An investigation of the private speech phenomenon in the collaborative interaction of Iranian adult EFL learners

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ABSTRACT

The purpose of this study was to investigate the use of private speech in collaborative interactions of Iranian adult EFL learners. More specifically, it examined (a) if adult EFL learners used private speech during task completion, (b) whether they externalised their private speech in Persian (L1) or English (L2), and (c) if there is any relationship between the amount of private speech and successful task completion. Twelve female EFL learners from two proficiency levels - advanced (3 pairs) and beginner (3 pairs) - took part in this study. The learners' conversations were audio and video-recorded during the completion of a picture description task. The peer-peer interaction was transcribed and analysed for the occurrence of private speech. The results indicated that both groups employed private speech during task completion; however, the advanced learners externalised it predominantly in English. Although no relationship was found between the amount of private speech and successful task completion, the use of private speech helped them get control over the task.

Keywords: private speech; L1 and L2 use; successful task completion; language proficiency; collaborative interactions

INTRODUCTION

Sociocultural theory proposes that almost all mental functions of humans originate in the social and cultural context and language is like a tool for mediating our mental functioning (Vygotsky 1978). Embedded in sociocultural theory is the concept of *private speech*, a kind of speech directed to self with no communicative function. Private speech is a widespread phenomenon in children acquiring L1 (Berk 1986, Berk & Spuhl 1995, Fraunglass & Diaz 1985, Winsler et al. 2003). A growing number of studies have also reported the use of private speech by L2 learners (Brooks, Donato & McGlone 1997, Dicamilla & Anton 2004, De Guerrero 1999, Ohta 2001, Saville-Troike 1988). Nonetheless, little is known about the nature of private speech in peer-peer interaction of learners in English as a Foreign Language (EFL) context.

As Lantolf (2006) claimed, without private speech language acquisition is not likely to occur; therefore, it seems necessary to explore the occasions when students employ private speech in L2 classrooms. In addition, creating a non-threatening language learning environment and providing adequate time for learners to get psychologically ready through private speech is an important factor for learning to occur. Nonetheless, in EFL classes, students are required to produce public speech and they are not given the chance to talk to themselves. Furthermore, the students are prohibited from using L1 when they want to produce the target form. The present study was, therefore, an attempt to understand whether

private speech is verbalised in the first language (Persian) or the foreign language (English). The research was aimed to compare the occurrence of private speech across two proficiency levels as well as determine its relationship with successful task completion. To this end, the study was guided by the following research questions:

1. Do beginning and advanced EFL learners employ private speech during task completion?
2. If so, to mediate and organise their thinking, do EFL learners externalise their private speech exclusively in one language (L1 or L2)?
3. Is there any relationship between the amount of private speech and successful task completion?

CONCEPTUAL FRAMEWORK

This study is based on the sociocultural theory of mind originated in the work of Vygotsky (1978). Sociocultural theory (SCT) holds that cognitive development is mediated socially and in large part the language acts as mediation between the social and mental worlds (DiCamilla & Anton 2004). In fact, language is evolved from social to private speech, which finally develops to inner speech. Vygotsky (1978) emphasised the importance of culture and society in children's development and the primary role of language in human development. He claimed that:

> 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 (p. 57).

Johnson (2004) explains that the transition between these two phases happens by using the sign system, the important part of which is language. Lantolf and Thorne (2006) also claimed that "[t]he primary way in which we use language to regulate our mental functioning is through *private speech*" (p. 202). Lantolf (2000) defined private speech as "speech that has social origins in the speech of others but that takes on a private or cognitive function" (p. 15). In other words, it is a speech that is not for communication; however, it is originally social. Lantolf and Thorne (2006) described private speech as an utterance in which the child attempts to self-regulate in the face of complex process of learning.

The discussion of private speech has its roots in the work of Piaget and Vygotsky. Ahmed (1994) argued that the first observations of private speech were reported by Piaget (1926) and entitled "egocentric speech". According to Piaget, cognitive development is first individual and then social and the first critical stage happens at the age of seven or eight, which is the first period of reflection; and as the child grows older, this egocentric speech disappears. On the other hand, Vygotsky questioned Piaget's conclusion and suggested that human thought does not develop from individual to social but from social to individual and at a certain stage, the social speech is divided into egocentric speech and communicative speech. Ushakova (1994) also stated that for Vygotsky, the age of seven is a point when inner speech appears. Egocentric speech is the transitional form from social to individual activity and changes to inner speech. Lantolf and Appel (1994) also mentioned that for Piaget, egocentric speech had no function except for showing the transition from individual to social speech; however, for Vygotsky, the role of egocentric speech in the development of mental activity was central. Indeed, it does not disappear but goes underground and is

transformed into inner speech (Lantolf & Appel 1994). Vygotsky (1986) distinguished the external and inner speech by stating that:

> While in external speech thought is embodied in words, in inner speech words die as they bring forth thought. Inner speech is to a large extent thinking in pure meanings. It is a dynamic, shifting, unstable thing, fluttering between word and thought, the two more or less stable, more or less firmly delineated components of verbal thought (p. 249).

According to Vygotsky (1978), private speech is the process through which language initially serves a social purpose and later plays a self-regulatory function. He considers private speech as "the process of privatizing speech in a way that higher forms of consciousness arise on the inner plane and in this way our biological capacities are organised into culturally mediated mind" (Lantolf 2000, p.15). The issue of private speech, as an important phenomenon in language learning and development is an under researched area (Ehrich 2006). The present study attempts to explore the nature of private speech in adult EFL learners using the framework of sociocultural theory.

PRIVATE SPEECH AND L2 PROFICIENCY

The issue of private speech and its relationship with proficiency has been addressed in a number of studies. Two studies which tried to make parallels between Vygotsky's findings about private speech in children and the use of private speech in adult L2 learners are Lantolf and Frawley (1984 cited in McCafferty 1994) and Frawley and Lantolf (1985 cited in McCafferty 1994). Lantolf and Frawley (1984) gave a picture narration task to advanced and intermediate learners of Spanish as a second language and adult native speakers. Their findings showed that both advanced learners and native speakers showed similarities in the use of private speech. It was also found that less proficient learners used more private speech than the advanced learners. In a similar study, Frawley and Lantolf (1985) compared the use of private speech among ESL learners at two proficiency levels (intermediate and advanced) with child and adult native speakers. The participants worked on the same picture narration task used in Lantolf and Frawley (1984). The results of their study showed that the child native speakers and intermediate learners were considerably similar in the use of private speech during narration. However, the source of difficulty for ESL learners was mainly the lack of proficiency in English to express themselves and for the native speaker children was the inability to unpack the narrative. It was found that both advanced ESL learners and adult native speakers did not have any problem with the task and produced a small amount of private speech. They claimed that adult L2 learners use private speech to gain control over the task, themselves and task context.

Some studies have also revealed that the frequency of private speech decreases with an increase in proficiency level (Lantolf 1997 cited in De Guerrero 1999, McCafferty 1994). McCafferty (1994) studied the relationship between L2 proficiency level and the use of private speech among 39 ESL university students from either Hispanic or Asian backgrounds in New Mexico University. The students were divided into two levels of proficiency: low-intermediate and advanced and were asked to perform a picture narration task which involved a series of six consecutive drawings given to them one at a time. The data were tape-recorded and later transcribed. The findings showed that the low intermediate students produced twice the number of private speech as the advanced learners. Therefore, it was concluded that with increase in language proficiency use of private speech decreases.

Compatible with the findings of McCafferty (1994) are the findings of Lantolf (1997 cited in De Guerrero 1999) who studied language play— a type of private speech— used by

L2 learners. He administered a questionnaire among 156 college students including 86 intermediate Spanish learners as a foreign language, 28 intermediate learners of Spanish as a foreign language and 42 advanced ESL students. Evidence of private speech in the form of talking out loud, repeating, imitating was reported. He concluded that language play has a vital role in L2 learning and its frequency decreases with language proficiency.

Contrary to the findings of these two studies, De Guerrero (1994 , 1999) and Bahrami (2001) found a positive relationship between the increase in language proficiency and the use of private speech in L2 learners. De Guerrero (1994) conducted a two-phase study to explore the nature of inner speech during mental rehearsal. In the first phase, a 35-item questionnaire was completed by 426 Puerto Rican ESL college students at three levels of high, intermediate and low. In the second phase, an interview was carried out with nine students with a tendency to rehearse mentally. It was reported that 84 % of the students experienced private speech while mentally rehearsing L2. The study also showed that there was a positive relationship between proficiency level and frequency of private speech.

De Guerrero (1999) studied L2 inner speech among advanced learners for two purposes: (a) to understand the extent that the advanced learners use inner speech as mental rehearsal and (b) to compare advanced and less proficient learners in their use of different features of private speech. A questionnaire was administered to 81 advanced students who had passed the English course at the Inter-American University in Puerto Rico. It was found that L2 learners reported experiencing inner speech. The data revealed that L1 students experienced more private speech than the L2 speakers. It was concluded that with the increase in proficiency, the frequency of inner speech increased. However, in certain aspects of rehearsal (planning text, self and other evaluation, self-instruction and language play) the frequency of inner speech decreased for these advanced learners. It was also found that advanced learners reported more complexity in their L2 inner speech. In other words, the complexity of L2 inner speech increased with the increase in proficiency level. Furthermore, L2 inner speech, similar to L1 inner speech, is developmental in nature and can be used as a cognitive tool for general thinking.

Similar to De Guerrero (1999), Bahrami (2001) investigated the use of private speech as mental rehearsal among different language proficiency levels in the Iranian EFL context. The participants were 128 junior and 48 senior female university students of English Translation. They were divided into three proficiency groups of high, intermediate and low, based on their TOEFL scores. The students were asked to answer a 40-item questionnaire adopted from De Guerrero (1999). The result showed that almost all of the learners confirmed that they experienced private speech in English. A significant relationship was also found between proficiency and some aspects of inner speech; however, contrary to the findings of De Guerrero (1999), no significant relationship was found between language proficiency and complexity of inner speech. The mixed findings obtained from these few studies require further research. The present study is an attempt to fill this gap by comparing the occurrence of private speech across two advanced and beginning levels of proficiency.

USING L1 AND L2 PRIVATE SPEECH

The use of L1 and L2 private speech has been reported in some SLA studies (Anton & DiCamilla 1999, Brooks, Donato & McGlone 1997, Platt & Brooks 1994, Ushakova 1994, Villamil & De Guerrero 1996). Anton and DiCamilla (1999) confirmed the use of L1 and L2 private speech in their study. They investigated the collaborative interactions of five dyads of adult beginner learners of Spanish (native speakers of English) performing a writing task in a foreign language classroom. Three collaborative sessions were audio-recorded in a language

laboratory and transcribed subsequently. It was found that during collaboration, L1 use served a meta-linguistic function and helped the learners produce complex structures and discuss the solutions and also provided chances for L2 acquisition. Evidence of private speech was also found in the data as a tool for directing their thinking when facing a difficult task.

Brooks, Donato and McGlone (1997) studied features of discourse among three pairs of intermediate university students of Spanish performing information-gap tasks. The data revealed that the learners used private speech during their interactions in the form of whispering to plan and control their language and actions. Moreover, the amount of private speech decreased across the five tasks as they become familiar with the task. They concluded that private speech produced during collaborative task is a tool for self-regulation, not a flawed communication. Another study, which investigated the private speech in collaborative context, was by Villamil and De Guerrero (1996). They studied the peer revision of written task of 54 intermediate ESL learners in Puerto Rico. Instances of private speech such as fillers, repetitions, question to self, self-reminders and verbal display of emotions in L1 were frequently observed in the data.

Ushakova (1994) conducted a series of artificial language laboratory experiments on participants who were learning words as a second language. She maintained that private speech acts as a functional device, which makes human capable of communicating, exchanging information and other aspects of life. Furthermore, successful acquisition of words and structure depends on incorporation of it in L1 classification; therefore, she concluded that although L2 speakers can use L2 for social communication, they cannot use it to mediate their thinking. In other words, they need to resort to L1 for their thinking process. Evidence of inner speech was found when participants were producing or perceiving external speech.

Ohta (2001, cited in DiCamilla & Anton 2004) worked with L2 Japanese learners and found evidence of private speech. She reported that most of the private speech happened in the teacher-fronted situations rather than peer-peer interactions. She also found that the students produced vicarious responses in which after having observed the linguistic behavior of others, they tried to imitate it through private speech that was whispered during interaction. Instances of L2 private speech were rare in the interactions of students; however, L1 private speech was produced at difficult situations.

Centeno-Cortés and Jimémez-Jiménez (2004, cited in Lantolf 2006) studied the use of L2 private speech in three groups of participants: six intermediate learners of Spanish (L1 English), six advanced L2 speakers of Spanish, and six L1 speakers of Spanish (proficient in English). They reported that L1 private speech was the key to successful task completion. L1 speakers produced only two instances of private speech in L2 (English) and the rest was in L1 (Spanish); the intermediate group produced 35 % of their private speech in Spanish; however, the advanced learners uttered 52 % of their private speech in Spanish.

DiCamilla and Anton (2004) studied the occurrence of private speech in collaborative interactions of 14 dyads of English speaking Spanish learners at beginning, intermediate and advanced levels of proficiency during collaborative writing task. The students were instructed to write a composition on a particular topic; their interactions were recorded and transcribed afterward. They found that learners used private speech in their interaction while reading the instruction aloud and during lexical search. Instances of private speech included 'wait', 'ok', 'oh'. Self-addressed questions were also evident in the data in a low elliptical form. It was also found that Spanish learners used private speech in the form of repetition in L1 to focus attention on the task and to retrieve knowledge of language form.

In a recent study, Storch and Aldosari (2010) investigated the effect of learner proficiency pairing and task type on the amount of L1 used by learners of English as a

foreign language (EFL) during pair work. The participants were asked to perform three tasks with different focus and familiarity: jigsaw (meaning-focused), composition (familiar task) and text-editing (focus on grammatical accuracy and familiar). They found that the use of L1 during pair work activity was very low and compared to the proficiency pairing, the task type had more effect on the amount of L1 use. The learners used L1 to manage the task and to search for vocabulary. When the students thought about the vocabulary, they used L1 in private speech; they appeared to use the L1 to confirm the meaning of some words in their own minds.

Ghorbani (2011) analysed the data from a larger project on the use of L1 in EFL classroom. Sixteen adult beginner EFL learners participated in this study. The sessions were observed, recorded and transcribed. It was found that in pair work activities students used more L1 than in the teacher-fronted classes. It confirmed the findings of Storch and Aldosari (2010), and reported the low use of L1 in pair work activities. He also found evidence of L1 use in student and teacher interaction in reaction to message in the form of private speech.

SUCCESSFUL TASK COMPLETION AND PRIVATE SPEECH

Successful task completion was studied in the research conducted by Centeno-Cortés and Jimémez-Jiménez (2004, cited in Lantolf 2006). In this study, the participants were given 15 cognitively challenging tasks, the instructions were given in Spanish by a computer and they were asked to type their answers. The intermediate learners used L2 during reading aloud but when started to do the task, they immediately switched to L1 (English). However, it was found that if advanced learners maintained L2 private speech, they could not be successful in reaching solution; in other words, they were successful when they switched into their L1. They concluded that the language of task could influence the language used by learners to perform the task. Another finding of the study was that using private speech is not a guarantee for successful task completion. However, Ushakova (1994) who conducted laboratory experiments on participants found that successful acquisition of words depends on incorporation of it in L1 classification; in other words, tasks cannot be completed successfully unless the L1 classification is used in the production of L2.

Rahimi and Tahmasbi (2010) studied the private speech and collaborative interaction among 54 EFL freshmen students during a reading course. For the control group, the teacher paraphrased and discussed the reading; the learners in the experimental group were asked to perform different tasks including paraphrasing, summarising, discussing collaboratively and using private speech. The sessions were video-recorded for nine sessions, each one lasting for 90 minutes. The final test of comprehension and oral presentation were the two measurements used in this study. The performance of learners was analysed based on accuracy, complexity, and fluency. It was revealed that scaffolding and private speech helped the learners be successful and accurate in task completion.

According to the literature, although numerous studies have been conducted in the ESL context, their findings may not be true in the EFL environment because language proficiency of EFL learners tends to be much lower than that of ESL learners. Due to limited exposure to the target language, it is possible that lower proficiency learners may not be able to engage much private speech in the target language. Furthermore, the studies on the relationship between successful task completion and the use of private speech are very limited in both EFL and ESL environments (Centeno-Cortes & Jimenez-Jimenez 2004, Rahimi & Tahmasebi 2010); therefore, it is one of the aims of this study to examine this issue.

METHOD

PARTICIPANTS

The study was conducted based on convenience sampling in two private language institutes in Sari, Iran. The participants were 12 Persian learners of English, all females and within the age range of 20 to 28 (average =25.41). These students were studying in an intensive English program, which included several levels of instruction, ranging from beginning to advanced level of proficiency. Therefore, the participants' level of proficiency was based on a placement test conducted by the professional managers of the institutes. Due to some limitations (space and time available to collect the data in the institutes), six students (3 pairs) at advanced level and six students (3 pairs) at beginning level participated in this study. Both groups completed the same picture description task. After making arrangements with the managers of the institutes, the participants were informed of the general purpose of the study and their consent forms were obtained.

INSTRUMENT

Some of the pioneering studies such as Lantolf and Frawley (1984), Frawley and Lantolf (1985) and McCafferty (1992, 1994, and 1998) used picture narration task for the purpose of data collection. Following these studies, a picture description task adopted from Julich and Chabot (2006), was used to collect data for the current study. The task included six pictures depicting a story about a man who was planning for a trip. The participants were asked to look at each picture and collaboratively write a sentence to describe the event in the picture. The linguistic demand, i.e., the vocabulary and structure necessary to construct the story, was appropriate for both advanced and beginner learners.

PROCEDURE

The study employed a mixed method design which included audio and video-recordings of interactions, transcribing the recorded data, coding and finally, quantifying the number and percentage of private speech. The six participants in each class (advanced and beginner) formed three self-selected pairs. To improve the quality of recording, the pairs were recorded one at a time; therefore, it took us six sessions to record all pairs' interaction during the completion of the task. To analyse samples of private speech, it was necessary to access the participants' facial expressions and gestures. To this end, a video camera was set in front of the pairs so that their gestures could be captured in due time. The participants were asked to write a detailed composition about the pictures and collaboratively make a story. To reduce the students' anxiety, there was no time limit for the participants to finish the task. The average time spent by the advanced group was 29 minutes and by the beginner group was 20 minutes. Next, all recorded sessions were transcribed and analysed.

DATA ANALYSIS

Qualitative and quantitative methods of data collection and analysis were used in this study with the purpose of investigating the use of private speech in the collaborative interaction of adult EFL learners during a picture description task. To answer the first research question, the audio-recorded data were fully transcribed and private speech utterances were identified by both researchers based on the private speech coding manual introduced by Winsler, Fernyhough, McClaren, and Way (2005). This coding system categorises private speech utterances on the basis of two broad categories of linguistic form and content. Within the

form category, the prosodic and structural features such as loudness, intonation as well as syntactic violations and deletions are examined. More specifically, each private speech utterance is categorised as being either loud or whisper and abbreviated or complete. The content of private speech constitutes referential aspects of the utterance such as exclamations, commands, question/answer and evaluations (see Khorshidi & Abadikhah 2013, for a detailed description of this analysis).

To answer the second question, the percentage of private speech used in Persian and English were calculated and compared across the groups. Finally, the relationship between the amount of private speech and successful task completion was considered by calculating the accuracy of the written compositions of the learners. According to Ellis and Barkhuizen (2005), the two general measures of accuracy are errors per 100 words (Mehrnet 1998) and percentage of error-free clause (Foster & Skehan 1996). These two measurements were used to calculate the accuracy of task completion in this study. For the former measurement, the number of error-free clauses are divided by the total number of independent clauses, sub-clausal units and subordinate clauses and finally multiplied by 100. As for the latter one, the number of errors are divided by the total number of words produced divided by 100 (see Ellis & Barkhuizen (2005) for a detailed discussion on these categories).

RESULTS

EMPLOYING PRIVATE SPEECH DURING TASK COMPLETION

To answer the first research question, the frequency and percentage of private speech were calculated in the transcribed data of advanced and beginner learners. The analysis showed that both groups used private speech during task completion. The following excerpts give the reader a sense of the qualitative nature of the adult private speech data obtained in the present study.

Excerpt 1

1   M: she planned for travel, for traveling
2   E: trip
3   M: for a trip to Orlando
4   E: where her sister lives
5   M: yes we can imagine [both laughing]
6   E: from 20 to 23
7   M: ^{0}**aslan kojast**? ^{0}(*where is it after all?)* [looking at map]
8   E: she pick up, pick up, yes?
9   M: her luggage?
10   E: suitcases or package, ^{0}**package, baggage** ^{0}. Baggage.

In Excerpt 1, the two learners in the advanced group are trying to compose their sentences based on the pictures. In Line 7, M lowers her voice, and poses a question in Persian *'aslan kojast?' [Where is it after all?]* without addressing E and immediately looks at the map. In Line 10, E also engages in private speech and decides which of the two vocabulary options to choose (*package and baggage*); finally, she chooses *'baggage'* and writes it down in their handout. She L: not asking for help from her partner but she is whispering and searching in her word repertoire to find the best choice.

Excerpt 2

1   N: key mikhay beri? *(when are you going)*
2   F: I, I, I barnamerizi? *(planning)***? I pla… schedual**, I gonna schedule about
3   N: akhare mah**,** *(end of the month)***hmmm**
4   F: about my trip, I wanna schedule about.
5   N: month end mishe akhare hafte? (*end of the week?*)
6   F: schedule ro balad nistam. *(I don't know how to write schedule.)*I am gonna to schedule that key beram? (*when to go*)
7   N: aha
8   F: that when go. **Khob.** *(ok)***Ok.**

Excerpt 2 illustrates an instance of private speech by a pair of beginner learners. In Line 2, F deliberates on the choice of a word, *'barnamerizi'(planning),* she produces it in Persian and then switches into English and produces *'pla…',* which is an abbreviated form of *'planning',* then she immediately says *'schedule'* and chooses this word and includes it in her writing. Although she produces them loudly, they are not addressed to her partner, because her partner is thinking about another issue and asks about *'akhare mah'* (*end of the month),* which is not apparently related to her partner's statement. In Line 3, N produces a non-word private speech *(hmmm)* which seemingly shows her thinking process. She is searching for the English meaning of *'akhare mah'* in her mind but this process seems to be done silently and is revealed in the form of *'hmmm'.* In Line 8, F produces *'khob' (Ok)* after she completes her previous utterance, and by this utterance, she wants to show that it is finished and she is ready to move onto the next part. After expressing *'khob',* she immediately utters the English equivalent *'Ok'.* Table 1 below presents the frequency of private speech produced by advanced and beginner learners.

TABLE 1. Frequency of private speech utterances produced by the learners

Groups	Pairs	Pairs	Number of PS	Total number of PS for each pair	Total number of PS
	Pair1	M	9	34	
		E	25		
Advanced	Pair 2	M	3	10	56
		N	7		
	Pair 3	E	5	12	
		A	7		
	Pair 4	F	7	11	
		N	4		
Beginner	Pair 5	E	7	33	62
		S	26		
	Pair 6	S	14	18	
		M	4		
Total					118

As shown in Table 1, 118 instances of private speech were identified in the transcriptions of both groups. The advanced learners engaged in private speech 56 times which constituted 47.45% of total number of private speech. Similarly, the beginning level students produced 62 instances of private speech constituting 52.54% of the total number. The number of private speech produced by the advanced group ranged from 3 to 9, except for one learner,

who produced 25 instances of private speech. In the beginner group, the occurrence of private speech ranged from 4 to 14; again with an exception of one learner in pair 5 who produced 26 instances.

Using Mann-Whitney U test, the mean rank of the private speech was compared across the two groups. The result of this analysis showed no significant difference between the two groups (p=.870). Although the beginners produced private speech more frequently than the advanced group did, the two groups did not differ significantly in the amount of private speech they produced.

EXTERNALIZING PRIVATE SPEECH IN ENGLISH AND/OR PERSIAN

The next step was to examine whether Persian learners of English produced their private speech in L1 and/or in L2. This was addressed in our second research question: "*To organize their thinking, do EFL learners externalize their private speech exclusively in one language (L1 or L2)?*" The analysis indicated that the advanced and beginner learners used both Persian and English in their private speech when performing the picture description task. Table 2 shows the number and percentage of private speech used in English and Persian by both groups.

TABLE 2. Number of L1 or L2 use during private speech

Groups	Pairs	No.&(%) of English PS	No& (%) of Persian PS	Number of PS
Advanced	Pair 1	28(82.35%)	6(17.64%)	34
	Pair 2	6 (60%)	4 (40%)	10
	Pair 3	11(91.66%)	1(8.30%)	12
	Total for Advanced			56(47.45%)
Beginner	Pair 4	7(63.63%)	4(36.36%)	11
	Pair 5	14(42.42%)	19(57.57%)	33
	Pair 6	8(44.44%)	10(55.55%)	18
	Total for Beginner			62(52.54%)

PS: Private speech

As mentioned before, the total number of private speech used by advanced group during task completion was 56 which constituted 47.45 % of all the private speech produced by both groups. Of the total number of private speech produced by this group, 80.35 per cent was in English while 19.64 % was in Persian. On the other hand, in the beginner group, the number of private speech was 62 constituting 52.54 % of the total, 46.77 % of which was in English and 53.22 per %cent was in Persian. By comparing the two groups, it can be seen that all pairs (1, 2, 3) in the advanced group used English in more than 60 % of their private speech, whereas, pairs 5 and 6 (belonging to the beginner group) made use of Persian in more than 55 %. Therefore, it can be concluded that the advanced learners produced the majority of their private speech in English, while the beginner learners produced the majority of their private speech in Persian. Figure 1 clearly shows the total use of L1 and L2 by both groups.
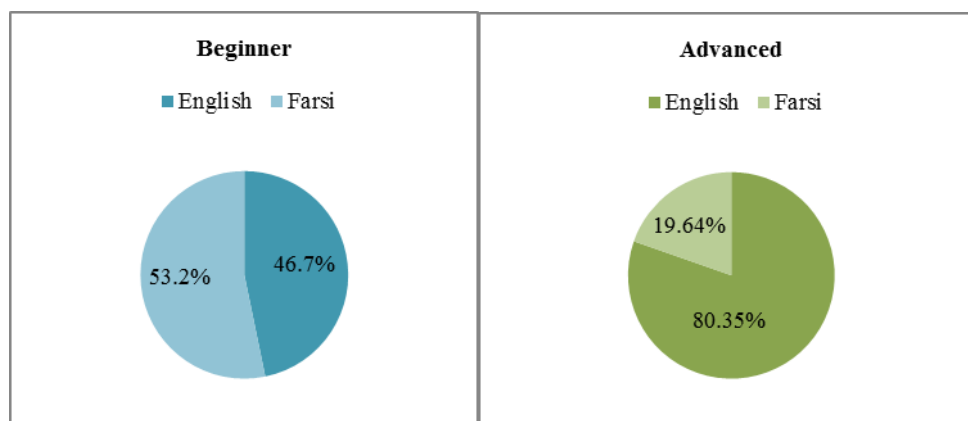
FIGURE 1. Total percentage of L1 and L2 use during private speech

Based on the figure, it can be tentatively assumed that as the proficiency level of the learners increases, so does the amount of private speech in L2 (English).

PRIVATE SPEECH AND SUCCESFUL TASK COMPLETION

The aim of the third research question was to find out if there is any relationship between the amount of private speech and successful task completion. The successful task completion was operationally defined as the accuracy of production measured via 'the percentage of error-free clauses' (Foster & Skehan 1997, cited in Ellis & Barkhuizen 2005) and 'errors per hundred words' (Mehrnet 1998, cited in Ellis& Barkhuizen 2005). The number of private speech and accuracy of the performance for each group are presented in Table 3.

TABLE 3. Number of PS and accuracy of the written performance

Group	Pairs	Number of PS	Percentage of Error-free clauses	Errors per 100 words
Advanced	Pair1	34	86.66	2.38
	Pair2	10	26.66	9.38
	Pair3	12	45.45	8.03
	Pair4	11	11.11	22.22
Beginner	Pair5	33	20	25.55
	Pair6	18	0	18.66

To examine this issue, a correlational analysis was conducted to find out the relationship between the amount of private speech and the percentage of error-free clauses. The findings are illustrated in Table 4.

TABLE 4. Correlational analysis between the amount of PS and accuracy of written performance

		Private Speech	Accuracy
Private Speech	Pearson Correlation	1	.552
	Sig. (2-tailed)		.256
	N	6	6
Accuracy	Pearson Correlation	.552	1
	Sig. (2-tailed)	.256	
	N	6	6

As Table 4 shows, the correlation-coefficient (r=.552) did not reach a significant level (ρ=0.256), suggesting that there is no significant relationship between the amount of private speech and successful task completion. It is to be mentioned that another measure of accuracy

(Errors per 100 words) was also used to measure the accuracy of written performance of the participants. The result of that analysis was also consistent with this finding, that is, there was no significant relationship between the amount of private speech and successful task completion (ρ= .991)

DISCUSSION

This study investigated the phenomenon of private speech in the collaborative interactions of adult EFL learners. Considering the first research question, this study found that both beginner and advanced groups used private speech. This finding is highly compatible with a large body of research on the use of private speech in L2 learners (e.g. De Guerrero 1994, McCafferty 1994, McCafferty 1998, Ohta 2001, Saville-Troike 1988). McCafferty (1994) studied language play in L2 learners and found instances of private speech in the form of talking loud, and imitation. Similarly, De- Guerrero (1994) explored the nature of private speech during mental rehearsal and reported that 84 % of learners experienced the use of private speech. The findings of this study are in great agreement with the studies of private speech in collaborative interaction of L2 learners (Anton & DiCamilla 1999, Brooks, Donato & McGlone 1997, Buckwalter 2001, DiCamilla & Anton 2004, Donato 1994, Platt & Brooks 1994, Villamil & De Guerrero 1996). Platt and Brooks (1994), for instance, studied the interactions of ESL and FL learners while performing a task collaboratively and showed evidence of private speech used to mediate and redirect their own activity at special time during task completion. Villamil and De Guerrero (1996) also studied the peer revision of written task of intermediate ESL learners and found instances of private speech during composition and reading in the forms of mumblings and comments to self without referring to the peer with the purpose of guiding behavior or action. Fillers, repetitions, question to self, self-reminders and verbal display of emotions in L1 were the private speech contents which were frequently observed in the data. Similarly, Brooks, Donato and McGlone (1997) reported that the learners used private speech during their interactions in the form of whispering to plan and control their language and actions, which was constructed in the L1. Examples of self-talk, like sub-vocalized target language words were also identified in the data both in L1 and L2.

The study also showed that although the beginner level students used slightly more private speech than the advanced learners, the difference in the amount of private speech between the two groups was not significant. This finding is contrary to the studies of De Guerrero (1994, 1999), who found that the private speech increased significantly with the increase in proficiency. Therefore, it can be suggested that for these EFL learners the use of private speech is not dependent on the proficiency level. Nonetheless, this result may change if the sample size increases. It should be mentioned that each group had extreme pairs who produced the largest amount of private speech compared to the other members of the group. This could be explained considering the personality traits of the learners realized during the observation of the participants. Both the advanced and beginner pairs were very enthusiastic enjoying the process of the task and viewed the task completion as a learning experience.

Regarding the second research question, the findings revealed that both advanced and beginner groups used L1 and L2 in their private speech. Contrary to McCafferty's (1994) study, where private speech occurred only in L2, in this study it occurred both in L1 (Persian) and in L2 (English). The discrepancy between the finding of the present study and that of McCafferty (1994) may be due to the differences in the context of the studies; that is, the present study was conducted in an EFL context, whereas, his study was carried out in an ESL context. It can be assumed that the ESL learners' exposure to the target language affected the

language used in their private speech. Therefore, the limited exposure of the learners to the target language in an EFL context can be one of the influential factors.

Findings also revealed that the advanced group used more L2 private speech than L1; however, the percentage of Persian and English private speech was approximately similar for the beginner pairs. This study is comparable to the study of Centeno-Cortes and Jimenez-Jimenez (2004, cited in Lantolf 2006) who found that learners used both L1 and L2 private speech. In their study, L1 speaker used more L1 than L2, and similar to the present study, more proficient learners used more private speech in L2 than the less proficient learners. Similar to the findings of Brooks, Donato and McGlone (1997), we also found that less proficient learners used private speech mainly in L1. Their findings suggested that private speech was produced both in L1 and L2 but mainly in L1. Furthermore, they confirmed the developmental nature of private speech which is constructed first in L1 and then develops in the direction of the target language. In the current study, the private speech of the beginner and advanced groups was predominantly in L1 and L2, respectively. Therefore, it can be suggested that as the proficiency of the learners increases, the use of L2 private speech increases. The finding of this study is in agreement with Ushakova's (1994) finding which indicated that inner speech is an important part of perception and generation of external speech and that although learners use L2 for social speech, it cannot mediate their thinking; therefore, they make use of their L1 during task performance to help them in the process of thinking. The instances of private speech in L1 and L2 were found in the study of DiCamilla and Anton (2004) and similarly the present study revealed that L1 and L2 are part of learners' private speech production.

Ohta (2001) showed that L2 private speech was rare; however, in this study both L1 and L2 private speech were used. The explanation for this result is that the beginning level students have not mastered the target language yet, so due to their limited proficiency they had to resort to the first language to manage the task. If they were completely prohibited from using L1, there was the possibility that the learners completely abandon the task. The findings of this study are also compatible with those of Ghorbani (2011) and Storch and Aldosari (2010). Ghorbani (2011) reported that the students used L1 private speech in reaction to messages. Storch and Aldosari (2010) also found that L1 private speech was used as vocabulary deliberation. In this study, the learners also used L1 private speech in order to get control of the task in the form of repetition or to express their frustration through evaluative comments.

Regarding the third research question, no relationship was found between the accuracy of the written performance of the students and the amount of private speech they produced. It was assumed that if learners engage in private speech, they could get control of the task and with the help of private speech and its social content, the pairs could do the task as accurately as possible; however, the learners used private speech in order to retrieve the lexical items from their lexicon and for affective expression. The finding of this study is compatible with the finding of Centeno-Cortes and Jimenez-Jimenez (2004) who claimed that the use of private speech did not lead to successful task completion; nonetheless, its role during task completion should not be ignored. To sum up, although no significant relationship was found between the amount of private speech and successful task completion, the use of private speech focused the learners' attention on the task and released their affective load in order not to abandon the task as a result of frustration.

CONCLUSION

In this study, the occurrence of private speech in the interactions of advanced and beginner EFL learners was investigated. The relationship between the amount of private speech and accuracy of task performance was also examined. It was found that both groups used private speech with a slight difference but this was not significant. Although no relationship was found between the amount of private speech and successful task completion, it was revealed that private speech helped the learners get control of the task and release their anxiety. Regarding the use of L1, we found that the learners engaged in private speech both in L1 and L2. As Tomlinson (2001) suggested, in some activities the use of L1 should be allowed to help learners produce inner voices which can help them make meaningful connections between what they are learning and what they already knew. Meanwhile, further research needs to be conducted on the impact of L1 inhibition on the use of private speech during task completion. In this study, a picture narration task was used to elicit data about private speech; another study employing different kinds of tasks in terms of complexity would yield greater understanding of the function of private speech. In addition, investigating the amount of private speech (whether increased or decreased) when the participants work on several tasks during a number of sessions would be interesting. Using other instruments such as questionnaires and interviews could provide deeper insight into the learners' awareness of and attitudes toward the private speech.

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