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*Robin Hood in SLA: What Has the Learning Strategy Researcher Taught Us?**

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This article reviews two decades of empirical research on language learning strategies in the field of second language acquisition (SLA). Five broad questions are examined: 1) What is a language learning strategy? 2) What are the good language learning strategies? 3) How are language learning strategies associated with learning results? 4) Where do learning strategies come from? and 5) Is language learning strategy training effective? Achievements and remaining issues are discussed, followed by potential directions for future research. The article argues for the need for more theorizing and more empirical research on specific language learning tasks as opposed to general "language learning strategies." Also an urgent call for research along contextual dimensions is stressed. In particular, Asian learners, a group with distinct learning strategies, warrant much more unbiased attention.

Introduction

Research on language learning strategies (LLS) started off with the Robin Hoodian good will of breaking the secret behavioral codes of successful language learners and sharing them with the unsuccessful ones. This can best be witnessed in the two articles that harbingered the research paradigm: "What the 'Good Language Learner' Can Teach Us" (Rubin,

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1975) and "What Can We Learn From the Good Language Learner?" (Stern, 1975). Obviously, the basic assumptions underlying the conception of the good language learner was that, besides the well documented individual differences such as aptitude, intelligence, and motivation (Carroll, 1965, 1973; Gardner & Lambert, 1959, 1972), learners differ in what they do to maximize their learning results. In other words, the good language learners are good because, among other reasons, they may well have better ways of handling their problems in the learning process than their unsuccessful counterparts. Finding out these better learning strategies, therefore, would be beneficial for the underachievers.

Towards this end, five broad questions have been addressed in the literature: 1) What is a language learning strategy (LLS)? 2) What are the good LLS? 3) How are LLS associated with language learning results? 4) Where do learning strategies come from? and 5) Is LLS training effective? This article aims to review two decades of empirical research on language learning strategies, focusing upon the five aforementioned questions commonly asked by researchers in the field of second language acquisition (SLA), and to point out potential directions for future research.

What Is A Language Learning Strategy?

Rubin and Stern differed from each other from the outset with regard to what learning strategies are. To Rubin (1975), learning strategies are the specific techniques or devices that learners use to acquire knowledge. To Stern (1975), however, learning strategies are some more general higher order approaches to learning which govern the choice of more specific techniques (see Naiman, Frohlich, Stern, & Todesco, 1978, and Stern, 1983, for a more elaborated distinction between strategies and techniques). This difference continued to exist, though Rubin's more specific perspective has emerged as the dominant stance taken by researchers within the field of SLA. Table 1 shows chronologically how the term evolved (or how little it did) in our field throughout the years.

As can be seen from Table 1, there is, as yet, not a general developmental pattern in the conception of learning strategies. Except in publications by Stern and his co-workers, LLS have been referred to as "specific actions or techniques" throughout; although, as knowledge accumulated on the subject, other elements have been added to the concept. Wenden (1987a), for example, conceptualized LLS as encompassing three elements: 1) "language learning behaviors learners actually engage in to learn and

Table 1 Defining Learning Strategies

Authors	What Are LLS?	What Are LLS For?
Rubin (1975, p. 43)	techniques or devices	to acquire knowledge
Bialystok (1978, p. 76)	methods/conscious enterprises	for exploiting available information to increase the proficiency of L2
Naiman et al. (1978, p. 2)	general, more or less deliberate approaches to learning	
Cohen (1984, p. 110)	mental operations	to accomplish learning tasks
Rubin (1987, p. 19)	set of operations, steps, plans, routines what learners do	to facilitate the obtaining, storage, retrieval, & use of information; to regulate learning
Wenden (1987a, pp. 6–7)	— learning behaviors — strategic knowledge — knowledge about learning	to learn & regulate the learning of an L2
O'Malley & Chamot (1990, p. 1)	special thoughts or behaviors	to help comprehend, learn, or retain new information
Oxford (1990, p. 8)	specific actions	to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations

regulate the learning of a second language"; 2) "what learners know about the strategies they use"; and 3) "what learners know about aspects of their language learning other than the strategies they use" (pp. 6–7). However, even in the same article, Wenden later defined learning strategies as "specific actions or techniques (e.g., comparing TL rules with NL rules; repeating a phrase to remember it; listening to a TV program)" (p. 7).

Granted that the operationalization of the concept of LLS entails the exclusion of "general approach" for the sake of convenience, how can specific actions and techniques embrace "strategic knowledge" and "knowledge about learning"? Given, one might argue, that Wenden was

referring to only one aspect of the three she had outlined previously, why did Oxford (1990), who defined LLS as exclusively "specific actions," include in her scheme "metacognitive strategies" under the rubric of "indirect" specific actions without distinguishing metacognitive knowledge from metacognitive regulation?[1]

What Are the Good LLS?

The two original lists of LLS provided by Rubin (1975) and Stern (1975) were both intuitive ones. Enormous effort has since been put into the empirical discovery of LLS. Three studies especially warrant mentioning: the study by Naiman et al. (1978), the one by Rubin (1981), and the one by O'Malley, Chamot, Stewner-Manzanares, Kupper, and Russo (1985a).

Based on Stern's (1975) intuitive list, Naiman et al. (1978) set out to compile an LLS inventory by interviewing a group of successful ($N = 34$) and unsuccessful ($N = 2$) adult learners, and by observing and interviewing 72 high school students learning French as a second language in six Canadian schools. Five major strategies, along with a number of specific "techniques," were identified as conducive to success in second language learning: 1) active task approach; 2) realization of language as a system; 3) realization of language as a means of communication and interaction; 4) management of affective demands; and 5) monitoring of L2 performance.

Since the publication of her article in 1975, Rubin and her colleagues spent several years eliciting and classifying LLS using classroom and tutorial observations, student self-reports, and diaries. Results were reported in Rubin (1981), in which two types of strategies were identified: those that contribute directly to learning and those that contribute indirectly to learning. Under the first category were a) clarification/verification, b) monitoring, c) memorization, d) guessing/inductive inferencing, e) deductive reasoning, and f) practice. And the second category included a) opportunities for practice, and b) production tricks.

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[1] Flavell (1976) described metacognition, in contrast to cognition, as "one's knowledge concerning one's own cognitive processes and products or anything related to them." It also refers, "among other things, to the active monitoring and consequent regulation and orchestration of these processes in relation to the cognitive objects or data on which they bear, usually in the service of some concrete goal or objective" (p. 232).

Another group of researchers (O'Malley et al., 1985a) collected strategy data among a group of beginning and intermediate ESL students in secondary schools through teacher and learner interviews as well as classroom observations. Again, observations, along with teacher interviews, were found unsatisfactory in eliciting LLS which were often unobservable. Twenty-six strategies were found and classified into three categories after Brown (1982): metacognitive strategies, cognitive strategies, and social mediation.

Summarizing previous research on LLS classification, O'Malley and Chamot (1990) produced their latest scheme which included three "generic strategies," i.e., metacognitive, cognitive, and social/affective strategies, and 15 "representative strategies."

Over the years, Oxford (1985; 1990) has been attempting to take almost every strategy uncovered in previous research and group them under her classification scheme. For example, Oxford (1990) classifies strategies as follows: 2 groups (direct strategies and indirect strategies, cf. Rubin, 1981), 3 categories under each group (a blend of O'Malley et al., 1985a, 1985b, and her own factorial studies), 19 sets under the 6 groups, and 59 strategies, totaling 193 strategies when combined with the 4 language skills.

How Are LLS Associated with Language Learning Results?

Two approaches have been employed in determining the influence of LLS on language learning results: an ex post facto approach and an experimental approach. Most empirical work so far has adopted the first approach, either separating successful learners from unsuccessful ones, describing and comparing their learning behaviors, or simply correlating measures of LLS with either measures of target language proficiency or gain scores over a period of time on those proficiency measures. Not surprisingly, the lion's share of attention has been allocated to strategies that correlate positively with learning outcomes as well as those that are exclusively employed by the successful language learners. The second approach tried to answer the same question by means of manipulating certain strategies and examining the effects they have upon learning outcome. These experiments will be reviewed later in the section on strategy training.

Two initial hypotheses, though never explicitly stated as such, were that 1) successful language learners have a richer repertoire of LLS than unsuccessful language learners; and 2) successful language learners are more active strategy users than their unsuccessful counterparts, i.e.,

efficient learners employ LLS more frequently than mediocre and unsuccessful learners. This idea was best articulated by Wenden (1985) that the unsuccessful learners' inability to learn is "due to their not having an appropriate repertoire of learning strategies" and that "ineffective learners are inactive learners" (p. 7).

Naiman et al. (1978) pioneered not only the elicitation of LLS, but also empirical designs in validating strategy effectiveness. The study comprises two major parts: the interview study of 34 adult good-language-learners,[2] and the study of 72 high school students sampled from 6 schools as *good*, *poor*, and *unmatched* learners according to both test results and teacher evaluations. The first part was basically descriptive. Five major strategies were said to be essential to successful language acquisition in general, whereas minor strategies subsumed under the major ones were those that worked for some successful learners only and were thus inferred to be not necessarily applicable to success in general. Observation of classroom behaviors of *good* and *poor* high school language learners did not reveal differences between them. Interviews unveiled similar patterns to the adult learner study. On the whole, it was concluded that "the successful or good language learner, with predetermined overall characteristics, does not exist"; in other words, "there are many individual ways of learning a language successfully" (p. 103).

Politzer (1983) investigated the relationship between what he termed "language learning behaviors" and foreign language achievement among a group of 90 undergraduate students learning French, Spanish, and German as foreign languages at Stanford University. Self-reported language learning behaviors (classified into general learning behaviors, classroom behaviors, and interaction behaviors) were obtained by means of a questionnaire. A correlation analysis between these behaviors and grades as well as instructor's evaluations was performed. Politzer concluded that "it seems reasonable to assume that at least some of the shared variance of self reported behaviors and achievement reflects an actual causal link between behaviors and achievement", thus confirming to a certain extent the hypothesis that LLS (or behaviors in Politzer's terms) are related to foreign

[2] A comparison with some poor language learners was also built into Naiman et al.'s (1978) original design. They had to drop the comparison leg of their blueprint, however, when only two of the "bad language learners" turned up for the interview.

language achievement. Politzer cautiously pointed out that self reported behaviors may only partly reflect true behaviors, and worse still, correlations between these behaviors and achievement may be induced by third factors. For example, he cautioned that this behavior/achievement relationship being investigated may be context specific and that the type of proficiency test used and teaching methods, for example, can obscure some behavior/achievement relationships.

Politzer and McGroarty (1985) investigated the relationship between a variety of "good learning behaviors," as measured by a 51-item questionnaire, and gain scores in an eight-week intensive EFL course among a group of intermediate level university students. The behaviors (or strategies) questionnaire again consisted of three groups where the strategies took place: classroom behaviors, individual study behaviors, and social interaction behaviors outside the classroom. Gain scores over the eight week period were found to be unrelated to the three strategy categories, yet related to some strategy items in the questionnaire. For example, adjusted gain scores on the aural comprehension test were positively correlated with asking questions for clarification and saying correct forms silently when the teacher asked other students questions. Grammar scores, however, were related to the use of vocabulary cards and to the practice of words or structures missed in class.

Abraham and Vann (1987) studied 15 students learning English at an intensive ESL training program at Iowa State University. Their aim was to create learner profiles including background factors (motivation, personality, cognitive style, etc.), approaches to language learning and learning strategies. In their first report (Abraham & Vann, 1987), two Spanish-speaking ESL learners, a successful (Gerardo) and an unsuccessful one (Pedro), were compared in these respects with particular attention on the LLS they employed. Findings confirmed the two hypotheses mentioned above, that 1) Gerardo used more strategies than Pedro both during interview sessions and in performing think-aloud tasks; and 2) Gerardo also employed more varieties of LLS than Pedro did. Summarizing the differences between the two learners, Abraham and Vann (1987) noted that Gerardo was concerned with both the form and the function of language, while Pedro cared about function only (e.g., "talk to girls on the beach"), providing evidence for both Rubin and Stern's original positions that a realization of language as a system and developing corresponding strategies to attend to form is one of the precursors to success in second language learning.

> Another interesting difference between Gerardo and Pedro
>
> lies in their *flexibility* (my emphasis) in using strategies. . . . Gerardo's ability to match his choice of strategy to the demands of the task was probably an important factor in his success on each one. He also showed flexibility in his use of time. (p. 95)

This "flexibility" factor was not (at least not explicitly) included in early hypotheses about successful language learning.

Further analysis of the other subjects in their study, however, dissolved their initial euphoria. In a later report, Vann and Abraham (1990) noted that "the unambiguous contrast between Gerardo and Pedro was not typical," because 1) "the number of strategies . . . used by several of the successful and unsuccessful subjects fell within the same range"; and 2) "the unsuccessful learners used many of the same strategies as the successful learners" (pp. 182–183). Two other learners, Mona and Shida, both Arabic-speaking unsuccessful ESL learners, were examined in detail, emphasizing the tasks and the demands they made on the learners as well as whether the learners' LLS met the demands. Findings suggested that both Mona and Shida had similar repertoires of LLS as the successful learners, and both of them actively used various strategies. What made them unsuccessful was that

> they often failed to apply strategies *appropriately* (emphasis mine) to the task at hand. Apparently, they lacked certain necessary higher-order processes, what are often called metacognitive strategies or self-regulatory skills . . . , which would enable them to assess the task and bring to bear the necessary strategies for its completion. (p. 191)

To sum up, the quest for the best language learning behaviors has ended up showing a picture much more complex than anticipated. The hypothesis that successful language learners employ a larger repertoire of LLS has not been confirmed, nor has the other hypothesis that successful language learners use LLS more frequently been substantiated, possibly suggesting that the two hypotheses which presume a quantitative difference in strategy use between successful and unsuccessful language learners are inadequate in describing the picture. In other words, besides quantitative differences, learners may differ in other aspects, such as their effectiveness in using the same LLS. Unfortunately, due to the difficulty in eliciting quality of strategy use objectively,[3] the question of qualitative differences

[3] But see Allwright (1982) for an alternative though subjective method of evaluating the quality of strategy use.

has hardly been answered except for a few case studies (e.g., Stevick, 1989; Vann & Abraham, 1990).

Where Do Learning Strategies Come From?

After dismissing the existence of "the good language learner," researchers seem to point to the direction that types of "good language learners" do exist (Naiman et al., 1978; Stevick, 1989), and that these learners come to the language classroom with different predispositions which, along with contextual and task characteristics, determine a learner's preference and choice of LLS.

Background variables. Once again, two approaches to the issue can be identified: a direct approach and an indirect one. Some researchers (Naiman et al., 1978; Politzer, 1983; Politzer & McGroarty, 1985) tried to see the effect of individual difference factors by creating learner profiles and correlated personality traits, cognitive styles, and other background determinants, in parallel to LLS, with learning outcome. Others (Oxford and her associates) employed factor analysis that directly took LLS as the dependent variable. Both types of studies found similar patterns.

Though not designed to study various background variables influencing learners' choice of strategies, Politzer and McGroarty's studies (Politzer, 1983; Politzer & McGroarty, 1985) revealed that gender differences, prior educational experience, and cultural background might be other sources of variance in determining a learner's preference of learning strategies. For example, Politzer (1983) found that female students were more likely to engage in out-of-class social interactions than male students. More interestingly, Politzer and McGroarty (1985) discovered that Asian students reported fewer "good learning behaviors" strategies (except in the case of monitoring strategies) than Hispanics, suggesting for the first time that the very conception of "the good language learner" and his expected "ideal" behaviors might well be ethnically biased towards Western cultural values (cf. O'Malley et al., 1985b for the "problematic" Asians).

Using Oxford's Strategy Inventory for Language Learning (SILL) and background questionnaires, Oxford and her colleagues (Ehrman & Oxford, 1989; Oxford & Ehrman, 1989; Oxford & Nyikos, 1989; Oxford, Nyikos, & Ehrman, 1988) conducted a series of factor analysis studies. Results revealed that motivation, sex, and self-perceived proficiency had the strongest influence on the choice of LLS and that psychological types, years of study, and academic major all had a say in deciding a learner's choice of

strategies. Highly motivated students used more strategies more often than less motivated learners. Females were found to use LLS more often than males. Self-perceived successful language learners used more strategies than those who did not view themselves as successful language learners.

Learner beliefs. How do these background factors influence a learner's choice of learning strategies? Abraham and Vann's (1987) contention is that pre-existing variables such as personality, cognitive style, intelligence, etc., determine the shaping of a person's "philosophy" of learning which in turn steers the "approach" he/she takes in fulfilling the learning task. Learning strategies, according to Abraham and Vann, manifest the approach the learner takes.

As early as 1978, Hosenfeld called for the study of the learner's "mini-theories" — how they develop and how they operate. It has since been posited that a learner's view toward the learning task is important in determining the learner's choice of LLS; to use Horwitz's (1987) terms, "what students think about language learning can affect how they go about doing it" (p. 120). In fact, different terms have been used by different researchers to refer to this knowledge element in learning. Wenden (1986a, 1986c) called it "knowledge about learning" and borrowed the term "metacognition" from Flavell (1976); Abraham and Vann (1987) referred to it as learner "philosophy"; and Horwitz (1987) labeled it "student beliefs."

Horwitz (1987) developed a Beliefs About Language Learning Inventory (BALLI) which involved 34 Likert-scale items eliciting student beliefs in five major areas: foreign language aptitude, the difficulty of language learning, the nature of language learning, learning and communication strategies, and motivations. She then administered the questionnaire among three intermediate level classes (32 ESL students) in the Intensive English Program at the University of Texas at Austin. This study should be credited for being the first to study student explicit beliefs systematically. However, it presumed a relationship between learner beliefs and learning outcome via what Horwitz termed learner "expectations." Only descriptions of student beliefs among a small group of learners were presented without relating these beliefs empirically to their strategies.

Wenden (1987b) interviewed 25 adult ESL learners studying in the advanced level classes at the American language program at Columbia University. The interviewees were asked how best they thought the task of learning a second language should be approached. They were also asked to talk about language learning activities they employed in and outside the

classroom. Twelve explicit student beliefs were elicited and classified into three categories: "use the language," "learn about the language," and "personal factors count." Subsequent analyses of the beliefs showed that learners who placed great importance on the using of language would often employ communication strategies and attend primarily to the meaning and social purpose of interaction. Learners who stressed the importance of learning about the language were more aware of language form and more inclined to use cognitive strategies in order to better understand and to remember more. Learners who attached more importance to personal factors tended to remember more feelings associated with learning activities and contexts and therefore employed more affective strategies.

Is Strategy Training Effective?

"The ultimate purpose of studying learner strategies is, of course, an applied one; researchers and teachers hope to determine which strategies are most effective and help students adopt more productive learning procedures" (Horwitz, 1987, p. 126). Indeed, Horwitz articulated the feelings of most LLS researchers.

Given the pragmatic inclination of LLS research, it is not surprising to see some researchers rushing to the classroom to feed the unsuccessful learners with what they thought they had already got from the successful learners (e.g., Cohen & Aphek, 1980, 1981; Rubin & Thompson, 1982). Having said that, it is almost astonishing to see how little empirical research has been done within the field of SLA to attest to the usefulness of LLS instruction. Most of the empirical work has been around finding what makes the successful language learners differ from the unsuccessful ones, as if the result of LLS instruction is taken for granted. This explains why so many LLS textbooks have been produced in recent years before a sufficient number of studies have been performed to clarify the issue.

At least the following three sets of questions need to be answered before a satisfactory understanding of LLS instruction is achieved: 1) To what extent can LLS be learned/trained? Which LLS can be easily learned, by whom, and which LLS can not? 2) How best can LLS be learned/taught? 3) What effect does the training of new LLS bring to learning results? What effect does it bring to the learner?

The teachability of learning strategies. This subject is as much a philosophical issue as a practical one, and it is closely related to the question of where LLS come from. Besides the efforts mentioned in the

previous section on unveiling the sources of learning strategies, hardly any work has been done to address the forces of nature and nurture. The fact is, very little can be achieved in answering the teachability question devoid of an understanding of how LLS are learned and what roles pre-existing factors play in the strategy learning process.

Research to date, as seen previously, has located some of the "whats" and "whos," but the "hows" have remained unanswered. Even the "whats" and "whos" have not been studied systematically. Little has been done, for example, to relate LLS to students' existing learning styles (the "whos"), nor has there been enough effort on systematically matching LLS with specific tasks of second language learning (the "whats"). As a result, LLS training practice encountered several instances where learners resisted to adopt the expected "good language learning behaviors" (e.g., O'Malley et al., 1985b; O'Malley, 1987; Sutter, 1989). Neglect of these training issues indicates again 1) a lack of a systematic overall understanding of the very nature of LLS, and 2) a slanted perspective of researchers on the practical or even tangible side of LLS. So far as LLS training is concerned, not all LLS are equal, some can be trained more easily than others, and some learners receive certain LLS more readily than others. More research should be done in this respect to prevent a blanketing approach to LLS instruction which might be helpful to some yet detrimental to others.

The presentation of LLS to learners. At the instruction level, questions of immediate concern include: a) How should LLS be taught? b) Who should teach LLS? and c) How should teaching materials be organized?

Considerable thought, albeit mostly in fields other than SLA (e.g., educational psychology), has been directed to finding out the best ways of learning strategy instruction. Of immediate interest are the following two questions: a) Should LLS be taught separately, or should they be worked into ordinary language classes (separate vs. integrated instruction)? b) Should LLS be taught explicitly, or should they be disguised under ordinary language learning tasks (direct vs. embedded instruction)?

Paradoxically, as has been pointed out by several researchers (e.g., O'Malley & Chamot, 1990; Wenden, 1986b), if LLS are taught parallel to language classes, they are less likely to be applied in practice, but if they are taught in the language classroom, strategy transfer is less likely to occur beyond the task level. Related to this question is the latter one: Should learners be informed and (1) LLS made explicit and taught accordingly or (2) LLS be hidden under the cover of ordinary language learning tasks? Most researchers seem to favor informed training with the contention that

embedded or camouflaged training is restricted to specific tasks and does not therefore encourage LLS transfer. No empirical work, however, has been carried out to compare the advantages and disadvantages of the two arguments.

The teacher and the researcher's role in LLS training has also emerged as an important issue. With the exception of Cohen, Weaver, & Li (1995), virtually all training studies have been carried out by researchers (e.g., Cohen & Aphek, 1981; Hosenfeld, Arnold, Kirchofer, Laciura, & Wilson, 1981; O'Malley et al., 1985a). If LLS training is to be incorporated at all into the classroom (Wenden, 1986b), teachers need to be trained first. Indeed, there is the need to first make teachers aware of the importance of LLS (O'Malley et al., 1985a) before training them to incorporate LLS into their classrooms. After all, the very essence of LLS training is to, hopefully, bring about long-term results with learner autonomy as the ultimate goal. To achieve this, short term demonstrations by researchers are certainly far from enough; classroom teachers need to take over the job in order to ensure extended instruction and practice that are essential for the development of new LLS.

Notwithstanding the uncertainties of all previous issues, recent years have seen a surge of interest in materials development for LLS training (Chamot & O'Malley, 1987; Chamot O'Malley, & Kupper, 1991; Dickinson, 1987; Ellis & Sinclair, 1989a, 1989b; Oxford, 1990; Willing, 1989a, 1989b). Granting the argument that it is in the process of training practice that we further our understanding of the issues involved in LLS instruction, it is nevertheless prudent and necessary to build more confidence into our teaching materials by more rigorous experimentation as well as by more careful reflection upon the potential problems involved in strategy engineering.

Training effect. Is LLS training effective in developing new LLS? Is it effective in achieving positive learning results? What are the criteria of effectiveness? Does strategy training positively re-shape the unsuccessful learners' self-concept? These, among other things, are the questions that should be given serious consideration.

If we look at the literature on LLS training, however, attention has been largely on determining whether the training of LLS has any impact on language learning outcome, with the rest of the above questions seldom tackled. Most studies have aimed at finding if the training of certain specific strategies (e.g., associations) is effective in improving performance of certain tasks (such as vocabulary recall) (e.g., Cohen & Aphek, 1980,

1981); others tried to train strategies to cope with integrated language skills (O'Malley et al., 1985b). To date, however, no one has ever tried to see if the LLS under training have been indeed incorporated into the learners' existing repertoire, and seldom can we see any effort in determining the transferability of newly arquired strategies. Very few studies have attempted to find whether LLS training has had any personal impact on the trainees' perception of language learning as such and on their perception of themselves as language learners.

Cohen and Aphek (1980, 1981) set out to see if a specific strategy, namely, association, is related to a specific task, i.e., vocabulary learning by several groups of English speakers learning Hebrew as a second language at Jerusalem. These students were first given brief instructions on how to make associations to assist in vocabulary recall; then they were asked to select their own vocabulary and make up their own association techniques to remember the vocabulary. Several weeks later, posttest results indicated that regardless of the students' proficiency level, and irrespective of the frequency of contact with the words out of class, the new words were retained more successfully for students who used some forms of association than for those who used none.

O'Malley et al. (1985b), O'Malley (1987) randomly assigned 75 intermediate level ESL students in three Atlantic suburban high schools to one of three groups in each school: a metacognitive group, a cognitive group, and a control group. The first group received combined training on metacognitive, cognitive, and social/affective strategies; the second group received training on only cognitive and social/affective strategies; and the third group was simply told to learn the normal way. After fifty minutes of daily training for eight days over a two-week period, posttest results, as adjusted for initial pretest differences, showed that the metacognitive group significantly outperformed the cognitive group, which in turn outperformed the control group on the speaking task. No significant differences between the groups, however, were found on the listening task and the vocabulary task. Interestingly, when cultural background was taken into consideration, the Asian control group outperformed the Asian training groups on the vocabulary task, but the Hispanic groups demonstrated an opposite pattern. Trainers explained that the Asian students had stuck to rote memorization of vocabulary and resisted using the "superior" strategies.

In brief, quite a number of LLS training materials have been produced in recent years, implicitly presuming the effectiveness of strategy training with very limited empirical backup studies. The argument here is rather

straightforward: With all the temptations of material development and LLS training (the ultimate stage of LLS research), it is extremely important, especially at the present level of our understanding, to remember that we still have a long way to go before we can comfortably tell our trainees that what we are teaching them is based on sound theories and prudent research, not just on "expert" hunches. Moreover, in order not to waste our efforts (see Wenden, 1986b, for learners' negative reactions to LLS instruction), arouse resistance (O'Malley, 1987), or even result in negative learning when our "good learning strategies" clash with either students' style of learning[4] (Entwistle, 1981) or with their existing and working "bad strategies" (Brown, Bransford, Ferrara, & Campione, 1983), more vigilance is needed before we approach our unsuccessful learners with good intention.[5] After all, the whole enterprise of foreign language learning is as much an emotional task as it is a cognitive one.

Discussion: Achievements and Problems

Definition

When Naiman et al. (1978) called for an exhaustive list to be compiled, they perhaps did not expect 193 strategies (Oxford, 1990). Again, the problem turns us back to the definition/nature of learning strategies. Are LLS practical gimmicks, or are they a mental network involving various forms of knowledge, decision making, as well as tricks? The paradox is, when we started research on LLS, we had little idea of what they were, and yet without a legitimate conceptualization of LLS, we may not get what we really want, and at best, we may get a host of things including LLS, which will in turn show us how complicated the interwoven picture is. This, I think, is a problem not to be solved solely empirically.

Oxford and Crookal (1989) thus called for a definitional consensus after a detailed review of the literature:

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[4] Using Pask's (1976a, 1976b) work to illustrate the importance of learning styles, Entwistle (1981, p. 95) reiterated a warning that ignoring a possible clash between a learner's learning style and the way materials are presented may result in severe consequences.

[5] O'Malley and Chamot (1990) rightly argued for the incorporation of motivation into LLS training, in that "learning strategy instruction would be most valuable for students who are not successful learners, yet these are the very students who may be least motivated to try new strategies" (p. 161).

> The field would be helped considerably if researchers could come to some consensus on definitions of various strategies. As yet there is neither agreement on an overall, hierarchically organized LLS taxonomy or typology, nor on ways to delimit or define a given strategy or cluster of strategies. Different researchers use different terms and concepts. . . . Greater agreement and more standardized procedures will increase comparability across studies, allowing results to have greater generalizability and explanatory power. (pp. 414–415)

Twenty years ago, it was perfectly legitimate to hold that, before defining LLS, we needed to go and find them out first. Today, however, when so many researchers (e.g., Abraham & Vann, 1987; Chamot, 1987; Oxford, 1989; Oxford & Crookal, 1989) have found the definitional discord so bothersome, the time has come to rethink LLS at the very fundamental, i.e., definitional, level.

Elicitation

As has been seen, LLS research started from simple hunches and has gone through cycles of strategy finding, grouping, and labeling. After many years of hard work, a considerable number of LLS have been elicited empirically, albeit the problem of generality/specificity. And if we consider the LLS elicited so far at the secondary and the most specific levels, we see that the examples listed by various researchers are, more often than not, identical or at least similar. In other words, researchers have so far accomplished an enormous task of eliciting a substantial amount of LLS, the task called for by Naiman et al. (1978) and Rubin (1981). However, what makes the present picture disparate, as I will discuss in the next section, is the grouping and labeling of these strategies identified.

An even greater accomplishment is the experience gained from this period on how best strategy data can be elicited. Naturally, this gain was accompanied by pains. Frustrations were often reported due to the futility of effort in trying to use classroom observations and teacher interviews, for instance, as more or less objective means of LLS elicitation (Cohen & Aphek, 1980, 1981; Naiman et al., 1978; O'Malley et al., 1985a; and Rubin, 1981). Fortunately, though, from an early period on, researchers have been contemplating on data elicitation procedures (Bailey, 1983; Bailey & Ochsner, 1983; Cohen, 1984; Cohen & Hosenfeld, 1981; Faerch & Kasper, 1987; Hosenfeld, 1976; Seliger, 1983). And one may well argue that

because, among other reasons, of the very nature of LLS which requires a convergence of a host of elicitation techniques, we are spared of the mistakes our immediate neighbours in the motivational domain have made in using primarily retrospective accounts and correlational studies (see Crookes & Schmidt, 1991).

However, the LLS elicitation stage was prototypically trawling (Skehan, 1989), i.e., researchers going out to the field with little knowledge of what they would get and how best they could get them. Trawling is inadequate in that firstly, the LLS trawled up are very likely to be biased in terms of social, educational, and other background factors of the sample selected (usually quite small, a trade-off effect of retrospective and introspective methods). In other words, we can be very uncertain of the external validity of our study; and secondly, we can never be certain of whether we have trawled up the most important, if not all, LLS a learner employs, i.e., the trawling method necessarily threatens the internal validity of the study as well. For example, some learners may, at the time of research, focus on reporting a certain aspect of the LLS they employ, while others may focus on other aspects, or they may well focus on similar aspects of LLS due to researcher influence. In addition, trawling may well yield varieties of LLS, leaving the researcher desperate in determining what LLS are at what level and go into what category. In hindsight, it would have been much more efficient had a more systematic approach been adopted at the outset.

Classification

As has been briefly touched upon in the previous section, it is not difficult to see that existing schemes of LLS classification have a lot in common. In fact, Stern (1983) shared the same feeling in his review of LLS studies: "Various investigations have produced different inventories of learning strategies. But their lists comprise more or less similar categories divided up in some what different ways" (p. 405). The most similar schemes are Stern (1983, p. 411) and O'Malley and Chamot (1990). Stern's "active planning," for example, is nearly equivalent to O'Malley and Chamot's "metacognitive strategies"; his "academic (explicit) learning" can also be viewed as similar to their "cognitive strategies." In addition, both schemes incorporate a social and an affective element: Stern puts them separately; O'Malley and Chamot put them together (see Table 2).

Table 2 Major Categorizations of Learning Strategies in SLA

Authors	Major Classifications of Learning Strategies
Rubin (1981)	Direct Strategies, Indirect Strategies
Oxford (1990)	Direct Strategies, Indirect Strategies
O'Malley & Charmot (1990)	Cognitive Strategies, Metacognitive Strategies, Social/Affective Strategies
Stern (1983)	Academic Learning, Active Planning, Social Learning, Affective Strategies

Rubin's (1981) inventory, which was probably influenced by Dansereau (1978),[6] grouped LLS according to their purported directness in influencing learning. Unlike Dansereau, her direct strategies embrace both cognitive (e.g., guessing/inductive inferencing, and deductive reasoning) and metacognitive elements (e.g., monitoring). What contributes indirectly to learning, according to Rubin, would be what O'Malley and Chamot (1990) call "social/affective" strategies plus what Tarone (1983) would define as "communication strategies."

Oxford's (1990) system depends heavily on Rubin, Stern, and O'Malley and Chamot's work. Under "direct strategies," she puts memory strategies, cognitive strategies, and compensation strategies. One might argue that 1) memory is certainly a crucial part of the human cognitive capacity if not the heart of it, and 2) if memory is separated from cognition, why not single out perception and attention as well? In other words, isolating memory strategies from cognitive strategies brings out more confusion than illumination. Similarly, Oxford's compensation strategies can also be worked into communication strategies or social strategies (cf. Rubin's classification). This done, Oxford's scheme can also be said to principally correspond to that of O'Malley and Chamot (1990).

As is seen above, two crucial alternatives have been adopted in LLS classification: inductive abstraction (Cohen & Aphek, 1981; Naiman et al., 1978; Oxford, 1990; Rubin, 1981;) and deductive reasoning (Bialystok, 1978; O'Malley et al., 1985a; O'Malley & Chamot, 1990). The former alternative, which has by far been the most popular along this line of

[6] Dansereau (1978) distinguished between "primary" and "support" learning strategies, the former would later be referred to by other researchers as "cognitive strategies" and the latter as "metacognitive strategies."

research, is data driven and is more prone to be disorderly in that categories are likely to be piled up in a disconnected manner (e.g., Naiman et al., 1978; and Oxford, 1990). This alternative may also lead to putative categorization, as in Rubin's arguable distinction between directness and indirectness of LLS influence upon the learning process.

After the establishment of categories, it is still very hard to sort all LLS uncovered neatly into these, as it were, stores. It is thus not uncommon to see researchers shifting a strategy from store to store, only to find that it suits any where, and thus nowhere.[7] O'Malley et al. (1985a), for example, first put "question for clarification" under "cognitive strategies," and in 1990, O'Malley and Chamot shifted it under the cover of "social/affective strategies." Similarly, Oxford's (1985; 1990) two ambitious schemes betray exactly the same dilemma.

The LLS/Result Association

One of the most significant achievements in LLS research is the dismissal of the myth of "*the* good language learner" with *the* predetermined characteristics as well as *the* secret gimmicks. Correlational studies did find positive association between LLS measures and proficiency/achievement measures (e.g., Naiman et al., 1978; Politzer, 1983), but as Politzer (1983) suggested, the association might well be due to third factor mediation. Interestingly, however, no study, to my knowledge so far, has tried to control extraneous variables by statistically partialing them out.

The most revealing studies have been those qualitative analyses of interviews that either examined the successful language learners alone (Naiman et al., 1978; Stevick, 1989) or compared the successful learners with the unsuccessful ones (Abraham & Vann, 1987; Vann & Abraham, 1990). So far as LLS are concerned, for example, Abraham and Vann's studies demonstrated that simple strategy counts both in terms of number and variety of LLS and in terms of frequency of strategy application did not distinguish the successful from the unsuccessful learners. By analyzing the unsuccessful learners' strategy use, however, Abraham and Vann were able to show that the unsuccessful learners lacked flexibility and

[7] Rubin (1981) was also haunted by the same problem. She explained it thus: "behavior may be motivated by more than one strategy" and hence, "on some occasions deciding whether a behavior was based on one or more possible strategies may be difficult" (p. 121).

appropriateness (cf. Porte, 1988), something that has, as yet, not been built into strategy elicitation measures.

Drawing all previous research together, we might distinguish two patterns.[8] Firstly, a learner approaches the learning task with a whole spectrum of LLS ranging from person-dependent to task-dependent ones. And yet if a strategy measure does not build this spectrum into it, it is hard to imagine any consistent survey results. Secondly, a learning strategy is not simply a static gimmick a learner picks up to use. It is a dynamic process starting from the perception of a task, to the activation of his strategic competence, the invoking of his strategic repertoire to make a choice, the implementation of this choice, to the evaluation of the result. This strategic process means much more than a simple repertoire of choice and the application frequency of certain strategies which are unfortunately what most existing strategy measures try to assess as LLS.

The Choice of LLS

A number of individual differences (ID) such as motivation, personality, cognitive style, and gender have been documented as determinants of a student's preference of LLS. Some of these findings, however, are not convincing enough, because, among other reasons, while most of the correlational or factor analytic studies have inferred the relationship between ID and LLS from the relationship between ID and learning outcome, only a few studies took LLS as the dependent variable.

Cultural, educational, and contextual factors have also been shown to influence people's strategy preferences. A number of studies, for example, have demonstrated that the Asians' conception of good LLS is different from other peoples' (e.g., O'Malley et al., 1985b; Politzer & McGroarty, 1985). Prior schooling experiences (e.g., Oxford et al., 1988; Oxford & Nyikos, 1989) were also demonstrated to determine a learner's choice of LLS when he or she starts to learn a foreign language, and indeed the foreign language learning experience itself is formative as well in terms of LLS development. In addition, learning tasks may require the application of certain strategies. In fact, Vann and Abraham (1990) vaguely suggested a

[8] Theorizing on learning strategies has been done in considerable depth in cognitive psychology. It is however beyond the scope of this article to introduce pertinent theories in other fields. For a deeper understanding of learning strategy theories, see Chipman, Segal, & Glaser (1985), O'Neil (1978), Segal, Chipman, & Glaser (1985), and Weinstein, Goetz, & Alexander (1988).

distinction between person-dependent strategies and task-dependent ones, a distinction that has repeatedly appeared, albeit in different terms, in fields outside SLA (e.g., Biggs, 1984; Dansereau, 1978; Kirby, 1984). In other words, some LLS are better preferred and more easily learned by some people in some contexts than other strategies. Different LLS may result from different combinations of various forces.

Previous research on this issue has not gone beyond, as it were, a fact-finding mission. Some sources of influence have been documented, but little explanation has been provided. Although distinction is made between metacognitive (more person-dependent) and cognitive (more task-dependent) strategies, few studies to date have looked into the relationship between strategy types and various background factors. And because of the more practical and specific conceptualization of LLS by most researchers, the more general side of strategies has generally been overlooked. What few studies we have on student beliefs, which have again adopted a bottom-up approach that starts from collecting explicit student beliefs and then grouping them, remain atheoretical and insufficient. The question is: How can we get a satisfactory answer when we define LLS as procedural knowledge[9], on the one hand, and examine LLS, on the other hand, by either eliciting learners' declarative knowledge (e.g., explicit student beliefs about how language is learned, Wenden, 1987b; Horwitz, 1987) or investigating students' "*observable* (italics mine) forms of language learning behavior" (Naiman et al., 1978, p. 2)? Obviously we are confused here in terms of what we are aiming at: Knowledge? What knowledge, declarative or procedural? Behavior? What behavior, mental or motor? In other words, besides the differentiation of declarative versus procedural knowledge, a distinction between strategic competence and strategic performance is also needed before we set ourselves the goal of determining the impact of various background factors (be they social/contextual or personological, cf. Biggs, 1984) on various aspects of LLS.

LLS Training

A considerable amount of work has been done on the training of specific LLS for vocabulary retention (e.g., Cohen & Aphek, 1980, 1981) and for

[9] Anderson (1983, 1985) distinguished between declarative knowledge and procedural knowledge as the basic representations of human memory. After reviewing Anderson's cognitive theories, O'Malley and Chamot (1990) concluded that LLS fall into the general rubric of procedural knowledge.

reading comprehension (Hosenfeld, 1984; Hosenfeld et al., 1981). Noticeably, though, some effort has been directed towards the training of integrated strategies for integrated as well as discrete tasks of second language learning (Chamot & O'Malley, 1987; Cohen et al., 1995; O'-Malley et al., 1985b). Most of these studies have shown, to various extents, the effectiveness of intervention in performing various tasks, but these promising findings are, unfortunately, counter-balanced by the inconsistencies on the one hand and the uncertainty about long-term retention of newly acquired LLS and their transferability on the other.

Another noticeable accomplishment lies in the development of training materials. In fact, we may well say that materials construction in LLS training is, at present, the most significant contribution of LLS research to the field of second language acquisition in the past twenty years. The sophistication demonstrated in LLS textbooks or resource books (e.g., Brown, 1991; Chamot et al., 1991; Dickinson, 1987; Ellis & Sinclair, 1989a, 1989b; Willing, 1989a, 1989b) and the kaleidoscope of LLS they offer are well beyond the sophistication and repertoire of any single successful language learner. Dazzling might be the word to describe the scene. Learners might rejoice at the reservoir of choice laid in front of their eyes; some, however, might gradually come to realize that they would have felt more secure had they stuck to their own "bad" but useful strategies. And yet, we must remember that it is exactly at these learners, most of them already frustrated, that LLS training has been aiming.

One of the most serious problems with strategy training to date is that most of the training studies have been evaluated against learning outcome alone. Seldom has training effect on LLS improvement (e.g., expansion of repertoire, transfer of strategies) been documented. This is probably due to another problem that strategy training has only been experimental and thus too short (usually no more than two weeks) for retention, let alone transfer. In addition, the effect of training is considerably limited by not incorporating teachers as trainers. Lastly, most of the instruction work has been on the training of specific LLS on specific tasks. Designs like that of O'Malley et al. (1985b) can be explored more in future research.

Summary

Twenty years of research on LLS has produced an impressive amount of insights for the field. However, we are not much better now than the "embryonic" stage Skehan (1989) referred to. Many of the questions he

posed in 1989 are still unanswered. Empirical work is still largely fragmentary, unsystematic, as well as narrow in scope. Focus has mainly been on the tangible side of LLS, namely, the tip of the strategic iceberg. There is, as yet, no comprehensive theory that encompasses previous empirical findings and directs future orientations. What is more dangerous, however, is not how little we know about LLS; it is the confidence with which researchers are going about presenting their tentative results to the consuming public. Tagged prices such as "what every teacher should know" (Oxford, 1990) are certainly higher than the value of our present knowledge on LLS.[10]

Having said that, I am by no means opposed to marketing our research product to the ever-increasing population of language learners. After all, the market is bound to be taken by someone, and expert hunches are immeasurably better than those of novices. In this connection, learning strategy researchers have set up an excellent example for the whole field of SLA. What I have been arguing for, however, is a more prudent, honest, and disinterested marketing strategy backed up by more robust empirical findings that go well beyond strategy-counting questionnaire results and one or two weeks' experimentation on a few isolated test-tube strategies.

More work is needed on almost every aspect of LLS. Foremost among these, the field would benefit from more theorizing along both inductive and deductive lines. It is also time that we focused on specific aspects of the language learning task and their corresponding strategies for learning (e.g., speaking, Cohen et al., 1995; listening, Mendelsohn, 1994; or vocabulary, Gu, 1994). Moreover, instead of hunting for LLS that are universally effective and appropriate, it would be more fruitful if our attention is directed towards mapping out strategies along contextual and cultural dimensions (e.g., EFL vs. ESL, cf. Kouraogo, 1993; or formal vs. informal). So far as Asian learners are concerned, the field has been, as of today, surprisingly long on unfair assertions and short on empirical evidence. Teachers in Asian contexts should be encouraged to discover how successful and unsuccessful Asian EFL learners differ and how the unsuccessful

[10] I might be accused of being too much of a pessimist, as Oscar Wilde would argue, by saying that the current price of LLS research is higher than its value. However, urging researchers to be more cautious in making claims at this largely intuitive stage of research, I believe, is justifiable. More cautions along a similar line can be found in Rees-Miller (1993).

ones can be helped in this context. Finally, we would be much better off if more longitudinal designs are employed. And this applies both to correlational studies which would benefit more from carefully validated questionnaires and to strategy intervention research, especially strategy engineering that is more classroom-oriented and learner-friendly.

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