CHAPTER ONE

BACKGROUND OF THE STUDY

1.1 Introduction

Today all around the world students are going online to search for information. They are using the Internet to locate facts, access multimedia and communicate with one another. As a result, in Malaysia and across the world, there has been a tangible shift from reading print to reading digital text in schools and Institutions of higher learning. This has caused researchers and educators to question the validity of traditional print literacy in equipping students with the skills needed for reading online information or hypertext. It has also prompted the researcher to consider whether her students use different strategies when reading printed text and when reading hypertext. Furthermore, it raises some pertinent questions about reading strategies: Should teachers pay more attention to specific reading strategies to equip learners to become better online readers?

According to Snow (2002), using computers and accessing the Internet make large demands on an individual's literacy skills and little is known about how to analyze or teach these skills. Similarly, Wendy Sutherland-Smith (2002) argues that Internet technology has had a significant impact on reading strategies, resulting in a need to reshape our thinking about classroom reading practice. Furthermore, Kamil and Lane (1998), state: "What is clearly missing from the literature is a systematic analysis of the relation between reading hypertext and reading conventional text…. Clearly, nothing in any of the current literacy curricula prepares students for this sort of

reading, which requires navigational strategies not needed in reading conventional printed text" (p.333).

Furthermore, researchers have not clearly addressed the question of which cognitive processes are involved in using present technologies related to literacy.

Reading researchers have realized that when reading instruction occurs using traditional forms of literacy, namely print, the students are conditioned to expect certain characteristics and also to employ certain strategies to ensure comprehension. The characteristics of print texts are: they are linear, have a fixed format, are static or unchanging and contain a limited amount of information. Also, students are taught to recognize the various styles and genres available in printed texts and to recognize forms and devices used to direct attention, increase retention or provide illustration. Although online texts have some conventions that are similar to printed text, there are differences.

Text was traditionally conceived as books or pieces of linear print. Charney (1994) states that the text presents a collection of ideas that a writer has carefully selected, framed and organized into a coherent sequence or pattern in hopes of influencing a reader's knowledge, attitudes, or actions. It is important in that the ability to anticipate a text's structure enables readers to identify it as they assimilate it into their existing schema and consequently, make decisions about how they might approach it. According to Bolter, 2001 the structure of the text serves as a literacy cue. Some researchers believe that textual structure and reading comprehension are inextricably

linked (Travis, 1998; Charney, 1994) and has an impact on the selection of reading strategies.

1.1.1 Key characteristics of linear text and hypertext

The major characteristics of linear text reside in its structure. Linear text:

- has clearly anticipated organizational structure which allows readers to invoke schemas and situate new information within the context of already existing information. For example, readers do not approach reading a novel, a play or a reference book in the same way. They employ different strategies in each context based on the expectations they have of the text due to its organizational structure (Charney, 1994).

- allows readers the opportunity and choice to linger on a particular detail and also to mark pages

- creates a passive interaction between the reader and the text, as the text asks nothing more of the reader than approaching the words on the page.

On the other hand, texts online are often in hypertext format. Hypertext is a form of text composed of pieces of text and images joined by links that permit multilinear reading (Landow, 1997). In other words, hypertext is an interlinked structure of nodes or links. These links or nodes may connect to other nodes or links in the same text, and they may also link to nodes contained within an external text (McEneaney, 1997). This linking feature of hypertext allows readers to follow a path of their choosing based on a series of interrelated links embedded within the information they have accessed.

Therefore, unlike linear texts, hypertext is nonlinear and has no clear anticipated organizational structure. Bolter, 2001 discusses the possibility that the textual structure expectations that the readers bring to hypertexts might infringe upon their reading. Charney, 1994 also agrees that such expectations may be transfered to hypertext. As a result, many researchers today have begun to move towards addressing issues of how students engage in literacy tasks especially in the context of hypertext environments (Reinking, Labbo,& Mckenna,2000; Kumbruck,1998; Reinking,1997).

Salmeron, Kintsch and Canas (2005) say that although comprehending a hypertext requires the same cognitive processes involved in reading a traditional linear text, hypertext demands additional cognitive processes. One of these additional cognitive processes is the selection of the reading order of the text sections. Furthermore, the hypertext that students encounter when searching for information on the Internet varies greatly in structure and organization. There are no set rules to govern the structures or organization of hypertext. Charney, 1994 states that much knowledge in the brain seems to be arranged hierarchically and sequentially with regard to how information is processed. At the same time there is no evidence to show that readers can understand information better when it is presented in a network rather than in hierarchical and linear form. Therefore, hypertexts do pose cognitive challenges to the readers, and these challenges differ from those posed by printed texts (Charney, 1994). This could raise some problems for readers when they read hypertext.

Unlike linear text, hypertext does not have an organizational structure that readers can

anticipate. It goes against standard assumption about what texts look like. Another challenge Charney mentions is that sometimes readers stop midway when reading and fail to pursue further information. The reader therefore does not take full advantage of the information available. This reinforces what McEnearey (1997) and Bolter (2001) say about how the reader creates his/her own individual pathways.

Currently, students are not taught to recognize the nature of hypertext; they don't receive explicit instruction in the conventions and devices used to direct attention, increase retention, or provide illustration. Mayer (1997) concludes that researchers need to know how students process the visual and verbal material in multimedia and online environments. Students are often taught to navigate the WEB and read online sources without being taught to comprehend the processes of information selection or evaluate the quality of the content presented and think metacognitively about their seeking strategies. This is similar to teaching students to decode print text without teaching the students cognitive strategies for comprehension or metacognitive strategies to internally control learning and processing.

Researchers today claim that both children and adults misunderstand the ability to move around on the Internet as the ability to read and comprehend the information therein. Schmar-Dobler (2003), points out educators should guide students toward success by allowing them to apply existing knowledge of texts to online environments. The important question is: What strategies do we need to teach our students for them to engage effectively in the context of hypertext environment?

The users of hypertext are faced with the challenge of creating meaning both within and between texts. Within the text here refers to the main text that is read and between texts refers to the various texts provided by the hyperlinks. Therefore, cohesion is an important factor contributing to whether a reader is able to capture meaning and comprehend text. When readers are required to use their schema to fill in gaps in a text, comprehension can fail if they do not have sufficient knowledge or exposure. However, to date there is no agreement among researchers and in the literature regarding the strategies that hypertext readers follow when their main purpose is to comprehend a text (Unz and Hesse, 1999).

1.1.2 Malaysian Scenario - Steps taken by the Malaysian Government

According to the Third Outline Perspective Plan 2001 – 2010, Malaysia has planned to upgrade its communications and multi-media infrastructure to world-class standards. This is to support the rapid flow and accessibility of information within the country and across other countries at competitive rates. As part of this initiative, the government has made e-learning one of the seven flagship applications of the Multimedia Super Corridor (MSC). This is done via the Smart School Project which is aimed at assisting the country in managing development and change to become a fully knowledge-based industrialized nation.

In support of this, schools and universities have decided to take up the challenges of globalization by changing not only the content of their curriculum and programmes, but more importantly, their delivery system as well. This has resulted in the need to

design a curriculum that would teach the learners the necessary skills for them to excel in an e-learning environment. Information Technology (IT) enhanced teaching and learning are already involving computers in school, distance learning, video-conferencing and Internet research a commonplace occurrence.

The Malaysian government has also taken the necessary steps to ensure that children are adequately prepared for their future by:

- integrating information technology or ICT into the curriculum, often for the first time as a central curriculum strand

- developing extensive Internet resources for students and teachers

- providing teachers training in the effective use of IT and ICT.

The Ministry has introduced several projects. The first was the Smart School Project, which was launched in July 1997. As part of the first project, two components with developed browser-based teaching and learning materials (and related print materials) in Bahasa Malaysia, English, Science and Mathematics, and the other a computerized smart school management system were introduced. The second project was the setting up of a website, MySchoolNet, to help increase the use of ICT in education.

Then, in 2001, the ministry initiated a pilot project involving the use of the electronic book or e-book. The ministry was interested to see how this device that stores electronic textbooks that links the users to the Internet could be used to improve teaching and learning in the classroom. They were also interested in investigating the use of the e-book to replace conventional textbooks and hereby resolve the perennial

problem of heavy school bags. The next project involved ICT training in which selected master trainers would undergo training and then pass this knowledge to selected trainers, who in turn would have trained their colleagues at school, district and state levels. Therefore it can be safely concluded that a lot has been done by the Education Ministry to enhance e-learning which includes retraining and retooling staff with current technologies, updating the management systems towards e-governance and e-government, providing infrastructure and manpower support to create e-university environments, providing web-based learning contents, and encouraging IT culture at all levels.

However, nothing has been mentioned about equipping or reinforcing the learners with the appropriate reading strategies for this new delivery style. It would be dangerous to assume that it is a mere transfer of skills from reading in print to reading hypertext. One of the most important skills needed by learners of this new medium would be reading strategies that would enhance their reading performance of vast amounts of information on screen. This in turn would help learners become more efficient readers in an e-learning environment. Very little research has been done in this country regarding reading from print versus reading hypertext. Therefore identifying the appropriate reading strategies and training the learners would definitely enhance the learners learning ability in this era of e-learning. There is a need to design and incorporate an e-reading programme or course that would equip learners with the appropriate reading strategies to help them effectively read and comprehend electronic or digital text.

However, simply having Internet technologies in our classrooms will not prepare children adequately for the new literacies they require. As more texts become available in digital form, users access information in different ways that have potentially profound ramifications for reading. It must be noted that the fundamental principles of reading have not changed but the process has shifted from the serial cognitive processing of linear print text to the parallel processing of hypertext. Text and meaning are no longer embedded exclusively in a linear sequence of alphabetic characters combined in a logical sequence of phrase, sentence, paragraph and narrative units or formatting demands of a page or book. Hypertext embeds text-image and meaning in a web like pattern of links that readers can pursue or ignore. The hypertext author designs an editorial structure of potential meanings through links, but readers too structure their own transitions from one part of the text to another, moving from one set of emerging meanings to another (Kaplan, 1995).

This process of choosing and ignoring links demands a particular kind of reading, a cognitive mapping and pathway navigation that is quite different from the relatively choiceless linearity of printed text.

1.1.3   Conclusion

Therefore, given the prediction that in the future our reading could be mainly digital and the fact that the Internet has propelled the rapid growth of e-learning, we need to identify the strategies that will help learners to read effectively in this new medium. It is also clear that the nature of literacy is rapidly changing as new technologies emerge

(diSessa, 2000; Dresang & McClelland, 1999; Leu & Kinzer, 2000). Electronic texts introduce new supports as well as new challenges that can have a great impact on an individual's ability to comprehend what he or she reads. The internet, in particular, provides new text formats, new purposes for reading, and new ways to interact with information that can confuse and overwhelm people taught to extract meaning from conventional print. Proficiency in the new literacies of the Internet will become essential to our students' literacy future (International Reading Association, 2002).

Leu (2002) reinforces the fact that "the Internet has entered our classroom faster than books, television, computers, the telephone, or any other technology for information and communication" (p.311). Similarly, Coiro (2003) stresses that "electronic texts introduce new supports as well as new challenges that can have a great impact on an individual's ability to comprehend what he or she reads".

Therefore we must teach our students to function in the world of the computer screen by reading web sites, conducting research on the Internet, and reading and writing messages and multimedia documents for online partners around the world. It is crucial that learners know how to read and write not only in the print world but also in the digital world and in an e-learning environment.

In order to better prepare for these challenges, there is a need for a "rich theoretical description of the comprehension processes" involved in Web–based and electronic reading environments. Since technology is now viewed as both a necessary component and a means to achieving literacy, it must become an integral part of ESL

courses and the Internet must be used as a tool to promote linguistic skills and knowledge construction. It is this expressed need for clarification of the comprehension processes necessary for reading that this study hopes to address. Therefore the purpose of this study is to investigate the differences in the choice of metacognitive and cognitive reading strategies that second language learners employ to comprehend a text in print and hypertext.

1.2   Statement of the problem

Most of the research on reading process, strategies and text processing of L1 and L2 reading in English are from printed texts. Therefore a great deal of what we know about reading and comprehension is through research conducted using printed texts. However, the Internet and the hypertext have significantly changed how we read (McDonell, 2003). In fact, according to Leu, Kinzer, Coiro & Cammack, (2004) & RAND Reading Study Group, (2002) reading on the Internet differs in important ways from reading in traditional, print-based texts. A few of the important areas where different reading skills are required includes searching for information, effectively using hyperlinks and critical evaluating information in texts.

It cannot be denied that currently, students do most of their reading and research on the Internet. These academic materials that they read on screen have features and capabilities that are different from printed text, as the information is presented in hypertext from. As Winklemann (1995) points out while printed text is static, hypertext is "dynamic and malleable". Hypertext is linked to a variety of information in different forms. The meaning of what is read is not limited to the words on that

page, but rather linked elsewhere depending on the reader's cognitive map of space. Reading on the Internet now truly represents Goodman's (1967) interactive model and students use a "psycholinguistic guessing game" (Carrell. P, Devine. J, Eskey, D, 1988) when they read hypertexts. In addition, reading hypertext on the Internet can produce an overwhelming amount of information and causing a sense of information overload.

 Kamil and Lane 1998, discuss that hypertext can be looked at from three situations; the literary version of hypertext, where the reader tries to create his or her own path; hypertext which allows one to add information by providing readers the opportunity to explore the material in greater depth; and the hypertext which permits students to study. There is only a small body of research on hypertext and very few empirical studies that discuss "the cognitive consequences of reading this type of non traditional text".

One of the problems of reading hypertext is the unpredictability of knowing where one will go when choosing the hyperlink. As Kamil and Lane (1998) state, there is no way to predict whether or not that link will be useful. Therefore if students do not process the information correctly through the hypertextual links, then it will affect the students' comprehension of the text. The students will not be able to put this reading into any form of comprehensible output in their task. It cannot be denied that the Internet technology has had a significant impact upon reading strategies, resulting in the need to reshape our thinking about classroom reading practices. The question raised is whether there is a need to pay more attention to certain specific cognitive and

metacognitive reading strategies that are useful to help students decode meaning while reading hypertext. Therefore, given the prediction that in the future we will be reading mainly hypertext or electronic text, we need to equip our students with skills and strategies that will make them better on-line readers.

1.3   Objectives of the study

The objectives of the study are:

1.   to identify the metacognitive and cognitive reading strategies used by ESL learners while reading a text in print

2.   to identify the metacognitive and cognitive reading strategies used by ESL learners while reading hypertext

3.   to examine the differences in the metacognitive and cognitive reading strategies used by ESL learners while reading in print and hypertext

4.   to identify the metacognitive and cognitive reading strategies ESL learners perceive they used while reading hypertext

1.4   Research Questions

The research questions underpinning this study are:

1. What metacognitive and cognitive reading strategies do ESL learners employ in comprehending expository texts in print?

2. What metacognitive and cognitive reading strategies do ESL learners employ in comprehending hypertext?

3. Is there a significant difference in the metacognitive and cognitive reading strategies employed by ESL learners in comprehending expository texts in print and hypertext?

4. What metacognitive and cognitive reading strategies do ESL learners perceive they use while reading hypertext?

The research questions were explored within the context of current research and practice relative to reading strategies. The main focus of the study is on types of metacognitive and cognitive reading strategies ESL learners use and perceive when reading hypertext. Moreover, there has been quite a few research studies (Anderson, NJ, 1991; Block, 1989; Shinghal, 2001; & Olshavsky, 1977) conducted on what reading strategies students perceive when reading print.

1.5 Significance of the study

The purpose of this study is to investigate the differences in the choice of metacognitive and cognitive reading strategies employed by second language learners while reading expository texts in print and hypertext. Kamil and Lane (1998) state that there is little research on how students read hypertext on the Internet, and there is a lack of research that compares and contrasts reading conventional text with reading hypertext. This study is in response to these statements.

The study is significant in several aspects. Firstly, it provides insights into how some ESL learners read hypertext and their use of cognitive and metacognitive reading strategies to help comprehend the text. The findings of the study will help address the question of which cognitive processes are involved when reading hypertext. Educators can then equip the learners with cognitive and metacognitive strategies for processing online information. As Leu,D.J.Jr (2000) predict that the Internet, or

online resources, will increase and not decrease, and therefore it is only logical that educators equip learners with cognitive and metacognitive reading strategies for processing online information.

Furthermore, B. Kramaski and Y. Feldman's (2000) study show that technology or use of online resources does not itself increase student comprehension. Students need explicit or direct instruction in metacognitive reading strategies that regulate self-awareness, self-control, and self-monitoring. Only then will students be able to read online information effectively and productively.

Secondly, online reading serves as a source of input for millions of L2 readers and the growing interest in online learning has led to the increase in the number of educational centers offering online courses and degrees. With the increased use of the Internet in the field of education, there is a dire need to train ESL learners to be effective on-line readers. Also, there is an increased interest in L2 reading research on how technology influences reading. Teachers are able to guide students' comprehension in hypertext reading only if research can reveal some of the cognitive and metacognitive processes involved in reading hypertext.

In the area of curriculum design, identifying cognitive and metacognitive reading strategies used to read online or hypertext will help educators design explicit instructions to teach students to monitor and adjust their online processing. These new instructional practices incorporated into the reading curriculum will help equip students to engage effectively in an online environment. As Shetzer and Warschauer

(2000) suggest teachers and curriculum designers need to rethink our instructional goals and techniques in order to prepare students to read online information.

In addition, the study will further contribute to the field of L2 reading research on how text structure and reading comprehension are inextricably linked. Texts are taken to convey meaning and new ways of producing texts, as in the hypertext, require new ways of reading. Hypertext requires understanding the interplay between image, sound and texts. As a result we need to reshape our thinking about classroom reading instructions and materials so as to prepare children to be literate in today's world. It is important to remember that literacy empowers the individual to access and generate knowledge in today's society.

Empirical work done on finding out the cognitive and metacognitive reading strategies needed to enhance ESL learners' reading ability using hypertext is scarce. Therefore, my research study might provide some vital findings in this area.

1.6 Definition of Terms

1. *Metacognition* is a construct which literally means "thinking about thinking"; it involves how learners think about their learning and how they know what they know, and what they do when faced with challenging learning situations (Anders & Guzzetti,1996).

2*. Cognition* is the process by which you recognize and understand things.

3. *A strategic reader* is an effective reader who adjusts his reading to fit the type of text, employs specific tactics or strategies that will help if confusing text passages are encountered, actively pursues meaning, and carries on a mental dialogue with the writer (Barton,1997)

4. *Expository text* refers to text written to inform; it is nonfiction and is usually characterized by technical vocabulary , and hierarchical patterns of main ideas and details (Anders &Guzzetti,1996; Musthafa, 1996). Expository text has a variety of text structures.

5. *Cognitive Strategies* in reading aid the reader in constructing meaning from the text. Cognitive strategies can be divided into bottom-up and top-down strategies. When a reader uses bottom-up strategies the reader starts by processing information at the sentence level. As they process information that each sentence gives them, they check to see how this information fits, using top-down strategies such as background knowledge, prediction, getting the gist of a text, and skimming. (Barnett,1988; Carrell, 1989).

6*. Metacognitive Strategies* in reading function to monitor or regulate cognitive strategies (Devine, 1984). The strategies include checking the outcome of any attempt to solve a problem, planning one's next move, monitoring the effectiveness of any attempted action, testing, revising and evaluating one's strategies for learning.

7. *Qualitative data* provide rich descriptions and explanations of processes or events in local contexts that are not easily identified by quantitative research methods.

6.   ***Verbal Protocol*** is any collection of verbal reports like think aloud reports during a task, interviews or self-deposited accounts of events or problem solving strategies reported by people during or after the task. (Ericsson and Simon, 1984, 1987).

9**.**   ***Concurrent reports or think-aloud***. This is verbalization where cognitive processes, also described as successive states of information under attention, are verbalized directly without any sort of encoding.

10.   ***Retrospective reports*** of a done cognitive process or in other words verbalization of information heeded just after the task is done. This has some encodings by the person before verbalization.

11.   ***Hyperlinks*** can be words, graphics or numbers which, when selected, transfer the user to a new location in the hypertext or to another site (Barrons, 1998)

12.   ***Hypertext***   is a computer-based electronic text with built in hyperlinks.
Unlike reading a book, the user can typically read hypertext by following up on different connections to increase understanding.