

Before describing the methods of data analysis, the terms skills and strategies will be explained as they are very pertinent to the analysis and findings.

Skills and strategies

Skills refer to repeated practice or simple directives and connote an automatic, mechanical and consistent cognitive behaviour. Strategies are procedural, purposeful, effortful, willful, essential, and facilitative in nature (Alexander, Graham & Harris, 1998). They are more metacognitive as they emphasize conscious plans under the control of the reader and denote the reasoning process that students go through during the process of reading. Duffy et al. (1987) show how readers can be made aware of the mental processing involved in using reading skills as strategies i.e. metacognitive awareness. For such readers "strategic resources seem more important than specific linguistic knowledge" (Block, 1992, p. 336). Zwaan (1993) tries to distinguish literariness in terms of the strategies the readers use. What distinguishes skill is 'automaticity' and strategy 'intentionality' (Alexander et al, 1998). Finding a main idea can be both a skill and strategy determined by whether the student consciously evokes a procedure or functions in a typical, automatic way, an important consideration used in the analysis of data. Strategy implies not merely focusing on content but purposefully skimming for redundancies, engaging in hypothesis formation and being able to interpret the text globally which is the function of the text and locally which is the function of the different paragraphs contributing to the global whole. Such processes are unobservable, but can be inferred from the data collected. This distinction between skills and strategies formed the basis for data analysis.

Method of analysis

Think-aloud transcripts, written answers and the organization summary of 10 students were examined for evidence of three categories of reading strategies:
- Content/local strategies
- Global/metacognitive strategies
- Genre-specific discourse strategies.

Two different pairs of independent language lecturers were asked to comb through the data of the ten participants and count the number of times a particular reading strategy under each of the reading categories was used for each of the data instruments. A count of one referred to a reading method which formed the basic unit of analysis. They were asked to record their final count for each category.

A list of reading strategies which students used in all the three activities was drawn up to analyze data for differences in reading strategies. It was adapted from Block's (1986), Haas and Flower's (1988) and Oxford's (1990) lists of categories and categorised (see Appendix Two). In reading strategy research, the terms 'global' (Young & Oxford, 1997), metacognitve (Garner, 1983), 'local' (Young & Oxford, 1997) and 'content' (Hosenfeld, 1984) are mentioned. However, the term 'discourse strategies' or 'genre-specific/discourse strategies as

implied in this study are seldom alluded to. This is a new category that has been incorporated in view of the research design and data analysis procedures.

Content/local strategies refer to skills-based strategies, wherein students mainly focus on word, sentence and intra-sentence level meaning and deal exclusively with content. Some indicators of such strategies are word-level focus when a student says *"I'm stopping to understand the word 'vicious'* or sentence level focus when he/she says *"As I'm reading, I realise that I will try to understand each and every single thing…"*, that students tended to use.

Both global and metacognitive strategies have been grouped together due to an overlap in the way students used these strategies. For example, a student's decision to skim the text for global understanding is both global and meta-cognitive in nature. Global/metacognitive reading strategies, such as skimming for global understanding or taking metacognitive control when a student says *"Ok, I'm going to start reading "Population and Natural Resources". First I'll look at the title and I'll generate my own questions"* or monitoring his/ her understanding when a student says *"Looking through paragraph 4 and 5, it does not support my thesis. So my original thesis is wrong"* are some examples of indicators of global/metacognitive strategies that guided the examiners in the categorization of reading strategies.

Genre-specific discourse strategies refer to students' awareness about genre-specific schematic patterns of organization in terms of the writer's thesis, supporting claims and conclusion. It also covers strategies exhibited by students showing awareness of text not just as content-based but also as discourse-based, focusing on the writer's purpose, functions of the paragraphs in relation to the writer's thesis and in relation to one another. Strategies that were focused on during analysis of data were attempts by students to identify the writer's thesis, to see connection between different segments in the text and in relation to the writer's thesis. Cues for identifying genre-specific discourse reading strategies such as showing understanding of how paragraphs function can be found when a student says *"this paragraph is a summation of the problems listed in paragraphs 2, 3, 4 and 5"* or the purpose when a student says *"the purpose of this paragraph is to provide a solution, introduction etc"* or shows an understanding of the connections between paragraphs as in *"paragraph 2 is related to paragraph 1 because the writer is going on to explain his first stand…"* are some examples.

The raters examined the data to count the number of times each category of strategy was used. They were given a list of the above strategies with explanation. Prior to the final analysis, a modified sample of student's data from the pilot study was given to them for trial analysis. Discrepancies in understanding were sorted out to enable reliability between raters. The researcher was involved in the rating at this stage. In the final data analysis, two sets of two independent lecturers examined the think-aloud data, the written answers and the organization summary. An average of the counts from both examiners for each of the categories used in every source of data formed the final count. The average was taken to account for the variation in count between the two examiners of data.

Findings

Both numerical and descriptive findings will be presented in this section to show the dominant type of reading methods that students brought with them to the university. A count of reading strategies with a few supporting samples of descriptive data will be presented for all the data instruments in this section.

Think-aloud

As shown in the table below, the number of local/content strategies used was 167, while the count for global/metacognitive strategies remained at a low of 21. The count for genre-discourse strategies was nil (see Table 1).

These findings show that for the think-aloud, students relied heavily on local and content reading methods, while also using a few global and metacognitive strategies. They do not seem to show any use of genre-discourse strategies.

Reproduced in Figure 2 are descriptive data from two students which are indicative of this general trend across all students.

Based on the list of reading strategies (see Appendix 2), it can be seen that

Table 1
Strategy count for think-aloud

Data Instrument	Count of local/ content strategies	Count of global/ meta-cognitive strategies	Count of genre-discourse strategies
Think-aloud	167	21	–

Figure 2
Descriptive data: Think-aloud

Student #10

I read the headline Population and Natural Resources'. What **I expect** is something that will be linked to population and natural resources.

Paragraph1: (read aloud). Ok. I digest this line, this first line (continued)…* I finished reading paragraph one. But I have not, I never understood every little detail. But I **just scan**…* I only read the first line in detail, the rest I scan through (he means skim perhaps).

Paragraph 2: (reads- whispering voice). Ok. I finished **scanning** through paragraph two and I don't understand. I go back to the first line (read aloud). I try to understand this line, "thus poor nations will lack… .* " So ok**.** I digest.

Student #2

Stopped at "problems of food scarcity". I think I'll go back to the beginning of paragraph 4 because this sentence, I don't really know what he means by reading only once. So I'll go back and read again. The gist sentence of paragraph 4 (read silently). Ok I continue reading the rest of paragraph 4 (read aloud). OK this remaining of paragraph 4 contains only some facts and some numerical numbers pertaining to the information….* *So* because I can understand what he is going to tell me. I'll go on to read.

Note: Local/content strategies underlined; Global/metacognitive in **bold**
    * Paraphrasing of content

both the students reveal a heavy use of local/content strategy. Some of the strategies used are sentence level understanding by re-reading of sentences and paragraphs as opposed to a global understanding of text. The use of genre-specific discourse strategies such as reading top-down for the writer's thesis and to see connections across paragraphs are absent. Students do not seem to possess a schema of how expository texts are organized. The text is not treated as one coherent whole but as one consisting of discrete sentences. An attempt to understand the connections between different sections of the text do not emerge. While Student #10 seems to be aware of the global techniques of skimming the text (he/she uses the word scanning instead), the focus suggested is still 'local' as revealed by the use of the phrase *"I digest this line, this first line, I never understood every little detail and I go back to the first line".*

The strategies used by Student #2 show a similar trend. The focus seems to be on understanding sentence-level content. All ten students tended to limit their attention to what individual sentences or paragraphs said, which explains the high count for local/content strategies as opposed to the discourse aspects of the text about which students do not seem to show any awareness.

Students seemed to have a tendency to focus on line by line understanding and re-reading. Evidence from the think-aloud data indicates this increasing tendency as seen in Student #9 who says:

> For this sentence, I read it twice and I'm able to understand it better. As I read second time, I'm trying to digest what it is saying….

and then continues to paraphrase by saying:

> …. he talks about scarcity of food and natural resources and there is an obvious rapid growth of population….

Other examples of local strategies used are: a focus on what the text is saying as seen in this comment *"The paragraph talks about…"* of re-reading and pausing as in:

> When I cannot understand a paragraph, I go and read again…until I make sense of it…. I see something important…. I pause and take note of…. when I think it's important I read again…. try to understand before I go to the next line.

Students also seem to connect ideas at the level of the sentence as in: *"I look at the first line….the second line supports the first line…"* and to focus on discrete ideas such as *"I understand food consumption is not distributed evenly around the world…"* and re-read *"I don't understand…. So I go back to the start…. I understand now…. the problems are inter-connected. So economic growth is affected by population growth….",* all of which explain the high count of local strategies at the pre-training phase.

The descriptive data also show that students are mainly paraphrasing, rewording content or manipulating words while extracting meaning. Student #5's think-aloud:

> This paragraph talks about third world countries. Although they have increased their rate of food production….

shows that when the focus is purely on paraphrasing, students fail to see connections between ideas in a text.

Written answers

Numerical and descriptive data from the three types of written answers will be presented in this section.

Paragraph-thesis support

In their answers to the question on paragraph-thesis support, the count for the local/content strategy is three times more than that for Genre-Discourse strategies. Data does not show evidence of global/metacognitive strategies (see Table 2). Two elements of discourse strategies in the descriptive data reproduced in Figure 3 do not emerge in students' understanding. One is students' awareness about identifying the writer's purpose in the paragraphs. Student #1 and Student #10 can be seen to be recounting content when asked to state writer's purpose as shown in the use of phrases like "to show" "to tell" "to prove". They do not seem to be aware of looking at paragraphs in terms of their rhetorical functions.

Secondly, their explanation does not reveal any understanding of paragraph-thesis connection. This perhaps, explains the fewer number of genre-discourse

Table 2
Strategy count for paragraph-thesis support

Data Instrument	Count of local/ content strategies	Count of global/ meta-cognitive strategies	Count of genre-discourse strategies
Written answer: paragraph-thesis support	24	–	8

Figure 3
Descriptive data: Paragraph-thesis support

Q1: Look at paragraphs 4 and 5. What is the writer's purpose/reason for giving the information in these paragraphs? Answer the question by referring to the author's main message/thesis in the whole text?

Student #3
is to allow…. to see the difference in the developing and developed nations…. to realize that affluence…. That natural resources …. are not widely spread ….

Student #10
four….the writer wants us to know that developed nations consumed a lot more food…. From paragraph 5, ….the poor will for ever be poorer….

Student #1
The **purpose** of giving the information in paragraph 4 is to prove ….*
For paragraph 5, the writer is trying to show ….*

Note: Local/content strategies underlined; Global/metacognitive in **bold**
          * Paraphrasing of content

strategies used. Student #1 attempts to identify purpose. Such an attempt by a few students can perhaps account for some of the genre/discourse strategies used.

Paragraph-thesis function

Strategy count for this written activity is similar to the earlier (paragraph-thesis support) activity; see Table 3. Descriptive data given in Figure 4 will be analyzed to see if they support these numerical findings.

At a first glance, it would seem that Student #1's explanation "his overall message will not be clear" reveals some understanding of how this paragraph functions. However the content explanation that follows shows that the focus is on content details at the paragraph level and not on how the writer's main message will be affected. The same can be said of Student #8.

However, Student #1 seems to show some evidence of discourse level strategies which emerges in his understanding expressed in the first sentence "without paragraph 9, reader will end up feeling blur after reading paragraph 8", wherein he shows some understanding of the inter-connectedness between paragraphs, though the focus is still on content details and not on their rhetorical functions or on how the paragraphs support the thesis. As for Student #8, his written data shows some discourse level understanding when he states *"His overall message will not be able to inform us the importance of education in leading to economic growth"*, though he does not explicitly state the impact of the paragraph on the writer's main message/thesis as he too moves on to focus on the content details.

These attempts among some students perhaps explain the count of 8 for this

Table 3
Strategy count for paragraph-thesis function

Data Instrument	Average count of local/ content strategies	Average count of global/ meta-cognitive strategies	Average count of genre-discourse strategies
Written answer: paragraph-thesis support	23	–	8

Figure 4
Descriptive data: Paragraph-thesis function

Q2: Suppose the author removed paragraphs 7 and 9, how would his main message be affected?

Student #1
His overall message will not be clear as without paragraph 7, readers will not know why developed countries …. *Also, **without paragraph 9, reader will end up feeling** blur after reading paragraph 8, as the ….*

Student #8
His overall message will not be able to inform us the importance of education in leading to economic growth ….*

Note: Local/content strategies underlined; Global/metacognitive in **bold**
         * Paraphrasing of content

strategy. They indicate some level of understanding which can be further fine-tuned and enhanced. It must be added though that the number of local/content strategy used is almost thrice this number.

Organization summary

For this activity too, students' data shows some evidence of the use of genre-discourse strategies. However, the count for local content strategy still remains high, slightly more than twice the number; see Table 4.

A reading of the descriptive data in Figure 5 of the three students shows that the students are aware of the generic-discourse reading strategy of being able to identify the writer's main message/thesis.

However, both students (students #2 and #7) do not show an understanding of how the writer connects the different ideas at the level of the paragraphs to support the thesis. Students do not seem to be aware of how one or several paragraphs combine to extend and support the writer's thesis. Student #5 too shows a good understanding of the writer's thesis, but resorts to a listing of ideas, instead of showing an understanding of how different paragraphs combine to

Table 4
Strategy count for organization summary

Data Instrument	Count of local/ content strategies	Count of global/ meta-cognitive strategies	Count of genre-discourse strategies
Organization summary	24	–	10

Figure 5
Descriptive data: Organization summary

Q3: From your understanding of the text, state the author's main message in the text. How does he advance and support it?

Student #2
His main message in the text is that people of the developing nations need to be educated in order to improve their economic growth. With the capital and knowledge of science and technology, their problem of food scarcity will then be able to be solved, or at least be improved.

Student #7
The writer's **main message** in the text is to tell us the relationship between scarcity of food and natural resources with population growth and how these scarcity will affect developing and developed countries standard of living.

Student #5
The main message is that population growth in less developed countries does deplete… . leading to these nations not able to do well economically. He gives several examples and illustrations. He first illustrated how the lack of food is caused… . Then he states… . The next thing he discussed is how lack of natural resources affected… .

Note: Local/content strategies underlined; Global/metacognitive in **bold**
      * Paraphrasing of content

support and extend the writer's thesis. An understanding of text as one "coherent whole" does not come through in the answers of all three students.

Discussion and implications

The findings provide answers to both the research questions that this study set out to find answers to. As for the first question about the reading methods that students brought with them to the university, it can be seen that local and content strategies pre-dominate their reading approach as opposed to a more global and integrated focus. Young and Oxford (1997) consider local strategies as being extremely word-focused and as mainly paraphrasing of ideas. Haas and Flower (1988) point out that entering college students have a narrow conception of discourse as one of conveying mere facts. These are some of the skills that students seem to have caught

However, students seem to be unaware of text structure. They are unable to view text as one integrated whole and to comprehend textual logic in the form of a meaningful pattern or mental representation based on the schema of an expository text. Block (1986, p. 472-74)) calls readers who focus on details "non-integrators", while referring to readers who react to text structure and who connect ideas as "integrators". The good reader does not merely decode. The reader devotes his reading processing time to higher level prediction and other "integrative comprehension processes" (Stanovich, 1980, p. 64). He goes for the overall message of the writer. What is this message? Does what I read relate to this message? Does what I read connect to what was said earlier? If so, how does it connect and relate? How does it relate to what follows? How does all that I have read fit into the way information is structured in a text?

While focus on idea units, propositions, main ideas and paraphrasing are useful, students need to go beyond these and see how they integrate in different ways to support the writer's main message in the text. Less skilled readers mainly focus on content (Leki, 1993), fail to integrate ideas (Cohen et al, 1979; Perrig & Kintsch, 1985) and are not aware that they need to relate the texts to an organizing frame (Grabe, 2002b), in this case to the writer's thesis. These are the strategies that students needed to be taught.

Implications for teaching

The outcome for pedagogy, as far as this study is concerned is that some reading strategies have to be explicitly taught. Comprehension at the higher academic levels needs to move beyond the sentence level to looking at text as discourse. At this level it is possible to show students that comprehension is defined by the extent to which they integrate propositions and by their sensitivity to discourse relations, specifically to written and implied signals that influence reader expectations. Texts need to be viewed not just as information tools but as communicative acts of discourse with a network of meaning relations tying the different parts together.

The inclusion of such an approach can perhaps help to raise students'

awareness about reading texts for global and holistic understanding. Students need to be shown that expository texts can be analyzed for their macrostructure in the comprehension classroom for academic reading. Research has shown that when students perceive a particular textual organization, they have a better understanding of the text than when they perceive only random information or descriptions.

Having established the logical organization of text through its genre-specific schematic organization and its accompanying ideas, students can next be asked to take issue with the text details which can form the basis for critical thinking and analysis. As such, it can be seen that the initial focus of analysis is not exclusively on understanding content, but of understanding content in the context of the text's organization structure.

Such an approach can enable students to view texts not just as discrete pieces of information but as one large coherent whole with several inter-connections contributing to this large whole. Then texts will begin to be viewed not just as orthographic renderings of information, but as acts of discourse with a network of meaning relations tying the different parts together.

The cognitive perspective of macrostructure (Van Dijk, 1980) realized as "cognitive structuring" (Bhatia, 1990, p. 29) or cognitive schema and the social perspective of reading that expository texts have a purpose which determine the conventions that bind them and the way they are organized can provide the basis for training. Knowledge of these conventions about organization can enable students to take a top-down approach to reading and to analyze texts as discourse, resulting in deconstruction of texts to arrive at an understanding of the macrostructure of texts.

From sentence level understanding and content-level paraphrasing, students will need to learn to analyze texts for their different levels in organization: from identifying writer's thesis to the paragraph level claims which support the thesis, sieving the important ideas from less important elaboration and examples and building a representation of the text as a holistic entity. The effectiveness of getting students to recognize text organization has been confirmed by Nuttall (1996) who advocates an integrated and interactive approach to reading for holistic understanding. If students focus on these elements of organization, it will perhaps lead to a reduced dependency on local and content reading skills.

Conclusions

The old axiom that reading comprehension has to be caught and not taught cannot hold anymore, as students in this study have shown. Bernhardt (1991a, p. 174) echoes a similar view when she comments on the assumption in L2 and EFL classrooms that students can already read and that "…reading is just a slower form of first language reading, so reading instruction per se, does not exist". The study shows that while some reading skills can be caught, there are strategies that need to be explicitly taught. This can perhaps be done by creating "learning conditions in the classroom that enhance growth in comprehension or by teaching strategies for coping with text directly and explicitly" (Pearson et al. 1992,

p. 146). It makes a case for explicit teaching of reading strategies as part of an ongoing classroom reading program by training students in specific processes that they lack. As far this study is concerned, one way to do this would be to explicitly raise their awareness about how a "text hangs together" (Burns, 2004).

References

Alexander, P. A., Graham, S., & Harris, K. R. (1998). A perspective on strategy research: Progress and prospects. *Educational Psychology Review*, 10, 129-154.

Anderson, N. J. (1991). Individual differences in strategy use in second language reading and testing. *Modern Language Journal, 75*(4), 460-472.

Bhatia, V. K. (1993). *Analysing genre: Language use in professional settings*. London: Longman.

Block, E. (1992). See how they read: Comprehension monitoring of L1 and L2 readers. *TESOL Quarterly, 26*, 319-343.

Block, E. (1986). The comprehension strategies of second language learners. *TESOL Quarterly, 20*(3), 463-491.

Burns, A. (2004). *Teaching reading and writing from a literacies perspective*. Paper presented at the 39th RELC International Seminar, 19-21 April, RELC Singapore.

Callow, K., & Callow, J. C. (1992). Text as purposive communication: A meaning-based analysis. In W. C. Mann & A. T. Sandra (Eds.), *Discourse description: diverse linguistics analyses of a fund-raising Text* (pp. 5-38) Amsterdam/Philadelphia: John Benjamins.

Carrell, P. L. (1991). Second language reading: Reading ability or language proficiency. *Applied Linguistics, 12*, 121-134.

Carrell, P. L. (1989). Metacognitive awareness and second language reading. *The Modern Language Journal, 73*, 121-134.

Cohen, A. D. (1986). Mentalistic measures in reading strategy research: Some research findings. *English for Specific Purposes, 5*(2), 101-112.

Drury, H and Gollin, S. (1987). The use of Systemic Functional Linguistics in the analysis of ESL students writing and recommendations for the teaching Situation. *In writing to mean: Teaching genre across the curriculum.* ALAA Occasional Papers, 9, 209-228.

Duffy, C. G., Roehler, L., Sivan, E., Rackliffe, G., Book, C., Meloth, M., Vaurus, L., Wesselman, R., Putnam, J., & Bassir, D. (1987). Effects of explaining the reasoning associated with using reading strategies. *Reading Research Quarterly, 22*(3), 347-368.

Faerch, C., & Kasper, G. (1987). *Introspection in second language research*. Clevedon, Avon, England; Philadelphia: Multilingual Matters.

Garner, R. (1988). Verbal report data on cognitive and metacognitive strategies. In C. E. Weinstein, E. T. Goetz & P. A. Alexander (Eds.), *Learning and study strategies: Issues in assessment, instruction and evaluation* (pp. 63-100). London: Academic Press.

Garner, R. (1987). *Metacognition and reading comprehension.* Norwood, NJ: Ablex.

Haas, C., & Flower, L. (1988). Rhetorical reading strategies and the construction of meaning. *College Composition and Communication, 39*, 167-197.

Halliday, M. A. K. (1994). *An introduction to functional grammar*. (2nd Ed.). London: Edward Arnold.

Halliday, M. A. K. (1985). *An introduction to functional grammar*. London: Edward Arnold.

Halliday, M. A. K., & Hasan, R. (1989). *Language, context and text.* London: Oxford University Press. (original work published 1985).

Hosenfeld, C. (1984). Case studies of ninth-grade readers. In Alderson & Urquhart (Eds.), *Reading in a foreign language* (pp. 231-244). London: Longman.

Hosenfeld, C. (1977). A preliminary investigation of the reading strategies of successful and non-successful second language learners, *System, 5*(2), 110-123.

Hosenfeld, C. (1976). Learning about learning: discovering our students' strategies. *Foreign Language Annals, 9*, 117-129.

Kamil, M., Mosenthal, P. B., Pearson, P. D. & Barr, R. (2000). *Handbook of reading research*, Vol. 3 (pp. 77-98). Mahwah, NJ: Lawrence-Erlbaum.

Kintsch, W. (1998). *Comprehension: A paradigm for cognition.* New York: Cambridge University Press.

Kintsch, W. (1987). Contributions from cognitive psychology. In J. T. Robert, L. A. Patricia & N. M. Judy (Eds.), *Understanding readers' understanding: Theory and practice* (pp. 5-14). NJ: Lawrence Erlbaum.

Kintsch, W., & van Dijk, T. A. (1978). Toward a model of text comprehension and production. *Psychological Review, 85*, 363-394.

Lee, J. F. (1986). On the use of recall task to measure L2 reading comprehension. *Studies in Second Language Acquisition, 8*, 201-12.

Lee, W. Y. (1996). *An Investigation of the outcomes of reading instruction for learning from science texts at the upper secondary level.* Unpublished Master of Arts Dissertation, National University of Singapore, Singapore.

Macken-Horaik, M. (2002). Something to shoot for: A systematic functional approach to teaching genre in secondary school science. In A. M. Johns (Ed.), *Genre in the classroom* (pp. 14-42). Mahwah, NJ: Erlbaum.

Mann, W. C., Christian, M. I. M.., & Thompson, S. A. (1992). Rhetorical structure theory and text analysis. In C. W. Mann & S. A. Thompson (Eds.), *Discourse description: Diverse linguistic analysis of a fund-raising text* (pp. 38-78). Amsterdam and Philadelphia: John Benjamins.

Mann, W. C., & Thompson, S. A. (1988). Rhetorical structure theory: Toward a functional theory of text organisation. *Text, 8*, 243-281.

Martin, J. (1993). A contextual theory of language. In B. Cope and M. Kalantiz (Eds.), *The powers of literacy: A genre approach to teaching writing* (pp. 116-136). London: Falmer Press.

Martin, J. R. (1989). *Factual Writing: Exploring and challenging social reality.* Oxford: Oxford University Press.

Mayer, R. E. (1996). Learning strategies for making sense out of expository text: The SOI model for guiding three cognitive processes in knowledge construction. *Educational Psychologist Review, 8*, 357-371.

Mckeachie, W. J., Pintrich, P. R., Smith, D. A., & Lin, Y. G. (1986). *Teaching and learning in the college classroom: a review of the research literature.* Ann Arbor, MI: National Center for Research to improve Postsecondary Teaching and Learning.

Nelson, G. (1993). Reading and writing: Integrating cognitive and social dimensions. In Joan G. Carson, Ilona Leki (Eds.), *Reading in the composition classroom: Second language perspectives* (pp. 315-330). USA: Heinle & Heinle.

Oxford, R. (1990). *Language learning strategies. What every teacher should know.* NY: Newbury House Publishers.

Parry, K. J. (1996). Culture, literacy and L2 reading. *TESOL Quarterly, 30*(4), 665-692.

Parry, K. J. (1995). First language literacy and second language reading. In D. Nunan, R. Berry & V. Berry (Eds.), *Language awareness in language education* (pp. 181-198). Hong Kong: University of Hong Kong, Department of Curriculum Studies.

Parry, K. J. (1993). The social construction of reading strategies: New directions for research. *Journal of Research in Reading, 16*(2), 148-158.

Pearson. D. P., Roehler, L. R., Dole, J. A., & Duffy, G. (1992). Developing expertise in reading comprehension. In S. Jay Samuels and Alan E. Farstrup (Eds.), *What research has to say about reading comprehension* (pp. 145-199). IRA

Rothery, J. (1990). *Story writing in primary school: Assessing narrative type genre.* Unpublished Ph.D. Thesis, Department of Linguistics, University of Sydney, Australia.

Sarig, G. (1987). High level reading tasks in the first and in a foreign language. In J. Devine, P. Carrell & D. Eskey (Eds.), *Research in reading in a second language* (pp. 105-120). Washington DC: TESOL.

Spivy, N. N. (1987). Constructing constructivism: Reading research in the United States. *Poetics, 16*, 169-192.

Stein, V. (1990). Elaboration: Using what you want to know. In L. Flower, V. Stein, J. Ackerman, M. J. Kantz, K. McCormick, & W. Peck (Eds.), *Reading-to-write: Exploring a cognitive and social process* (pp. 144-155). NY: Oxford University Press.

Swales, J. M. (1990b). *Genre analysis: English in academic and research settings.* New York: Cambridge University Press.

Thomas, J. W., & Rohwer, W. D. (1986). Academic studying: The role of learning strategies, *Educational Psychologist, 21*, 19-41.

Van Dijk, T. A. (1980). *Macrostructures*. Hillsdale, NJ: Lawrence Erlbaum.

Weinstein, C. E. (1994). Strategic learning/strategic teaching: Flip sides of a coin. In P. R. Pinntrich, D. R. Brown, & C.E. Weinstein (Eds.), *Student motivation, cognition and learning* (pp. 257-273). Hillsdale, NJ: Lawrence Erlbaum Associates.

Wenden, A. (1987b). Metacognition: An unexpanded view on the cognitive abilities of L2 learners. *Language Learning, 37*(4), 573-594.

Young, D. J., & Oxford, R. L. (1997). A gender-related analysis of strategies used to process written input in the native language and a foreign language. *Applied Language Learning, 8*(1), 43-73.

Zwan, R. A. (1993). *Aspects of literacy comprehension: A cognitive approach*. Amsterdam, PA: John Benjamins Publishing Company.

Appendix 1

Pre-training Think-Aloud Data Source: Instructions and Text

Name: ——————————————————— Date: ———————————————

Purpose of Research: To explore reading strategies of first year undergraduates on the EA1101 course at NUS.

Instructions for Activity One
Please read the text on page 2. While reading the text, kindly follow the instructions below:
● Read the text as you normally would. You may read the text *aloud softly* if you want to.
● Every time you *pause*, place a "**.**" (dot) at the spot on the text.
● Every time you pause, talk *aloud* your thoughts into the tape *loudly and clearly*. You can say why you paused, what reading methods you used after you paused. Just share your thoughts and talk them aloud into the tape. Then continue to read. Please repeat the same procedure every time you pause.
● At the *end* of each paragraph please pause and *talk aloud* into the tape again. Please talk aloud your *understanding* of the paragraph and how you *arrived* at this understanding. What reading strategies did you use? Say these aloud into the tape.
● Remember your feedback on your reading strategies is very valuable both for the course materials and research.

Thank you very much for your co-operation.

I appreciate your input very much.

Chitra Varaprasad
Course Co-ordinator, EA1101

Start time: ———————————————

Activity One: Think Aloud
● Read the text below and remember to talk aloud the methods you use to understand the text.
● Please follow instructions.

POPULATION AND NATURAL RESOURCES
Andrew C. Varga

1   Scarcity of food and natural resources is the obvious consequence of the rapid growth of population. Some resources, such as agricultural products, are *renewable*. Oil, minerals and many raw materials of industrial products, on the other hand, are not renewable and their limited supplies sooner or later will be exhausted.

2   Few of the developing nations can sufficiently provide for their growing populations; hence a large segment of their people is locked in the vicious circle of mental and physical underdevelopment and dire poverty. According to medical evidence, infants deprived of sufficient, balanced nutrition will never grow to their full mental capacity, and thus poor nations will lack the most important power for their development, that is, the mental ability and energy of their people.

3   Several Third World nations have substantially raised the rate of their food production, *but* this gain has been offset by the fast growth of their population, so that the per-capita increase of food has been only minimal.

4   Paradoxically, affluence in the world at large and within the confines of individual nations also adds to the problem of food scarcity. The developed nations consume between twelve hundred and nineteen hundred pounds of grain per person. Most of it is eaten indirectly in the form of eggs, milk products and meat. In Liberia and Haiti, however, the per-capita consumption is less than two hundred pounds, in India less than four hundred pounds of grain. It is obvious that food consumption is not distributed evenly.

5   The more affluent a country is, the more its agricultural products are converted into better quality food. One pound of beef is produced by as many as ten pounds of grain. The wealthier a country is, the more it can afford either to convert grain into higher-quality food or buy grain from other countries, as is the case with Europe, USSR and the oil producing nations. The result is, of course, that the poor and hungry nations of the world cannot afford to compete with the wealthier nations and import enough grain to improve the diet of their people.

6   The rapid growth of population also causes scarcities of other renewable and non renewable resources. Over 1 billion people use wood for fuel, cooking and heating, and this excessive consumption of wood leads to deforestation, upsetting the ecological balance.

7   The problem of energy shortage is well known. No industrial or agricultural growth is possible without energy. The cost of energy, however, is steadily increasing as reserves are depleted. Since petrochemicals are the basis of fertilizers, poor nations are less and less capable of buying the much-needed fertilizers to improve their agricultural production.

8   As can be seen, the problems are interconnected, and economic growth, which is the source of the improvement of man's life on earth, is greatly affected by the growth of population. Today there is a stronger causal relationship between population growth and the rise in the standard of living than there was in the past.

9   One of the sources of economic growth is an educated population. Persons who are unable to read or barely go beyond the level of the three R's, cannot be easily taught to improve their productivity or plan and organize their own lives with foresight and prudence. It seems that certain developing

nations are fighting a losing battle with illiteracy and the attempt at upgrading their educational systems. Any development of their educational systems is more than offset by the yearly addition of large numbers of children to the growing population.

10 The world economy today cannot provide even the bare minimum for the more than 4 billion people on the globe without scientific methods of production. Will the developing nations be able to make progress in educating their children so that they can contribute to their economic growth as skilled labor? Can they do this without lowering rate of their population?

End time: _____
From *Academic Reading: A Content based Approach*, 1988. No: of words = 654

Start time: _____
Based on your understanding of the above text, answer the questions below:

Activity Two: Written Answers to Two Questions
(Please remember you will not be graded. These activities are for gathering information about your reading methods. There are no right or wrong answers to questions below. So do not worry. The answers should reflect your understanding. So do not worry about language mistakes either).

1 Look at paragraphs 4 and 5. What is the writer's reason for giving the information in these paragraphs? Answer the question by referring to the author's main message in the whole text?

2 Suppose the author removed paragraphs 7 and 9, how would his main message be affected?

Activity Three: Organization Summary

3 From your understanding of the text, state the author's main message in the text? How does he advance and support it?

End Time: _____

Many thanks for your support and cooperation.

Appendix 2

Categories of Reading Strategies

Content/Local (CL)
- CL1 Mainly paraphrases
- CL2 Connects ideas at the level of the sentence
- CL3 Anticipates content
- CL4 Reacts/responds to content
- CL5 Re-reads sentences
- CL6 Re-reads same paragraphs
- CL7 Re-reads previous paragraphs/sections
- CL8 Attempts to obtain main idea/focus of the writer
- CL9 Identifies keywords
- CL10 Identifies connectors
- CL11 Attempts/pauses to get meaning of words
- CL12 Sentence-level understanding
- CL13 Word level understanding
- CL14 Reads whole text line by line as opposed to skimming for global understanding
- CL15 Reads line by line

Global/Metacognitive (GM)
- GM1 Skims text for global understanding
- GM2 Looks at text title and generates questions
- GM3 Skims through whole text to check generated questions
- GM4 Questioning Strategy
- GM5 Shows/takes control
- GM6 Monitors understanding

Genre-specific Discourse Strategies (GD)
- GD1 Shows awareness of how the writer concludes the text.
- GD2 Paraphrases but with awareness of how the paragraph functions in context
- GD3 Reasons out writer's main focus/idea by looking at paragraph-level organization
- GD4 Aware of how one or several paragraphs combine and function in context
- GD5 Attempts to identify paragraph organization
- GD6 Skims text to identify writer's thesis
- GD7 Uses connectors to identify meaning relations at paragraph level
- GD8 Aware of paragraph thesis support
- GD9 Able to connect present paragraph with the previous/next
- GD10 Recognises text structure
- GD11 Shows awareness of writer's purpose/reason for giving info