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The Role of L2 Private Speech in Cognitive Regulation of Adult Foreign Language Learners

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Abstract

The present study investigated the use of L2 private speech by English foreign language (EFL) learners in regulating their mental activities. Thirty intermediate adult EFL learners took a test of solving challenging English riddles while their voices were being recorded. Following, instances of the produced private speech were analyzed in terms of form, content, and function. Numerous instances of reading aloud and repetition as well as self explanations and reviewing show how important they are in cognitive regulation of EFL learners. In addition, the results indicate the beneficial functions of private speech such as planning, managing the thought, self-orientation, motivating, and controlling anxiety among many others. The paper emphasizes the training of private speech and calls for patience in the face of silent periods produced by language learners.

Keywords: cognitive regulation, private speech, foreign language, sociocultural theory.

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Introduction

Vygotsky (1986) introduced the socio-Cultural Theory (SCT) as a theory on the development of human cognitive and higher mental functions. He holds that the development of human cognitive and higher mental functions originates from social interactions and that while people take part in social activities, they are engaged in some mental and communicative functions which in turn support and train them (scaffolding). In other words SCT views mental functioning as a mediated process which develops from external social interaction and goes ahead to internal psychological activity. Higher level cultural tools such as artifacts are the mediators in this process. Artifacts, in turn, are either physical (auxiliary means to enhance the ability to control the physical world) or symbolic (auxiliary means to control and reform our biologically endowed psychological processes). Language, as one form of symbolic artifact, is believed to be the primary means of mediation (Lantolf, 2000; Vygotsky, 1986).

When it comes to learning languages, too, SCT views the process as a social one and not merely created within an individual. Liwei (2010) applies the social-cultural perspective to explain the children's early language development. He argues that first language learning arises from processes of meaning-making in collaborative activity with other members of a given culture. In addition, Lantolf and Thorne (2007) contend that the principles of the SCT can also be used to explain Second Language Acquisition (SLA). In the words of Cook (2008), second language learning is embedded within social events and it happens as an individual interacts with people, objects, and events in the environment.

Moreover, SCT contends that within the process of language acquisition, an individual's external speech is gradually internalized and combined with thought through communicative activities. Internalization is in fact the process through which cultural artifacts take on a psychological function moving from interpsychological (between people) into the intrapsychological (within the individual) planes through mechanisms such as imitation (Vygotsky, 1978). The final results of second language acquisition is that people are able to think about things through the target language and then language and thought are combined together to become verbal thought. The

developing steps can be named as external speech (speech without thought), private speech (speech beginning to combine with thought and directed to the self), and inner speech (speech which has become verbal thought).

Of course inner speech may emerge as private speech in certain situations giving the researchers an opportunity to delve into people's cognitive activities in a given task. For example, when faced with difficulties in a task, language learners externalize their private speech in L2 to mediate and organize their speech, (Appel & Lantolf, 1994; Lantolf & Frawley, 1984; McCafferty, 1994; Centeno-Cortes & Jimenez-Jimenez, 2004). In other words when an individual faces a difficult task, he externalizes his inner speech in order to control the task by means of private speech. Because second language learners are to perform tasks in a language in which they are not proficient, they might resort to some self-directed utterances. McCafferty (1990), for instance, reports the task of telling a story from a set of pictures, in which learners would come up with such utterances:

- *I don't know the name of this ... Hats*
- *Ah, what do I say about this one? Ah, the five monkeys?*

Ohta (2001) defines private speech as 'audible speech not adapted to an addressee' (p. 16). She was able to demonstrate that private speech with its three types of language use (repetition, manipulation, and vicarious response) assists L2 development in a Japanese EFL classroom. In addition, Swain, M., Huang, L. S., Barkaoui, K., Brooks, L., and Lapkin, S. (2009) demonstrated through a pretest-posttest design that the quantity and quality of self directed speech focused on the concept of voice in L2 French results in the enhanced internalization of the concept. Lee (2008), too, documents the use of private speech by advanced Korean learners of L2 English enrolled in biology classes at a Midwestern University. She recorded each of the participants as they studied alone in preparation for an exam in a private room. Her findings confirmed the use of private speech by the participants (both in L1 and the L2) to help mediate their learning of the target language terminology through establishing meaning, mental

rehearsal to retrieve verbal data, monitoring their learning and expressing feelings.

These and many earlier studies (Lantolf, 2003; Borer, 2006) led scholars to conclude that private speech can in fact contribute to the L2 acquisition process and that without private speech, language acquisition is not likely to occur. However one primary issue is the nature of the private speech that foreign language learners are involved in. In other words it is important to examine the content and form of the produced private speech and then specify their functions. Hence the present study attempts to delve into the mental processing of foreign language learners. In other words it investigates the use of private speech by adult English foreign language (EFL) learners, if any, in regulating their mental activities.

Method

Participants

Thirty adults from the community of students of Farhangian University in Shiraz volunteered to participate in this study. The participants were native speakers of Persian who had learned English solely in the institutional settings of the EFL context of Iran with no experience of living or studying in any English speaking country.

Materials

The nature of the task that participants were dealing with was solving riddles. These context-based riddles were basically metaphorical statements that called for a holistic understanding of the relations between sentences in order to come up with the correct answer. Reading and repeating as well as manipulating the information and self explanation were expected to be some of the main activities involved in understanding sentential relationships (Appendix A). All participants were audio recorded while performing the assigned task. They were allowed to consult with their dictionaries in this process. Participants individually sat for the test for 30 minutes. There was a need for one by one data collection and each participant was provided with a highly sensitive MP3 voice recorder to capture low volume sounds made by them.

Data analysis

Following the sociocultural framework, according to Sonmez (2011), the data analysis procedure includes transcription, organization, coding, and interpretive analysis. The data analysis procedure in the present study, therefore, followed the same systematic procedure. As the first step, collected data (audio files in MP3 format) were transcribed following the conversation analysis (CA) conventions (appendix B). Utterance was selected as the unit of analysis following the sociocultural theoretical approach towards data analysis (McCafferty, 2002). Utterance is usually defined as a sequence of words within a single person's turn at talk that falls under a single intonation contour. Utterances may be words, phrases or sentences or any form of speech (Feigenbaum, 1992). The identified instances of private speech were coded in terms of form, content, and function based on the private speech coding manual (Winsler, Fernyhough, McClaren, & Way, 2005) as well as earlier literature on private speech (Ohta 2002; Sonmez, 2011). This was practiced through a coding scheme developed by the researcher based on the previous literature. (Appendix C).

Findings and discussion*The forms of the private speech produced:*

Table 1 below shows the frequency of the produced private speech in terms of form. As it is seen, private speech occurs in all three forms of silent, abbreviated and asocial loud. However it is important to notice that sometimes these forms overlap. The abbreviated form, for example, may have been uttered either in a silent tone of voice (silent form) or a loud one (asocial loud). This is probably one of the reasons behind the fact that the use of inferential statistics is discouraged in doing research on private speech.

Table1
Forms of the private speech produced

Form	frequency	percentage	Cumulative percentage
1. Silent	290	42.70	42.70
2. Abbreviated	36	5.30	48.00
3. Asocial loud	353	51.98	100
TOTAL	679	100	

The asocial loud form occurs most frequently in this context (n=353) with the abbreviated form being the least (n=36). The primary function of the asocial loud and silent forms of the produced private speech is to keep the process under control. By externalizing their inner speech, in fact, participants are attempting to focus on the item at hand and control their thought processes. For example when participants read and repeat the items to themselves, they are trying to direct their thoughts towards finding the answer. In addition the asocial loud private speech seems to motivate the participants forward as they attempt to put themselves together and arrange for their next action. For example in: “Okay (.) full of holes full of water?” which is externalized after a long period of silent thinking, the exclamation “Okay” indicates that the participant is trying to refocus and arrange for his next move.

However a lot of factors may have played a role in the occurrence of private speech forms within the data. The types of task that the participants are involved in or their L1 background are certainly key issues that need to be considered while interpreting the results. Overall as Sonmez (2001) suggests, “the forms of private speech is dependent on the context and other factors than the L1 background of the interlocutors needs to be considered in order to understand the nature of private speech that occurs in the data” (p.106).

The content and functions of the private speech produced:

It is important to qualitatively analyze the kinds of the produced private speech to see. Table 2 presents the results of a frequency count conducted on the types of private speech identified in the data.

Table 2
Types of the private speech produced

Content	frequency	percentage	Cumulative percentage
1. Reading Aloud	229	33.72	33.72
2. Literal Translation	3	0.44	34.16
3. Repetition	210	30.92	65.08
4. Self-Directed Questions	31	4.56	69.64
5. Self-Explanations	66	9.72	79.36
6. Reviewing	63	9.27	88.63
7. Affective Markers	6	0.88	89.51
8. Fillers	12	1.76	91.27
9. Metalanguage	59	8.73	100
Total	679	100	

To make a comparison among the participants with regard to their production of different types of private speech, chi square test was run. Table 3 presents the results of the analysis.

Table 3
Chi-Square Tests to compare contents of the private speech produced

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5432.000 ^a	64	.000
Likelihood Ratio	2263.717	64	.000
Linear-by-Linear Association	490.222	1	.000
N of Valid Cases	679		

a. 52 cells (64.2%) have expected count less than 5. The minimum expected count is .01.

As the table manifests, test results illustrate the existence of a significant difference for the types of the private speech produced. This shows that there is a statistically significant difference in terms of the different types of private speech produced. In other words participants produced qualitatively different types of private speech in

terms of content. This is manifested in the noticeably higher instances of reading aloud and repetition that appeared in the data. However they produce far less amounts of self explanations and self directed questions. In other words conducting reasoning in English seemed to be a challenging and difficult task for these participants. In addition, participants engaged in a considerable number of metalinguage as some words were unfamiliar to them and they had to refer to their dictionaries several times. Following each type of the identified private speech is exemplified and its function elaborated upon.

1. Reading Aloud. The most important function of reading the items aloud is to manage thoughts. In addition it can help the participants avoid distractions and direct the thoughts towards finding the answer to the item. The following example illustrates how a participant reads the item aloud and pauses afterwards in an attempt to direct his thoughts towards the item. Yet he seems to fail in guessing the answer and leaves the item.

1. (*Reads aloud*) *Toss me out of the window you'll find a grieving wife*
(.) *what is to grieve* (.) *Leave it It's OVER* (.)

2. Repetition. Repetition mainly signals the participants' ongoing thought process and is an attempt to take it under control. This is far more complex than the imitative behavior which is usually discouraged in language classrooms. The purpose here is to focus and direct the thought towards the item as in the following example.

2. *It's red, blue, purple, and green* (.) *red, blue, purple, and: green.*

3. Self Explanations. Although a considerable drop from the previous two types of private speech (n=66), self explanations occur next in the hierarchy of private speech content. There were many cases of expressions such as "Oh it seems to be" / "No, I don't think" / " next let me see..." / "OK ... I think I got it..." and so on. It was clear from these expressions that at several moments while doing the task the participants were evaluating the item and explaining it to themselves. In other words, they were trying to come up with the correct answer by self explanations. Self explanations help to plan,

manage and self-orient the participants towards their objective. Here is an example:

3. *Let me see (.) Mirror smiles back and cracks if we drop it*

4. **Reviwing.** Participants sometimes go back and forth among the items and consider changes. Although they might have not been able to find the answer to some items, it seems that they have them in the back of their minds. So whenever a new idea comes up, they try it on previous items to self correct. In 4 the participant tries to apply his new idea to an item previously examined which enables him to guess the answer.

4. *May be letters [which item] – once in minute, twice in a moment (.)*
M

5. **Metalanguage.** Lexical search is the most important function of the metalanguage that participants use. Speaking English as a foreign language and yet not fully proficient, participants are sometimes lost for proper words. In 5 the participant is looking for the word “hose” though he has correctly guessed the answer in Persian.

5. *Coiled round and round [picks up the dictionary] ° what is Shilang in English? °*

6. **Self Directed Questions.** “What's this?” is the most frequent question that occurs in the data. This simple question, however, certainly has more complex uses behind. With their main function as self orientation, self directed questions are raised to direct thoughts towards a specific objective. In this case they direct the participants’ attention on the item at hand.

7. **Fillers.** The most frequent pause fillers in the study are “hmm” and “ahh” which are followed by a pause. They seem to be signs of an ongoing thought process which help the learners to focus on the current item and avoid distractions. Moreover they provide the participants with ample time to plan their next course of action.

8. **Affective Markers.** Affective markers are utterances to motivate or release emotions and to move the self forward. They also help the participants block stress. Their main function is to control anxiety over facing challenging tasks. The low frequency of the affective

markers observed among the participants may have several reasons. Firstly the researcher has ensured the participants that the test is conducted for research purposes and that their performance will not influence any of their grades. This may have provided them with the confidence and relaxation to do the task without feeling any pressure. With little or no anxiety, it seems reasonable to expect few cases of affective markers. In addition, Cultural issues may have played a role in here. Most Iranian students do not feel free to call out their affections loud. In fact they are more of introvert character types who prefer not to talk about their feelings and affections in academic contexts. In spite of the researchers' assurance for privacy, the presence of a voice recorder may have contributed to restrain affective marker private speech. In general there were 6 cases of affective markers with "oh" and "wow" being the main ones. Aside from controlling anxiety affective markers may be signs of discovery or even frustration as in the following example:

6. (*Reads aloud*) *The more you take, the more you leave behind. More take, more leave (.) wow*

9. Literal Translation. In spite of the test instruction in which the participants are intentionally advocated to use L2 in dealing with the riddles, three cases of literal translation are observed in the data. These cases manifest the important role that L1 plays in cognitive regulation of foreign language learners. Although few cases of literal translation are observed which is due to the test instructions, it is quite probable that participants have inaudibly tried that especially in cases where they riddles have been challenging and frustrating.

Conclusion

The characteristics of language learners' private speech have not been given due attention. This is regardless of the fact that private speech can indeed portray the ongoing cognitive processes of the individuals. Hence, present study investigated the use of private speech by English foreign language (EFL) learners in regulating their mental activities. Numerous instances of reading aloud and repetition as well as self explanations and reviewing show their important role in cognitive regulation of EFL learners. These findings are in line with Berk (1994) who was able to demonstrate that private speech plays a vital

role in cognitive development of children. Therefore we can notice that both children and adults may engage in private speech production. This becomes even more probable when they face challenging tasks or situations (as in the present study).

In addition, the results indicate the beneficial functions of private speech such as planning, managing the thought, self-orientation, motivating, and controlling anxiety among many others. Not only does private speech help in focusing attention and controlling the task at hand, but also it helps the participants perform better and it is advantageous to their cognitive development in general. Frederick and Dicamill (2004) also point out the focusing of attention and creation of psychological distance among the primary functions of private speech. In learning languages private speech has a lot of applications from repeating linguistic structures and memorizing lexical items to rehearsing language tasks and monitoring their linguistic progress by thinking through or talking about it. It is therefore necessary to reconsider the role of concepts such as repetition and reading aloud in language classrooms as these are usually activities which are frowned upon when it comes to learning languages. However, there is a need to redefine these concepts to be differentiated from others such as mimicry, imitation and rote learning. (See Lantolf (2006) for a discussion on the issue).

Although there is not yet any accepted procedure to integrate the training of private speech in language classrooms, it may worth the effort to do so. Acquiring the ability to visualize and use private speech will undoubtedly contribute to students' language development. This will also add up to their confidence for speaking out publically and will hinder anxiety. Teachers are then advised to teach their students how to recall language items and focus on them and use their inner voices to master them. In addition they should be patient in the face of silent periods produced by language learners as it may be a sign of inner voice development. The presence of various learning styles within language classrooms certainly entails different periods for the emergence of external speech.

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Appendices

Appendix A. Test of English riddles

INSTRUCTION

Read the following English language riddles and test out your reading comprehension and reasoning by trying to work out the answer. In doing so, you should use **English** in dealing with the task. So you have to concentrate on the task and use **English** in thinking while trying to come up with the correct answer.

1. I'm full of holes, yet I'm full of water. What am I?
2. It's red, blue, purple, and green, no one can reach it, not even the queen. What is it?
3. Feed me and I live, give me drink and I die. What am I?
4. The more you take, the more you leave behind.
5. I am a word of 5 letters and people eat me. If you remove the first letter I become a form of energy. Remove the first two and I'm needed to live. Scramble the last 3 and you can drink me. What am I?
6. If you drop me I'm sure to crack but give me a smile and I'll always smile back.
7. I have an end but no beginning, a home but no family, a space without room. I never speak but there is no word I cannot make. What am I?

8. What comes once in a minute, twice in a moment but not once in a thousand years?
9. Snake coiled round and round, Snake deep below the ground. Snake that is never had a head, Snake that binds but not with dread.
10. Toss me out of the window, you'll find a grieving wife. Pull me back but through the door, and watch someone give life! What am I?

Appendix B. Transcription Conventions

()	Brackets indicate comments from the transcriber.
(.)	A dot enclosed in brackets indicates a pause in the talk
=	'Equals' sign indicates 'latching' between utterances.
[]	Square brackets show an action in the context or translation
(())	A description enclosed in a double bracket indicates a non-verbal activity.
-	A dash indicates the sharp cut-off of the prior sound or word.
:	Colons indicate that the speaker has stretched the preceding sound or letter.
.	A full stop indicates a stopping fall in tone. It does not necessarily indicate the end of a sentence.
?	A question mark indicates a rising inflection. It does not necessarily indicate a question.
<u>Under</u>	Underlined fragments indicate speaker emphasis.
CAPITALS	Words in capitals mark a section of speech noticeably louder than that surrounding it.
° °	Degree signs are used to indicate that the talk they encompass is spoken noticeably quieter than the surrounding talk.

Appendix C. Coding scheme

The nature of private speech	Classification	Definition
FORM	<ul style="list-style-type: none"> - silent - abbreviated - asocial loud 	<p>Utterances with low tone of voice directed to the self</p> <p>Grammatically incomplete utterances directed to the self</p> <p>Not produced silently but directed to the self</p>
CONTENT	<ul style="list-style-type: none"> - reading aloud - repetition - self-directed questions - self-explanation 	<p>Utterances read aloud as if trying to focus</p> <p>Repeating utterances or sounds as if in search of something</p> <p>Utterances with questions directed to the self</p> <p>Explaining a phenomenon to the self</p>

	<ul style="list-style-type: none"> - reviewing - affective marker - fillers - metalanguage 	<p>Examining or considering utterances again</p> <p>Utterances to motivate or release emotionally</p> <p>Apparently meaningless sounds that indicate a thinking in process</p> <p>Utterances commenting about the language itself</p>
FUNCTION	<ul style="list-style-type: none"> - planning - manageing - self orientation - avoiding distraction 	<p>Utterances to make arrangements for the next action</p> <p>Utterances to keep the process under control</p> <p>Utterances to direct thoughts towards a specific objective</p> <p>Utterances to focus and concentrate</p>

	- lexical search	Utterances in search of words
	- motivating	Utterances to motivate the self forward
	- controlling anxiety	Utterances to block stress
	- self correction	Utterances to modify errors or mistakes