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María C.M. de Guerrero

Inner Speech – L2

Thinking Words in a Second Language
María C.M.de Guerrero, Inter American University of Puerto Rico, Metropolitan Campus, Puerto Rico, USA

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According to Vygotsky (1986),

The decreasing vocalization of egocentric speech denotes a developing abstraction from sound, the child’s new faculty to “think words” instead of pronouncing them. This is the positive meaning of the sinking coefficient of egocentric speech. The downward curve indicates development toward inner speech. (p. 230)

The purpose of this volume is to explore the faculty to “think words,” not as the ability to mentally evoke words in the native (or first) language (LI) but as the faculty to conjure up in the mind words in a second language (L2). To think words—rather than to pronounce them—is possible through inner speech, a function that humans develop in the course of childhood as they internalize the speech of the social group among which they grow. This means internalizing and being able to conduct inner speech in a particular linguistic code, the L1. But humans, at a very early or more mature age, may also come into contact and interact verbally with speakers of other languages, in classrooms or natural settings. The possibility thus emerges of internalizing an L2 in such a way that inner speech in the L2 might evolve. In this book, it is argued that, given certain conditions of L2 learning, it is possible for learners to attain inner speech in the L2. This book examines the distinctive nature of L2 inner speech and the processes that engender it and characterize its development.

Inner speech in the L1 has been substantially investigated, especially after Vygotsky made it a central theme in his book *Thought and Language* (1986). The same has not occurred in the second language acquisition (SLA) field, perhaps because the construct of inner speech, which is tightly related to a view of language learning as a predominantly social phenomenon, does not seem to fit the theoretical premises and goals of the mainstream SLA information-processing approach. A few attempts to explore inner speech and its connections to L2 learning have been made within the sociocultural theory perspective. These efforts, however, have remained in the form

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1 A second language (L2) is understood in this book as a language other than the primary one learned from birth, this one also referred to as the native language or first language (L1). When specific references to a “foreign” language (FL) are made in the literature cited, the term FL will be respected. In addition, at certain points in the discussion, it will be necessary to be more precise about the conditions in which a new language is learned or used. In these cases, the term FL will be employed to denote languages that are learned primarily in the classroom, when contact with target language speakers is mostly limited to the instructional setting or when the learners are not immersed in a community where the target language is spoken.
of isolated articles and short sections in larger volumes. A recognition of the crucial role inner speech plays in mediating verbal thought in any language and the absence of an extended and comprehensive treatment of the topic from an L2 perspective have provided the main impetus for writing this book. The book also addresses a need in L2 research for studies that focus on the internal, rather than external, uses of the L2. As Cook (1998) has pointed out, exclusive attention to the social and interactive uses of the L2 misses covert language functions that are vital for L2 users.

The book draws mainly from sociocultural theory for insights into the nature, origin, and development of inner speech in the L2. Based on the work of Vygotsky and others, sociocultural theory views the mind as a fundamentally social construct. Central to sociocultural theory is the notion that intellectual activity is rooted in the social world. One of the theory's strongest claims is that higher mental processes are mediated by signs, that is, tools of a psychological nature. Inner speech, or internalized social speech, is the most powerful tool of thought mediation. Children develop inner speech as they first engage in and then internalize the verbal practices of the community. Thus, the child's ability to "think words" has a social and cultural origin. As social, communicative speech is transformed into mental speech for oneself, it undergoes important changes in form and function. It should be clarified from the start that emphasis is given in this volume to the internal (covert) and nonaudible forms of speech for oneself, such as mental rehearsal and internal self-talk, rather than to the external (overt) manifestations of self-directed speech, such as vocalized private speech and audible language play. These phenomena are treated and receive due attention as important aspects in the development of L2 inner speech, but they do not constitute the main focus of this book.

The book is intended for researchers, educators, and students in the fields of L2 and FL learning, applied linguistics, language and cognition, and psycholinguistics. Although some previous knowledge of the concept of inner speech and of the tenets of sociocultural theory might be useful to readers, the book provides extensive background information on the historical, theoretical, conceptual, methodological, and empirical bases of the study of inner speech, both from an L1 and an L2 perspective, which may facilitate understanding of the main arguments and ideas presented in this book. In particular, researchers interested in the application of sociocultural theory to L2 learning will find in this volume an L2 perspective on one of sociocultural theory's most salient core concepts: how the mind gets to be mediated by an interiorized system of signs, in this case, the L2. The volume includes pedagogical implications and suggestions for the development of inner speech that might be of interest to practicing language teachers as well as teacher educators and students in language teaching programs. The book's critical review of the methods that have been and could be

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2 See, for example, Ohta's (2001) treatment of the development of inner speech in L2 learning in her book Second Language Acquisition Processes in the Classroom (pp. 18-21).

3 Rather than pointing to a unified theory of mind, the term "sociocultural theory" is used in this book to refer broadly to a host of approaches inspired in the sociohistorical school of psychology associated with Vygotsky and others. For a more extended discussion of sociocultural theory see Chapter 1.
applied in studying inner speech might be of value to those researchers interested in pursuing further study of the phenomenon.

In summarized form, the book comprises a discussion of the historical and theoretical foundations of the concept of inner speech; a review of studies related to L1 and L2 inner speech and its methodology of research; an interpretive account of the origin, nature, and development of L2 inner speech from a sociocultural theory point of view; and various pedagogical implications and suggestions for further research.

Chapter 1 provides an overview of the historical trajectory and theoretical foundations underlying conceptualizations of inner speech. In one of the earliest references to inner speech, Plato refers to thinking as the soundless dialogue the soul has with itself, thus establishing the essential link between thinking and speaking—thought and language—that would characterize all other later conceptions of the phenomenon. The philosophical treatment of inner speech as a unit of thought and language has continued until present times, although the main perspective has been from an implicit L1 point of view. An important dimension of the phenomenon was brought about by Vygotsky’s insistence that inner speech is a derivative of social speech and should thus be examined from a genetic (developmental) point of view. The chapter addresses the significant contribution of Vygotskyan sociocultural theory to the topic of inner speech as well as of other theoretical and methodological approaches. A review of the main lines of research on inner speech is offered. This includes studies in psychology, psychophysiology, neuropsychology, education, communication theory, and the philosophy of language. Chapter 1 also introduces the main principles of sociocultural theory that are most relevant to a study of inner speech and ends with an explanatory section defining inner speech and other constructs frequently associated with it.

Chapter 2 focuses on research and theoretical views on inner speech in the L1. The chapter is organized in three main sections. In the first section, the work of representative sociocultural theorists on inner speech is discussed. The section starts with Vygotsky’s view of inner speech as the convergence of two distinct lines of development, speech and thought. Synthesizing ideas from various sources, Vygotsky provided a unique and indelible account of the nature of inner speech—its form and functions—as well as of the psycho-social processes in which inner speech is involved: internalization, thought formulation, and externalization. Vygotsky’s views are followed in the chapter by those of Luria, a colleague of Vygotsky who chose to concentrate on the neurophysiological aspects of inner speech, that is, on the brain correlates of inner speech activity. Three other sociocultural perspectives in this chapter are A. A. Leontiev’s (1981) model of speech production—including an inner programming stage—, Sokolov’s (1972) psychophysiological research of inner speech activity, and Vocate’s (1994b) approach to inner speech as a form of intrapersonal communication. The second part of the chapter presents cognitive perspectives of inner speech, including Frawley’s (1997) sociocomputational theories, Clark’s (1998) supracommunicative view of language and cognition, Carruthers’s (1996; Carruthers & Boucher, 1998) modularist approach to inner speech, and research within the information-processing paradigm. The third major section of Chapter 2 introduces a
recent and highly revealing line of investigation on inner speech: the application of brain imaging techniques, such as PET and MRI. To conclude the chapter, a series of questions with implications for L2 inner speech are drawn from the review of the literature on L1 inner speech.

In Chapter 3, the aim is to review research on inner speech from an L2 perspective. Although there are not many studies dealing strictly with inner speech in the L2, the literature offers a wide range of investigations on related topics. The first area of research to be reviewed is the issue of verbal thought in an L2. A frequent concern among L2 educators is the belief that learners need “think in the L2” to learn the language successfully. The ramifications of this belief as well as viewpoints on the role of the L1 and gestures in L2 verbal thought are looked into. An important aspect of verbal thought is the question of conceptual change in the acquisition of an L2 and how this change may affect the learner’s access to an L2 or L1 in the process of making meaning. The implications of conceptual change for the creation of an L2 identity are also explored. A second area of research is the process of internalization of L2 social speech and its impact on the development of the L2 as a tool for thought. A third area of review is the research linking inner speech and L2 reading and writing. Within this area, Sokolov’s (1972) psychophysiological study of inner speech during FL reading stands out. The fourth group of studies reviewed in this chapter deals with mental rehearsal of the L2 and its relationship to inner speech. Mental rehearsal, defined as the “covert practice of the L2,” underlies several internal phenomena implicated in the development of L2 inner speech, such as spontaneous playback of the L2 and covert language play. Lastly, the chapter presents studies within the emerging neuroimaging L2 field, already showing how languages are organized in the bilingual brain and neural areas that are involved in L2 inner speech activity.

In Chapter 4, the methodological challenge of investigating inner speech is addressed. Because of its covert and elusive nature, inner speech is an exceedingly difficult phenomenon to examine empirically. Vygotsky overcame the problems posed by the inaccessibility and fluidity of inner speech by looking at it from an experimental-developmental viewpoint, a method that allowed him to make inferences about inner speech through the observation of egocentric speech. Following Vygotsky, many have employed the “genetic” method by focusing on private speech, that is, on the ontogenetic predecessor of inner speech. Alternative methods in the study of inner speech are then analyzed. One of the most productive of these is the employment of verbal report data. Verbal report methodology, such as questionnaires, interviews, think-aloud techniques, first-person narratives, learner diaries, and thought-sampling, takes advantage of those aspects of inner speech that are available to introspection. Another strong methodological line of research on inner speech that is discussed is the use of laboratory tools and techniques, such as speech interference, electrophysiological measurements, and neuroimaging. The chapter points out the pros and cons of the various methodologies of research and offers ideas on how to deal with the problem of method in further studies of inner speech.

Chapter 5, based on the author’s verbal report data, provides a classroom learners’ perspective on how inner speech in the L2 is developed and experienced. A major
section of this chapter is devoted to describe the purpose, methodology (questionnaires and interviews), and findings of two studies conducted by the author on inner speech and mental rehearsal of the L2 (Guerrero, 1990/1991, 1994; and Guerrero, 1999). The studies sampled a large number of Spanish-speaking English-as-a-second-language (ESL) learners with proficiency levels ranging from the most basic to the most advanced. These studies were instrumental in showing how inner speech in the L2 develops across time as well as in throwing light on the multifunctional nature of mental rehearsal. A second major section of this chapter details another investigation by the author (Guerrero, 2004), this one focusing on the very early stages of L2 inner speech. In this study, verbal report data in the form of learner diaries and stimulated recall feedback were inspected in order to learn about the nature of incipient L2 inner speech and the covert efforts that learners make in internalizing the language. The chapter concludes with a critical appraisal of the methodology utilized in the studies.

Chapter 6 takes note of the insights afforded by preceding chapters and attempts to integrate them in a discussion of the origin, nature, and development of inner speech in the L2, coherent with principles of sociocultural theory. L2 inner speech is first viewed as the culmination of a process of internalization of L2 social speech. It is argued that private speech may be for some learners an important phase in this process; however, the interiorization of the L2 seems to occur for the most part as covert activity, including such behaviors as inward repetition of the L2, recall and delayed reprocessing L2 speech, and preparatory use of the L2. The externalization of inner speech in the L2 is also attended. L2 inner speech may be externalized in two ways: as self-regulatory private speech and as overt speech production (speaking and writing). Two complementary hypotheses are presented regarding the extent to which the L2 is implicated in the inner speech processes leading to production: (a) in early stages of L2 development and when L2 instruction is decontextualized, learners will formulate thought first through the medium of the LI and then translate their LI coded thoughts into the L2, and (b) learners who have attained a very high level of development in their L2 and have somehow reconstructed their conceptual and semantic bases through an L2 will be able to mediate their thinking through a wider linguistic foundation consisting of both the LI and the L2. Chapter 6 identifies two “macro” functions of L2 speech for oneself: the cognitive/regulatory or thinking function and the rehearsal one. The role of inner speech as a tool for the processing and performance of verbal tasks in the L2 (reading, writing, listening, and speaking) is also recognized. Chapter 6 attempts to explain the changing nature of L2 inner speech relative to proficiency as a gradual transformation that starts as the inward reproduction of social speech and culminates with its appropriation and conversion into a rich and powerful tool for thought. Finally, the chapter focuses on the way inner speech contributes to the creation of an L2 identity.

This aim of Chapter 7 is to discuss the pedagogical implications of the view of L2 inner speech presented in previous chapters for the benefit of educators and other professionals interested in L2 teaching. The chapter starts with the caveat that developing the faculty of “thinking words in another language” is an exceedingly complex achievement and that there are no simple pedagogical formulas for its
attainment. To understand the role of teachers in the development of L2 inner speech, it is suggested that teachers should first acknowledge the fact that thinking “in” an L2 goes beyond the mere translation into the L2 of thoughts already coded in the L1. To properly “think” in an L2 is to engage the new language in the creative process of concretizing thought in the form of words. Another important issue in this chapter is the need to recognize the L1 as a critical cognitive resource that learners will resort to whether teachers discourage it or not. The chapter also examines the role of inner speech in becoming literate in an L2. Learner strategies, such as covert repetition, which learners naturally deploy to internalize the L2, as well as forms of instructional mediation helpful in the development of L2 inner speech are presented.

Chapter 8 provides a synthesis of the theoretical ideas, empirical findings, and teaching implications presented in the book and offers suggestions for further research on the topic of “thinking words” in the L2.

It is hoped this book will contribute to an overall understanding of how the minds of L2 learners get to be shaped and enriched by the language they are learning and what it means to be able to think words in a language other than the L1.
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Maria C. M. de Guerrero
CHAPTER 1

UNDERSTANDING INNER SPEECH

Historical and Theoretical Foundations

The purpose of this chapter is to provide an overview of the study of inner speech that may serve as a conceptual foundation for future chapters. The first half of the chapter attempts to set the historical and theoretical bases of the phenomenon. A brief history of the treatment of inner speech is offered in the hope that getting to know its philosophical roots and the constellation of theoretical ideas surrounding it may help understand current conceptions of the phenomenon. This section also introduces basic principles of the sociocultural theory framework adopted in the book for the interpretation of inner speech processes involved in L2 learning.

The second half of the chapter attempts to define and delimit the topic of inner speech as well as clarify some of the terms that are used in relation to it. First, some expressions associating inner speech to thinking, such as “verbal thought,” “thinking in (a) language,” and “language of/for thought,” are discussed. Next, the scope of such terms as “intrapersonal communication,” “self-talk,” “covert linguistic behavior,” and “mental rehearsal,” and the role inner speech plays in each of these phenomena are explored. Finally, a differentiation is made between the concepts of “private speech” and “inner speech.”

A HISTORICAL OVERVIEW OF THE STUDY OF INNER SPEECH

Inner speech has a long trajectory in the history of ideas. One of the earliest documented references to inner speech is Plato’s famous passage in which Theaetetus asks Socrates what he means by thinking, to which Socrates responds:

I mean the conversation which the soul holds with herself in considering anything. [190]
I speak of what I scarcely understand; but the soul when thinking appears to me to be just talking—asking questions of herself and answering them, affirming and denying. And when she has arrived at a decision . . . this is called her opinion. . . . To form an opinion is to speak, and opinion is a word spoken,—I mean, to oneself and in silence, not aloud or to another. (Plato, 1952, p. 538)

Plato’s definition of thinking as an internal dialogue with one’s soul and as words spoken in silence highlights not only the role of inner speech in thinking but also the
dialogic nature of inner speech. The Platonic definition of thinking as dialogue and words has also been understood as an endorsement of the notion that thinking equals speaking (Sokolov, 1972, p. 34). Plato, however, has been traditionally considered an “idealist,” for whom ideas as paradigms supposedly existed in pure form apart from the beings they sought to influence. Knowing, for Plato, consisted in being able to remember such paradigms. In this sense, in the act of reasoning through inner or external dialogue, some aspects of the world of ideas the soul had known before incarnating in the material world became accessible to the speaker. Thus, whereas Plato’s definition of thinking suggests an equation of thinking with speaking, his view of thought is still an idealist one in that true ideas exist in pure state. Plato, then, is not conflating inner speech with thinking in the above quote but rather making inner dialogue the means to access true knowledge.

Plato’s musings on thinking and speaking reflect a perennial philosophical debate on the relationship between thought and speech.4 According to Sokolov (1972), this debate can be traced to the Greek philosophers’ notion of logos, which blended the concepts of thinking, language, and being. Since then, the history of ideas on the relationship between thinking and speech has polarized into two extreme positions: (1) Thought and speech are identical and therefore thinking is merely speaking without sound, and (2) thought and speech are not related. This last idea implies that thought is sufficient onto itself, that it exists in pure form, and that speech is just the “expression” of thought. In the early 20th century, the notion of the total identification of thought with speech crystallized in the behaviorists’ concept of thought as speech minus sound, whereas the idea of the complete separation of speech from thought was the trademark of the Würzburg school of psychology, for which intellect became “a pure spiritual power” (Vygotsky, 1986, p. 207). These two conceptualizations of the relationship between thought and speech would have great impact on present day views of inner speech.

Although the notion of inner speech can be traced to ancient times, the origin of the term inner speech has been credited to Wilhem von Humboldt, a German linguist who wrote about an “inner form of speech” (Kozulin, 1986, p. 276). Humboldt, however, did not operationally define inner speech (Vocate, 1994b, p. 14). It would be the job of others, such as Max Müller, Alexander Potebnya, and Vygotsky himself, to further develop Humboldt’s concept of inner speech. It is known that Humboldt’s ideas influenced Müller, another German linguist, who, arguing in defense of the inseparability of thought and language, wrote in 1892: “There is no reason without language. There is no language without reason” (cited in Sokolov, 1972, p. 20). Potebnya, a Ukrainian linguist who was also a follower of Humboldt, however, did not

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4 A thorough discussion of the relationship between thinking and speech is a monumental task much beyond the scope and goals of this book. The overview presented here may appear grossly limited in this respect; the intention, however, has been merely to delineate the position that inner speech has occupied in discourses on the relationship between thought and speech since ancient times. For a more thorough discussion of the debate on the relationship between speech and thought throughout the ages, see, for example, Sokolov (1972).
equate thought with language. Neither did he think that language is a mere vestment for thought. In a book titled *Thought and Language* (1926), Potebnya wrote: “Language is not a means of expressing an already formulated thought but a means of creating it” (cited in Sokolov, 1972, p. 22).  

According to Sokolov (1972), the first researchers who systematically investigated inner speech were two French authors, Victor Egger, a philosopher and psychologist, author of the 1881 *La Parole Intérieure*, and Gilbert Ballet, a physician interested in aphasia and author of the 1886 *Le Langage Intérieur*. For these scholars, inner speech was not equivalent to thought. Inner speech was simply a vehicle for thought that had no participation in the thinking processes except at the last stage. Egger and Ballet were particularly interested in whether the images in which words were represented in verbal memory were auditory, visual, or motor. Applying introspection to himself, Egger concluded that inner speech was based on auditory images: “My inner speech (ma parole intérieure) ... is a reproduction of my voice” (cited in Sokolov, p. 42). To others, such as Strieker, inner speech consisted of motor representations (Sokolov, p. 42). The question of the nature of mental representations was taken up by psychologists of the Würzburg school, who, also through introspection, went as far as to deny any role of mental representations in thinking and subsequently to reject the notion of inner speech as necessary for thought (Sokolov, p. 35).

Vygotsky, the figure who is today recognized as the major proponent of a theory of inner speech, was prompted by historical circumstances—the 1917 Russian Revolution and ensuing attempts at redesigning scientific theories from a Marxist, historical materialism perspective—to reconceptualize the existing philosophical notions regarding the relationship between thought and speech and the related phenomenon of inner speech (Joravsky, 1989; Kozulin, 1990a). With the exception of Potebnya, whose ideas Vygotsky followed quite closely, Vygotsky found all previous conceptions of inner speech inadequate. In defining the phenomenon, Vygotsky (1986) first disagreed with its conceptualization as verbal memory: “It was in this sense that inner speech was understood by the French authors who tried to find out how words were reproduced in memory—whether as auditory, visual, motor, or synthetic images” (p. 224). To Vygotsky, verbal memory is only part of the phenomenon of inner speech but not all of it. Second, Vygotsky disapproved of the concept of inner speech that equates thinking with speaking in silence. This notion, best represented in Müller’s view of inner speech as “speech minus sound,” Watson’s definition of inner speech as “subvocal speech,” and the Russian reflexologists’ concept of inner speech as a reflex truncated in its motor part (Vygotsky, 1986, p. 225), again was found to be incomplete. Vygotsky also opposed Goldstein’s broad definition of inner speech as all the mental processes that precede the act of speaking, including thought, motives, and emotions.

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5 Potebnya seemed to have greatly influenced Vygotsky, who not only read Potebnya’s book (Kozulin, 1986, p. xy) but also borrowed from the latter the title of his own book *Thought and Language* (Kozulin, 1986, p. 269).

6 For a historical account of French approaches to inner speech at the end of the 19th century, see Puech (2000).
In short, Vygotsky rejected both reductionist and all-encompassing interpretations of inner speech in defense of his own thesis of inner speech as "an autonomous speech function" (p. 248) enabling verbal thought, but being neither identical with thought nor its mere clothing. For Vygotsky, echoing Potebnya, "thought does not express itself in words, but rather realizes itself in them" (p. 251).

According to van der Veer and Valsiner (1991), Vygotsky was not truly original in his theory of inner speech, as he extrapolated ideas from various sources and elaborated on them. For his concept of inner speech, Vygotsky drew not only from Humboldt and Potebnya but also from the Russian linguist Jakubinsky, from whom he quoted extensively (and not always acknowledged; see van der Veer & Valsiner, pp. 367-368), in particular when comparing inner to dialogic speech, and from the French psychologist Paulhan, from whom he borrowed the distinction between sense and meaning in discussing the semantic aspect of inner speech. To van der Veer and Valsiner, where Vygotsky was genuinely original was in connecting inner speech to egocentric speech (p. 370), a phenomenon that Piaget had noted but dismissed as inconsequential to the child's mental development. Fundamentally novel, too, in Vygotsky's treatment of inner speech, was his attempt at explaining the problem from the perspective of historical materialism. For Vygotsky (1986), the issue of inner speech was central to an understanding of verbal thought, a capacity that is not innate but rather a historical-cultural product: "Once we acknowledge the historical character of verbal thought, we must consider it subject to all the premises of historical materialism" (pp. 94-95). Van der Veer and Valsiner's comments notwithstanding, then, it is fair to say that Vygotsky's synthesis of ideas was no minor feat, as he managed to provide the first extended, theoretically integrated, and to this day most enduring treatment of inner speech.

Vygotsky's theories on language and cognition laid the grounds for a sociohistorical approach to inner speech that would characterize a long line of Soviet scholars, among these Blonskii, Anan'ev, Luria, Galperin, Zhinkin, Baev, Sokolov, A. A. Leontiev, and Ushakova (as discussed in Sokolov, 1972, and Ushakova, 1994).\(^7\) Crucial to an understanding of inner speech as a socio-cultural-historical phenomenon would also be the theory of activity, whose best known spokesperson was A. N. Leontiev, a colleague of Vygotsky. Conceptualizing inner speech from an activity theory point of view reinforces the notion of inner speech as a process originating in human, social, practical, and communicative activity rather than as an inherent faculty of the mind. Activity theory would provide the theoretical basis for Luria's neuropsychological studies on inner speech and A. A. Leontiev's psycholinguistic research on the inner programming stages of speech production, both to be discussed at length in Chapter 2.

\(^7\) The grouping together of these Soviet scholars under the general umbrella of sociohistorical theory is not meant to suggest that they were in agreement in all respects. Actually, serious divergences and rifts took place among Vygotsky's followers after his death (Kozulin, 1986, 1990a; van der Veer & Valsiner, 1991). Yet, despite disagreements, it is safe to say that all the mentioned scholars shared a belief in inner speech as a phenomenon with social origins and intimately related to higher mental development.
While the sociohistorical approach to the problem of speech and thought from the standpoint of dialectical materialism may have succeeded in the former Soviet Union in revealing the failure of mechanistic and idealist conceptions of inner speech, as Sokolov (1972, p. 2) contended, the controversy around the issue appears to be far from settled in other parts of the world. Present day deliberations on the relationship between language and thought and the role played by inner speech in that relationship are still very much alive—if one is to judge from volumes such as Carruthers and Boucher’s *Language and Thought* (1998). To a large extent, what has brought back the debate to center stage has been a renewed interest in consciousness and how language contributes to create the experience of consciousness (Baars, 1997; Carruthers, 1996; Dennett, 1991; Jackendoff, 1987; McCrone, 1999). One important issue in this respect is what role inner speech plays in conscious thought and whether consciousness is possible at all without it.

Recently, Carruthers and Boucher (1998) made a distinction around the role of language in cognition and thought, with implications for the function of inner speech in this relationship. The question is basically the same old one: Is language independent of thought, or are language and thought inextricably related? According to Carruthers and Boucher (1998), answers to this question fall into two camps: the *communicative* conception of language and the *cognitive* conception of language. The communicative perspective, best represented in the ideas of philosophers of mind and language such as Locke, Russell, Grice, Searle, Fodor, Chomsky, and Pinker, entails a belief in language as primarily a means of communication, rather than as an essential catalyst of thought. Modern versions of this position uphold a modularist view of mind and language in which language is seen as a separate module acting as an input-output device for central cognition. Thinkers of the communicative tradition tend to see inner speech as a mere encoding/decoding process for pure thoughts. The fundamental thinking operations are carried out in some form of abstract representational or computational language of thought. For Fodor (1975), for example, the “language of thought” is not a natural language. It is Mentalese, an innate representational metalanguage in which the computations, or cognitive processes, are carried out.

A variant of this position is the *supracommunicative* conception of language, which holds thought to be independent from language but regards language as an enhancer or facilitator of some forms of human thought (Carruthers & Boucher, 1998, pp. 8, 14-15). This is the view held by Clark (1998) and Jackendoff (1996). In this account, language in the form of inner speech helps thinking, rather than constitutes thinking, by stabilizing thought and making it the focus of conscious attention, aiding memory through mental verbal rehearsal, and contributing to self-reflection.

The cognitive conception, on the other hand, holds language to be intrinsically

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*That “consciousness is back” is a point well made by Frawley (1997, p. 121). See his summary of recent work on consciousness in various fields of knowledge.*

*When it comes to the function of “thinking in words,” Chomsky believed language is a mere conduit for thought expression: “Insofar as we are using language for ‘self-communication,’ we are simply expressing our thoughts” (1975, p. 57).*
related to thinking; therein the notion of thinking in natural languages. Carruthers and Boucher (1998) found instances of this position in an assorted group of philosophers such as Leibnitz, Wittgenstein, Davidson, Dummett, Dennett, and Carruthers, as well as psychologists such as Vygotsky, Luria, and Sokolov. There are differences, however, among these thinkers in exactly how language is implicated in thought. Carruthers and Boucher contended there are two main parties: those who think that thought requires language and those who see language as constitutive of thought. This is an important distinction: “It is one thing to say that language is required for, or is a necessary condition of thought, or certain kinds of thought... and it is quite another to claim that language itself is constitutively involved in those thoughts, or is the medium of those thoughts” (Carruthers & Boucher, 1998, p. 1).

If one followed Carruthers and Boucher’s reasoning, it would appear that Vygotsky would fit the requirement category rather than the constitutive one. Actually, as will be seen in depth in Chapter 2, Vygotsky believed that language, a sociocultural product, is essential for thinking, only, however, as it pertains to verbal thinking. For Vygotsky (1986), thought is not identical to language, and nonverbal forms of thinking do exist. Thus, in his view, inner speech is “a distinct plane of verbal thought” (italics added, p. 148), with unique structural and functional characteristics that differentiate it from external speech and pure thought. Carruthers (1996, 1998a, 1998b), on the other hand, would represent the other category of the cognitive conception of language. Carruthers believed language to be constitutively involved in thinking, at least in conscious propositional thinking. For him (1996), in propositional thought, inner speech is the thinking. His position is that certain types of thought cannot be entertained at all unless by deployment of natural language sentences, via inner speech. Furthermore, unlike Vygotsky, Carruthers did not regard language and mind as cultural constructs; in fact, Carruthers endorsed a cognitive (but not sociocultural) view of language and mind that is basically modularist and nativist.

Beyond the mainly philosophical—and quite polemic—treatment of inner speech, as illustrated in the thinkers mentioned above, the study of inner speech has branched out into multiple disciplinary directions in present times. Inner speech is discussed in practically every field of knowledge where thought and language cross each other. Thus, there has been extensive treatment of it in the cognitive sciences, in areas such as psycholinguistics, neurolinguistics, and cognitive psychophysiology, and in applied disciplines such as speech communication, speech pathology, and language education. Much of the research involving inner speech in the cognitive sciences adopts the mainstream information-processing psychological perspective, with its metaphor of mind as computer and its multiple store model of memory. Within this framework, inner speech is typically taken to be a process consisting of articulatory, subvocal rehearsal and auditory images preserved in memory. Some attempts, however, have been made in the cognitive sciences to integrate principles of sociocultural theory, as for example in the work of Frawley (1997), for whom the socially derived language for thought (which subsumes private and inner speech, p. 183) frames the biologically given language of thought. Inner speech is a critical issue in neurolinguistics, psychiatry, speech pathology, and clinical psychology where speech-thinking disorders
are investigated; thus, it is common to find studies of inner speech in relation to aphasia, stuttering, deafness, schizophrenia, and mental conditions characterized by disturbances in inner speech as a form of self-talk, such as anxiety, depression, gambling, and agoraphobia (Morin, 1993).

A major line of research has been the cognitive psychophysiology of covert verbal responses, where inner speech is best known as covert linguistic or verbal behavior. The study of covert verbal behavior within cognitive psychology constitutes an attempt to explicate the role of covert physiological activity at the level of speech musculature and body organs, including the brain, in the processing of higher mental functions. Two theoretical frameworks have informed work in this area: the so-called reflex theories of thought, best illustrated in the work of Bechterev, Sechenov, and Pavlov, and behaviorism, as first espoused by Watson and later reformulated by Skinner and Lashley.10 (For thorough discussions of this research, see McGuigan, 1978, and Sokolov, 1972). According to McGuigan (1978), “the early behaviorists were probably the primary force advocating theories of thought in which muscle responding was critical” (p. 9). This perspective was to influence two major representatives of the physiological approach to inner speech in the Soviet Union, Sokolov and Luria. In Luria’s case, what seems to have attracted him to the work of reflexologists and behaviorists was “their analysis of the neurophysiological mechanisms involved in psychological processes” (Wertsch, 1981, p. 11). Both Sokolov and Luria managed to integrate psychophysiology into the overarching theoretical framework of Vygotskyan sociocultural theory.

Crucial for the development of research in the area of cognitive psychophysiology have been advances in technology that have provided refined tools for the detection and measurement of observable covert verbal behavior (McGuigan, 1978). A major contribution of this line of research on inner speech has been in solidly establishing the material (bodily) correlates of verbal thinking and hence in dissolving the notion that thinking and speech are two disconnected realms. As Korba (1989) put it, a study of inner speech from the psychophysiological point of view can overcome “the traditional mind/body dichotomy through an examination of the ‘interfunctional relationship’ between the higher mental processes of the cortical speech areas (the mind), and the proprioceptive speech musculature and speech specific neural structures and pathways (the body)” (p. 218).

Inner speech is also an important construct within the speech communication field, more precisely within the field of intrapersonal communication. In communication theory, the notion of intrapersonal communication was differentiated from interpersonal communication in 1953 by Ruesch, Block, and Bennett (cited in Dance & Larson, 1976, p. 30). Discussion of inner speech as a form of intrapersonal

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10 Lashley was interested in investigating the physiological correlates of higher mental processes, as the following quote indicates: “I once invented a thought-reading machine; a system of levers which magnified and recorded movements of the tongue. I first had my subjects speak a word, then think it silently. Movements of the tongue were minute but otherwise identical with those of speech” (cited in McGuigan, 1978, p. 52).
communication, however, appeared rather late, in the 80s and 90s, making its way into various studies, some of which have been collected in Roberts and Watson's (1989), Vocate's (1994a), and Aitken and Shedletsky's (1997) edited volumes. One of the most thorough discussions of inner speech as a theoretical construct within the field of intrapersonal communication was forwarded by Vocate (1994b), who drew support for her notions of inner speech as an intrapersonal phenomenon from the sociocultural theories of Vygotsky and Luria and social scientist G. H. Mead. Vocate distinguished nuances of meaning among terms frequently associated with inner speech: self-talk, intrapersonal communication, and inner speech itself. Most other treatments of intrapersonal communication, however, fall under two broad categories: the traditional information processing view of communication and the “healthy self” school of communication, which focuses on the role of inner speech in the formation and maintenance of a healthy emotional self (Hikins, 1989).

Not surprisingly, given the importance of inner speech in language learning and cognition, several studies on inner speech have been conducted in the area of educational psychology. Researchers have investigated children’s development of inner speech and its role in cognitive performance at school. Specifically, research has explored the role of inner speech as a mediator in reading (Beggs & Howarth, 1985; Hardyck & Petrinovich, 1970; Yaden, 1984), writing (Moffet, 1982, 1985; Trimbur, 1987) and mathematical problem solving (Rohrkemper, 1986). Development of awareness of inner speech and the possibility of teaching children to use inner speech have also been the focus of research (Liva, Fijalkow, & Fijalkow, 1994; Otte, 2001).

Historically, the study of inner speech has been conducted primarily from an L1 perspective. Before the 1990s, most of the efforts in studying inner speech from an L2 stance had taken place in the former Soviet Union. Notable among these are Sokolov’s (1972) psychophysiological research on inner speech involving the reading of FL language texts and Zachesova’s and Ushakova’s (see Ushakova, 1994) experiments on the inner speech mechanisms of artificial language acquisition. Outside the Soviet Union, only a few sporadic, non-empirical linkages between inner speech and L2/FL learning (Hellmich & Esser, 1975; Rohrer, 1987) had been made in the literature before Vygotskyan sociocultural theory started to make an impact on L2 research. Two early sociocultural theory L2 studies (Frawley & Lantolf, 1985; Lantolf & Frawley, 1984) called attention to features of inner speech externalized in the private speech of L2 learners. In the 1990s two major empirical studies drawing support from Vygotsky’s sociocultural theory were conducted on mental rehearsal as phenomenon related to L2 inner speech (Guerrero, 1990/1991, 1994, 1999). These studies, based on retrospective questionnaires and interviews, were among the first to provide evidence that L2 learners do experience inner speech in the L2.

Several studies produced in the late 20th and early 21st centuries have also yielded important insights into L2 inner speech processes. Worth mentioning among these studies is the research in the areas of verbal thought among bilinguals (John-Steiner, 1985b), preferences for a language of thought among L2 learners (Cohen, 1998), private speech (see, for example, Lantolf & Yáñez, 2003; McCafferty, 1994a, 1994b; Ohta, 2001), and language play (Lantolf, 1997). One of the most important issues
within the L2 inner speech research is the role played by the L1 in inner speech processes. Evidence from research in the areas of L2 vocabulary acquisition (Ushakova, 1994), symbolic gestures (McCafferty, 1998; McCafferty & Ahmed, 2000), reading (Upton & Lee-Thompson, 2001), and writing (Huh, 2002), suggests that inner speech is strongly influenced by L1 semantics. However, the possibility that very advanced L2 learners may build a solid conceptual base in the L2 and even shift from an L1 to an L2 inner voice was suggested by research among late bilinguals becoming members of an L2 community (Larsen, Schrauf, Fromholt, & Rubin, 2002; Pavlenko & Lantolf, 2000).

The empirical study of inner speech has forever constituted a methodological challenge. As a covert, intangible, elusive, and highly dynamic phenomenon, inner speech has always escaped direct observation, and its investigation has therefore remained at a theoretical, mostly philosophical level. Major breaks into the empirical study of inner speech in the 20th have been, however, the Vygotskian genetic method, which pursues inner speech through observation of its developmental precursor—private speech, and the psychophysiological study of inner speech, which focuses on the observable physiological manifestations of covert verbal behavior. Another important methodological contribution to the study of inner speech was made by the 1960s cognitive revolution in psychology, which brought with it a legitimised use of introspective methods of data collection. Finally, towards the end of the 20th century, outstanding technological advances made possible the observation of “live” inner speech through brain scanning and imaging techniques such as PET (positron emission tomography) and MRI (magnetic resonance imaging). It is likely that new technological breakthroughs will bring further exploration of inner speech from a neuropsychological perspective, particularly with respect to its anatomical features and the on-line neural processes associated with its activity. Especially interesting will be to find out, through the new imaging techniques, developmental patterns of inner speech and brain correlates of L2 inner speech, areas which remain practically uncharted territory as of today. At the same time, as sociocultural theory continues to solidify its foothold in psychology and language learning, research into inner speech should profit from a more encompassing view of the phenomenon as a manifestation of the uniquely human, artifact-mediated, social mind and not just as a purely psycholinguistic, memory-facilitating mechanism inherent to brain functioning.

FUNDAMENTAL PRINCIPLES OF SOCIOCULTURAL THEORY

The term sociocultural theory has come to stand in Western circles (see, for example, John-Steiner, Panofsky, & Smith, 1994; Kozulin, Gindis, Ageyev, & Miller, 2003; Lantolf, 2000a; Wertsch, 1991) for a variety of approaches to language and cognition all acknowledging the social, cultural, and historical roots of mental functioning. Within a sociocultural theory framework, the mind and its most essential feature—consciousness—are predominantly social constructs. Learning, within this theory, is also a fundamentally social act that cannot be dissociated from the specific cultural, institutional, and historical context where it takes place. Sociocultural theory
has its origins in the cultural-historical or sociohistorical school of psychology (see Cole, 1990; van der Veer & Valsiner, 1991; Wertsch, 1991) developed by Vygotsky and a number of colleagues. During the 20th century Vygotskyan principles increasingly made way into scientific and educational thought, inspiring scholars both inside and outside the former Soviet Union (Kozulin et al., 2003). In the 80s, researchers in the L2 field began to adopt sociocultural theory concepts, leading to what is now known as the “sociocultural theory approach” to L2 learning. This book draws heavily from sociocultural theory, as a non-reductionist framework that most profitably helps understand and explain the main object of analysis—inner speech in the L2—in its complex social and individual dimensions. The following (by force, reduced) account introduces some major sociocultural theory tenets that are relevant to a discussion of inner speech in future chapters: (a) the social origin of higher mental functions and the related concept of internalization, (b) tool and sign mediation, (c) the genetic analysis of higher mental functions, and (d) basic principles of activity theory.

**Social Origin of Higher Mental Functions**

Vygotsky argued that higher psychological processes, such as voluntary attention, logical memory, and rational thought, originate in the social sphere, in the interpersonal relationships that people hold with one another and in the interaction with the cultural, physical and symbolic tools available in the social world. The development of higher psychological processes starts early in life as children internalize interpersonal processes and transform them into intrapersonal ones. This principle is captured in Vygotsky’s famous “law of general development”:

> Every function in the child’s cultural development appears twice: first, on the social level, and later, on the individual level; first between people (interpsychological), and then inside the child (intrapsychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relations between human individuals. (1978, p. 57)

Internalization is an essential aspect of the development of higher psychological functions. Vygotsky (1978) conceived internalization as the process by which external sign-mediated activity is reconstructed on the internal plane and begins to operate as higher mental activity. The reconstruction process, Vygotsky insisted, means the transformation, not just the transferal, of interpersonal activity into intrapersonal activity and the creation of a psychological plane that did not exist before. To clarify this point, A. N. Leontiev (1981) expressed: “The process of internalization is not the transferal of an external activity to a preexisting, internal ‘plane of consciousness’: it is the process in which the internal plane is formed” (p. 57). The transformation of external into internal activity by necessity implies a series of developmental changes in the function and structure of social forms of behavior. To understand this process,

11 The following sources provide excellent reviews and original research on sociocultural theory as applied to L2 learning: Johnson, 2004; Lantolf, 2000a; Lantolf & Appel, 1994; and Lantolf & Pavlenko, 1995.
Vygotsky (1978, p. 57) offered the example of speech development. In the Vygotskyan view, the first speech of the child is communicative rather than intellectual; speech for the young child is an external form of social interaction and control. Gradually, speech begins to acquire a second function; it becomes a means for cognitive self-regulation, a vehicle for thinking and not just for communication. Social speech turns into egocentric speech, a transitional phase that marks the beginning of speech internalization and is characterized by less than intelligible and frequently abbreviated language. Egocentric speech serves foremost a private intellectual function and is self-directed, but it is still spoken out loud. Eventually, egocentric speech sheds its last social feature, vocalization, and turns inwards as inner speech. The transition from social speech to inner speech thus transforms not just the function of speech, from predominantly communicative to predominantly intellectual, but its very structure. Because inner speech is speech for the self, it is vocally imperceptible, syntactically reduced, and semantically condensed.

Galperin (1967), who pursued the notion of internalization in depth, postulated that two different forms or stages of speech for oneself are involved in the formation of higher mental processes or actions “in the mind”: external speech for oneself and inner speech. “The first form of ‘action in the mind’ is ordinary speech but without the volume, i.e., ‘external speech to oneself’” (p. 30). However, this is just a transitory step while the psychological action is being formed. When the action is mastered and automatized, external speech for oneself is no longer viable. It is too “protracted and slow” (p. 31). Speech for oneself becomes condensed into verbal meanings and the action transfers to the plane of inner speech. According to Galperin, however, the “essence” of former planes of sign mediated-action is never lost (p. 32). At moments of cognitive difficulty, it is possible to revert to more external and unfolded modes of action. Frawley and Lantolf (1985) referred to this aspect of mental activity as the principle of continuous access (see also Lantolf & Appel, 1994). Adults, for example, sometimes externalize their inner speech in the form of private (audible) speech when performing a challenging task.

Some scholars have proposed the notion of appropriation as a way of conceiving the construct of internalization (Leontiev, A. N., 1981; Newman, Griffin, & Cole, 1989; Wertsch, 1995, 1998). Wertsch (1998) argues that the notion of internalization may mistakenly suggest an inadequate opposition between internal and external processes reminiscent of old Cartesian mind-body dualism. The construct of internalization may also lead to the erroneous belief that all forms of mediated action occur at an internal plane, a point that Vygotsky (1978) clearly established as false: “For many functions, the stage of external signs lasts forever, that is, it is their final stage of development” (p. 57). Rather than substituting the term internalization with other terms, Wertsch (1998) proposed to envision the construct in terms of mastery and appropriation. The notion of mastery allows for the possibility that some forms of mediated action may never turn inwards and disappear out of sight. For many people, certain mathematical or statistical processes, for example, are never fully internalized although there may be complete mastery over them through external mediation of a calculator. In turn, the notion of appropriation, which Wertsch used in the Bakhtinian