Strategy-Based Instruction¹

Peter Yongqi GU*

This paper focuses on strategy-based instruction (SBI) in English language teaching. I will begin by introducing language learner strategies, and argue that learner strategies are useful and that strategy-based instruction is necessary. Next, I will present a strategy intervention study recently completed in Singapore involving 246 grade 5 primary school students over a whole semester. A five-step SBI model that was used in the experiment will be illustrated. These are: 1) Awareness-raising and preparation, 2) Teacher presentation and modelling, 3) Multiple practice opportunities, 4) Evaluation of strategy effectiveness, and 5) Transfer of strategy to new tasks. Preliminary analyses indicate that the experimental group who received writing strategy instruction outperformed their control group counterparts in a post-test and a delayed test. Some issues in SBI integration will then be discussed. I will finally conclude that SBI is not only an empowering tool for learners, it should also be explored as a potential tool for teacher development.

Keywords: Learner strategies; Strategy-based instruction; Primary schools

Introduction

Applied linguists have been exploring language learner strategies for over thirty years. Despite recent criticisms of the field (e.g., Dörnyei, 2005), most theorists and researchers agree that enough has been found to substantiate a positive relationship between learners' strategic behaviours and their language learning results (see Cohen & Macaro, 2007, for a comprehensive review of research). Similar conclusions have been drawn in educational psychology about the usefulness of learning strategies in general (Alexander, Graham, & Harris, 1998; Glaser & Brunstein, 2007).

There is now a growing trend among learner strategy researchers to explore different

* Victoria University of Wellington (New Zealand)

ways this body of knowledge about strategic language learning can be integrated into ESL/EFL classrooms so that learners could reap the benefits (Chamot, 2005). One such an effort is strategy-based instruction (SBI), in which teachers and learners work together to integrate strategies into the regular language curriculum.

This paper will introduce to the English language teacher what we currently know about language learner strategies, and then illustrate the usefulness and feasibility of strategy integration by focusing on a study from a strategy-based instruction project that was completed in Singapore primary schools. I will also bring to the teacher's awareness a number of implementation issues in SBI.

What is a language learner strategy?

What's in a strategy?

Researchers may not always agree as to what a learner strategy is, or what minimum attributes should be present in order to call a learning behaviour a strategy. However, most would probably agree that a strategy is a conscious, intentional, and effortful process that aims to tackle learning problems and improve learning results. A prototypical or ideal strategy involves at least the following procedures (Gu, 2005b):

- Problem identification and selective attention
- Analysis of task, self, and learning context
- Decision making and planning
- Execution of plan
- Monitoring progress and modifying plan
- Evaluating result

The dynamic nature of this strategic process is illustrated in Figure 1 below. A strategy is triggered by a learning problem being identified or when confronted with a novel task. Strategic learners will immediately analyse the task (e.g., nature of task requirement, similarity of the novel task to known tasks), and search for a general algorithm in their repertoire of strategy tools that may help in the successful completion of the current task in the current learning situation. Once a decision is made, the plan is next executed. Strategic learners carefully monitor their progress and fine-tune their procedures. The effectiveness of the chosen procedures in tackling the problem or completing the task will be evaluated at the end in order to decide if objectives are achieved successfully and if further steps are necessary.

Figure 1. What's in a strategy?

How do learner strategies work?

Strategies play different roles at various stages of learning (Alexander et al., 1998). At the initial stage when learners begin to get *acclimated* to a particular subject, strategies are needed because so much is unknown. Before domain-specific strategies and task-specific strategies are developed and well honed, learners make use of general strategies that may or may not lead to successful completion of the learning task. At this stage, strategies are often inelegantly executed, and the process may be slow and inefficient. As learners become more *competent* in a subject, they become more efficient, more effective, more flexible, and less reliant on strategies, because solutions to common problems become routines and require less and less conscious processing. At this stage, strategic processing goes through quantitative and qualitative shifts. Common strategies are fine-tuned and automatised; lower-level strategies for basic tasks will no longer be needed; and new strategies are developed to cope with persistent, complex, or new problems. This is the level most good learners reach. However, a few learners may be able to acquire *expertise* in a subject area. In these cases, there is another shift in strategy use. Strategic processing becomes very important so that existing knowledge is problematised and new knowledge can be formulated. In other words, from acclimation to competence to expertise in a domain area, learners' strategic behaviours will change and different types of strategies will be used.

Learning is a complex process. Strategies for learning do not simply differ at different learning stages, they depend very much on a whole array of person, task, and context variables (Gu, 2003b). Different learners may use completely different strategies to handle the same task; or they may use the same strategy in different ways. Gu (1994) contrasted two students learning vocabulary in different ways and achieving dramatically

different results. In another study (Gu, 2003a), different strategies and different strategy combinations were shown to achieve similar learning results. In fact, even the same student working on a familiar task in the same domain may adjust strategies according to contextual demands (Pressley & El-Dinary, 1997). The interplay of person, task, context, and strategies forms the very individualistic and dynamic chemistry of learning (Schmeck, 1988).

Are language learner strategies useful?

Do language learner strategies really make a difference in the learning of a second/foreign language? Two approaches have been used in answering this question, an exploratory approach and an intervention approach. The former includes two types of studies. Correlational studies aim at establishing correlation patterns between strategy use and language learning outcomes; whereas case studies compare high achievers and low achievers, and attempt to reveal the strategy differences between these two groups of students. The intervention approach makes use of experiments to see if strategy training really can effectively improve learning results.

In order to establish the usefulness of learner strategies in the Singapore school context, the Learner Strategy Research Group at the National Institute of Education (NIE) used both a case study approach and a correlational approach. Gu, Hu, and Zhang (2004) focused on listening strategies. Eighteen students from three representative primary schools (nine high achievers and nine low achievers) listened to two pre-recorded narrative passages. They were asked to stop at meaningful intervals and verbalise what was going on in their minds as they were listening. The think-aloud protocols were transcribed and the strategies were coded and tallied. Results showed that

- Good listeners had a larger repertoire of strategies than poor listeners;
- Good listeners used listening strategies more frequently than poor listeners;
- Good listeners used both top-down and bottom-up strategies;
- Good listeners orchestrated their strategy choice and use;
- Poor listeners had fundamental decoding problems;
- Some poor listeners used mainly bottom-up decoding strategies;
- Some poor listeners used wild guessing to compensate for the lack of understanding;
- Poor listeners rarely monitored their own strategy use, not to mention any meaningful strategy orchestration.

Based on these and other results, questionnaires were designed and validated. The final survey was administered among 3,618 upper primary school pupils in six schools (Gu, 2005a). Two reading strategies, self-initiation and perceptual processing were found to be

significantly correlated with English Language results consistently across all six schools. Understandably, the more pupils engaged themselves in reading opportunities (Self-initiation), the higher marks they obtained in their last EL examination. Interestingly, perceptual processing, i.e., focusing on details and basic bottom-up decoding, a strategy that is normally associated with poor performance with adult learners, emerged as a good strategy for primary school children in Singapore. This indicates that for primary school children going through the basics of language development, decoding and making sense of the written text is still the most important thing, even though strategies that go beyond text comprehension such as relating the text with the reader's own experiences or being appreciative or critical of the text are effective strategies for learners who have mastered basic reading. In addition, inferencing, monitoring and evaluating are both significantly correlated with EL results in five out of six schools, suggesting that these strategies should also be introduced to students at this level. The writing part of the study revealed that planning, generating text, and acting on feedback were significantly correlated with English language results across all six schools. Monitoring and evaluating were also significantly correlated with English language results in five of the six schools. In other words, the higher pupils scored on planning, monitoring and evaluating, acting on feedback, and generating text strategies, the higher marks they would have obtained from the latest English language exam.

Not many strategy intervention studies can be found in applied linguistics. What evidence we have so far points to a promising role of SBI. Thompson and Rubin (1996) taught listening strategies for an academic year and found significant improvements in listening comprehension results of the experimental group. Cohen, Weaver, and Li (1998) investigated the effect of strategy-based instruction on foreign language students' improvements in speaking over a ten-week period. Results indicated value for strategy integration in regular language classrooms. Ikeda and Takeuchi (2003) conducted reading strategy instruction over eight weeks among Japanese university students. Students were found using the taught strategies for reading five months after the instruction. In a study of writing strategy intervention among secondary learners of French in England (Macaro, 2001), the experimental group registered significant gains in writing after receiving strategy instruction over a five-month period.

Overall, answers to the big question about the usefulness of learner strategies can be summarised into the following insights:

- "With some exceptions, strategies themselves are not inherently good or bad, but have the potential to be used effectively – whether by the same learner from one instance within one task to another instance within that same task, from one task to another, or by different learners dealing with the same task" (Cohen, 1998, p. 8).

- Although a quantitative pattern is repeatedly found, i.e., the more strategies used, the better the learning outcomes; the more often strategies are used, the better the results, “the total number or variety of strategies employed and the frequency with which any given strategy is used are not necessarily indicators of how successful they will be on a language task” (Cohen, 1998, p. 8-9).
- The success or failure of a strategy hinges upon the orchestration of different components of the strategic behaviour. From selectively attending to a task, to the analysis of the task, to the choice of decisions, to strategy deployment and execution, to monitoring and modifying of the plan, and to the evaluation of strategy effectiveness, flexibility and appropriateness come in every step of the way.
- Strategies can be more or less person-related, task-related, or learning context related. A strategy suitable for one particular person, task, or learning context may not be suitable for another.

Strategy-based instruction

Having established the pattern of relationship between strategy use and learning results, I will next focus on an SBI study in order to 1) demonstrate a causal link between learner strategies and learning results, and 2) illustrate how strategy instruction can be integrated into the language teaching classroom.

Subjects

Twenty primary five classes in three Singapore schools were involved in the project for a whole semester. All classes were intact classes. However, every caution was taken to ensure that the experimental classes and control classes in each school were as comparable as possible before SBI took place. The English Division Head at each school helped us select these classes based on two criteria: latest English language examination results, and willingness of the teacher. Both reading SBI and writing SBI experiments were conducted. I will report here only results from the writing study. Table 1 shows the distribution of

Table 1. SBI Writing Classes and Participants

	Experimental Group		Control Group	
	Class 1	Class 2	Class 1	Class 2
School A	42	28	42	29
School B	40	39	38	39
School C	32	40	30	43

participants and classes. As data processing and analysis is still going on, I will focus only on results from the first two schools.

Materials

SBI package

Nine weeks were involved throughout the semester. A one-hour session per week was devoted to each SBI lesson. Lesson plans and other relevant materials were provided for all nine sessions. Table 2 outlines the composition of the SBI package for writing.

Table 2. SBI Weekly One-Hour Sessions

Lesson #	Writing
1	Setting writing goals
2	Planning for content
3	Assessing the audience
4	Getting ideas: reading to find out more
5	Attending to language at the word level
6	Attending to grammatical structures
7	Writing the essay: orchestrating strategies
8	Revising an essay
9	Responding to feedback

Tests

Three parallel writing tasks were designed and validated as pre-, post, and delayed writing tests. Each writing task was given 40 minutes to complete and one third of each class were randomly selected to take one test for each of the three administrations. Teachers were given a grouping sheet so as to make sure that each student took all three writing tests. A marking scheme was adapted from the Singapore Primary School Leaving Examination (PSLE) English Language Situational Writing. The scheme included four components: content, grammar and spelling, vocabulary, and organisation. Each component ranged from 1 to 20 marks. Two school teachers experienced in marking the PSLE marked all the compositions independently, without knowing which one was from the pre-, post, or delayed administration. In this report, the three writing test scores were derived by adding up all component scores for each test, and then taking the average from the two markers.

Procedures

Students in experimental classes went through the nine SBI sessions and were encouraged to use the strategies they learned. Teachers in these classes were trained in a three-hour training session before SBI started. There was a weekly session at each school

during which experimental group teachers recounted the problems and solutions of the previous week and went through the SBI lesson plan and materials to be used for the week. A researcher from the research team at the National Institute of Education sat in every SBI session, video-taped the session, and talked to the teacher briefly after each session about its implementation. Meanwhile, teachers in control classes followed exactly the same curriculum and textbook. Instead of receiving SBI materials and training, the control group teachers were told to do what they normally would do to teach writing. Students in control classes were also told that they were part of an experiment, and one of their typical writing classes was also recorded.

SBI Model

We adopted Chamot, Barnhardt, El-Dinary, and Robbins' (1999) model (Figure 2) as an overall guide to SBI implementation. Each session starts with the preparation stage to warm up and activate background knowledge. The teacher next explains the strategy of the week and models its use, normally by thinking aloud. Students are then given worksheets and tasks to practice the strategy in question. Each session ends with a summary and evaluation phase. Students take away homework with similar tasks for strategy expansion. Teachers are also encouraged to give students opportunities to use the strategy of the week in all other English language classes. From the preparation stage to the expansion stage, responsibility of strategy use is gradually shifted from teachers to learners.

Figure 2. A Strategy Instruction Framework

Structure of an SBI Lesson

The Chamot et al. (1999) model was crystallised into the following procedures for each SBI session (Table 3).

Table 3. Structure of an SBI Lesson

Preparation	5 minutes
Presentation	
• Step 1: Explaining	
• Step 2: Modelling	15 minutes
Practice	25 minutes
Evaluation	10 minutes
Expansion	
• Similar tasks in assignment	
• Other EL lessons	

Teacher involvement in SBI

Since we did not have enough time to train teachers before SBI, we developed a combined approach in which researchers and teachers worked closely (see Table 4). Firstly, all materials and tasks were pre-designed so that teachers did not have to reinterpret SBI and come up with materials. Secondly, weekly group meetings involving researchers and all experimental teachers in a participant school were scheduled for just-in-time help, reflection, and monitoring.

Teachers were also reminded at the beginning and throughout the project that

- SBI should be integrated into regular teaching;
- Pupils should be encouraged to form the habit of using strategies in English language

Table 4. Teacher involvement in SBI

	Activities	Purpose
Before SBI	Think-aloud practice on reading/writing tasks	Teacher awareness raising
	Going over sample lesson plans	Discussing how strategy ideas translate into classroom practice
During SBI	Weekly group meetings involving researchers and teachers	<ul style="list-style-type: none"> • Reflecting on previous week • Preparing for coming week • Just-in-time help • Q & A
	• Class observation and recording for each SBI session	Researcher feedback and monitoring
	• 30 min debriefing after each SBI session	
After SBI	Interviews	Evaluating Teacher feedback for further work

learning and use;

- Teachers should be flexible in using SBI materials in classroom practice, so long as the overall design is not changed. They are encouraged to discuss their ideas with the research team before class.

Main findings

While analysis is still going on, this paper reports on some preliminary results. Most data are still being aggregated and combed for analysis; I will report in the coming section only initial SBI results for writing strategies from Schools A and B that are now complete. I will then focus on the feedback we received from participating schools.

SBI writing results from two schools

Table 5 presents descriptive statistics comparing the experimental and the control groups for all three writing tests. Figure 3 plots the data visually. As is clearly shown, before SBI took place, control group scores were higher than those of the experimental group. Despite a drop in the experimental group's delayed test scores, the experimental group

Table 5. Writing scores of experimental vs. control groups

	Groups	Mean	SD	N
Pre Test	Experimental	47.11	8.55	119
	Control	48.85	6.36	127
	Total	48.01	7.54	246
Post Test	Experimental	52.34	7.68	119
	Control	48.08	7.10	127
	Total	50.14	7.68	246
Delayed Test	Experimental	51.42	6.23	119
	Control	49.03	6.27	127
	Total	50.19	6.35	246

Figure 3. Plot of mean score differences between experimental and control groups

Table 6. Within-Subjects Effects

Source	Sum of Squares	df	Mean Square	F	Sig.
Tests	821.98	2	410.99	19.85	.000
Tests * Group	1158.12	2	579.06	27.97	.000
Error (Tests)	10103.38	488	20.70		

Table 7. Between-Subjects Effects

Source	Sum of Squares	df	Mean Square	F	Sig.
Intercept	1804408.34	1	1804408.34	16624.59	.000
Group	493.57	1	493.57	4.55	.034
Error	26483.40	244	108.54		

outperformed the control group in both the post-test and the delayed test that was done one month after the intervention project.

Repeated measures ANOVA was performed to capture the statistical differences among the three tests (Table 6) and the difference between experimental and control groups (Table 7), and to see if there was any interaction effect. The answer is positive in each case. In other words, there were significant differences among the three tests; the experimental group differed significantly from the control group; and there was a significant interaction between the two variables. In plain language, the writing SBI was found to have made a significant contribution to the writing performance of the experimental group.

Feedback from schools

The statistical results above were borne out by the feedback we received from the participating schools. School A's feedback was very positive. The following is taken from an email message the Head of Division sent to the project team:

Talk to P (one of the experimental group teachers) n she is so.... happy. Half her class passed their compositions writing for SA2 as compared to none in SA1. She is as happy as a lark!...

In fact, School A was so impressed by the results that they decided to pursue the following follow-up measures:

- The two experimental group teachers were asked to conduct 2 three-hour workshops for all English language teachers after the experiment;
- All upper primary (P4, P5 and P6) English language teachers were asked to adopt SBI in the following semester, with only consultative support from the research group at NIE;
- The two experimental group teachers were keen to conduct SBI on reading strategies on

their own with materials from the research team;

- One of the experimental teachers (a Maths major at university) decided to do an MA in Applied Linguistics and conduct further research on SBI.

School B also reacted very positively to the SBI experiments. In particular, the vice principal, Mdm L, who was in charge of liaison and management of the project at the school, was very impressed with the results. When Dr. S, another researcher from NIE contacted her for another project, Mdm L mentioned that she would not allow Dr S to go in unless Dr S could guarantee that she achieved the same good results as the SBI project. Immediately after the experiment, experimental class teachers shared with other teachers about what SBI was like and how it could be implemented. The school then initiated an action research project involving all P5 students to try out SBI on both writing and reading strategies.

School C participated in both reading and writing SBI. In the Head of Division's summary of the experiment, students in the writing group

- developed better ideas on how to write narratives;
- improved the structure and organisation of their essays;
- improved their usage of common vocabulary; and
- performed much better in their SA2 composition exam.

In the interviews at the end of the project, one control group teacher was concerned that her own classes might have been disadvantaged for not having "the Bible" (project materials). School C was also interested in pursuing SBI further. In fact, they decided to conduct writing strategies SBI on their own in the semester that followed. The Head of Division emailed the project team, saying "Hope we will be able to implement an improved version of the programme next year, minus the taping of data of course."

Summary and discussion

Human agency and strategic learning have an undisputed role in the learning process. After 30 years of descriptive and explorative research on language learner strategies, the field is in a confident position to promote learner strategy instruction in the language classroom. The question is no longer whether SBI should be promoted, it is now a matter of how.

This paper has argued for the usefulness of SBI, and explored a model of SBI (Chamot et al., 1999) that has been widely used in educational psychology as well as applied linguistics. The model is characterised by explicit strategy instruction and integration and aims to transfer the responsibility of strategy choice and use from the teacher to the learner,

with the ultimate aim of learner empowerment. A strategy training experiment from Singapore has been presented, showing significant gains in learning results, and illustrating implementation procedures. By so doing, I hope to show teachers that SBI is not just desirable, but also feasible.

It should be noted that the explicit and direct strategy instruction model is not the only possible approach to SBI. Another approach that has been proven useful is an indirect approach developed by Butler and her colleagues (Butler, 1998; Butler, Elashuk, & Poole, 2000) in helping learners with learning difficulties. Butler's approach is characterised by indirect and individualised tutoring in which teachers support students in setting meaningful and realistic goals, analysing task requirements, selecting and adapting strategies, and in monitoring and modifying strategies. Teachers and individual learners work together to solve learning problems strategically, and as a result, learners develop a strong sense of control over learning outcomes. Future research can explore this model in second language acquisition. Teachers who are concerned with helping individual underachieving learners are also encouraged to explore the indirect and individualised model of strategy instruction.

SBI implementation

I have so far been talking about the potential benefits of SBI and presented some evidence for its usefulness. This does not mean, however, that SBI will be a panacea that will be automatically useful. Like all training involving people as trainers and trainees, an SBI programme is only as good as its successful implementation. In our experience, SBI will only be successful when schools and teachers involved are fully cooperative and know what SBI is, why it is helpful, and how it should be implemented.

One prerequisite for the successful implementation of SBI is the complete understanding and cooperation from the schools. Principals and division heads need to give their full support and therefore not be afraid of their regular teaching schedules being temporarily disrupted for strategy instruction.

Another prerequisite is the full support and cooperation from the teachers involved. The process necessitates intensive efforts and an enormous amount of time, very often outside the teacher's working hours. In addition, teachers will need to know not just the principles behind SBI but also what each strategy is, and how it should best be used, when, and for what tasks. One common problem we had was that some teachers would interpret SBI as just another type of communicative classroom activity and did not take researcher guidance seriously. For example, not every teacher saw the importance of the "expansion" stage, and yet, one hour a week is certainly not enough for students to learn to use a strategy effectively. Finally, about half of the teachers in our experiment voiced their concern about

being videotaped. This would be less of a problem if teachers themselves become researchers and that the whole process aims for pedagogical rather than research outcomes.

A third prerequisite for the successful implementation of SBI is the close collaboration between researchers, teachers and the school management. Despite a lock-step appearance of our SBI packages, teachers liked the materials, in that these materials not only showed in detail what SBI is and how each strategy should be taught, the ready-made materials also saved the teachers' time. One other thing that we found crucial was the weekly meetings of collective reflection and support among teachers and researchers. These meetings provided opportunities for collaborative monitoring of the project. Indeed, the reflection, feedback, monitoring, and flexibility in implementation may well make or break an SBI project.

Hawthorn effect: A validity concern

Many researchers and teachers may ask: Is the evidence provided by SBI experiments real? In other words, isn't it true that teachers and students in the experimental group become very conscious of their experimental status and hence perform better than they would normally do? While I believe that Hawthorn effect is always present, the following facts should alleviate the concern in our experiment:

- Most experimental groups were taught by young teachers. Older and more experienced teachers either did not volunteer or were not volunteered to involve themselves in the experiment that required extra time and effort, in addition to risk.
- Teachers are very competitive in the Singapore context. While perhaps not willing to take the risk for the intervention, our interviews of the control group teachers revealed that they were well aware of their comparison group status as well. They worried about their classes not having access to the resources they saw as potentially good, and tried hard to beat the experimental classes.
- Students in the control group knew that they were part of a research project as well. The videotaping and tape recording of their classes, researchers sitting at the back of their classrooms would give them that information very clearly.
- Control groups were often the better classes. Despite the request from the research team that the experimental and control classes should be as compatible as possible, some schools would often like to see the weaker classes helped by the experiment, and they insisted that certain classes be placed in the experimental group on practical grounds.

SBI in Japanese schools?

At this point, a natural question for EFL teachers in Japan is: Will SBI work among my school age children in Japan's foreign language context? My answer is that it most

probably will. While it is true that most language learner strategy studies happen to be done among adult learners (e.g., Pani, 2004; Salataci & Akyel, 2002; Thompson & Rubin, 1996; Yang, 2003), and that children are still in their formative years of cognitive and metacognitive maturation, however, there is enough evidence that strategy instruction with school children also makes a significant difference in learning (Chamot & El-Dinary, 1999; Delclos & Harrington, 1991; Graham, Harris, & Mason, 2005; Gu, Hu, & Zhang, 2005). In the Japanese context, evidence of strategy training effectiveness can be found for listening comprehension (Ozeki, 2000; Seo, 2002), speaking and oral communication (Dadour & Robbins, 1996; Nakatani, 2005), reading (Ikeda, 2007; Ikeda & Takeuchi, 2003) and writing (Sasaki, 2004). A comprehensive review of learner strategy studies in Japan by Takeuchi and Wakamoto (2001) should help assure the Japanese EFL teacher about the usefulness of SBI.

Conclusion

In this paper, I have argued for the usefulness of language learner strategies and have shown how a strategy-based instruction project has produced significant gains in student achievement. I explained the SBI procedures in detail so that teachers can be encouraged to integrate SBI in their own classrooms. In this sense, SBI should not just be a tool that empowers learners and leads them to a stage of autonomous learning, it should be an equally empowering tool for teachers as well. Integrating SBI into the classroom with close guidance from researchers has been shown to be a feasible and effective way to improve student learning, developing expertise in classroom integration of SBI is a gradual process that should help teachers improve instruction in the long run.

Note

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