Chapter 5
Blending Cognitive and Socio-constructive Pedagogies: Building Autonomous Readers in the ESL Classroom

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Abstract The dynamicity of technology used to present information and the resultant fluidity in text forms have led educators to concede that autonomy in reading and adaptability to changing forms of texts need to form the core of any reading instruction that aims to develop independent and/or lifelong readers. Working with a cognitive/socio-constructivist perspective, this chapter discusses the effects of a strategy training programme on reading competence of adult ESL readers. Viewing reading as a social process, the strategy programme conceived by the researcher harnessed the power of distributed cognition available in group interactions to empower individuals in the group to reach beyond their current levels of reading competence. The strategy training programme was designed based on two factors: (i) that interpersonal strategy development opportunities might facilitate intrapersonal strategy development; and (ii) that individual cognitive awareness needs to precede social interactions if collaboration was to have any learning effect. The strategy training programme reported in this paper therefore provided scope to develop in readers an awareness of strategies they used, and also opportunities to view and learn reading strategies used by peers. Results of the study showed that all learners demonstrated an increase in their reading comprehension performance—a consequence of increase in their reading strategies repertoire and the retention of newly acquired reading strategies, both contributive factors to independent reading comprehension.

Keywords Reading strategies · Reader autonomy · Lifelong skills
Cognitivism · Socio-constructivism · Strategy training

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Introduction

Reading as a skill needs no selling introduction; it is a universally acknowledged basic life skill. Grouping it with other life skills like swimming, drives home the point that reading is a skill essential for survival. Termed variously a *lifelong skill*, a *gate skill*, a successful *workforce skill* and an essential *workplace skill* by agencies as varied as UNESCO and the European Universities Association, reading is not only essential for academic growth, but also for success in the world outside since level of reading skill becomes a determiner of one's level of information literacy, i.e., one's ability to search, access, evaluate and use information—a capability essential for professional success.

Reading helps development of our other capacities as well. It throws open a broad spectrum of language and body knowledge that widens one's learning, and cultivates and advances one's oral and written communications. It makes one a more well-informed citizen by developing higher-order reasoning and promoting critical thinking ("To read or not to read", 2007). "The Rose Review" (2008) contends that reading is also a source of personal entertainment that paves the way for personal growth through emotional development.

It is no wonder then that teaching to read still forms the crux of most reading instruction in schools. However, literacy no longer being a static construct complicates and compounds the fact that teaching reading is also one of the most challenging areas of education. Our students cannot be taught to meet all their future reading requirements while at school precisely because all their future reading requirements cannot be predicted or anticipated while they are at school. We teach our learners to read the printed word, and once out of classrooms they are required to adapt their reading skills to suit newer reading environments like wikis, social media posts, hypertexts, visual texts, discussion blogs and short messages. Evidently, literacy is deictic (Coiro, 2003); as texts get increasingly multimodal, the nature of literacy changes from a monolithic construct to one that encompasses multiple literacies or multiliteracies (Leu, O'Byrn, Zawilinski, McVerry, & Everett-Cacopardo, 2009).

Factoring in the dynamicity of texts, educators now realize that in an information-laden society one's potential to learn continually and independently, and to adapt to the changing demands of literacy, nature of texts and reading purposes, forms a significant indicator of one's success, and that the primary focus of reading instruction should therefore be on nurturing reader autonomy, adaptability and self-reliance in developing one's competency as a reader.

Developing independent reading habits thus assumes a prime role in the pedagogies of the twenty-first century.

Autonomy in Reading

Autonomy in learning helps learners control their process of learning to suit their needs and styles thereby making learning more focused and purposeful (Holec, 1981). In an information-rich society like the current, one's ability to gain, receive, send and exchange information in English is a prime variable that determines success in personal, social, educational and professional activities. Autonomous readers are context adaptable to requirements of multiple information environments and are capable of utilizing and exploiting all opportunities of information exchange. They are therefore called *lifelong learners*, an essential twenty-first-century requirement that prepares them, according to Professor B.V.R. Chawdari of National University of Singapore, for a "life of careers instead of a career for life" (Bhatia, 2009).

Other advantages of developing autonomy have been listed by many: it enhances motivation, which in turn leads to more effective learning (Dickinson, 1995); it promotes rapid accomplishment and longer retention of learning since it facilitates learning in ways preferred by the individual (Claxton, 1996); and autonomous learners will have little difficulty in transferring their capacity for autonomous behaviour to other areas of social behaviour which in turn makes them better and more efficient members of society (Little, 1991).

Promoting learner autonomy does not mean sudden and total transfer of control over the learning process, tasks, pace and materials to learners. It is a gradual process that involves building "human potential through a continuously supportive process…to acquire knowledge, values, skills and understanding…and apply them with confidence…in all circumstances" (Longworth & Davies, 1996: 22). Within the parameters of teaching reading to ESL learners, this means teachers should endeavour to create readers who are capable of accessing any textual input and constructing meaning without external agent assistance.

As paradoxical as it may sound, throughout the process, learners need to be given direct and explicit expert guidance in learning. They need to be made aware of the need for autonomy, taught about and see demonstrated ways that can facilitate autonomous learning, in ways that respect and accommodate the learners' own current ways of thinking and learning, and eventually lead them to see the purpose of what they are learning (Benson, 2011).

The Process of Reading

The skill of reading has been described as a simple process that involves three competencies which help extraction of information from the text and construction of meaning by the reader:

- visual operations that lead to the recognition of letters and words, and decoding them in order to comprehend the meaning;

- sensitivity to grammatical relationships that adds meaning to the message and leads to construction of conceptual understanding; and
- construction of personal meaning that depends on one's background knowledge, purpose and techniques of reading (Kolers, 1970).

Through an active process of transactions between reader and text (Spiro et al., 1997; Swaffar, Arens, & Byrnes, 1991), meaning is constructed in a four-stage process of selection, acquisition, construction and integration (Weinstein & Mayer, 1986). Selection helps a reader focus on specific information relevant to the purpose at hand, which is then transferred to long-term memory. This acquisition of information through transfer is assisted by construction of connections between the new incoming information and the old information that is already stored within the reader. And finally in the integration stage, the newly gained information is accommodated, fitted into and blended with the old.

During each stage, reader interaction with information is shaped by knowledge that the reader already has. This knowledge is collected, formed and fashioned from his experiences in society, interaction with others, education, familiarity with text type, level of reading, language ability, cultural background, personal beliefs, etc. These different types of knowledge are represented as mental structures, also called schemata.

An autonomous reader would then be one who is able to identify and make use of relevant schemata to facilitate integration of textual information with existing schema using appropriate mental processes. Cognitive theories best explain knowledge representations in the form of schemata and the mental processes that make use of these.

Cognitivist View of Language Acquisition

During the 1950s, theories of language teaching and learning witnessed a paradigm shift from behaviourism to cognitivism. Cognitivism proposed the notion that humans do not receive input passively but are highly active while interacting with incoming sources of information. Cognitive psychologists use the concept of schema (plural: schemata) to explain the interaction of various sources of information during the comprehension process. According to the schema theory, knowledge already gained through prior experience is organized and stored as knowledge structures or units called schemata. Schemata can represent information gained about ideas, events, concepts, situations, actions and objects, and can also store information that connects these various units. Thus this mental framework helps the learner make sense of incoming information by choosing information that is familiar, recognizing what is unfamiliar, organizing knowledge based on patterns and structures, associating new information with previous knowledge and adding new elements to existing knowledge, selecting attention. It also enables storing and recall of information.

The theory has as its basis what Immanuel Kant claimed in 1781—that new information can acquire meaning only when it can be related to something the individual already knows. Our attempts to learn involve interaction between knowledge (or information structures) available within us (prior knowledge/schema), and the incoming new information; assimilation and integration of information gained with existing mental structures/schemata; and construction of new schema to accommodate information that cannot be integrated with the old structures. This view adds a constructive element to the cognitive paradigm.

Different types of prior knowledge/schemata are summoned by a reader to facilitate reading comprehension and knowledge construction: linguistic (knowledge of language), content (knowledge of the topic) and formal (knowledge of text types and structures) schemata (Carrell, 1983). These schemata are products in flux fashioned through prior experience with and exposure to agents like family, community, school, socio-cultural environment, age, gender and affective factors like anxiety, self-esteem etc. (Abersold & Field, 1997) and consequently differ from one individual to another (Anderson, 1982; Omaggio, 1993).

A fourth type of schema is the process schema, a knowledge of mental or cognitive activities, or techniques, called strategies that a reader can employ to summon relevant schemata and implement appropriate comprehension activities to process incoming data. Process schema also helps a reader monitor comprehension and launch compensatory actions. Process schema is therefore made up of procedures that help a reader make use of content, language and formal schemata available and deploy them in a manner that best suits the reading purpose at hand.

Lee and Van Patten (2003) explain that the interplay of schemata that operate simultaneously and interactively help "disambiguate, elaborate, filter, and compensate" (p. 219) textual information. Comprehension activities that help meaning making like explanation, interpretation, inference, evaluation and compensation are all fashioned out of the schemata that a reader brings to the text, and a comprehension deficit arises when one or more of these schemata are missing. However, Bernhardt (2005) argues that inadequacies in one schema can be compensated by activating another schema.

The role of schema while reading in a second language is compounded by the fact that reader variables are also effected additionally by what the reader has gained from L1. A beginning L2 reader brings to the reading process content, process, formal and linguistic knowledge gained from his experience with L1. As expertise in L2 grows, so do the various schemata. Bernhardt's (2005) model of L2 reading comprehension ascribes considerable significance to roles played by L1 literacy, L2 proficiency and unidentifiable factors like personality, motivation, intelligence and attitude in facilitating reading comprehension. Faerch and Kasper (1983) list two resources that help a second-language reader make meaning of incoming information: declarative knowledge that consists of internalized L2 rules and memorized chunks of language, and procedural knowledge made up of mental activities and procedures, or strategies, employed by the learner to process L2 data for acquisition and use.

Birch (2007) concurs. The model of reading proposed by Birch lays down that the L2 reading process is made up of two main components: knowledge areas and strategies used to process the text. World knowledge and language knowledge belong to the former, and cognitive processing and language processing strategies make up the latter. Cognitive processing strategies are general actions like inferring, predicting, etc., while language processing strategies like chunking, word recognition, etc. are language-specific strategies without which reading will suffer.

A second-language learner is then someone who has an already developed and unique set of schemata to support his L2 reading comprehension process. Content, linguistic, formal and process schemata of an L2 reader are already developed due to exposure to L1. In addition, a threshold of linguistic and formal schemata in L2 is required for comprehension to be successful. What is required in our classrooms is therefore: first, an awareness that the reading process is not invariant, that it is reader dependent; and second that the L2 reader is not a total novice, that they come equipped with a lot of reading resources at their disposal.

Teaching Reading in the ESL Classroom

Most ESL classrooms adopt a product-based approach where the teacher teaches the reader how to read, how to comprehend and what to comprehend with scant attention paid to what the reader already knows. The focus is on what and how much content has been comprehended, and how to comprehend a text. In an L2 classroom where learners are already familiar with reading in L1, have a repertoire of content, structure and process knowledge to rely on, direct instruction in ESL reading where teacher decides the meaning of the text and explains how to understand it can be disconcerting. It might demotivate, decelerate or even impede learner progress.

From the point of view of the schema theorists, what might work better is a process-based approach which provides scope to activate each learner's prior experience with language learning, brings to the fore reading strategies (procedural knowledge/process schema) currently used, and leverages them to facilitate L2 comprehension. Such an approach would include enhancing awareness of strategies one employs; locating and correcting deficits in strategy use; demonstrating ways to increase their efficacy; giving opportunities to master their use; and providing exposure to a wider repertoire of strategies that could result in a richer process schema. The teacher does not assist with content, language or structure, but facilitates with techniques that can be employed to ensure adequate comprehension of textual information. This would help build readers who develop insights into their learning styles and strategies; take an active and conscious choice regarding how to address the task of reading in hand; and recognize and utilize the right strategies to exploit available schemata so that comprehension becomes more reader-controlled and autonomous.

This chapter believes that a rich process schema might help rectify inadequacies in topical, structural or language knowledge available to the reader.

What also works in favour of providing training in strategies/developing process schema is that procedural knowledge is finite in nature, unlike topic and language knowledge, and does not fluctuate much based on variables like culture, social background, age, intelligence, etc.

In the following sections we detail various procedural resources, also termed strategies, utilized by a reader.

Learner Strategies in Language Acquisition

Learners use a variety of mental or behavioural activities called strategies to assimilate new information to their mental structures/schema (Anderson, 1982). For Weinstein and Mayer (1986: 315), strategies control both mental and behavioural aspects of an individual. They are "behaviours and thoughts that a learner engages in during learning that are intended to influence the learner's encoding process". Oxford (1994: 1) defines them as "actions, behaviours, steps, or techniques students use, often unconsciously, to improve their progress in apprehending, internalizing, and using the L2".

Learners' procedural knowledge stores information about three major types of strategies used while learning a language: cognitive, socio-affective, and metacognitive (O'Malley & Chamot, 1990). Cognitive strategies are techniques or procedures that facilitate a learning task or the steps or operations used in learning or problem solving. They involve techniques used to select, acquire, construct and integrate information. Social strategies decide learners' interaction with peers, teachers and other individuals, and affective strategies affect learners' motivational or affective state, and help them control their emotions. Metacognitive strategies are controlling, monitoring and evaluating strategies; they are problem and outcome oriented and are deployed by learners when a particular learning problem is encountered. They help learners think about their thinking.

Oxford (1990) classified strategies for language learning into direct strategies that are knowledge based and meaning based, and are used for memorizing, cognitive processing and compensation, and indirect strategies that consist of metacognitive, social and affective strategies. A few examples of cognitive strategies are reviewing lessons, guessing word meaning from context, writing notes, skimming and using a dictionary; while metacognitive strategies include planning a schedule, setting goals, looking for opportunities to learn the language, etc. Strategies that we use to interact with others for language learning are social strategies like asking the speaker to slow down when the message is not clear, practising with others and asking for help with learning. Examples of affective strategies are trying to relax when nervous, giving encouragement to oneself and rewarding oneself for a lesson well learned.

There are no direct cause-and-effect relations between strategies and their purpose. In other words, there are no exclusive strategies directed to achieve specific results. Sometimes more than one strategy can be used to perform the same result.

For instance, once the reader identifies the presence of an unfamiliar word (inadequate linguistic schema), many strategies can be employed to repair the deficit, viz., guessing from context, translating the context to mother tongue, referring to a dictionary, ignoring the word, breaking up the word into familiar components, asking a more knowledgeable person, etc. The choice of strategies depends on the reader's level of expertise or preferred style of learning.

So also there are no good or bad strategies; efficiency of strategies depends on the number of strategies available for use and how they are used. A successful learner is one who has access to a wide number of strategies. The third aspect of successful strategy use is if the strategy was employed metacognitively (Carrell, 1989; Jimenez, Garcia, & Pearson, 1996; García et al., 1998). Unsuccessful learners lack strategic awareness and hence are unable to monitor their comprehension processes (Mokhtari & Reichard, 2002). Past researches in L1 and L2 indicate that ESL learners struggle primarily because of lack of knowledge of their own cognitive process, also known as metacognition, to monitor control and their learning abilities (Niemi, 2002). In the 1970s Flavell introduced the term metacognition to refer to the knowledge and awareness of one's cognitive learning processes. Metacognitive strategies are those that help learners plan learning activities, monitor achievements and repair unsuccessful activities by adjusting strategies to ensure successful performance (Jacob & Paris, 1987; Pressley, 2000).

Several reasons why metacognitive strategies contribute to effective language learning have been pointed out: metacognitive knowledge develops lifelong learners who can cope and adapt to new contexts and problems (Eggen & Kaucbak, 1995); awareness of metacognitive processing results in use of strategies which are purposeful, effortful, focused, essential and facilitative in promoting language acquisition (Alexander & Jetton, 2000); integrating metacognitive knowledge instruction into language instruction programmes helps develop learners who can take charge of their own learning (Garb, 2000).

Strategies in Reading

Fluent readers construct meaning using a combination of text-based information and their own prior knowledge (Rumelhart, 1977; Stanovich, 1980). Reading strategies are techniques that help facilitate this construction of meaning by

- retrieving information from prior knowledge
- storing new information
- recognizing obstacles/deficits
- deciding upon ways to overcome these
- launching correction measures to ensure comprehension

A successful language learner, according to Devine (1993) is one who has a good awareness of skills and strategies available at their disposal; has metacognitive

knowledge about themselves as a learner and how they learn best; has clear understanding of the nature, purpose and demands of the task at hand; and knows the strategies that are appropriate to achieve goals of the task. Skilled readers are therefore those who are conscious of the reading strategies they use; have clear understanding of the purposes of the current reading task; are aware of their strategy needs to meet these purposes; are in control of their comprehension process by constant monitoring of the effect of strategies employed; and know what repair strategies to use should there be a comprehension deficit (Pressley & Afflerbach, 1995). As mentioned before, higher levels of metacognitive awareness enables efficient use of reading strategies (Carrell, 1983; Zhang, 2001); and successful reading comprehension depends on whether a strategy was employed metacognitively (Carrell, 1989). So in comparison, poor readers are not those who lack cognitive strategies (in fact, it is rare to find L2 readers who lack cognitive strategies) but those who fail to access them metacognitively. Many strategy research studies (Barnett, 1988; Auerbach & Paxton, 1997; Jimenez et al., 1996) support the finding that there is a positive relation between L2 reading comprehension and reader awareness of strategy use/metacognitive awareness.

Rosenblatt (1978) describes two kinds of reading: efferent reading and aesthetic reading. The former helps acquire information from the text that is being read, while reading aesthetically helps the reader focus on the mental activities that occur while reading, paying attention to processes, associations, feelings and attitudes. In other words, reading aesthetically and paying attention to how one's reading process works, helps develop metacognitive strategies. To ensure retention and application of information acquired, students need to be taught to develop both efferent and aesthetic ways of reading. This has the potential to develop autonomy in reading skills.

Expert learners are aesthetic readers who are continually active—constantly taking decisions regarding task requirements, accuracy and sufficiency of information acquired, sources of comprehension obstacles, deploying of appropriate correction strategies and making the language-learning environment conducive and favourable. The interactive model of the expert language learner 'learner self-management' (LSM) proposed by Rubin (in Johnson, 2005: 37) states that the learner's metacognition involves five procedures of planning, monitoring, evaluating, problem identification/solving and implementing corrective measures. According to this model, there is continual interaction between an expert reader's metacognition and procedural knowledge resources. Less successful language learners, then, are those who do not have the metacognitive knowledge that helps one become aware of cognitive and/or socio-affective strategies that are context/need appropriate (Chamot, 2005).

There is evidence to suggest that metacognitive strategies used by successful learners to make the right decisions are what distinguish good language learners. Reviewing Good Language Learner models proposed by researchers in strategy studies, Rubin (in Johnson, 2005) points out that there may be some variation in the cognitive and socio-affective strategies used by various learners but there is seemingly little or no variation in the use of metacognitive strategies. While both

expert and novice learners may use the same cognitive and socio-affective strategies, research consistently shows that the difference in success depends on the use of effective metacognitive strategies. Learners who have a wider repertoire of metacognitive strategies and are in control of their metacognition in terms of choosing the right strategy that the context demands are therefore potential autonomous language learners (Hauck, 2005).

Metacognitive strategies help learners evaluate whether they have the schemata needed to accomplish a task, viz., topic knowledge, language knowledge, structure knowledge and even process/strategies required for successful completion of the task, and if they lack any of these, how to remedy it. According to Ertmer and Newby (1996: 3), expert learners are "strategic, self-regulated, and reflective"; they are more aware than novices of the need to check for errors in comprehension, how to address these, how to compensate for deficits in their ability and achieve success in their efforts. This upholds the view that expertise in reading is not a demonstration of automaticity of reading processes but that good readers are acutely conscious of their reading processes and are constantly monitoring them.

The cognitive-constructivist view upheld the view that comprehension instruction can be best strengthened through development of various strategies. This stems from the view that expert learners are those who have strategies that help assess the requirements of the task, know which procedures to deploy to serve the task purpose at hand, have a large repertoire of procedures to choose from, and are constantly monitoring and evaluating the efficacy of these procedures. As mentioned earlier, in a second-language context, reading strategies are developed primarily through reading in L1. Acquired through repeated encounters with language, while trying to solve problems encountered during acquisition or transmission of knowledge, strategies can also be learned through direct instruction.

Language Strategy Training Programmes

The sustained popularity of language strategy training lies in the potential it holds for shaping learning in and outside the classroom, and offering information that can accelerate the processes of language learning (Grenfell & Macaro, 2007). A large body of research documents the positive effects of strategy training on language learning. Strategy training can build effective and independent learning habits (Wenden & Rubin, 1987; O'Malley & Chamot, 1990) and learners who are confident and motivated to take charge of their learning process (Chamot & O'Malley, 1994). Research indicates that more proficient L2 learners tend to have a wider range of strategies, have a heightened sense of metacognitive awareness and employ strategies more often than less proficient learners (O'Malley & Chamot, 1990; Oxford, 1990). Factoring in these indicates that for a strategy training programme to be effective, activation of metacognition and instruction in the use of a large number of strategies should be enabled. However, in an L2 context, strategy training should allow learners to discuss and describe strategies already being used

before familiarizing them with other strategies that are available. Strategy selection to be informed, "presupposes knowledge of strategies and knowledge of strategies presupposes instruction" (Nunan, 1991).

Nature of Strategy Instruction

O'Malley and Chamot (1990) list two approaches to instruction in teaching use of learning strategies: direct and embedded. In direct training students are taught the name, purpose, value and use of various learning strategies considered useful by the instructor, whereas in embedded strategy training guidance in the use of learning strategies is embedded or built into the materials used.

The research from which this chapter draws evidence is designed on the assumption that one effective way of developing independent reading skills is helping readers recognize the role of process schema, and promote use of and facilitate development of process schema through strategy training. In L2 contexts, however, both direct and embedded instruction could prove detrimental since strategies taught are pre-determined by the instructor/teacher/materials producer. This paper therefore recommends the use of a strategy training programme that first helps readers identify strategies that are currently used and determine their efficacy, and then provides exposure to a wider repertoire of strategies from which students can select, adopt, adapt or create new ones for use. This would not only support the fact that strategies have to be aligned with learning styles, but would also provide an essential opportunity to develop metacognition. It was hypothesized that process schema once developed would help bridge gaps in context and linguistic knowledge.

In the research reported here, individual think alouds and collaborative reading activities were used to help readers access their cognitive processes. The strategy training programme designed for the research works on the assumption that a cognitive-constructive learning environment that aims to achieve learning through dialogue with self, followed by dialogue with others through social participation, could be an ideal environment for a learner to understand and gain control over their reading processes and design a better process of their own by learning from others. Socio-constructivism, the second theoretical framework that forms the crux of the study—beside cognitivism—is explored below to explain how autonomy in L2 reading can be promoted in a collaborative learning environment that scaffolds strategy development with peer support and is preceded by activities that promote learner's self-awareness. Working first within the cognitive-constructive paradigm, the programme attempted to heighten learners' self-awareness before they collaborated to learn from peers in a socio-constructive setting. This was expected to make learning from others more purposeful and focused. Once learners are made aware of the processes they use and identify deficits in them, working with others, it was hoped this would help them choose and use strategies they found most needed, useful and suitable for their learning styles and contexts.

Social Constructive Learning

The cognitive paradigm viewed knowledge acquisition from texts as a process of selecting, interpreting and constructing meaning, based on the interaction between new knowledge in the text and knowledge structures already in the reader. Comprehension is the result of an active process of creating hypotheses, testing them and building new forms of understanding through trial and error. Constructing knowledge based on trial-and-error processes derived from an individual's observation and reasoning capabilities might have limited effects; for the trial-and-error process to be successful, learners need to be supported—either in terms of materials (proposed by cognitive theorists) or others/experts (proposed by constructive theorists) that can make the learning processes adopted richer. Accommodating this view, the cognitive paradigm explaining the skill of reading has witnessed a shift from focus on interaction of reader and text to a socio-constructive paradigm that upheld the role played by the interaction of reader and context/others in successful reading comprehension.

The addition of the social constructive view was directly in keeping with the contrasting views proposed by development psychologists Piaget and Vygotsky. While for Piaget (1957) it was the child's experiences that determined, regulated and constructed learning, Vygotsky (1978) argued that the role of others was primary in the cognitive development of the child. The theory of social constructivism believes that one's learning, ability and intelligence are not static constructs but dynamic, arising out of collaborated responses to specific social/interaction situations. Social interactions determine cognitive abilities.

The concept of distributed cognition proposed by Hutchins in the 1990s based on Vygotsky's views on the social aspect of cognition explains that, in a social environment, facts, knowledge and information of any sort are distributed among all the members of a group. Distributed cognition thus means a set of cognitive systems that interact not only within each other but also with each other. Collective performance, resulting from members socially coordinating to perform complex tasks, contributes to individual cognitive development. In other words, cognition embedded in all the individuals in a collective setting contributes to each member's individual learning. Salomon (1993), introducing the term 'shared cognition' to explain a type of distributed cognition, explains that social activities like conversations produce constant changes in individual's cognition based on the responses of other participants in the system (distributed cognition). Socially distributed individually embedded capacities, skills or knowledge can therefore be made to result in individual growth through scaffolding social activities.

Vygotsky (1978) and later researchers like Warschauer (1997) and Warschauer and Kern (2000) point out that in an environment where learning is facilitated through social interaction and is mediated by tools like teamwork, conversations and dialogue, each participant internalizes the new, co-constructed knowledge first on the social level, and later on the individual or personal level. From social interactions participants move towards independent thinking (Woolfolk, 2004).

Collaborative learning events can thus encourage learner independence and promote critical thinking.

Vygotsky (1978) introduced two terms to signify how social interaction promotes co-construction of knowledge and learning: scaffolding and zone of proximal development. At the social level, the acquisition of new knowledge is facilitated by the More Knowledgeable Other (MKO), any person who has a better skill, a higher level of knowledge, or an advanced ability or understanding than the learner. The MKO supports collaborative learning by scaffolding, i.e., by providing prompts, hints, clues, explanations, questions and suggestions to assist problem solving (Bonk & Cunningham, 1998). With scaffolding provided by the MKO, students can reach higher-level understanding of tasks or solve problems they would have been unable to solve alone. Vygotsky captures this enhanced learning through the concept of the zone of proximal development (ZPD). The ZPD is the difference between the ability of a learner to perform a specific task independently and to perform the same task under the guidance of an MKO. It is the distance between actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving in collaboration with more able peers or the MKO.

Socio-constructive theory explains that higher and effective learning occurs in ZPD; that given appropriate help a learner can perform a challenging task beyond his independent abilities (Woolfolk, 2004).

Constructivism in Practice

Two strategy teaching methods that implement socio-constructivism and cognitive constructivism in reading comprehension skills which are of significance to this chapter are reciprocal teaching and differentiated instruction respectively.

Reciprocal teaching, first developed by Palincsar and Brown (1986), is a small-group reading instruction activity in which students play the roles of the teacher. The teacher first demonstrates and then helps students to use the four reading strategies of summarizing, question generating, clarifying and predicting. Once the students master the use of these strategies, each one assumes the role of teacher and leads a dialogue with group members applying a specific strategy to the text segment that has been read.

While reciprocal teaching delivers a pre-determined set of strategies to students via direct instruction followed by group learning, differentiated instruction as a pedagogic framework believes that effective teaching ought to provide each student with personalized learning instruction opportunities in terms of materials for acquiring content; means/strategies for processing, constructing and comprehending information; type of learner output expected; context of learning; and materials for assessment (Anderson, 2007). This outlook is based on the assumption that learners vary based on their socioeconomic and cultural background, language used, gender, motivation, cognitive abilities, interest levels, etc.

Reciprocal teaching and differentiated instruction are of significance to the study reported here since the former makes use of peer teaching while the latter accommodates the view that learning processes are unique and vary depending on learners.

However, strategy training as implemented in these programmes is in danger of devaluing the individual L2 learner since both implement a set of strategies prescribed by an 'other'/expert and not by the individual, and hence may not match learner deficit or address learner need. While reciprocal teaching completely discounts the learner's available process schema, differentiated instruction does *attempt* to take into account the deficits in the process schema of learners but does not allow a choice of strategies. Like most collaborative learning activities, it might then get reduced to weaker members adopting strategies from those who are the most vociferous or assertive.

Keeping this in mind, one guiding influence for the strategy training programme designed for this programme was the extended view of reading as a social process that regards group interaction as capable of making up for individual deficits in topic/language/structure/strategies with the facility of distributed cognition. The second guiding principle was what Collins, Brown, and Newman (1989) pointed out in favour of making thinking visible for cognitive development: that concepts, like strategies, should be regarded as tools that need to be understood through use, rather than as notions or ideas that need to be taught through instruction.

The research from which the chapter draws its notions hypothesizes that learning together and co-construction of knowledge should be preceded by awareness raising of the processes involved in personal construction of knowledge, or metacognition. Social interaction can yield individual benefits, only if one first allows opportunities for individual construction of knowledge. Unless personal-level awareness precedes the social, the individual will not be ready to learn, adopt and adapt from peers; and social learning activities will not be purposeful. In the context of strategy training, working in the cognitivist-constructive paradigm enables in individuals awareness of strategies and their purposes. Thus strategies are not restricted to being mere ideas but are recognized as tools readers use. More than a strategy list, development of metacognition through individual think alouds facilitates readers with the language to discuss and share strategies used, and search for strategies needed.

Strategy Training to Develop Autonomy in Reading: An Experiment

Drawing on cognitive and socio-constructive theoretical frameworks, a strategy training experiment was conducted to exhort the need for fostering the pedagogy of collaboration in the ESL classroom in order to promote independent reading habits. The chapter argues that encouraging individual cognitive awareness before

collaborative construction (the personal before the social) can lead to enhanced, focused and more purposeful individual cognitive development and consequently autonomy in learners.

Researchers like Wenden and Rubin (1987) and O'Malley and Chamot (1990) have claimed that an awareness of one's strategies will lead to independent and therefore effective learning. In the case of reading, this would mean that an awareness of one's reading strategies leads to effective reading without external assistance. However, awareness raising, this researcher felt, is an essential but not sufficient requirement for developing independent reading habits. Awareness of strategies one uses does not equip one with alternative strategies to solve one's comprehension blocks. A lack of awareness of alternative strategies limits an individual's ability to perform a learning task which requires new learning strategies (Dansereau, 1985). However, if the reader is made aware of a wide variety of strategies they might choose an alternative strategy or adapt, modify, adopt or even create a new one to fit their learning requirements and learning process, and thus use it confidently to satisfy their purpose of reading.

Second, it has been hypothesized (Vygotsky, 1978) that interpersonal development through a socio-constructive learning paradigm can promote intrapersonal development facilitated by a cognitive-constructive learning paradigm. Whereas this research argues that for collaboration/learning from others to have any learning effect, an individual should first be aware of themselves and the processes they use, and be able to detect the deficiencies in the processes. A cycle of stages of personal —social—personal development is recommended.

A strategy training programme was envisaged to test the efficacy of the hypothesis that providing exposure to alternative strategies through a programme that precedes collaborative learning activities with personal cognitive development activities might encourage learners to achieve independence in reading by giving them opportunities to develop a larger repertoire of individually chosen strategies. Three features formed the pivotal factors that determined the design of the strategy training programme.

It was felt that, in order to facilitate lifelong learning habits through a strategy training programme, we must first attempt to generate an awareness of one's cognitive process, i.e., metacognitive awareness (Flavell, 1978).

Second, it is over-simplistic to assume an individual termed a *student* will always respond within a system in ways consistent with this label (Elliott, 1999). Any individual is primarily a social being and hence lifelong learning should create opportunities for learners to engage and re-engage in learning with fellow members of their society (Elliott, 1999: 26). Hence, the researcher felt that social learning or learning in groups might be the most appropriate activities for developing lifelong learning habits in our learners.

Third, since it has been argued that we can facilitate a rapid accomplishment of learning, which will be retained longer if learning is provided in ways preferred by the individual (Claxton, 1996), it is advisable to allow the learner to choose those strategies that suit their preferences. In this context, what a strategy instructor can do is provide the learner with a number of strategies within the strategy instructional

framework so that they are free to adopt what they feel will fit their learning style and purpose.

A strategy training programme was conducted:

(i) to identify the reading strategies used by the subjects and to determine if an awareness of their reading strategies would lead them to better comprehension on the one hand and independent reading on the other, and
(ii) to decide whether through group activities like collaborative reading and social think alouds, learners could be exposed to strategies used by peers, and if they could be encouraged to make use of these.

Methodology

The study was conducted in five phases with ten adult ESL learners (R1 to R10) at various levels of proficiency of reading (TOEFL reading scores ranging from 08 to 24). All the participants were students enrolled in short-term English proficiency development courses offered by the English and Foreign Languages University, Hyderabad. For convenience in managing students, the selected ten were divided randomly into two mixed-ability groups (groups A and B) with five members each. Group A had readers identified as R1, R2, R3, R4 and R6, and group B had members R5, R7, R8, R9 and R10.

Tools used for strategy awareness and strategy training included Oxford's (1990) Strategy Inventory for Language Learning (SILL), think alouds, a metacognitive response sheet designed by the researcher to facilitate think alouds, retrospective and introspective interviews, teacher discussions and consultations, and ten reading texts at various levels of difficulty (determined through Flesch-Kincaid reading difficulty measure) followed by comprehension questions. A simple calculation of average of reading comprehension scores was solely depended on as descriptive measure to determine growth, if any, in reading comprehension. The mean score was considered sufficient primarily because the focus of this research was on qualitative understanding of data obtained: delineating ways to raise awareness of strategies; understanding types of strategies used by readers; increasing efficacy of strategy training; investigating kinds of readers who benefitted from strategy training; and investigating retention of effects of strategy training. Statistical measures were not considered since the sample was too small, being chosen keeping in mind the exhaustive nature of parsing, coding and analysis of think aloud and interview data required for identifying strategies used.

The initial study extended over a period of seventeen days, and a delayed-effects study (phase 5) was conducted after a gap of 30 days.

In phase 0, before the commencement of the actual study, readers' entry-level comprehension was assessed using an academic reading text (Txt1) at reading difficulty of Flesch-Kincaid grade level 10. Based on levels of language proficiency demonstrated by responses to reading comprehension questions, readers were rank

ordered and grouped as belonging to high, middle and low levels of language proficiency. This was purely for research purposes and not revealed to subjects. R4, R5 and R10 showed high levels of language proficiency, scoring an average of 9 out of 10; R6 and R8 scored 6 out of 10 and so were grouped as middle-level language proficiency; and R1, R2, R3, R7 and R9 were readers who demonstrated low language proficiency, having scored an average of 2.5 out of 10 in comprehension questions.

The goal of phase 1 was to identify strategies used by the subjects before group interaction activities and to raise self-awareness of strategies used. All the texts used here were read individually accompanied by think alouds. Think alouds were facilitated with the help of a metacognitive response sheet designed by the researcher. Two practice texts at reading difficulty of Flesch-Kincaid grade levels 6 and 7 were used for the cognitively demanding task of practising thinking aloud and identifying reading strategies used. Once they gained expertise in articulating their thought processes, readers were given texts at levels 8 and 9 (Txt2 and Txt3) and comprehension exercises.

Strategy profiles of each reader were drawn working with the reader, using inputs received from think alouds, retrospective and introspective interviews, and performance of comprehension tasks in addition to responses to Oxford's (1990) Strategy Inventory for Language Learning (SILL). These were then given back to the learners to make them aware of strategies they used. Equipped with individual strategy profiles, readers were then asked to read Txt4 at difficulty level 10 and respond to comprehension questions. Performance on these questions was compared with that at phase 0 to determine if an awareness of strategies alone would help improve comprehension.

In phase 2 readers were made aware of alternative strategies available by exposing them to strategies used by peers through group reading activities. Subjects read the texts (Txt5 and Txt6 at levels 10 and 11) individually first, and then discussed with peers parts they did not understand. Comprehension questions were discussed and answered as a group. Social think alouds were encouraged and soon became a tool that facilitated collaborative reading: less successful members clarified what they could not comprehend, while those who were successful discussed and demonstrated various strategies they used to understand the text. Group members questioned each other about the various strategies and learned how to use them.

Phase 3 was conducted to determine if exposure to alternative strategies resulted in learners adopting new strategies and demonstrating improvement in reading comprehension. So in this phase collaborative reading activities were conducted using texts (Txt7, Txt8) at levels 11 and 12, but comprehension tasks that followed the texts were attempted individually. This was followed by group discussion of responses to tasks, though readers were asked not to make any changes to their written responses.

In phase 4 a text (Txt9) at level 11 was used for individual reading assessment. Readers read the text individually and answered comprehension questions. This was followed by drawing up of reader strategy profiles, as in phase 1, to determine increase in strategy repertoire, if any. Reader responses to comprehension items were assessed to determine if exposure to other strategies and/or increase in

individual learners' strategy repertoire resulted in enhanced levels of comprehension. All readers showed an increase in their strategy repertoire, and in keeping with findings derived in phase 3, a consequent growth in comprehension scores as well.

In phase 5 a text (Txt10) at level 11 was used to assess delayed effects of strategy instruction, i.e., to determine if learners were able to retain use of new strategies they had learned from peers. As in the previous stages, readers were asked to read a text and respond to comprehension questions. Later they were asked to recall strategies they employ currently, not only while reading the text but also elsewhere in other reading contexts.

Analysis and Interpretation of Data

Tables 5.1, 5.2 and 5.3 give the marks that the all readers scored in the tasks which accompanied the ten texts used for comprehension. Maximum marks for task items for each text are given in brackets. Group scores are given for texts 5 and 6 since tasks here were attempted as a group.

I. To answer the first research question (does awareness of strategies result in improvement of reading comprehension?), we take a look at the average of scores marked for texts 1 and 4. It is clear that readers do not show much growth from phase 0 to phase 1.
II. In phase 2, group A scored 4.5 out of a total of 5, and 4 out of 4 for texts 5 and 6 respectively, while group B scored 5 out of 5 and 4 out of 4 for both texts indicating the success of collaborative reading and group think aloud activities.

Table 5.1 Marks scored by subjects in reading comprehension tasks in phases 0 and 1

Level of proficiency	Phase 0 Txt1 (5)	Phase 1 Txt2 (4)	Phase 1 Txt3 (3)	Phase 1 Txt4 (5)
Low				
R1	1.5	1	0	1
R2	0.5	0	0.5	1.5
R3	0.5	1	1	1
R7	0	1.5	1	1
R9	1	1.5	1	1.5
Average	0.8			1.2
Middle				
R6	2.5	2.5	2	2.5
R8	2	2.5	2	2
Average	2.25			2.25
High				
R4	3.5	3	2	3
R5	4	3.5	3	3.5
R10	4	4	2.5	4
Average	3.6			3.5

Table 5.2 Marks scored by subjects in reading comprehension tasks in phases 0–4

Level of proficiency	Phase 0 Txt1 (5)	Phase 1 Txt4 (5)	Phase 3 Txt7 (4)	Phase 4 Txt8 (4)	Phase 4 Txt9 (4)
Low					
R1	1.5	1	2.5	3	3
R2	0.5	1.5	3	3	3.5
R3	0.5	1	2	3	4
R7	0	1	2.5	3.5	4
R9	1	1.5	3	3	4
Average	0.8	1.2	2.6	3	3.7
Middle					
R6	2.5	2.5	3	3.5	4
R8	2	2	3.5	3	4
Average	2.25	2.25	3.25	3.25	4
High					
R4	3.5	3	3.5	4	3.5
R5	4	3.5	4	3.5	4
R10	4	4	4	4	3.5
Average	3.6	3.5	3.8	3.8	3.6

Table 5.3 Marks scored by subjects in reading comprehension tasks in phases 0–5

Level of proficiency	Phase 0 Txt1 (5)	Phase 1 Txt4 (5)	Phase 3 Txt7 (4)	Phase 4 Txt8 (4)	Phase 4 Txt9(4)	Phase 5 Txt10 (5)
Low						
R1	1.5	1	2.5	3	3	4
R2	0.5	1.5	3	3	3.5	3.5
R3	0.5	1	2	3	4	4
R7	0	1	2.5	3.5	4	3
R9	1	1.5	3	3	4	4.5
Average	0.8	1.2	2.6	3	3.7	3.8
Middle						
R6	2.5	2.5	3	3.5	4	4
R8	2	2	3.5	3	4	4.5
Average	2.25	2.25	3.25	3.25	4	4.25
High						
R4	3.5	3	3.5	4	3.5	4.5
R5	4	3.5	4	3.5	4	5
R10	4	4	4	4	3.5	5
Average	3.6	3.5	3.8	3.8	3.6	4.8

III. To answer the second question (does an awareness of alternate strategies result in improvement of reading comprehension?), we compare marks scored in phases 0 and 1 with marks scored in phases 3 and 4. It was observed that every reader showed some degree of growth in levels of comprehension when compared to their previous performances.
IV. To investigate the delayed effects of strategy training, i.e., the long-term benefits of strategy training for reading comprehension, in phase 5 which was conducted after a gap of 30 days, readers were given text 10 for comprehension. This was followed by a brief retrospection of the strategies used by each reader. Given below is a comparison of scores at all five phases.
V. Profiles of strategies used by readers at three differing levels of language proficiency are shown in Table 5.4. Strategies used before the training intervention are listed in the left column, and those demonstrated after the training in the right. The ones marked in bold in this column are those that were newly acquired.

Table 5.4 Reading strategies profiles of low-, mid- and high-proficiency learners

R1: low-level proficiency	
1. Using background knowledge 2. Reading aloud 3. Memorizing 4. Translating 5. Re-reading 6. Builds mental pictures 7. Underlining (almost the whole text)	1. **Division of words** 2. **Building mental images** 3. **Self-evaluating** (*summarizing and questions to self*) 4. **Translation and substitution** 5. **Translation and elimination** 6. **Summarizing (ongoing)** 7. **Paying attention to discourse markers** 8. **Skimming** 9. **Using context for word meaning** 10. **Underlining key words** 11. Using background knowledge 12. Re-reading 13. Reading aloud
R2: low-level proficiency	
1. Translating 2. Re-reading 3. Using background knowledge to relate to text information 4. Division of long sentences into shorter segments 5. Re-writing key words/sentences on a paper 6. Referring to dictionary	1. **Summarizing (ongoing)** 2. **Division of words into familiar components** 3. **Partial translation** 4. **Relates different sentences** 5. **Contextual guessing** 6. **Underlining** 7. **Self-monitoring (*using mental summaries*)** 8. **Note making** 9. **Builds mental pictures** 10. **Translation and substitution** 11. **Writing a language-learning diary of vocabulary and strategies learned**; **progress made** 12. Re-reading 13. Using background knowledge 14. Using dictionary

(continued)

Table 5.4 (continued)

R6: mid-level proficiency	
1. Underlining 2. Relates text to background knowledge 3. Uses images of familiar words 4. Scanning 5. Builds mental pictures 6. Memorizing 7. Translation and substitution (paragraph level) 8. Writing a language-learning diary 9. Rhyming for memorizing word meanings 10. Using dictionary 11. Skimming 12. Clarifying with peers/teachers/experts	1. **Division of words** 2. **Guessing word meanings through linguistic clues** 3. **Making predictions by relating to background knowledge** 4. **Summarizing (write down main points)** 5. **Self-evaluating using summaries** 6. **Skipping (words or paragraphs)** 7. **Making notes on margin** 8. **Comparing new information with background knowledge** 9. Translation and substitution (sentence level) 10. Relates text to background knowledge 11. Uses images of familiar words 12. Scanning 13. Skimming 14. Builds mental pictures 15. Writing a language-learning diary
R8: mid-level proficiency	
1. Translation (partial) 2. Division of words and sentences 3. Uses background knowledge to compare 4. Uses background knowledge to predict 5. Guessing of word meaning using linguistic clues 6. Guesses with sound similarity 7. Uses images of words which are familiar 8. Self-monitoring (by asking questions to self) 9. Re-writing important points in notebook 10. Re-reading	1. **Skipping (of paragraphs)** 2. **Summarizing** 3. **Relates different sentences/paragraphs** 4. **Underlining** 5. **Writing a language-learning diary (on effective strategies, strategies used)** 6. **Skimming** 7. Contextual guessing (linguistic clues) 8. Relates to background knowledge (to compare) 9. Uses background knowledge to predict 10. Translating 11. Division of long sentences (for word meanings) 12. Scanning 13. Translation and elimination (sentence level) 14. Re-read 15. Translation and substitution (sentence level) 16. Self-evaluating *(ongoing questions to self)*
R5: high-level proficiency	
1. Re-reading (when there is a block in comprehension) 2. Skipping (of words) 3. Relates different paragraphs/sentences 4. Uses background knowledge to translate 5. Scanning 6. Guessing using linguistic clues 7. Summarizing (ongoing) 8. Self-evaluating (by asking questions) 9. Skipping words or paragraphs 10. Making summary notes of each paragraph 11. Reasoning 12. Inferring 13. Using dictionary 14. Making predictions by relating to background knowledge	1. **Division of words** 2. **Division of long sentences into shorter segments** 3. **Skimming** 4. **Predicting based on title followed by skimming** 5. **Translation and substitution (for word meanings)** 6. Contextual guessing (linguistic clues) 7. Self-evaluating *(set a goal; ask questions to see if comprehension is sufficient; identify problems and employ multiple strategies)* 8. Skipping (words or paragraphs) 9. Making notes marking relation between paragraphs 10. Relating different paragraphs/sentences 11. Re-reading (when there is a block in comprehension) 12. Summarizing (oral or written) 13. Reasoning 14. Inferring

(continued)

Table 5.4 (continued)

R10: high-level proficiency	
1. Frames mental pictures by remembering location of words on page	1. **Division of words and sentences**
2. Relates sentences and words to larger text context to better comprehension	2. **Reasoning deductively**
3. Translation and elimination (sentence level)	3. **Asking questions of peers and teacher for clarification**
4. Translation and substitution (sentence level)	4. **Making notes**
5. Reads aloud (only when there is a block in comprehension)	5. **Summarizing (main points for evaluation of comprehension)**
6. Self-evaluating using questions to self	6. **Uses background knowledge to compare**
7. Contextual guessing (linguistic clues)	7. **Uses background knowledge to predict and skim**
8. Uses background knowledge to relate different parts of text	8. Contextual guessing using linguistic clues
9. Skimming	9. Self-evaluating asking questions
10. Reasoning	10. Forms mental pictures of textbook pages
11. Scanning	11. Uses background knowledge to relate different parts of the text
	12. Reasoning
	13. Translation and elimination (partial)
	14. Translation and substitution (partial)
	15. Reading aloud
	16. Scanning

Observation of strategy use before the training programme reveals that the number and types of strategies used by mid-level and high-proficiency readers almost match. As explained in strategy research (Oxford, 1994; O'Malley and Chamot, 1990) reading comprehension efficiency depends not on the type of strategies used but how effectively you use them. However, low-level readers in this study had fewer strategies, predominantly basic, word comprehension-level strategies, at their disposal. This could indicate the need to cultivate a larger strategy repertoire in our readers.

A most heartening observation regarding the effect of the strategy training programme is that all readers' strategy repertoire expanded towards the end of the training programme. The two most prominent strategy categories adopted/adapted by all are word meaning decoding strategies and metacognitive strategies.

For decoding meanings of unfamiliar words, three strategies used effectively and adopted extensively were *translation*, *division of words* and *using larger text context/linguistic clues*. The subjects of the study used the strategy of translation in four ways: *partial translation of text portions not understood; complete translation; translation and substitution* (translate and substitute with a more familiar word without changes in meaning); and *translation and elimination* (translate and eliminate the word if unnecessary for comprehension). The last two translation strategies are not listed in traditionally used strategy inventories.

The other word-based strategies most used are guessing word meaning by *dividing into familiar components* and *guessing word meaning through linguistic clues like words, sentences and other parts of the text* were also adopted by most readers.

While less proficient readers showed a marked increase in the number of cognitive strategies used, more proficient readers gained from the intervention programme by becoming more self-regulated and reflective of their processes, i.e., the strategy training programme helped good readers increase the number and quality of metacognitive strategies they used. Among metacognitive strategies, *self-evaluating* was adopted effectively by readers with low-level proficiency and adapted with a wider scope by good readers. While the more proficient readers included planning, monitoring, problem identification and problem solving by trying out multiple corrective measures as part of their process of self-evaluation, less proficient readers relied mainly on summarizing parts of text and asking themselves questions. The self-monitoring strategy of *writing language diaries* was also found useful by a few.

Another significant observation was that high-proficiency readers were able to extend the *use of background knowledge* to gain better bottom-up and/or top-down comprehension of text. *Relating the theme or topic to available background knowledge* (content schemata) as a strategy was used by most readers before the training intervention. However, training helped them also use background knowledge related to text layout, format, grammar and word structure to further both top-down and bottom-up comprehension by using information extensively to compare, contrast, predict and justify text content.

The beneficial effects of collaborative reading activities were evidenced by the fact that strategies were shared and used across levels; while mid- and low-proficiency readers adopted strategies used by high-proficiency readers, what is surprising is that there are instances of high-level readers adopting and adapting strategies used by low-and mid-level readers. Translating strategies and division of long sentences into shorter segments for easy comprehension are strategies that were learned from low-level readers, while asking others questions for clarification was acquired from mid-level readers.

Readers with high levels of language proficiency demonstrated their competency in strategy use by gradually widening the scope of strategies adapted; for example, prediction was followed by skimming; underlining progressed to making notes; and self-monitoring by asking questions was preceded by making mental summaries in order to help ask questions.

Delayed assessment revealed that translation strategies for *understanding word meaning* and metacognitive strategies of *self-evaluation* were the most effectively retained strategies. All translation strategies (for elimination and substitution) were used in the delayed-effects phase, and so were summaries and questions used for self-monitoring. Consequently, strategies for understanding word meaning increased, and use of the dictionary and dependence on others reduced.

All readers grew conscious of the fact that different sentences in a text are connected and that different parts of a text are related. This helped relate text input to the various schemata the reader has. Comprehension gains were also exhibited by the fact that low-proficiency readers started responding accurately to inferential questions.

In terms of contribution to the body of knowledge in strategy training, it was observed that awareness of strategies one uses does not result in improvement in comprehension. However, it helped give readers insights into their reading process, comprehension obstacles encountered and insufficiencies in their strategy repertoire. Due to individual cognitive and metacognitive development prior to training intervention, strategies did not remain mere concepts, they became tools to be used. This gave the readers the language to exhibit, discuss and demonstrate use of strategies by self and learn those used by others.

Collaborative learning became effective because of this individual cognitive and metacognitive growth since readers had the language to discuss strategies and their purposes. Peer collaboration, social think aloud, and strategy discussion-demonstration-sharing activities helped learners learn about alternative strategies which resulted in conscious adoption and use of repair strategies once a comprehension deficit was identified. Consequently improvement in reading performance was demonstrated by all.

Finally, learner interviews showed that participating in collaborative reading and group think aloud activities with more able peers gave readers insight into the reading process of good readers; they were able to observe a reader in action. It not only taught them good use of some effective strategies, but also the assurance that everyone encounters problems while reading as well as the confidence that one can successfully control and manage one's reading process.

Conclusion

The brief strategy training resulted in the following changes:

1. Learners grew more aware of their own reading process which resulted in conscious use of repair strategies.
2. All learners started to use new reading strategies gained from peers consciously and effectively.
3. All learners demonstrated improvement in task performance.
4. Readers gained confidence to read independently.

The peer-led collaborative strategy training programme gave explicit evidence for internalization of interactions between learners and their more capable peers. This research points out that dialogues with self should precede dialogue with and observation of others if collaborative learning is to achieve its full potential. All readers were found to model high-level metacognitive skills that guided them to regulate their thinking while reading a text, monitor actions and deploy contextually appropriate strategies choosing from a rich repertoire.

Socio-constructivism believes that lifelong learning should create opportunities for learners to engage and re-engage in learning with fellow members of their society (Elliott, 1999). Autonomy can best be promoted by creating opportunities

for social learning. The underlying assumption of this research is that interaction with others can lead to individual cognitive development only if the individual has achieved a certain threshold level of cognitive growth. Discussions with self to understand one's cognitive processes can pave the way to better deployment of discussion with others. This strategy training programme provides evidence that comprehension obstacles caused by topic unfamiliarity or language deficits can be overcome when learners are allowed to interact with a heterogeneous peer group which helps gain exposure to a variety of strategies and enhanced metacognition. This holds immense promise for exploiting individual and group language resources to facilitate reading performance in academic contexts.

A significant contribution made by this research is the inclusion of social interaction and collaboration, two essential twenty-first-century life skills, in the design of the strategy training programme. The core of the opportunity posed by the strategy training as envisaged in this chapter is that the central purpose of learning with peers is to "learn how to do something better" (Novak, 2010), and that collaborative learning should lead to individual gains.

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