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# A diachronic view of language learning strategies

*Perspectiva diacrônica de estratégias de aprendizagem de L2/LE*

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## Abstract

The present paper adopts a chronological perspective to report the development of Language Learning Strategy research in the last forty years. First, relevant strategy research is reviewed and findings from seminal studies are examined. Then, a brief overview of intervention studies is provided. Important discussions include the birth of strategy studies, controversies surrounding the field, issues in strategy training, as well as contributions from this research area to second / foreign language instruction. The paper concludes with future research directions.

**Keywords:** Language learning strategies. L2 strategies. Second language acquisition (SLA).

## Resumo

O presente artigo adota perspectiva cronológica para apresentar a evolução das pesquisas em Estratégias de Aprendizagem de L2/LEs dos últimos quarenta anos. Primeiramente, estudos relevantes são revisados e resultados de pesquisas seminais são examinados. Em seguida, breve panorama dos estudos de intervenção é fornecido. Discussões importantes incluem o nascimento dos estudos de estratégia, controvérsias na área e contribuições da literatura existente para o ensino em segunda língua/línguas estrangeiras. O artigo conclui com direções futuras para pesquisa na área.

**Palavras-chave:** Estratégias de aprendizagem. Estratégias de aprendizagem de L2/LE. Aquisição de língua estrangeira.

## 1 BACKGROUND

In his now-classic *Syntactic Structures* (1957), Noam Chomsky proposed that innate knowledge of the principles of Universal Grammar allows children, provided they are within the critical period of their development, to acquire the language that surrounds them (Lightbown; Spada, 2006, p. 35). Chomsky situated his structural linguistic theory within the perspective of an 'ideal speaker' and, accordingly, he approached language acquisition as a psychological phenomenon. His theory was in tune with the predominant view of language learning in the 1950s and 1960s which failed to account for the social aspect of language learning (Macaro, 2007). In the 1970s, however, Dell Hymes added to the literature a sociolinguistic perspective to Chomsky's view of linguistic competence. Not only did Hymes' concept of communicative competence (1972) comprise grammatical competence, but it also

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encompassed the ability to employ this competence in distinct communicative situations (Bagaric; Djigunovic, 2007, p. 95). This shift of perspective in Second Language Acquisition (SLA) research from the psychology of the individual to the notion that effective linguistic behavior is determined by more than innate structures gave way to the advent of research in language learning strategies (Macaro, 2007).

The interest in language learning strategies, i.e., “activities consciously chosen by learners for the purpose of regulating their own learning” (Griffiths, 2008, p. 87), stemmed from the view that some language learners are more successful than others. In her seminal article, Rubin (1975) reported that successful language learning was deemed to depend largely on aptitude, motivation, and opportunity (p. 42). She argued that while teachers can to some extent contribute to learners’ motivation to learn a foreign language, the other two variables give both teachers and learners little direction as to how learners can improve their L2 competence. The field of SLA was clearly in need of research that contributed to a better understanding of which habits are conducive to effective foreign language learning.

## 2 THEORETICAL UNDERPINNINGS

Strategy research began with the works of Rubin (1975) and Stern (1975). In the late 1970s researchers began to empirically investigate the strategic behavior of good language learners based on the premise that successful strategies could be passed on to less effective learners. In addition, from its very beginning Language Learning Strategy (LLS) research rested on the assumption that learners should take charge of their own learning, i.e., researchers were interested in promoting learner autonomy and examining how teachers could help their students become more independent. Rubin (1987) observes that one of the fundamental claims of LLS research is the notion that self-direction is beneficial to learners both inside and outside the classroom. It was expected that strategy training would enable learners to “become the best judge of how to approach the learning task” (Rubin, 1987, p. 17). Another essential assumption in the field of LLS was the view that explicit and implicit knowledge mutually contribute to language learning. According to Rubin (1987, p. 16), consciousness-raising in strategy training may lead to a more efficient and effective deployment of strategies by students who do not benefit from approaching language learning through an intuitive process.

As much as the aforementioned assumptions appear to be pertinent, it should be noted that there is no established framework for the studies that have been conducted in the area. The theoretical claims underlying the field of LLS emerged in its vast majority from empirical studies<sup>1</sup>. Skehan (1989), in fact, refers to LLS as an example of a ‘research-then-theory’ field of studies (p. 98). In any case, LLS research has established itself as a substantial field of applied linguistics. In order to better understand the origins of these theoretical claims and the initial motivation for LLS research, we now turn to a review of seminal studies in this area.

## 3 RESEARCH HISTORY

### 3.1 The birth of strategy research

The literature on language learning strategies in second language acquisition began in 1975 with the work of Joan Rubin. In her article ‘What the “Good Language Learner” Can Teach Us’, techniques and devices employed by successful language learners emerged from classroom observations and interviews and were later classified. According to Rubin, the following list comprises the characteristics of good language learners:

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<sup>1</sup> One notable exception is the work of O'Malley and Chamot (1990) which was grounded in Anderson's (1983) cognitive theory. The classification system described within this framework is to this day one of the most prominent taxonomies in the field.

- I. they are willing and accurate guessers;
- II. they have a strong desire to communicate;
- III. they are often uninhibited and willing to make mistakes;
- IV. they focus on form by looking for patterns and analyzing;
- V. they take advantage of all practice opportunities;
- VI. they monitor their own speech and that of others;
- VII. they pay attention to meaning.

In a review of research on LLS, Oxford (1993, p. 178) reports that, with the exception of being uninhibited, the characteristics of good language learners initially proposed by Rubin (1975) have been validated by subsequent research. In the same year Stern (1975, p. 31) offered an alternative list of strategies of the good language learner:

- I. a personal learning style or positive learning strategies;
- II. an active approach to the task;
- III. a tolerant and outgoing approach to the target language and empathy with its speakers;
- IV. technical know-how about how to tackle a language;
- V. strategies of experimentation and planning with the object of developing the new language into an ordered system and/or revising this system progressively;
- VI. constantly searching for meaning;
- VII. willingness to practice;
- VIII. willingness to use language in real communication;
- IX. self-monitoring and critical sensitivity to language use;
- X. developing the target language more and more as a separate reference system and learning to think in it.

Stern's list was proposed on the basis of introspective evidence and should therefore be treated with caution. Yet, these two seminal studies provided the underpinnings that would ground subsequent LLS research. Rubin (1981) later complemented her original taxonomy based on her own empirical investigation and, in similar vein, Stern (in Oxford, 1993, p. 178) revised his list in 1983.

Taking Stern's (1975) list as an initial frame of reference, Naiman and colleagues (1978) set to provide an understanding of why some learners are more successful than others. In their often-cited study the question was raised, 'do good language learners tackle the language learning task differently from poor learners, and do learners have certain characteristics which predispose them to good or poor learning?' (Naiman *et al.*, 1978, p. 4) 'The adult interview study' proved to be the most successful part of this undertaking, which also consisted of a 'main classroom study'. In the former stage, 34 good language learners from the researchers' university circles were selected on the basis of self-ratings. The interviews demonstrated that these successful language learners employed the following learning strategies:

- I. Active task approach: learners actively involved themselves in the learning task;
- II. Realization of language as a system: learners made effective inferences and comparisons with their L1;
- III. Realization of language as a means of communication and interaction: learners emphasized fluency over accuracy, especially in the early stages of learning;

- IV. Management of affective demands: learners overcame inhibitions and laughed at their own mistakes;
- V. Monitoring of L2 performance: learners reviewed their L2 and made adjustments.

In a nutshell, the successful language learners in this study attempted to understand the language system, were committed to consciously monitoring their own performance, were determined to communicate effectively and to be active learners, and could cope with emotional responses such as stress and anxiety which are involved in the process of foreign language learning.

The researchers reported that the approach of classroom observations employed in the second stage of their research had not been successful as they were unable to identify covert learning behaviors through an observation schedule. They also attributed their failure to identify strategies at this stage to the short period of the observations. Finally, it was suggested for future research that the performance of learners on individual tasks should be followed and that language learners should be consulted and asked for a description of their own strategies (Naiman *et al.*, 1978, p. 143).

Two obvious caveats, which have repeatedly arisen in other LLS studies, need to be raised. A relationship of causality between L2 success and the strategies reported in this study cannot be claimed because it is possible that these strategies were also used by poor language learners. In other words, the strategies employed by both successful and poor language learners should have been investigated and contrasted. Additionally, the good language learners were selected on the basis of self-ratings. Again, the results of this study have to be treated with caution since the extent to which the subjects are indeed successful language learners is unknown. O'Malley and Chamot (1990, p. 7) also point to the disparities between Rubin (1975) and Naiman *et al.*'s (1978) classification systems, which present another limitation to both of these studies. Nevertheless, as Skehan (1989, p. 77) observes, Naiman *et al.*'s "Good Language Learner" indicates that empirical research achieves greater precision than speculative lists such as the typology originally proposed by Stern (1975).

To conclude, the efforts from the initial phase of strategy research (Rubin, 1975; Stern, 1975; Naiman *et al.*, 1978) demonstrated that learner strategies could be described and categorized and that learners' active participation in the language learning process contributes to success in a foreign language.

### 3.2 Early LLS research: late 1970s and the 1980s

At the end of the 1970s, Bialystok (1979) contributed to the embryonic field of LLS with a study that investigated the effects of the application of functional and formal strategies to different language tasks. According to the researcher, the focus of the former is on language use, whereas the latter are concerned with language form. She targeted two functional strategies, namely inferencing and functional practice, and two formal strategies, monitoring and formal practicing. Results indicated that there was a relation between the four strategies being investigated and achievement in certain tasks. However, only functional strategies were found to improve performance for all tasks.

Bialystok's undertaking is a representative of the sudden interest in language learning strategies that initiated in the late 1970s. Indeed, studies on learner strategies blossomed from the year of the publication of Rubin's (1975) seminal article through the early 1980s. Based on this growing body of research and her empirical investigation, Rubin revised her original list of good language learners' characteristics. She concentrated on the cognitive processes used by learners, i.e., "actions which contribute directly to the learning process" (Rubin, 1981, p. 118) and employed the methods of student self-reports and classroom observations. Three years before, Naiman *et al.* (1978) had already reported the inefficacy of classroom observations in their research. Likewise, Rubin observed that this method produced meager results and that summoning learners about the strategies they use is the

most efficient method in strategy research. The employment of the directed self-report method, however, allowed Rubin to identify six cognitive strategies which may contribute to second language learning:

- I. Clarification/ verification;
- II. Guessing/ inductive inferencing;
- III. Deductive reasoning;
- IV. Practice;
- V. Memorization;
- VI. Monitoring.

In these early studies methodological problems involved in LLS research were already being manifested and would later become a target of criticism on the field (see for example Oxford, 1993 and Skehan, 1989).

Even though LLS researchers distinguish communication strategies from language learning strategies, Tarone's report of communication strategies of second language users was another significant contribution to LLS research from the year of 1981. The field of communication strategies is a branch within strategy research that focuses on language use and a desire to communicate, while studies on language learning strategy are interested in language acquisition and a desire to learn the target language (O'Malley; Chamot, 1990, p. 43). Communication strategies, therefore, have an interactional function. Although not "intended to be a final categorization" (p. 286), Tarone developed a list of strategies that learners deploy to remain in conversation, which consisted of approximation, word coinage, circumlocution, literal translation, language switch, appeal for assistance, mime, topic avoidance, and message abandonment (p. 286, 287).

Additionally, Tarone acknowledges in this study other types of strategies, namely production and perception strategies. While communication strategies differ from the former in that they have an interactional focus, the latter involve attempts to interpret incoming utterances efficiently. In spite of occasional overlaps between these definitions, O'Malley and Chamot (1990, p. 44) note that these distinctions might be useful in the language classroom.

Relevant studies such as Tarone, Rubin, and Bialystok's endeavors were produced in the late 1970s through the 1980s. In fact, the 1980s were a period of substantial LLS research, so much so that by 1987 Wenden and Rubin had compiled a collection of works on language learning strategies. Among other studies, they include Rubin's review of literature on learning strategies and Wenden, Holec and Horwitz' seminal studies on learners' beliefs about language learning, also referred as insights and prescriptions (Wenden) and representations (Holec).

Chamot (2005, p. 112) observes that the majority of LLS studies from this period were descriptive. Similarly, Grenfell and Macaro (2007, p. 14) analyze that this early research was mostly "predicated on a fairly simplistic and homogeneous sense of the language learner", that is, individual differences in strategy use were not generally acknowledged.

However, mid-1980s LLS research slowly began to link strategy use to other variables, which included proficiency level, affect, and motivation (Grenfell; Macaro, 2007). By way of illustration, O'Malley and colleagues (1985) reported results that related proficiency level to strategy use. In their study, successful and highly motivated learners adopted more strategies. Compared to previous studies, O'Malley *et al.*'s endeavor also accentuated the importance of metacognitive strategies. Yet, results demonstrated that learners in this study employed more cognitive strategies in their language learning process.

By the end of the 1980s, Chaudron (2006, in Ortega, 2009, p. 209) observes that two separate yet compatible lines of studies had emerged in the United States, i.e., the observation-based research program led by Anna Chamot and colleagues, and the questionnaire-based research conducted by Rebecca Oxford and colleagues. Nevertheless, the field still lacked a clear theoretical background based on solid research, rather than being

grounded on researchers' introspective evidence. Research from the 1990s, as we shall see, would set forth a substantial theoretical framework for strategy studies.

### 3.3 LL2 research: from the 1990s to present

In 1990 O'Malley and Chamot provided a theoretical background to LLS research by setting language learning strategies within an information-processing theoretical model. Learning strategies were described within a framework from Cognitive Psychology (Anderson, 1983 in O'Malley; Chamot, 1990, p. 42). Based on Anderson's model, O'Malley and Chamot proposed a distinction among strategies which consisted of three groups, namely metacognitive, cognitive and socio-affective. According to the researchers, cognitive strategies relate to the actual processing of language and "entail direct manipulation or transformation of the learning materials" (Brown; Palincsar, 1982 in O'Malley; Chamot, 1990, p. 8). Metacognitive strategies, in turn, involve planning, monitoring, and evaluating the learning process. Finally, socio-affective strategies entail the use of clarification questions, peer interaction, the "exercise of 'self-talk'" and the "redirecting of negative thoughts about one's capability to perform a task with assurances that the task is within reach" (O'Malley; Chamot, 1990, p. 8).

Anderson's theoretical framework was exhaustively applied to subsequent LLS research and thus proved to be an important contribution to the field. Dörnyei (2005, p. 169), however, criticizes the socio-affective construct of O'Malley and Chamot's taxonomy claiming that this group is a "miscellaneous category that appears to have been introduced simply to accommodate all the strategies that did not fit into the first two types but which could not be left out either". Conversely, Griffiths argues that O'Malley and Chamot's inclusion of a socio-affective group in their taxonomy was an important contribution to the field since it emphasized the role of cooperative learning in language learning (Griffiths, 2008, p. 84).

In the same year Oxford proposed another well-known taxonomy of language learning strategies which was compatible with O'Malley and Chamot's (1990) strategy system (Ortega, 2009, p. 210). From a review of the literature, Oxford devised a self-report questionnaire known as the *Strategy Inventory for Language Learning* (SILL). The SILL, a five-point Likert scale instrument which measures a learner's reported strategy frequency, consists of six strategy classes: affective, social, metacognitive, cognitive, memory-related, and compensatory.

Dörnyei (2005) points to two issues involved in Oxford's classification. He observes that the inclusion of compensatory (i.e., communication) strategies is problematic on the grounds that language learning strategies and communication strategies differ in their psycholinguistic representation and function and should therefore be treated separately. He also observes that cognitive and memory-related strategies are not independent categories since the latter constitutes a subclass of the former. What is more, although the application of a questionnaire is convenient, the SILL fails to acknowledge that distinct learning contexts might affect learners' strategy use. At any rate, the SILL had an enormous impact, and Grenfell and Macaro (2007, p. 17) report that by the mid 1990s it was estimated that the SILL had been used as a tool to assess the strategy use of more than 10,000 learners worldwide.

To sum up the contributions from LLS research conducted in the 1990s, important additions to the field from this decade include a shift away from a 'good or bad' learner dichotomy and the realization that different learners and circumstances lead to differences in strategy employment. Moreover, researchers were increasingly prioritizing quality over quantity of strategy use (Grenfell; Macaro, 2007, p. 22, 23). Despite the advances in learning strategy studies provided by 1990s research, issues with definitions and the controversy surrounding the field continued into the 2000s.

In 2003, Dörnyei and Skehan claimed that the concept of language learning strategies was 'unfruitful' for research purposes. According to them, the theoretical inconsistencies in the field of LLS have led educational psychologists to turn to self-regulation theory. They explain that the notion of self-regulation of academic learning is a multidimensional construct that includes environmental, behavioral, motivational, metacognitive, and cognitive processes that

learners can apply to enhance their academic achievement. Furthermore, Dörnyei (2005) contends that, contrary to learning strategies, self-regulation is a process-oriented construct and that it is more manageable to identify the dynamic of the process (self-regulation) than the product (strategies).

Griffiths (2008, p. 85) recognizes that self-regulation is an “interesting concept” since it incorporates various interrelated factors. She claims, however, that self-regulation theory does not replace the need for a learning strategy concept, provided that “if the term *self-regulation* is to be useful in any practical sense, the next question must surely be ‘What do learners *do* in order to regulate their own learning?’” (italics in original).

Conversely, Dörnyei (2005) points to problems concerning the existing definitions of the learning strategy construct. According to him, the definitions of language learning strategies provided by LLS researchers throughout the years include concepts such as knowledge, skills, and ability. He (p. 190) argues that the currently available neurobiological information about the nature of these concepts is insufficient for an understanding of the class of learning behaviors that constitute language learning strategy use. He also claims that the difference between “ordinary learning activities” and strategic learning behavior is unclear.

In relation to Dörnyei’s criticism, Grenfell and Macaro (2007) posit that the researcher overgeneralizes the research endeavors of the last 30 years in his critiques. By way of illustration, Dörnyei’s use of phrases such as ‘it does go against the standard view in the field’ (2005, p. 166 in Grenfell; Macaro, 2007, p. 26) demonstrate the unreliability of his claims, when most LLS researchers have observed that there are few standard views in the field. Grenfell and Macaro, however, admit that Dörnyei’s critiques seem to be pertinent to the debate surrounding the actual usefulness of LLS studies to second language learning. In any case, research in language learning strategy use does not appear to have been significantly affected by this criticism, which can be attested by the publication of a special issue (volume 35) of *The Language Learning Journal* dedicated to language learner strategies in 2007.

As a matter of fact, the field which originated LLS research, the good language learner (GLL), proved to still be in demand in the 2000s with the publication of a volume edited by Carol Griffiths (2008) entitled *Lessons from Good Language Learners*. Twenty-three chapters each provide a learner or learning variable that seems to correlate with research on the GLL. Among others, these include motivation, age, learning style, gender, beliefs, strategies, pronunciation, listening, writing etc. Macaro (2013, p. 291) observes that in spite of listing GLL’s characteristics, the book does not provide a clear-cut definition for the good language learner, or as he puts it, “we do not know what the outcomes of those characteristics should be”.

In a chapter from this same volume entitled “Strategies and Good Language Learners”, Griffiths (2008) reports her own investigation, which correlates strategy use with ESL learners’ level of proficiency. After taking the Oxford Placement Test (Allan, 1995 in Griffiths, 2008) and being interviewed by a member of staff, 131 students from an English school for international students in Auckland completed the *English Language Learning Strategy Inventory* (ELLSI). The ELLSI is a self-report questionnaire in which students rate their frequency of use of 32 language learning strategies. Although it was discovered that seven strategies were frequently used across all students, higher level students reported significantly more frequent use of learning strategies than did lower level students.

We conclude this section with one of the first surveys of field experts’ views in SLA research. Based on key issues and terms that arose from the research of the University of Oxford’s International Project on Language Learner Strategies (IPOLLS), Cohen’s (2007) study reports how strategy experts currently conceptualize language learning strategies. A questionnaire was devised to collect views of well-known strategy researchers in issues, approaches, terminology, and concepts related to LLS studies<sup>2</sup>.

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<sup>2</sup> The respondents included Neil Anderson, Anna Chamot, Andrew Cohen, Do Coyle, Claudia Finkbeiner, Christine Goh, Suzanne Graham, Carol Griffiths, Peter Gu, Veronica Harris, Ernesto Macaro, Martha Nyikos, Rebecca Oxford, Joan Rubin, Osamu Takeuchi, Larry Vandergrift, Qiufang Wen, Cynthia White, and Lawrence Zhang.

There was relatively strong agreement with the view that strategic behavior comprises conscious and intentional involvement with a given learning task. Additionally, the majority of respondents agreed that no single strategy is effective in isolation, that is, learning strategies are effective when combined with other strategies either simultaneously or in sequence. Most respondents were also in agreement with the purposes of language learning strategies. Areas of dissent included the definitions of important concepts in the field, such as autonomy, self-regulation, and self-management, the notion that learning strategies are employed to compensate for a deficit in learning, and the view that the action component in strategic behavior needs to be explicit. In conclusion, results demonstrate that, while there was agreement on some concepts and definitions, there is a lack of consensus on a unified theory of language learning strategies.

#### 4 A BRIEF OVERVIEW OF STRATEGY TRAINING STUDIES

Strategy training studies sprung from the view that learners could be taught how to become more proactive in the process of learning a language. The aim of this type of study is to investigate whether there is a casual relationship between strategy use and language learning success, which in most cases is achieved through a process of learner training by teachers or researchers (Macaro, 2001). Macaro (2013, p. 294) explains that intervention studies normally test a learner's performance in a given language task, provide instructional treatment based on strategy use, and finally post-test in order to discover whether strategy-based instruction has led to any significant differences in performance. Ideally, he suggests the inclusion of a delayed post-test to observe if the improvement in performance was sustained over time.

With this in mind let us now turn to a review of representative intervention studies. Due to space constraints, only strategy instruction schemes and a general intervention study will be examined. It should be noted, however, that there is a substantial body of literature on strategy-based instruction that focuses on specific language skills (see Chamot, 2005 for a literature review on listening, writing, reading, speaking, and vocabulary strategy training studies).

Dörnyei (2005, p. 174) attributes the origin of the notion of 'learning to learn' in L2 research to Ellis and Sinclair's (1989) coursebook, *Learning to Learn English: A Course in Learner Training*. He also notes that similar materials have been published in the field of educational psychology (for example Dembo, 2000 and VanderStoep and Pintrich, 2003 in p. 174). In LLS research, O'Malley and Chamot (1990) authored one of the first experimental studies of language learning strategy instruction. In their comparative experiment, 75 high school ESL learners were randomly assigned to a control and a treatment group. Learners in the latter group received strategy-based instruction to three different types of tasks over the course of two weeks. All learners were pre-tested on vocabulary, listening comprehension, and speaking tasks and were also post-tested on their task performance. Chamot (2005, p. 117) provides a summary of the main conclusions of this study, which are as follows:

Vocabulary learning strategies were effective only for students who had not already developed alternative effective strategies. Listening comprehension improved for students instructed in learning strategies on texts that were accessible, not on those that were too difficult and/or for which students lacked relevant prior knowledge. Oral reports (presented from written notes) given by strategy-instructed students were judged to be significantly more comprehensible and organized than those of control group students. Explicit learning strategy instruction embedded within the language syllabus appeared to be effective.

Although this experiment demonstrated how L2 performance could be improved by the employment of instructed learning strategies, the limitations of the study include its short duration, the absence of a delayed post-test, the lack of students' reports on their use of



learning strategies before and after instruction, and the delivery of instruction being provided by researchers rather than classroom teachers (Chamot, 2005, p. 117).

Since 1990 a number of representative strategy instruction studies have been published. In 2003, Harris produced a comparative overview of four strategy instruction models developed by O'Malley and Chamot (1990), Oxford (1990), Chamot, Barnhardt *et al.* (1999), and Grenfell and Harris (1999). Although the strategy training frameworks from these studies differ in their details, the broad stages of these schemes are similar and can be summarized as follows: preparation, brainstorming, presentation of strategies, practice, transfer of strategies to other tasks, action planning, and evaluation.

Despite all these efforts, Macaro (2013, p. 296) argues that it is not convincing to simply demonstrate that language performance has improved at post-test after an intervention. By the same token, Dörnyei claims that it is not clear whether strategy training research is a worthwhile endeavor. He posits (2005, p. 177) that learning strategies are associated with the broad process of learning, and that language learning success, therefore, also depends on a number of other variables such as learning context, peer influence and individual difference factors.

In what concerns methodological issues involved in learning strategy instruction, Chamot (2005, p. 122) points to problems related to the inevitability of the use of L1 in instruction to beginning to low intermediate level students and the practicality of integrating strategy instruction into regular language classes. Perhaps due to these methodological issues, there is a lack of sufficient evidence that can support the effectiveness of strategy training. In 1996, Hadwin and Winnie (in Dörnyei, 2005, p. 177) reported that of the 566 articles that had been published about strategy training, only 9% consisted of an empirical test of the interventions' effects, and among these only 16 experiments met rigorous research criteria.

Nevertheless, McDonough (1999, in Dörnyei, 2005, p. 177) observes that strategy instruction can be successful when it involves teacher and learner training and is incorporated into teachers' classroom behaviors. Chamot (2005, p. 124) also acknowledges that strategy training research is most effective when aimed at actual language classrooms. She recommends language teachers to discover the learning strategies their students employ and to discuss them in the language classroom so as to understand cultural and contextual factors that may be influencing their students' strategy use. According to Chamot, this can lead to clarification of task demands which can ultimately increase learners' motivation to employ new learning strategies. Indeed, as we shall see in the next section, language learning strategy research has important implications for L2 instruction.

## 5 IMPLICATIONS FOR FUTURE RESEARCH AND INSTRUCTION

In a volume devoted to language learning strategy instruction, Macaro (2001) provides a concise summary of what is known about strategy use and strategy training. In what regards reading comprehension, he reports that successful learners employ a combination of top-down processing, i.e., "thinking about the context of the text and the student's own 'world knowledge'" and bottom-up processing, which involves "individual words and short phrases, analyzed both for meaning and for clues in the syntax" (p. 37). Successful L2 writers, in turn, use teacher feedback to edit their work and are able to make effective decisions regarding the amount of planning they need to make. Furthermore, successful L2 listeners use top-down processing to decode information, while less effective L2 listeners focus on word-for-word decoding. When it comes to communication strategies, effective speakers find ways to deliver a message when they do not know a word or expression in the L2. When learning vocabulary, successful learners seem to have a hierarchy system of strategy use. Finally, successful language learners employ a number of affective strategies which facilitate the language learning process.

These findings have important implications for L2 instruction since they contribute to learner mastery and autonomy, as well as increased teacher expertise. In other words, an

understanding of how successful language learners approach the language learning process can lead to the development of pedagogical strategies aimed at helping less effective learners become more strategic as they cope with various learning tasks.

As previously mentioned, learning strategy research has made relevant contributions to foreign language learning and instruction. However, Griffiths (2008, p. 94) observes that, despite the 40-year literature, a plethora of questions related to learning strategies remain unanswered, such as

what are the factors which make particular strategies appropriate and effective given individual learner and learning variables? How can strategies be clustered and sequenced (orchestrated) to be maximally effective for particular individuals, situations, and targets? Where do strategies fit within the super-ordinate construct of self-regulation, and how do they relate to other dimensions of self-regulation such as motivation, autonomy, and volition? Etc.

Other areas for future research include more rigorous intervention studies which set to unravel the effects of learning strategy instruction on language achievement, studies which assess different models for teacher preparation in learning strategies instruction, and research which examines the relationship between effective learning strategy instruction and teacher characteristics (Chamot, 2005, p. 126). Finally, Dörnyei (2005, p. 171) considers research that investigates the systematic variation in the strategy use of specific groups of learners, such as cross-cultural perspectives of LLS, gender-variation and other individual difference factors, the most promising research directions in the field of language learning strategies.

## 6 CONCLUDING REMARKS

In this paper I have adopted a chronological perspective to report how research on language learning strategies evolved in the past 40 years and how the field is currently characterized. It first reviewed relevant strategy research and the findings from these endeavors were extended with a brief overview of intervention studies. Important discussions included the birth of strategy studies, controversies of LLS research, issues in strategy training, and contributions from LLS studies to L2 instruction. Finally, future research directions were indicated.

Despite the criticism the field has received along the years, there is a need for more LLS research that falls within the aforementioned research directions as well as studies which consider other aspects related to learning strategy use since – when rigorously conducted – this type of research not only has the potential to contribute to the creation of more effective L2 instructional approaches, but it can also assist less effective learners into achieving greater levels of success when studying a foreign or second language.

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