

METACOGNITIVE STRATEGY INSTRUCTION (MSI) FOR READING: CO-REGULATION OF COGNITION

Bromeley Philip¹ & Tan Kim Hua²

*¹ Academy of Language Studies
Universiti Teknologi MARA Sarawak
Kampus Samarahan, Jalan Meranek,
94300 Kota Samarahan
Kuching, Sarawak*

*² School of Language Studies and Linguistics
Faculty of Social Sciences and Humanities
Universiti Kebangsaan Malaysia, Bangi*

Abstract

This paper aims to show how a teacher and ESL learners can successfully engage in mutual regulation of strategy use as they co-construct meaning from the reading text. It focuses on the teacher's effort at giving direct explanation of various learning strategies for reading, that is, it illustrates how learners are explicitly taught not only the various components of a learning strategy but also the rationales of the "how", "when" and "where" to use that particular strategy. The study on co-regulation of strategy use adopts a qualitative approach to data collection and analysis. It was conducted via the implementation of a Metacognitive Strategy Instruction (MSI) for academic reading. The instruction session started with an explicit direct explanation of learning strategies that include macro strategies such as planning, comprehension monitoring, problem solving, evaluating and modifying. Subsequently, the learners were taught how to apply the strategies using a strategic processing framework called Self-regulated Learning Approach to Strategic Learning (SRSL) to construct meanings from the reading text. The qualitative account of the learners' strategy use was elicited using a qualitative *retrospective written recall protocol* (RWP). The study found that both the High Proficient (HP) and Low-proficient (LP) learners benefited reasonably well from the experience of the MSI sessions. The learners reported on how the strategies helped facilitate their reading process. The key issue revealed in the study is that the MSI sessions have managed to at least prepare if not transform the learners into becoming metacognitively sophisticated readers.

Keywords: Mutual regulation; Metacognitive Strategy Instruction; Self-regulated Learning Approach to Strategic Learning; Reading & Learning Strategy

Abstrak

Makalah ini bertujuan memperlihatkan bagaimana guru dan pelajar Bahasa Inggeris sebagai Bahasa Kedua mengamalkan strategi regulasi bersama dengan jayanya semasa kedua-dua pihak saling terlibat dalam pembinaan makna daripada teks bacaan. Tumpuan guru adalah ke arah memberi penjelasan secara langsung tentang pelbagai strategi

membaca di mana pelajar bukan hanya diajar komponen strategi pembelajaran malahan didedahkan kepada rasional di sebalik ‘bagaimana’, ‘bila’ dan ‘di mana’ boleh menggunakan strategi tersebut. Penyelidikan strategi regulasi bersama ini menengahkan pendekatan kualitatif dalam pengumpulan dan analisis data menggunakan ‘Metacognitive Strategy Instruction’ (MSI) yang diamalkan untuk bacaan yang bersifat akademik. Sesi pengajaran bermula dengan penerangan eksplisit strategi pembelajaran yang termasuk strategi makro seperti perancangan, pemahaman, pemantauan, penyelesaian masalah, penilaian dan pindaan. Berikutan ini, pelajar diajar mengaplikasikan kerangka kerja ‘Self-regulated Learning Approach to Strategic Learning’ (SRSL) yang bertujuan membina makna daripada teks bacaan. Data kualitatif diperolehi melalui instrumen ‘qualitative retrospective written recall protocol’ (RWP). Secara keseluruhan, dapatan kajian menunjukkan bahawa kumpulan pelajar ‘High Proficient’ (HP) dan ‘Low Proficient’ (LP) telah mendapat manfaat yang munasabah daripada sesi MSI yang telah melengkapinya dan menyediakan mereka ke arah menjadi pembaca metakognitif yang sofistikated.

Kata kunci: Regulasi bersama; Metacognitive Strategy Instruction; Self-regulated Learning Approach to Strategic Learning; Strategi membaca dan belajar

INTRODUCTION

This article discusses the implementation of Metacognitive Strategy Instruction (MSI) in the context of academic reading at an ESL tertiary environment in Malaysia. The MSI incorporates co-regulation of cognition, that is, the teacher provides the learners not only with constructive scaffolding on such strategies as planning, monitoring, problem-solving and evaluating, but also conceptual scaffolding on the meaning construction process from the text. The aim of this article is to examine the actual process of strategy use as evidenced in the learners’ retrospective written recall protocols. The analysis of the protocols reveals that both the high-Proficient and low-Proficient learners demonstrate a strong sense of metacognitive awareness in terms of strategy use. The results suggest that MSI helps not only in sensitizing the learners to the utility of strategies, but also in transforming the learners into effective strategy users.

BACKGROUND OF THE STUDY

A common learning problem related by Malaysian ESL learners (at Universiti Teknologi MARA for instance) is that they do not know “how” to learn to improve their command of the English language. It seems that the “how” question of learning English still poses a problem to these learners despite being at a tertiary level, and having learnt English for at least 13 years of their schooling experience where English language is taught as a single

subject. One probable explanation for this problem is that, according to Wong (1998, 287), most Malaysian undergraduates are “practically false beginners”. This is due to the fact that a sizable proportion of students belong to the lower end of the proficiency scale at the point of entry into the university. These ESL undergraduates are still struggling in the quest for efficient ways of mastering the English language.

While these learners may have little problem in understanding academic texts in Malay, they are most likely in need of conscious instruction in what Wenden (1998) calls the “know-how” of approaching academic texts in English. It means that these learners need to be trained in effective use of learning strategies to take control of their learning process before they can eventually take complete responsibility of their learning or become autonomous in their overall learning approach. Before a learner can become autonomous, he/she needs to acquire the right strategic knowledge that will enable him/her to achieve a critical level of autonomy in order to function independently. But what sort of strategic knowledge does a learner need to acquire in order to become autonomous? How can the learner be taught such strategic knowledge in order to become autonomous in his/her learning process? One probable way is to teach the learners knowledge of learning strategies in order to equip them with useful learning tools to take responsibility of their own learning. In other words, through strategy instruction, it provides an opportunity for learners to develop their expertise in strategy use, i.e., being able to learn how to learn (Halls & Beggs 1998; Wenden 1998). The MSI model sets out to provide a suitable pedagogical space incorporating relevant social, motivational and metacognitive processes for Malaysian ESL learners to explore and experiment effective use of strategic learning approach (comprising learning strategies) in the context of ESL reading practice.

THEORETICAL FRAMEWORK

The cognitive view of learning is that it is an active mental process of acquiring, remembering, and using knowledge (Woolfolk 1993). Woolfolk elaborates that in a cognitive view of learning, readers are active processors of information who seek out information to solve problems and reorganise what they already know to achieve new learning, through the use of *learning strategies*. In terms of *learning strategies*, knowing that and knowing how are not sufficient to ensure that learners are able to apply strategies

appropriately. Learners need to learn when and why various strategies are used to accomplish different purposes. Paris, Lipson and Wixson (1983) refer to this as “conditional knowledge” because it informs learners about the value and situational appropriateness of various strategies. Conditional knowledge may also be referred to as metacognitive knowledge.

Sheorey and Mokhtari (2001) suggest that a reader’s metacognitive knowledge about reading includes an awareness of a variety of reading strategies and that reading is influenced by this metacognitive awareness. Sheorey and Mokhtari (2001, 433) believe that “it is the combination of conscious awareness of the strategic reading processes and the actual utilization of reading strategies that distinguishes the skilled from unskilled readers”. Readers’ metacognitive knowledge encompasses knowledge of and control over their own thinking and text processing (Walczyk 2000). Metacognition thus involves awareness of one’s cognitive processes and the regulation of one’s cognitive processes. In other words, metacognition includes assessing the requirements of the problem, constructing a solution plan, selecting an appropriate solution strategy, monitoring progress towards the goal, and modifying the solution when necessary (Mayer & Wittrock 1996). Metacognitive knowledge therefore, refers to the deliberate conscious control of cognitive activity, which may be categorized into two components namely, knowledge about cognition and regulation of cognition.

Knowledge about cognition

Knowledge about cognition includes knowledge about one’s own cognitive resources and knowledge about how compatible the demands of learning situations are with one’s own resources. Knowledge of cognition in reading refers to one’s awareness of the purposes and goals of reading as well as the *knowledge of learning strategies* that contributes to comprehension (Meloth 1990). Knowledge of metacognitive learning strategies is essential if readers are to effectively regulate their strategy use while reading. Metacognitive awareness is influenced by variables associated with learners, tasks, and strategies (Duell 1986). Task, strategy, and learner variables typically interact when students engage in metacognitive activities. Learners consider the type and length of material to be learned (task), the potential strategies to be used (strategy), and their skill at using various strategies (learner). If learners think that note taking and underlining are

good strategies for identifying main points of a technical article and that they are good at underlining but poor at taking notes, they should decide to underline. As Schunk (2000) notes, learners construct metacognitive theories that include knowledge and strategies that they believe will be effective in a given situation. Four major macro metacognitive strategy categories include planning, comprehension monitoring, problem solving and, evaluating and modifying (Appendix 1).

Knowledge of Learning strategies

Learning strategy is a conscious cognitive plan, intentionally selected and devised by a learner to implement specific actions or techniques in the form of largely observable tactics to facilitate the acquisition, storage, retrieval, and use of information, with its implementation being intended to effect understanding and learning (Philip 2005, 25). The most important feature of a strategy is that it is conscious and intended, and therefore controllable action (Oxford 1990; O'Malley & Chamot 1990; 1994; MacIntyre 1994; Pressley & McCormick 1995; Cohen 1998; Chamot et. al. 1999). Garner (1990, 64) further supports this point by highlighting the fact that learner control is a significant feature of any strategy and though certain subroutines may be learned to a point of automaticity, strategies are generally deliberate, planned, consciously engaged-in activities.

According to MacIntyre (1994), what is most important is that, a learning strategy must be intentional and freely chosen. Thus a student must be aware of the strategy before it can be used. In the context of reading, this definition concurs with that offered by Johnson-Glenberg (2000) that, a strategy is a conscious, intentional and yet flexible tool that readers use to update their understanding of a text. A good strategy involves multiple cognitive subroutines. For instance, “generating questions” about the text is a strategy that relies on searching the text, combining information, evaluating the worth of the question, and judging whether one could answer the question. It is the implementation of these sorts of subroutines that should lead to better reading comprehension. A learning strategy, which involves sub-routines, may be presented diagrammatically as follows:

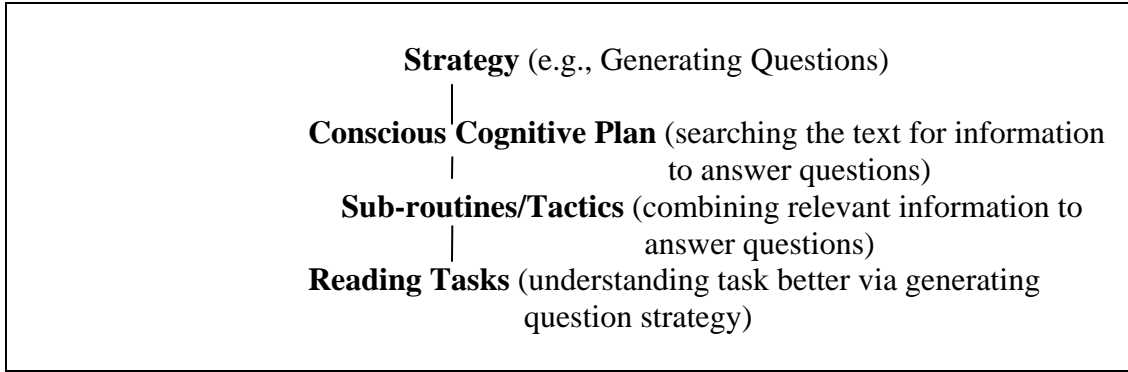


FIGURE 1 Diagrammatic presentation of a learning strategy used in reading

Being aware of the various strategies, however, is still insufficient; rather, learners need to be able to regulate it. Regulation refers to the ability to follow one’s strategic chosen plan and to be able to monitor its effectiveness. It is vital that learners learn how to regulate their own cognition.

Regulation of cognition

Regulation of cognition involves two main processes namely, strategic formulation and strategic implementation of strategies.

(a) Strategic formulation

Initially, learners analyse an activity or situation in terms of the activity’s goal, aspects of the situation relevant to that goal, important personal characteristics, and potentially useful self-regulated learning strategies. Snowman (cited in Schunk 2000, 382) calls this “strategic skills.” The next step, which is still part of strategic skills, is for learners to develop a strategy or plan along the following lines: “Given this task to be accomplished at this time and place according to these criteria and given these personal characteristics, I should use these procedures to accomplish the goal”.

(b) Strategic implementation

Learners next implement the plans, monitor and evaluate their goal progress, and modify the strategy when the plans are not producing successful goal progress. In the context of this study, these strategies are implemented within a strategic processing framework called Self-Regulated Approach to Strategic Learning (SRSL). The SRSL processing framework helps facilitate the learner’s effective use of strategies. It

comprises seven macro metacognitive strategies represented by an acronym, APICPEM as illustrated in Figure 2 (Appendix 2). The rationale for using SRS� is to enable an effective coordination of strategy use. Coordination of strategies will ensure that appropriate combination of strategies is being implemented. This is essential because according to Chamot et. al. (1999, 32), “strategies are often more powerful when they are used in appropriate combinations.” For example, when a learner starts reading a text, he/she will most likely engage a Planning strategy - make a preview of the text to help predict the content of the text. While making a preview, the learner may also engage a comprehension monitoring strategy – attending selectively to specialised terms to aid prediction of content. The learner should then be able to activate his/her prior knowledge that is related to the text content in question. By engaging strategies in appropriate combinations, the learner is able to strategise his/her reading move for a more effective comprehension of the text.

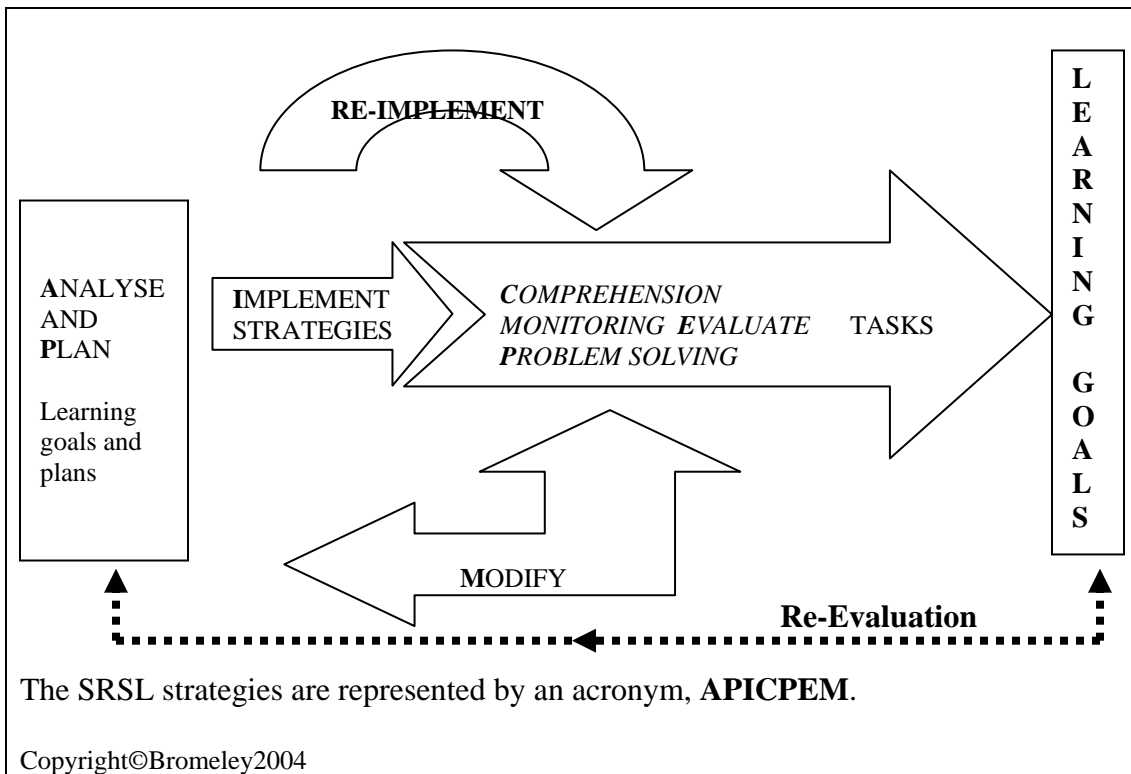


FIGURE 2 SRS� Processing framework
 Source: (Philip 2005, 176)

Each macro metacognitive strategy comprises micro or sub-strategies that are implemented in the actual learning process (Appendix 3). Based on the SRSL approach, learners start their processing by analysing and planning their learning goals. Learners also decide and select potentially useful strategies from a given list to be implemented accordingly (Appendix 3). Strategies selected are normally those appropriate for comprehension monitoring and problem solving and evaluation. As strategies are used, they are evaluated for their effects. An ineffective strategy will call for modification and subsequently, re-implementation. At the evaluation stage, the learner also needs to compare whether or not they have achieved the learning goal(s), which they set early in the task. If the learner finds that the goal remains unattainable, he/she needs to re-evaluate the learning goal(s) which are probably unrealistic enough to be pursued using certain strategies. The learner might need to strive for realistic goals using other strategies or modified strategies and looking at the immediate demands of the task at hand.

The SRSL framework is recursive in nature as it accommodates the actual steps in mental processing. Although it is recursive, it is structured in such a way that it enables learners to engage each macro-strategy systematically. The order of use of each strategy, however, is not strictly sequential even though the tendency for its use to be such is quite unavoidable. The SRSL model takes into consideration the fact that learners may have learnt the various features of a particular strategy, but applications of those features in actual context may entail some slight or massive modifications. Besides, a particular strategy may need to be applied in combination with other strategies to gain optimal success. For example, the elaboration strategy, which involves engaging one's prior knowledge, may be facilitated by an inference strategy which involves looking for contextual clues to affect comprehension. The SRSL structure guides learners on how they can manipulate their strategies systematically. The SRSL therefore allows enough room for learners to explore strategy use while simultaneously constructing their own understanding of the given tasks.

The SRSL approach, therefore, acts as a strategic processing framework for effective applications and use of strategies in academic reading. It is important for learners to engage SRSL in academic reading task to the point of automaticity as it enables learners to know not only what strategies to use, but also when, where, and how to use them. Mokhtari and Reichard (2002) support the use of self-regulated learning

approach such as SRSLS because they believe that a good reader will normally start his/her reading move by setting a reading goal, for instance, to find an item in a passage. She or he (a good reader) will then select an efficient strategy for meeting her/his goal from a large repertoire to avoid wasted time and effort. The learner might choose skimming the text for certain key words as the strategy to be implemented. The reader then will determine if the strategy is successful. If not, an alternative strategy may be used; for instance, the reader may make a preview of the various titles in the reading text to form an overall picture of the text in question. Such an example of constructing meaning from text highlights how SRSLS can be of practical use to learners engaged in a reading task.

Metacognitive Strategy Instruction (MSI)

In metacognitive strategy instruction, the teacher should teach not only how to use strategies, but rather when and why strategies are used in certain learning contexts. This involves teaching learners metacognitive knowledge and skills or conditional knowledge, that is, the capacity to reflect upon one's own thinking, and thereby to monitor and manage it (Greeno et. al. 1996). MSI provides direct and informed strategy instruction for reading (Appendix 3). This means that conditional knowledge is communicated when the teacher explains to learners why a strategy is important, when and where to use the strategy, and how to evaluate its effectiveness (Cross & Paris 1988; Winograd & Hare 1988). Similarly, Mayer and Wittrock (1996) view that an instructional implication of the metacognitive regulation is that learners need to learn when to use various cognitive processes, including being aware of their processes, monitoring their cognitive processes, and regulating their cognitive processes. Garner (1990) emphasises the importance of conditional knowledge in strategic reading behaviour. It is argued that learners' failure or success in using strategies depends on the settings in which the strategies are learned and the settings in which strategies should be applied. Indeed, as Lorch, Lorch and Klusewitz (1993) concur, conditional knowledge is crucial to the strategic control of reading. Without knowledge of when and why to apply a given strategy, reading cannot be flexible and adaptive. Strategic readers are not characterised by the volume of tactics that they use but rather by the selection of appropriate strategies that fit the particular text, purpose, and occasion (Paris et. al. 1991, 611).

In the context of MSI, learners should be taught not only about learning strategies, but also about when to use them and how to use them best. Learners should be instructed on how to choose the best and most appropriate strategy in a given situation. By examining and monitoring their use of learning strategies, learners have more chances of success in meeting their learning goals. Learners should be explicitly taught that once they have selected and begun to use the specific strategies, they need to check periodically whether or not those strategies are effective and being used as intended. Knowing how to use a combination of strategies in an orchestrated fashion is an important metacognitive skill. Research has shown that successful language learners tend to select strategies that work well together in a highly orchestrated way, tailored to the requirements of the language task. These learners can easily explain the strategies they use and why they employ them. Evaluating effectiveness of strategy use involves self-questioning and evaluating the whole cycle of planning, selecting, using, monitoring and orchestration of strategies. The significance of metacognitive knowledge in influencing strategy use implies that reading strategy instruction should, to a large extent, be metacognitive in approach. Roehler and Duffy (in Winograd & Hare 1988, 123) point out that teacher explanations of the processes are intended to be metacognitive and not mechanistic. These explanations make students aware of the purpose of the skill and how successful readers use it to activate, monitor, regulate, and make sense out of text, creating in students an awareness and a conscious realization of the function and utility of reading skills and the linkages between these processes and the activities of reading.

Co-regulation of cognition

In MSI, both the teacher and learners are engaged in what McCaslin and Hickey (2001) term “co-regulation”, which connotes shared/joint responsibility. The interaction involves eventual shift of shared responsibility to an independent one. It allows the responsibility for generating, applying and monitoring effective strategies being transferred from teacher to learner. When scaffolding for strategy use, a teacher normally has the objective to support the learner’s strategy use until support can be withdrawn (Many 2002). The goal is for the learner to be capable of independently identifying situations where the strategy can be useful and to be able to implement that strategy as needed. However, scaffolding may not end with learners gaining independence but instead as Palincsar and

Brown's (1984) cross-tutoring system called "reciprocal teaching" depicts clearly, scaffolding can effectively be carried out through shared negotiation of meaning or conceptual scaffolding (Many 2002). In this approach, the teacher initiates the reading task. This is followed by learners who act first as learners and then as teacher as they teach their peers how to use strategies such as self-questioning during reading. What differentiates the teacher from the learners is the level of knowledge as the teacher assumes a competent model or the knower. Being the knower, the teacher holds the responsibility of providing the less knower with the required information. Successful instruction allows learners to interact with teachers and peers and to assume equal partnership in learning. In such equal partnership, learners and teachers collaborate more as equal social partners in a learning enterprise.

Sharing of responsibility via co-regulation leads to making learners interdependent as they learn to interact to make meanings. Being interdependent, learners should be able to 'produce, clarify issues, propose solutions and make a difference to their world through their learning' (Halls & Beggs 1998, 33). In other words, through co-regulation learners are able to learn to develop their own voices within their social classroom contexts to negotiate their meanings interdependently. Being interdependent, learners tend to construct and reconstruct their identities as they co-construct knowledge with their teacher and peers. The learners learn to monitor and regulate their roles according to the immediate situation and audience and may switch among different sets of identities for the different roles (Paris et. al. 2001). In so doing, learners are taking risks as they co-participate in the verbal communication. It is by taking such risks that learners, according to Halls and Beggs (1998), can develop their own perspectives or voices through interaction and interdependence which is what Halls & Beggs (1998) view as learner autonomy. Being interdependently autonomous, according to Halls and Beggs (1998, 37), is "about learners taking risks as interdependent language users, as legitimate producers of language within social groups both inside and outside the classroom." MSI thus allows learners the freedom to be themselves as they assume appropriate identities/roles while co-constructing meaning interdependently.

METHOD

Research Question

What are the actual illustrations of strategy use as occurred in actual reading task identified from the learner's retrospective written recall protocols (RWP)?

The research question addresses the specific aim: to explore the actual process of strategy use via retrospective written recall protocols (RWP). What is of central concern is that it is possible to find out how learners are able to reflect on the strategy knowledge they gained from the MSI sessions via RWP: a process engaged by learners to immediately recall their recently accomplished strategic processing experiences in text processing task (reading), i.e., recalling in written form their retrospective text processing experiences.

Participants

The sample used in this study was selected from a group of undergraduates reading business administration at UiTM Sarawak Campus. These 45 undergraduates had previously completed their diploma courses at UiTM. They were in their first year of a three-year BBA (Bachelor in Business Administration) study programme. English is used as the main medium of instruction. These students need to complete a number of English Language courses, one of which is an academic reading course. The main rationale for having academic reading as part of their English Language requirements is that these students need to use reference and textbooks written in English. It is important that these students are equipped with the appropriate skills for academic reading.

Classroom process

The classroom process within MSI session is based on the pedagogical model in Figure 3 below. The teacher and learner's responsibilities are explained in the context of all the three phases of instruction.

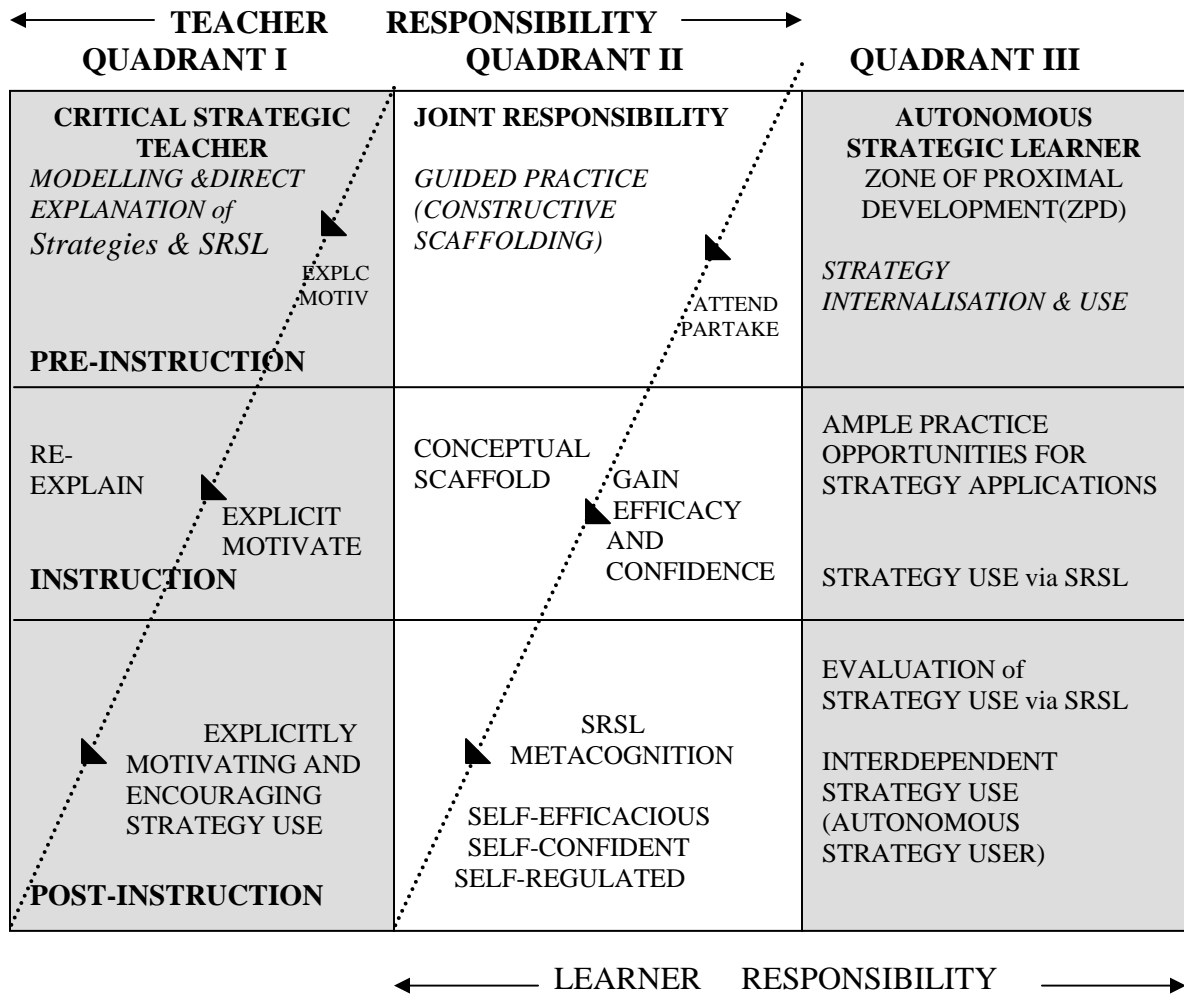


FIGURE 3: Instructional Framework (Philip 2005, 165-172)

Pre-Instruction Phase

In Quadrant I, at the Pre-Instruction Phase, the teacher explicitly models learning strategies to learners through Direct Explanation (see Appendix 1). Each feature of a strategy is clearly explained to the learners. The learners are also introduced to a strategic learning approach called Self-Regulated Approach to Strategic Learning (SRSL) which is used through strategic implementation of metacognitive, cognitive and socio-affective strategies. Strategy training is contextualised in that strategies are taught in the context of actual applications using content-based material. The major role of the teacher in this phase is to explicitly model SRSL strategies while at the same time devote a small amount of his/her effort to explicitly motivate learners through encouraging feedback. The descending arrow in Figure 3 (dotted line) denotes that the amount of effort on

modelling and explaining of strategies decreases while the amount of effort on giving explicit motivation and encouragement on strategy use increases as the lesson unfolds from pre-instruction through instruction to post instruction.

In Quadrant II, at the Pre-Instruction Phase, the teacher's role is that of constructive scaffolding. This still involves giving explicit explanation of the various features of strategies with the intent of assisting learners to move in their Zone of Proximal Development of strategy knowledge and use. The teacher's amount of effort on constructive scaffolding decreases and ultimately becomes reduced into conceptual scaffolding, as depicted by the descending arrow that cuts through Quadrant II. The learners on the other hand, attend to the teachers explanation while at the same time are given the freedom to partake in the instruction process with questions, clarifications and confirmations of understanding. The learners' amount of effort increases, giving them ample opportunity to gain efficacy and confidence as the lesson unfolds, until ultimately the learners can consider themselves as being self-efficacious. Quadrant II, illustrates the space within which strategy instruction is transactional in nature as both the teacher and learners co-regulate and co-determine the internalisation of strategy knowledge by the learners.

Therefore, at the Pre-Instruction Phase itself, learners are already explicitly taught SRSL strategies in actual contexts of applications. At this stage, learners are accorded the opportunity to discover the benefits of strategy use so that as they proceed to the next phase they are already quite well equipped with strategic learning approach.

Instruction Phase

In Quadrant I, at the Instruction Phase, the teacher would expect that learners are ready to implement strategies they learned at the Pre-Instruction Phase. The teacher however, continues to provide re-explanation of SRSL strategies as and when needed by the learners. Giving re-explanation may decrease as learners gain efficacy in strategy use. Instead, the teacher devotes more effort into motivating learners for their success in strategy use through verbal praises. This explicit motivation is intended to build learners' confidence in using strategies.

In Quadrant II, at the Instruction Phase, the teacher re-explains through conceptual scaffolding whereby he/she (teacher) invites learners' contributions in

understanding a particular strategy use. The teacher shares his/her understanding of strategy use with learners while simultaneously listens and accepts learners' understanding of strategy use through dialogical interactions. Besides motivating the learners, the teacher also gives learners ample opportunity to voice their views and understandings of strategies to help them gain confidence. The teacher's role of explaining is more of re-explaining which decreases over time while his role in explicitly motivating the learners increases. Constructive scaffolding also decreases, but conceptual scaffolding remains to ensure learners gain efficacy and confidence not only in strategy use but also in understanding meaning from the text.

Post-Instruction Phase

In Quadrant I, at the Post-Instruction Phase, the teacher continues to motivate learners in their strategy use. This may be done by asking learners to relate their success in using a particular strategy, and the teacher provides positive feedback regarding such success. The teacher focuses almost entirely on encouraging and motivating learners to use strategies appropriately and effectively.

In Quadrant II, at the Post-Instruction Phase, conceptual scaffolding is diminishing because at this point it is expected that learners must have gained sufficient metacognitive knowledge to really become self-efficacious, self-confident and self-regulated. As the learners are capable of manipulating their strategy use efficaciously, they have attained the efficacy of an independent strategy user or more accurately they have become strategic and self-regulated learners.

Data collection and analysis

The data were generated by the learners through immediate written recall with the assistance of the graphic organisers they constructed during the task. Since the data generated were massive, its analysis will be organised based on indexing categories comprising literal and interpretive indexing (Mason 2003). Literal indexing is created based on the major metacognitive strategy components, which include specifically PL (planning) strategies, CM (comprehension monitoring) strategies, EVA (evaluation) strategies, and PS (problem-solving) strategies (Appendix 1). This literal indexing category will be discussed interpretively (Mason 2003), providing as far as possible an

interpretive understanding of the strategy use particularly in terms of the learners' applications of metacognitive knowledge of strategies.

Results and Discussion

The written recall protocols were analysed for evidence of strategy use. The occurrences were reported based on Mason's (2003) literal indexing which are then interpreted interpretively.

Out of 15 for both selected High-proficient (HP) and Low-proficient (LP) learners' retrospective recall protocols, only one for each category is illustrated below to show the extent to which strategic processing was carried out within the SRSL framework.

High Proficient (HP) Learner (HP1)

The HP1's RWP (Appendix 4) was qualitatively analysed for evidence of SRSL implementation. The analysis indicates that HP1 had initialised the SRSL approach as illustrated in Table 1. HP1's use of planning strategies (PL7, PL6 & PL4) reflects an awareness of the need to plan before engaging in a reading process. This is a characteristic of a good reader who is aware of the reading purpose before processing a text (Pressley & Afflerbach 1995).

HP1's use of CM4 (*Comprehension Monitoring 4*) implies that HP1 was able to associate his academic knowledge with the topic in question. This is because comprehension monitoring is largely enabled by prior knowledge (Pressley & Afflerbach, 1995). The fact that HP1 can activate and connect his prior knowledge with the text at hand shows that he was able to consciously interact with the text and be in control of his reading comprehension process. It means that HP1 was able to monitor his comprehension, as he was aware of how the new information in the text relates to his previous knowledge. The CM4 strategy therefore helps facilitate HP1's meaning construction process.

HP1's use of PS2 (*Problem Solving 2*) was also related to the use of CM4 because with his existing prior knowledge on the topic, HP1 was able to predict the meanings of certain concepts in the text through intelligent guessing. The application of PS3 by HP1 implies a characteristic of efficient reading; that he was aware of the need to summarise

information in order to get the gist to facilitate comprehension as well as recall of the text. As HP1 faced difficulty in understanding certain words or concepts, he chose to employ PS4 and PS5 to assist him in his meaning making. This demonstrates a consistent awareness on the part of HP1 of the task demands that went beyond his understanding capacity, and hence initiated a move to source for assistance from his either his teacher or peers within the activity's social context. HP1 was able to monitor his meaning-construction process through meaning-negotiation process between himself, the teacher and the classroom community. HP1's use of PS4 and PS5 reflects a sense of metacognitive awareness whereby he was aware of the appropriate conditions to apply those strategies. It shows that HP1 has the knowledge of when and where (conditional knowledge) to appropriately use strategies effectively.

This conditional knowledge is also reflected in HP1's use of EVA3 (*Evaluation 3*) and EVA4, which shows that HP1 was able to determine whether or not a particular strategy was effective and, if a particular strategy was found to be ineffective, he was able to either change or adjust it to meet the task demands. On the whole, HP1's monitoring process reflects what Baker (in Pressley & Afflerbach 1995, 88) describes as "greater awareness and control of...(one's) own cognitive activities while reading". Baker (in Pressley & Afflerbach 1995) stresses further that such greater metacognitive awareness is a characteristic of a better reader. HP1's metacognitive awareness is most likely attributed to the ability of using the SRS� framework which guides the learner's reading process. Working within the SRS� framework, HP1 demonstrates an ability in using SRS� strategies which suggests that HP1 is in the direction of becoming autonomous in his reading approach.

TABLE 1 HP1 – Analysis of Retrospective Written Recall Protocol

HP 1: Analysis of Actual Strategic Processing	
SRSL	Literal Indexing Category
(PL) Planning	(PL7) I skimmed the text before reading it. (PL6) I also started to look for specific points by looking for main ideas. (PL4) I tried to fit examples in my mind map to identify them easily.
(CM) Comprehension Monitoring	(CM4) As far as content is concerned, I have learned it in my management class so I tried to recall what I already know.
(PS) Problem-Solve	(PS2) I tried to make an intelligent and logical guess to get better understanding. (PS3) In summarization, I tend to integrate events, ideas into shorter phrase. (PS4 & PS5) I normally ask my friends or the teacher. I find that this helps me to know their meaning.
(EVA) Evaluate	(EVA3) I tried to make an intelligent and logical guess to get better understanding. I did this a lot when I didn't know the meaning of words because some words are quite difficult. (EVA4) Sometimes in the reading process I got stuck because of vocabulary. I normally ask my friends or the teacher. I find that this helps me to know their meaning.

Low-Proficient (LP) Learner (LP1)

The qualitative analysis on LP1's RWP (Appendix 5) shows evidence of strategy use as illustrated in Table 2 below. LP1 began her reading by making a preview of the text through the use of PL5. LP1 strategised her reading move using PL2 where she decided on the strategies she needed to proceed. As part of her planning, LP1 employed PL6 and PL7 to scan and skim information respectively. This would enable her to get the overall meaning in the text. Her use of planning strategies signifies a metacognitive awareness of monitoring her learning process. LP1's eventual interaction with the text shows evidence of activating prior knowledge via CM3 which was intended to facilitate her meaning construction process. However, she found CM3 had to be supported by other strategies such as PS4 and PS5. LP1's use of PS4 and PS5 seems to suggest that she was aware of the advantage of negotiating meaning with the members of her classroom community. This again shows a sense of metacognitive awareness of her learning progress; she needed assistance of her teacher and peers to enhance her meaning construction process.

LP1's self-monitoring ability was evident in the use of EVA4, where she changed the strategy she found ineffective with a more effective one. This ability of monitoring one's own learning progress reflects an ability in knowing when and where it is appropriate to use a particular strategy. LP1's strategic behaviour suggests that she had acquired some aspect of conditional knowledge of regulating strategy use, putting LP1 in the direction of becoming a strategic reader.

TABLE 2 LP1 – Analysis of Retrospective Written Recall Protocol

LP 1: Analysis of Actual Strategic Processing	
SRS	Literal Indexing Category
(PL) Planning	(PL5) I preview the article. (PL2) I analyse and decide on strategy. (PL6 & PL7) I try to scan and then skim for general ideas.
(CM) Comprehension Monitoring	(CM3) ...I try to recall my background knowledge on the issue.
(PS) Problem-Solve	(PS4 & PS5)...I try to ask my friend about it or ask the teacher.
(EVA) Evaluate	(EVA4)... sometimes I get stuck with one strategy like making a guess on meaning of vocabulary is not effective. When I cannot I try to ask my friend about it or ask the teacher.

Largely, HP learners in their text-processing process, seemed to indicate a strong sense of metacognitive awareness, manifestations of strategic behaviours, traits of a metacognitively sophisticated reader, and ultimately characteristics of autonomous strategic readers/learners. The LP learners, on the other hand, did not seem to have a strong sense of metacognitive awareness, lacking in manifestations of strategic behaviours and reflective of poor readers. However, for these LP learners, despite their lack of strategic behaviours, did indicate their awareness of strategy use, a sense of awareness that might enable them to develop into becoming strategic readers given more practice opportunities. The HP learners had at an advantage over LP learners in terms of language ability, and the explicit strategy instruction that the former received reinforced their strategic ability further.

CONCLUSION

It is important for learners to become metacognitively autonomous in strategy use because being metacognitively autonomous (equipped with knowledge of strategy use actualised through SRS Approach), learners have “the capacity to function as a language *user*, where learning is a result of language *use*, rather than language study.” It is the capacity to self-assess/self-correct as well as to select and implement appropriate learning strategies, often consciously, is a characteristic of an effective autonomous learner and hence, may be understood as synonymous to “successful strategy user”. Paris and Cunningham (1996, 135) state that successful strategy users are those who have “a great deal of knowledge about specific strategies, the settings in which they are appropriate, and the motivational requirements to use them.” MSI therefore provides not only instruction in strategies, but also a learning space where learners can actually experiment using the strategies in real academic contexts. This research provides at least a window into the learners’ actual strategic processing in reading.

References

- Chamot, A. U., S. Barnhardt, P.B. El-Dinary & J. Robbins. 1999. *The learning strategies handbook*. New York: Addison Wesley Longman.
- Cohen, A.D. 1998. *Strategies in learning and using second language*. New York: Addison Wesley Longman.
- Cross, D. R and S.G. Paris. 1988. Developmental and instructional analyses of children’s metacognition and reading comprehension. *Journal of Educational Psychology*. 80(2): 131-142.
- Duell, O.K. 1986. Metacognitive skills. In G.D. Phye & T. Andre. (eds.). *Cognitive classroom learning: Understanding, thinking and problem solving*. San Diego: Academic Press: 205-239.
- Garner, R. 1990. When children and adults do not use learning strategies: towards a theory of setting. *Review of Educational Research*. 60: 517-529.
- Greeno, J. G., A.M. Collins & L.B. Resnick. 1996. Cognition and learning. In D.C. Berliner & R.C. Calfee. (eds.). *Handbook of educational psychology*. USA: MacMillan: 15-46.
- Halls, D. & E. Beggs. 1998. Defining learner autonomy. In W.A. Renandya & G.M. Jacobs. (eds.). *Learners and language learning: Anthology Series 39*. Singapore: SEAMEO Regional Language Centre: 26-39.
- Johnson-Glenberg, M.C. 2000. Training reading comprehension in adequate decoders/poor comprehenders: verbal versus visual strategies. *Journal of Educational Psychology*. 92(54): 772-782.
- Lorch, R.F., E.P. Lorch & M.A. Klusewitz. 1993. College students’ conditional knowledge about reading. *Journal of Educational Psychology*. 85(2): 239-252.

- MacIntyre, P.D. 1994. Toward a social psychological model of strategy use. *Foreign Language Annals*. 27(2): 185-194.
- Many, J.E. 2002. An exhibition and analysis of verbal tapestries: Understanding how scaffolding is woven into the fabric of instructional conversations. *Reading Research Quarterly*. 37(4): 376-407.
- Mason, J. 2003. *Qualitative researching*. 2nd Edition. London: SAGE Publications.
- Mayer, R.E. & M.C. Wittrock. 1996. Problem-solving transfer. In D.C. Berliner & R.C. Calfee. (eds.). *Handbook of educational psychology*. USA: MacMillan: 47-62.
- Mayer, R.E. & M.C. Wittrock. 1996. Problem-solving transfer. In D.C. Berliner & R.C. Calfee. (eds.). *Handbook of educational psychology*. USA: MacMillan: 47-62.
- McCaslin, M. & D.T. Hickey. 2001. Self-regulated learning and academic achievement: A Vygotskian view. In B.J. Zimmerman & D. Schunk. (eds.). *Self-regulated learning and academic achievement: theoretical perspectives*. New Jersey: Lawrence Erlbaum Associates: 227-252.
- Meloth, M.S. 1990. Changes in poor readers' knowledge of cognition and the association of knowledge of cognition with regulation of cognition and reading comprehension. *Journal of Educational Psychology*. 82(4): 792-798.
- Mokhtari, K. & C.A. Reichard. 2002. Assessing students' metacognitive awareness of reading strategies. *Journal of Educational Psychology*. 94(2): 249-259.
- O'Malley, M.J. & A.U. Chamot. 1990. *Learning strategies in Second Language acquisition*. Cambridge: Cambridge University Press.
- Oxford, R.L. 1990. *Language learning strategies: What every teacher should know*. Boston: Heinle & Heinle Publishers.
- Palincsar, A.S. & A. Brown. 1984. Reciprocal teaching of comprehension-monitoring activities. *Cognition and Instruction*. 1: 117-175.
- Paris, S.G. & A.E. Cunningham. 1996. Children becoming students. In D.C. Berliner & R.C. Calfee. (eds.). *Handbook of educational psychology*. USA: MacMillan: 117-147.
- Paris, S.G., M.Y. Lipson & K.K. Wixson. 1983. Becoming a strategic reader. *Contemporary Educational Psychology*. 8: 293-316.
- Paris, S.G., J.P. Byrnes & A.H. Paris. 2001. Constructing theories, identities, and actions of self-regulated learners. In B.J. Zimmerman & D. Schunk. (eds.). *Self-regulated learning and academic achievement: theoretical perspectives*. New Jersey: Lawrence Erlbaum Associates: 253-288.
- Paris, S.G., B.A. Wasik & J.C. Turner. 1991. The development of strategic readers. In P.D. Pearson, R. Barr, M.L. Kamil & P. Mosenthal. (eds.). *Handbook of reading research*. I: 609-640. New York: Longman.
- Philip, B. 2005. *Towards a social-motivational metacognitive strategy instruction model: Theory and practice*. Unpublished PhD Thesis, Universiti Kebangsaan Malaysia, Bangi.
- Pressley, M & P. Afflerbach. 1995. *Verbal protocols of reading*. New Jersey: Lawrence Erlbaum Associates.
- Pressley, M. & C. McCormick. 1995. *Cognition, teaching and assessment*. New York: Harper Collins.
- Schunk, D.H. 2000. *Learning theories: an educational perspective*. 3rd Edition. New Jersey: Prentice Hall.
- Sheorey, R. & K. Mokhtari. 2001. Differences in the metacognitive awareness of reading strategies among native and non-native readers. *System*. 29: 431-449.

- Walczyk, J.J. 2000. The interplay between automatic and control processes in reading. *Reading Research Quarterly* 35 (4): 554-566.
- Wenden, A.L. 1998. Metacognitive knowledge and language learning. *Applied Linguistics*. 19(4): 515-537.
- Winograd, P. & V.C. Hare. 1988. Direct instruction of reading comprehension strategies: The nature of teacher explanation. In C.E. Weinstein, E.T. Goetz & P.A. Alexander. (eds.). *Learning and study strategies: issues in assessment, instruction and evaluation*. San Diego: Academic Press: 121-137.
- Wong, H. 1998. ESL programmes at tertiary level: balancing policy, attitudes and learner realities. In W.A. Renandya & G.M. Jacobs. (eds.). *Learners and language learning: anthology series 39*. Singapore: SEAMEO Regional Language Centre: 286-299.
- Woolfolk, A.E. 1993. *Educational psychology*. 5th Edition. USA: Allyn & Bacon.

Appendices

Appendix 1 STRATEGIES

MACRO STRATEGY	MICRO STRATEGY
PLANNING (PL)	<p>(PL 1) Analyse goals (PL 2) Identify relevant and useful LS (PL 3) Deciding and implementing on strategies (PL 4) Planning strategic moves (PL 5) Making preview/overview (PL 6) Scanning information in text (PL 7) Skimming for gist of information in text (PL 8) Predicting content of text</p>
COMPREHENSION MONITORING (CM)	<p>(CM 1) Monitoring one's strategy use (CM 2) Double-checking on one's comprehension (CM 3) Relating one's prior/background knowledge (CM 4) Relating one's academic knowledge (CM 5) Attending selectively to important/familiar terms to facilitate comprehension</p>
PROBLEM SOLVING (PS)	<p>(PS 1) Infer from contextual clues (PS 2) Make logical and intelligent guesses (PS 3) Integrate information into a summary (PS 4) Seek clarification from teacher (PS 5) Question peers and cooperate with them</p>
EVALUATION (EVA)/MODIFICATION (MOD)	<p>(EVA 1) Evaluate the effectiveness of strategy (EVA 2) Identify most useful feature(s) of strategy (EVA 3) Reflect on context within which strategy successfully implemented (EVA 4) Modify strategy based on task demands (EVA 5) Evaluate on strategy best combination (EVA 6) Assess suitable conditions (When) to use strategies (EVA 7) Evaluate ways to re-implement unsuccessful strategic moves</p>

Appendix 2

APICPEM

Analyse

A represents **analysing**, which involves identifying learning goals, important task aspects, relevant personal characteristics, and potentially useful learning techniques. It also involves asking questions like what, who, why, when and how. These questions are meant to engage the learner's analytical mind before they begin on any task. Once the learners start with an analytical, it is easier for them to start their planning move.

Plan

The first *P* represents **planning**, which means formulating plan:

Given this task (...) to be done (...) according to these criteria (...) and given these personal characteristics (...), I should use these techniques (...).

(Snowman 1986; Schunk 2000)

The planning strategy involves making an overview of the task at hand, and if it is a reading task, the learner may engage skimming and scanning strategies to help predict the content of the reading text. The learner may also need to select useful strategies which they can eventually implement in doing the task proper.

Implement

I represents **implementing**, which involves employing tactics to enhance learning and memory. After making strategy selection at the planning stage, the learner is ready to implement his/her strategies.

Comprehend

C represents **comprehension monitoring**. This entails assessing goal progress to determine how well tactics are working. The learners need to monitor their understanding of say, a reading text. This may involve those strategies like double-checking on one's comprehension and attending selectively to familiar terms to facilitate one's comprehension.

Problem Solve

The second *P* stands for **problem solving**, which includes figuring out solutions for given tasks. This involves strategies like making inference from contextual clues and making intelligent or logical guess.

Evaluate

E represents **evaluation**, whereby after completing part or all a task, learners reflect on how well it went. This process allows them to see if they carried out their plans successfully and to check how well strategies implemented helped. Strategic students assess whether they met their goals for the task and if they did not, they will reason it out while finding alternative ways to re-implement strategies.

Modify

And *M* refers to **modification**; learners will continue using a strategy if the assessment is positive but modifies it if progress seems inadequate.

Appendix 3

Direct explanation of strategies

<p>Direct Explanation</p>	<ul style="list-style-type: none">• Introduce each strategy explicitly• Define each strategy explicitly• Describe each strategy very clearly• Outline critical features of each strategy• Explain the significance of each strategy• Provide reasons/rationales for learning each strategy• Break down each strategy into components• Explains the relationship among various components of a single strategy• Recommend the use of graphic organiser to facilitate strategy use• Delineate clearly appropriate circumstances when and where each strategy may be used• Show how to evaluate successful or unsuccessful use of each strategy• Explain clearly an ineffective use of strategy in some circumstances• Emphasise the importance of evaluating the success of one's strategy use• Explain that it is possible to monitor strategy selection and implementation• Initiate modelling of strategies
-------------------------------	--

Appendix 4

Retrospective Written Protocol – HP1

As I looked at the text, from the title it's clear that it will touch on the stages or steps of Maslow's Hierarchy of needs. I skimmed the text before reading it. I also started to look for specific points by looking for main ideas. I drew the chart to explain my understanding of the text. I tried to fit examples in my mind map to identify them easily. Some parts, I tried to make an intelligent and logical guess to get better understanding. I did this a lot when I didn't know the meaning of words because some words are quite difficult. As far as content is concerned, I have learned it in my management class so I tried to recall what I already know. I find it easier to put ideas into short sentence. In summarization, I tend to integrate events, ideas into shorter phrase. Sometimes in the reading process I got stuck because of vocabulary. I normally ask my friends or the teacher. I find that this helps me to know their meaning.

Appendix 5

Retrospective Written Protocol – LP1

I preview the article. I analyse and decide on strategy. I try to scan and then skim for general ideas. Some parts of the passage are difficult to understand so I try to recall my background knowledge on the issue. I remember learning about Maslow's Hierarchy in my diploma days and so I try to apply that and understand the concept. I review and evaluate my strategies and then modify it and implement new strategy. This is because, sometimes I get stuck with one strategy like making a guess on meaning of vocabulary is not effective. When I cannot I try to ask my friend about it or ask the teacher. So I try to change my strategy to suit how well can I understand the passage. Sometimes before I asked my coursemates or teacher, I try looking for some clues in the article so that I can get the meaning. But not many clues can be found in the article to help understand the meaning of words. To look for the main points is also difficult, so I try to discuss with my friend in the class.