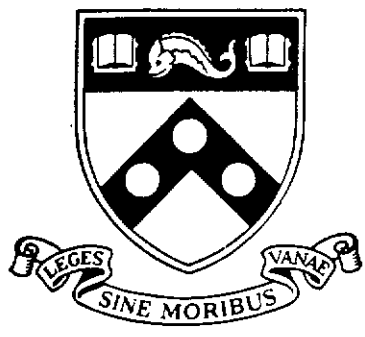
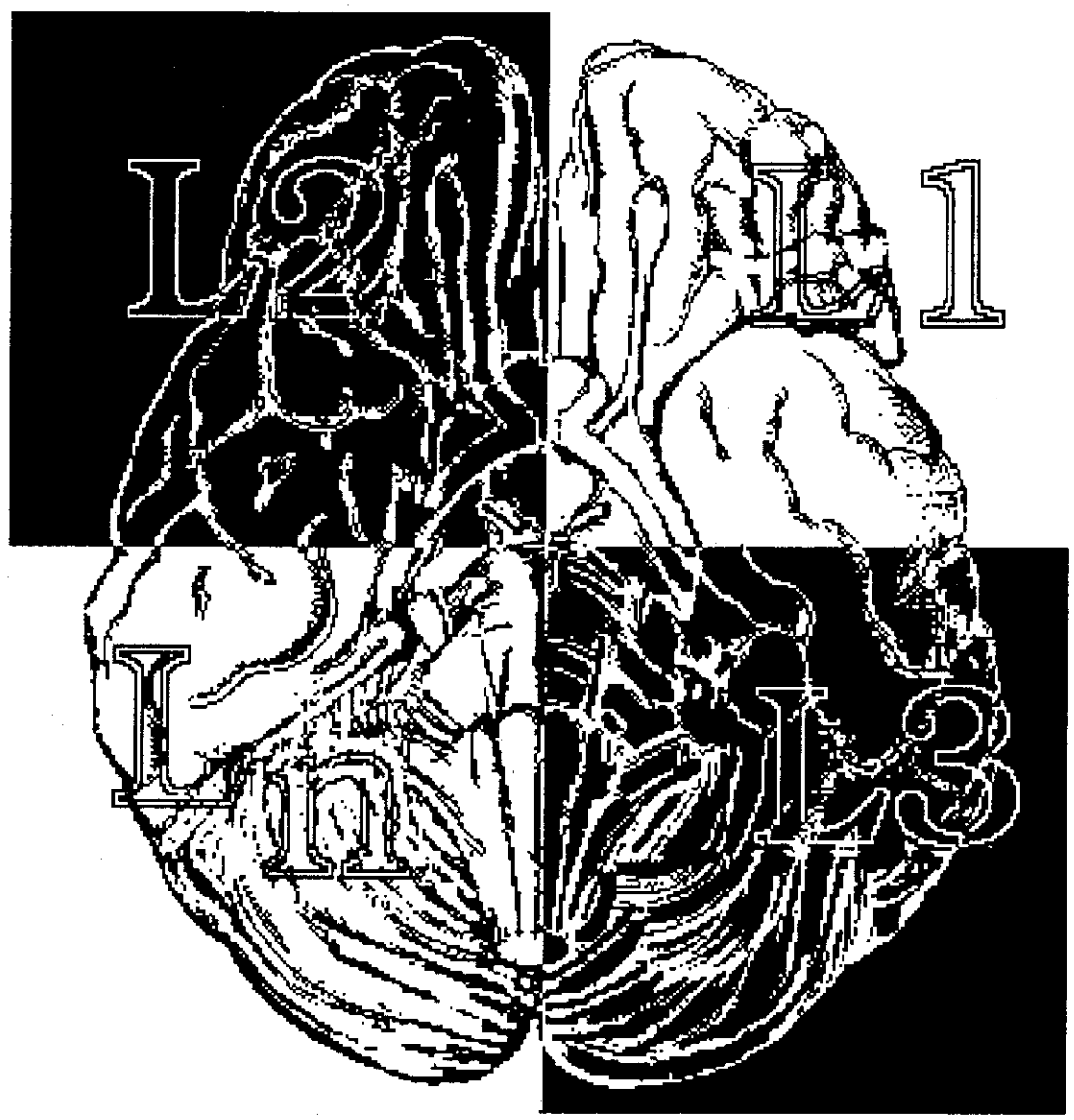


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# WORKING PAPERS IN EDUCATIONAL LINGUISTICS

University of Pennsylvania  
Graduate School of Education



# WORKING PAPERS IN EDUCATIONAL LINGUISTICS

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# WORKING PAPERS IN EDUCATIONAL LINGUISTICS

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**Volume 11, Number 2**  
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From the Editor:

A renowned linguist once attempted to address the mystery of the human mind by musing, "what is the mind but the brain at some abstract level?"<sup>1</sup> His question typifies the simplicity and the complexity found in any discussion on this subject. In other words, linguists now seem to presuppose the existence of the mind, and yet we are unable to describe its location, composition, and functioning. In this issue, we are pleased to feature further work on the relationship between the mind and language. In the lead article, Andrew Cohen explores the connection between thought and language by examining self-reports from language learners in a foreign language context.

As always, we are proud to offer an eclectic mix of the most recent work in educational linguistics. Also in this issue:

Howard Chen, in a survey of the most recent work on UG and language acquisition, reevaluates the role of the Binding Parameter in second-language learning.

Pedro Garcez takes a critical look at one of the most popular CALL programs: *A la rencontre de Philippe*.

Julie Kim uses the DCT to elicit requests from adult Korean ESL learners and the results for indications of pragmatic transfer.

Julian Linnell continues recent work on negotiation by focusing on the relationship between interaction and syntacticization.

We would like to encourage submission to our special fall issue on quantitative and qualitative research methods. For this issue, preference will be given to studies or surveys that highlight the strength of any particular method or that attempt to integrate the two approaches.

The editorial board would also like to thank the following individuals whose support made this publication possible: Dean Susan Fuhrman, Keith Watanabe, Lorraine Hightower, Frank Kodman, and Lawrence Warner.

Leslie K. Nabors  
Editor-in-Chief

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<sup>1</sup> Noam Chomsky, in Searchinger, G. (Producer). (1995). *The Human Language Series*, Washington DC: PBS.

# The Role of Language of Thought in Foreign Language Learning<sup>1</sup>

Andrew D. Cohen

*University of Minnesota*

Methods of foreign language teaching and learning are often predicated on the principle that learners need to think as much as possible in a language that they wish to learn. This paper first explores what it means to think in a target language. Next, those factors which determine both unplanned and planned use of more than one language for thinking are discussed, and empirical data from a mini-survey and from the author's own language learning and language using experiences are presented. Thirdly, the paper considers the role of target-language thinking in improving language ability, again drawing on empirical data from the survey and from the author's experiences. Finally, we will look at mental translation in the reading of intermediate college French, the language of thought in an elementary-school Spanish immersion program, and thought patterns in the production of speech acts by college EFL students. After reviewing the responses from the mini-survey of multilinguals, from the author's own experiences, and from additional empirical studies, the conclusion reached is that there are definite benefits from making an effort to think through the target language. It is suggested that further research may ultimately produce a set of guidelines for learners as to the advantages and disadvantages of thinking through the native language while performing target language tasks.

**I**s it beneficial for learners to attempt to think as much as possible in a language that they wish to learn or to improve their mastery of? Might it be detrimental to their learning if they limit their use of that language as a vehicle for thought? This issue has not been expressed as a set of research questions until recently, and the intuitively-based assumption has been that the more thinking through the target language, the better. There is evidence from research on foreign-language reading, however, that translation into the native language may play a positive role for

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<sup>1</sup> Paper presented at the 4th Annual Nessa Wolfson Memorial Colloquium, University of Pennsylvania, Jan. 30, 1995. An earlier version of the paper was presented at the Second Haifa Trilingual Conference, June 12-13, 1994. I wish to acknowledge Jim Lantolf, Dick Tucker, Elaine Tarone, Rick Kern, Merrill Swain, Rebecca Oxford, Barry McLaughlin, Vivian Cook, and Bert Weltens for their helpful suggestions on various drafts of this paper.

some, if not many, language learners in the retention and comprehension of written texts (Kern 1994; to be discussed below). Under what circumstances might the more successful language learners think extensively or exclusively in the target language that they are using? While multilinguals may actually have differential strengths in their various languages, according to discourse domain (Selinker & Douglas 1985), the extent to which they use these languages for solving cognitive tasks has remained a relatively unexplored phenomenon.

This paper will: (a) explore what it means to think in a target language (LT), (b) look at results from a mini-survey and from the author's self-examination regarding unplanned and planned use of more than one language for thinking, (c) consider the same empirical data regarding the role of LT thinking in improving language ability, and (d) examine additional empirical findings regarding multilingual thought patterns and the implications of these findings with regard to foreign-language teaching and research.

### What it Means to Think in a Target Language

Many language educators would maintain that the best way for learners to achieve native-like control of an LT is to make an effort to think in that language rather than to translate or reprocess the material into their first language (the L1) or into some other language which they have learned (the LO). Is this folk wisdom that we need to liberate ourselves from or is it sound advice? This issue will be explored in the paper.

First of all, what does it mean to "think in a target language"? For the purposes of this paper we will concern ourselves only with verbalized thoughts (whether silently, subvocally, or aloud) and not with non-verbal thoughts (images, symbols, etc.). The extent and nature of LT thinking can vary from minimal, passing thoughts (e.g., just a word or two) to more extensive and "deeper" (i.e., more cognitively complex) ones, depending both on the nature and quality of the language learning environment (e.g., an L2 vs. an FL learning situation), and on the degree to which the learner has mastery over the LT. Since there appears to be little or no systematic research in this area, we can only speculate as to the extent to which non-natives' thoughts are in the LT and the effectiveness of "thinking in the LT" as opposed to thinking in the L1<sup>2</sup>

Unless we are thinking out loud, our thoughts reflect inner speech--that is, the thinking we do in our minds that is in the form of words rather than images or symbols. This inner speech could be both self-directed or private in the Vygotskian sense (i.e., not intended for others and perhaps difficult to interpret because it is incomplete in grammatical form and vocabulary but adequate for the thinker) or other-directed or public (i.e., interpretable by others) (Vygotsky 1961). In order for inner speech to take place in an LT, learners may need to attain a certain functional level with

regard to vocabulary and structure. Some areas of thought may be more demanding than others for given learners.

An empirical question is one of threshold: how well do learners need to function in a language in order to think in that language? But since thinking in a language involves different levels or depths of meaning, the answer to the question is complex. We cannot, for example, assume that greater proficiency in a language enhances the possibility that thinking will occur in that language. There need not be a necessary link here since proficiency is probably not a unitary construct in the first place.

It is also reasonable to assume that thinking through the LT is more likely in a discourse domain over which the learner has greater control. It has been hypothesized in the literature that learners create their own highly personal discourse domains (Selinker & Douglas 1985). These domains are "internally-created contexts, within which...interlanguage structures are created differentially" (p. 190). Selinker and Douglas (1985) gave the example of a discourse domain in civil engineering created by a native Spanish-speaking graduate student. They demonstrated in their research how nonnatives may be more conversant in talking about content in certain discourse domains than in others. There is also research which shows that even nonnatives with limited language proficiency may still be more conversant in talking about content within their professional discourse domain than less knowledgeable native speakers (Zuengler 1993).

Another way to characterize thoughts might be through distinguishing those of an academic nature from those of an interpersonal or social nature, consistent with the distinction between academic and conversational language proficiency made by Cummins (1991). If learners wanted to use the LT to think through a word problem in math or refine the research questions for a study, then they would need to call on their academic language proficiency in the LT in order to do so. Likewise, if they wanted to think LT thoughts of a sociocultural nature, possibly even emotionally charged ones (e.g., planning a complex speech act, such as complaining, apologizing, or making a delicate request; or relating an emotional upset to a close friend), then the learners would need the appropriate conversational language proficiency in the LT.

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<sup>2</sup> The possibility is raised that so-called LT thinking may actually consist of little more than "relexified" L1—that is, with LT words replacing L1 words in L1 structures (Jim Lantolf, Personal Communication, May 13, 1994). This is an extreme position. In actuality, the interlanguage reflected by a nonnative's LT thoughts is mediated by experiences, by ethnolinguistic background, by gender, and by the discourse domain. Given that most nonnative users of a language lack full mastery in their productive skills (speaking and writing), it is likely that their LT thoughts will be transmitted though an interlanguage as well. An empirical question would be whether the fact that the LT thoughts are conveyed through an interlanguage might have a deleterious effect on the thoughts themselves.

In certain language contexts, such as that of the workplace, both non-native learners and bilinguals who have the LT as one of their languages, may only be able to perform work-related cognitive operations in that LT (e.g., in scrutinizing the language of a legal document or of a patient's medical record, in negotiating an auto repair, or in functioning successfully in an academic discipline such as psycholinguistics). They may not know how to think about work-related issues in their L1 if their only exposure to the material (e.g., through schooling and/or through a work experience) is in the LT, and if, in addition, they have done little or no reprocessing of this LT material into the L1 or another language. In other domains, such as that of social interaction, the language of thought in social interaction may be the L1 or an LO in which the speaker feels more comfortable. Hence, we could consider this a case of diglossic thinking where the speaker has the capability of thinking in two or more languages and uses these languages for distinctive and largely complementary purposes.<sup>3</sup>

Recently, a sociolinguistic survey was conducted to determine what was referred to as "the internal functions" of language for 59 bilingual students and teachers (23 Francophone Africans, 12 Finns, and 24 from other language backgrounds; ages 18-35), who all functioned at a high level in two languages (Cook 1994). The concern that prompted the survey was to improve upon definitions of bilingualism which do not typically take into account internal or *private* functions of the two languages, such as self-organization (e.g., making appointments and shopping lists), mental calculations (e.g., counting things and adding up numbers), memory tasks (e.g., remembering phone numbers, travel routes, days of the week, and historical dates), unconscious uses (e.g., talking to oneself and dreaming), praying, and display of emotions (e.g., feeling happy, sad, tired, pained, or frustrated).

The results showed prayer to be the activity that drew the largest concentration of reported L1 use—60% (with 20% indicating use of both languages and 20% use of just the L2). The next highest reported use of L1, 55%, was for mental calculations, while 17% reported using both L1 and L2, and 28% reported using just the L2. Unconscious uses was next with 49% of the L1, 38% of both L1 and L2, and 13% use of the L2. For memory tasks, 48% reported using the L1, 23% reported using both languages, and 29% indicated use of the L2. Finally, 44% of the respondents indicated displaying their emotions primarily in their L1, 39% in both, and 17% in their L1. This study constitutes one of the only attempts to determine the extent to which bilinguals use their two languages for such private functions. It also needs to be pointed out that the results of such a survey will vary according to the demographics of the given sample.

<sup>3</sup>The phrase *diglossic thinking* is derived from the notion of diglossia wherein there are two co-existing languages or language varieties in a community, each with its own purposes (Ferguson 1959).



While this survey gives a broad report of the language of thought for selected activities, there is a need for more such surveys along with the details of actual experiences. For example, the survey would suggest that about half of those sampled preferred to think emotionally-charged thoughts in their L1. Ten years of participation in a support group in Israel provided me with some insights that would corroborate this finding. The support group averaged ten members, of whom some four were native speakers of Hebrew and six were native speakers of English, although all were fluent in both languages. In situations where there was a need to communicate on highly sensitive, emotional matters, the participants appeared to be thinking about issues primarily in their L1<sup>4</sup> and almost invariably communicated their thoughts in the L1.

Although probably less common, there may also arise instances where nonnative speakers may wish to distance themselves from their message by thinking and talking about it in the LT precisely so that it does not have the same emotional impact. A colleague related to me that while a college student of German used English when she thought to herself about her having been a rape victim, she was only willing to share the details of this ordeal with others in the foreign language, German. Presumably, some, if not many, of her thoughts about this traumatic experience were in German, at least at the point when she externalized them for her listeners. Hence, she was distancing herself from the event.

\* \* \*

In an effort to explore the factors influencing language of thought and the role of LT thinking in improving language ability, two methods of data gathering were employed. First, a short questionnaire was constructed (see Appendix) and disseminated in December of 1993 to graduate students in a University of Minnesota second-language teaching methods course and to ESL teachers at the Minnesota English Center. Completed questionnaires were obtained from seventeen anonymous respondents, of whom thirteen were English native speakers, two were native speakers of Japanese, one a native Turkish speaker, and one a native Hungarian speaker. While three of these were bilingual, all the others were multilingual--eight being trilingual, four quadrilingual,<sup>5</sup> one quintilingual, and one sextilingual.

Second, since it was largely through my experiences in studying twelve languages and continuing to use seven of them that prompted this paper, I decided to draw on some of my own multilingual thinking experiences as a source of data. I lived for sixteen years in a Hebrew- and Arabic- speaking community, two years in an Aymara-speaking community within the

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<sup>4</sup> This observation was not empirically verified however, such as through retrospective verbal report.

<sup>5</sup> One of whom had studied four other languages as well.

Spanish-speaking world, a year and a half in a Portuguese-speaking country, and four months in a French-speaking environment.

The following discussion of language of thought and the contribution of LT thinking to language learning will draw on selected responses from the mini-survey and from the experiences of the author.

### Factors Influencing Language of Thought

There would appear to be a number of factors which determine which language(s) people think in at a given moment. Some of these are accidental while others are more planned. Let us now look at both unplanned and planned uses of languages for thought.

#### *Unplanned Uses of Language(s) for Thought*

Learners may find themselves thinking in a language and actually be surprised by this realization. Sometimes the switch is triggered by a memory about people or situations, as two respondents indicated:

English-L1 trilingual: Sometimes when something triggers a memory of being abroad where I spoke an L2 (i.e., Guatemala, Poland, etc.), I think in the language I used at the time, especially if the memory involves conversations or encounters with native speakers in those places.

English-L1 quadrilingual: I think in Hebrew, French, or German when I'm thinking about people who speak those languages or situations in which I used those languages.

Another unintentional switch takes place when speakers want to speak in the L3 but thoughts come to them in their L2, a language in which they are more proficient:

Hungarian-L1 trilingual: It often happens to me when I try to speak in my L3 [German] that I find myself thinking in my L2 [English]--as if my brain knew that it should be a foreign language, but words come to me in the foreign language that I'm more proficient in.

One of the respondents from the survey, an English-L1 trilingual, described a somewhat frustrating but not atypical experience in multilingual thought in a language class he once took:

I studied Spanish in Sweden as an exchange student. A question would be posed in Swedish with the goal of a reply in Spanish, but in my head it went Swedish English Swedish, as if I were speaking "foreign"--that is, any language other than English was "foreign." It was very confusing for the instructor, and I often wouldn't know which language I had produced in.

The above respondent was thus describing a recurring situation in which he was reprocessing the teacher's Swedish-L2 input into English-L1 and

then instead of responding in Spanish-L3 as he wished, the thoughts and subsequent utterances would sometimes emerge in Swedish, almost involuntarily. In other words, his mind would go into a "foreign language" mode and what would appear would be the dominant foreign language rather than the target one.

The English-L1 sextilingual indicated shifts back to the L1 from a second or foreign language because of language inadequacy, as well as noting a fascinating pattern of repeatedly shifting to the L6 in dreams:

I often have thoughts that begin in a second language but end in my L1 because of language inadequacy. I also have thoughts that begin in a second language and switch to L1 when I remember that I can use the L1 for the interaction I am anticipating. I'm used to living in a non-English environment. I have had dreams where I am attempting to talk to someone in my L3 but keep lapsing into my L6.

When my wife, two children (ages 13 and 9), and I lived in São Paulo, Brazil, from 1986 to 1987, English was the language of the family at home, Hebrew the family language on the streets (for security reasons), and Portuguese the language that I used at work in the university. It was not a strictly triglossic situation in that while conducting classes and meeting with students in Portuguese, I continued to use English at work for my own research purposes. Also, we would use Portuguese on the streets with Brazilian friends and sometimes used English as well. Given this multilingual environment, I noticed that I would inadvertently have trilingual thoughts—beginning them, say, in Portuguese, continuing them in Hebrew, and ending them in English. When I would become aware of this, it would usually amuse me. I remember attributing that phenomenon to the fact that I was using all three languages frequently and in highly contiguous situations, but I never analyzed just where the shift took place (i.e., if there was some trigger word or phrase [Clyne 1980] that induced it).

#### Planned Choice of Language(s) of Thought

Whereas multilinguals may well find themselves thinking in a given language without having consciously chosen to do so, at other times language learners may purposely use the LT as the language of thought. While the learner may not be able to control the language in which some of their thoughts appear, they may still be able to plan their thinking in the language on numerous occasions. Let us look at some of these planned choices.

*Warm up: "Din in the Head"*

A language learner may choose to think in an LT for the purpose of rehearsal—to warm up or to enhance the "din in the head" (Krashen 1985) for that language. Here is an example from the mini-survey:

English-L1 trilingual: Yes—I planned what I would say and prepared for various scenarios ahead of time in a language—thinking of what words I would use and how to express myself in a situation. It was very helpful and after a few months, I gave it up because I no longer needed to rehearse.

Depending on how well the language is known, carrying on an imaginary conversation in the mind or planning for such a conversation may contribute to more successful oral communication. By the same token, reading bits and pieces of a newspaper in the target language or doing a little unmonitored speed writing may constitute useful warm ups to subsequent reading and writing efforts respectively. The amount of time needed for a warm up will vary according to the learners' proficiency in that language and the recency of last contact with it.

*Thinking through the L1 or an LO in Learning the LT*

Learners may think in their L1 or an LO (see the examples from the trilingual and the sextilingual below) in order to learn some formal rule of grammar in the LT. In fact, they may only attempt to think in the LT itself when the intent is to use the language in free conversation, and perform all metalinguistic tasks in the L1. Probably any such depiction of reality would be problematic since humans do not categorize their behavior so neatly. Rather, some of a learner's metalinguistic thoughts would be through the LT, depending on the learners and the type of task (e.g., when formal learning takes place in the LT), and many of their thoughts during language use would be through their L1. Learners may not, however, think complex (e.g., metalinguistic) thoughts through the LT at all, but rather may make passing reference to the LT in the form of fleeting or limited thoughts. So, the question is whether the LT actually serves as a language of thought or as a language of reference (Richard Kern, personal communication, January 12, 1994). So, this brings us back to the question raised at the outset concerning what constitutes "thinking in the LT."

Multilingual learners may also consciously draw material from several LOs while learning an LT. For example, in devising mnemonic devices for remembering LT words, learners may choose to use words or expressions from an LO. So, for example, when I was learning Hebrew, I usually generated mnemonic keywords from English but occasionally from Spanish. Thus, when I wanted to remember the Hebrew word *arbolet* 'whirlpool,' I used the Spanish keyword *árbol*, and created an image of a dead tree caught in a whirlpool.

Likewise, multilingual language learners may choose to think at times or even extensively in one of their LOs while learning the given LT. This LO may be closer to the target language in structure and vocabulary than is the L1. Again using myself as an example, as a native speaker of English, I learned L4 (Spanish) by thinking primarily in my L3 (French); I learned my L5 (Aymara), L6 (Portuguese), and L11 (Italian) by thinking

extensively in my L4 (Spanish); and I learned my L8 (spoken Arabic) by thinking most of the time in my L7 (Hebrew). When I speak these languages I often still think—at least to some extent—in the language that I used as a language of thought during the learning process.

In learning spoken Arabic, I was in a class with Hebrew speakers and the vocabulary was glossed in Hebrew. The system for writing the spoken Arabic involved the use of a transliteration using Hebrew letters (written from right to left). When I speak Arabic today, I think partly in Hebrew (as Arabic and Hebrew share common words and grammatical structures) and partly in English. Interestingly enough, I call up an English transliteration (from left to right) in my mind even though I learned through Hebrew transliteration. The mnemonics that I used to learn Arabic vocabulary mostly involved both English and Hebrew key words and phrases (e.g., English mnemonic keyword for the Arabic word *ebtihan* 'exam' "empty handed"—"he went into the exam empty handed").

With regard to the experiences of the seventeen respondents surveyed, none indicated that they used a global strategy of thinking through an LO, as I had done systematically in the learning of five languages. However, several indicated the use of the LO in the learning of LT grammatical structures:

Turkish-L1 trilingual: The grammar of my L3 (English) is more similar to my L2 (German) than my L1 (Turkish). When I was learning English I was comparing it to German rather than to Turkish.

English-L1 sextilingual: I guess when I learned Spanish I compared verb conjugations to French, which I had studied previously, because person, tense, and gender matched better than comparing to English.

English-L1 quadrilingual: When I studied Russian and Farsi, I relied on my knowledge of the verb conjugation paradigms from the Romance languages I had studied. I found many phonological similarities which helped me to remember subject pronouns and verb endings. My knowledge of German helped me be more open to the concept of the case systems in Russian.

One respondent did indicate frequent interlingual comparisons for the purpose of practicing the different languages:

English-L1 quadrilingual: I do this all the time, for the purpose of practicing my other languages. I'll take an English thought, and ask myself, "How would I say this in Spanish, or Ukrainian?" Then, additionally, I might ask myself, "Which language seems to express that idea, or that thought, or feeling the best?"

### The Role of LT Thinking in Improving Language Ability

While researchers in the field of language learning have begun to investigate the strategies that learners use to succeed at LT learning (O'Malley & Chamot 1990, Cohen 1990), the issue of the language of thought has not received much attention in the language learning strategy literature. As mentioned at the outset, there is an intuitively-based assumption that it is beneficial for foreign language learners to think as much as possible through the language that they are learning. This assumption has been at the core of certain foreign language learning methods that have avoided the use of the learner's L1, at least during the initial phase of instruction--methods such as the Silent Way, Total Physical Response, and the Natural Approach.

With regard to the Silent Way, Gattegno expressed his position as follows:

Throughout our oral work with the rods and the visual dictation on the charts, we have carefully avoided the use of the students' native languages. We have even succeeded in blocking them so that the students relate to the new language directly. . . (Gattegno 1976, p. 99)

Asher (1977) described his Total Physical Response method as follows:

Understanding should be developed through movements of the student's body. (p. 4)

When you cast material in the imperative, there is no translation. (p. 20)

Krashen and Terrell (1983) stipulated the following with regard to the Natural Approach:

(1) the instructor always uses the target language, (2) the focus of the communication will be on a topic of interest for the student, (3) the instructor will strive at all times to help the student understand. (p. 20)

In methods such as these three, teachers implicitly or explicitly discourage students from translating, and the learners themselves may come to feel that L1 or LO thinking could be detrimental to the learning process. The argument is that by thinking in the target language, learners are increasing their chances of becoming idiomatically accurate in that language—that they are more likely to stop and ask themselves, "Now how would a native say or write that utterance?" The assumption behind the "don't