

Grammatical Competence Development of Nursery School Children Acquiring Persian

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Abstract

This qualitative study is conducted to answer four questions: First, whether there is a difference between the grammatical competence development of a group of children aged 2.6 (two years and six months) and a group of children aged 3.6 (three years and six months). Second, whether there is a significant difference between the two age groups concerning their Mean Length of Utterance (MLU). Third, whether there is a relationship between the children's MLU and that of the caretakers. Fourth, whether the normal limit proposed by Brown (1973) is observed in the acquisition of Persian. To this end, language samples of six children and their caretakers' were recorded during a six-week period and studied afterwards. The results indicated neither an unequivocal yes nor a definitive no answer to the question of age difference and grammatical competence development, that is to say, in some cases there was a difference whereas in some other cases there was no difference at all. As for the difference between the two age groups concerning their MLU, there was a significant difference between the two. However, no significant relationship was found between the children's MLU and their caretakers'. Finally, the limit proposed by Brown (1973) was observed in the acquisition of Persian.

Keywords: first language, child directed speech, mean length of utterance, grammatical competence development, grammatical judgment test

Introduction

In spite of the fact that great strides have been taken to explain first language acquisition, due to the paucity of research evidence on the one hand, and the inherently complex nature of the phenomenon on the other, it is still difficult to explain such a feat as adequately as possible. That is why it is not yet possible to identify an all-and-only, comprehensive theory of first language acquisition. However, three major theoretical approaches have been put forward by scholars as partial, if not total, explanation of the phenomenon: The first is empiricist and/or behavioral approach, the second is rationalistic and/or nativist approach and the third is functionalist and/or interactionist approach. (Lust, 2006)

Whereas the empiricist and/or the behavioral tradition explains L1 acquisition in terms of picking up of the input offered to the child by the parents or the caregivers, the rationalistic and/or the nativist approach deems the innate endowment of the child responsible for such a great undertaking. (Lust, 2006)

On the other hand, the functionalist and/or the interactionist approach tends to challenge both the empiricist/behavioral and the rationalist/nativist approaches on the grounds that first language acquisition can take place not because of the environmental input nor on the basis of the mind-internal, innate, pre-programmed device(s), but rather through some sort of information processing and as a result of interaction between the input provided and the innate capacity, that is, an interface between a totally input-driven view on the one hand and a totally mind-driven view on the other. (Lightbown & Spada, 2003)

According to the interactionist view, more prominent roles should be given to the social interactions and the linguistic environment of first language than what the innatist tradition seems to imply. An important subcategory of such a view is the role of child directed speech or the caretaker's speech that is believed to help L1 acquisition. (Lieven, 1978)

In this regard, Peccei (2006) points out that Child Directed Speech and the early social interactions between mothers and babies has been a response to Chomsky's (1987) 'poverty of stimulus' argument according to which it is

actually impossible for children to acquire a system as abstract and complex as human language without some prior inborn knowledge about the way it works. Such argument, according to Cook (1988, p.82), is at the heart of Chomsky's (1987) debate as to 'how do we come to have such rich and specific knowledge, or such intricate systems of belief and understanding, when the evidence available to us is so meagre?'

Besides, as Snow (1986) mentions, almost everybody's speech towards children of various ages might be regarded as child directed speech or caretaker speech implying that the term 'motherese' may be misleading in that not only mothers but others may also speak in a special way to the children. According to Snow (1986), until recently, L1 acquisition was studied without taking child directed speech into account because it was thought that the nature of the child directed speech made no difference to the course of language acquisition. It was thought that "there was a large innate component in linguistic ability which buffered language acquisition against sparseness, complexity and confusion in the primary linguistic data" (Snow, 1986, p.69)

Another line of research which has been commonly used in first language acquisition research is a measure called Mean Length of Utterance (MLU). Despite the fact that MLU has been instrumental in describing children's overall language development, researchers have reacted differently to using it in L1 acquisition research. Wells (1997), for example, believes that the validity of this measure has been the subject of numerous amount of critical discussion, but because of its apparently general nature and the ease with which it can be calculated, it still continues to be widely used. Similarly, Lust (2006) points out that although MLU is a useful tool for estimating the developmental level of children's L1 acquisition at early stages, it does not inform us much about their grammatical knowledge. In the opinion of Lust (2006), we still do not know the reasons as to why the length of children's sentences vary, how they overcome the problem, or how their sentences can be representative of grammatical knowledge they possess. According to Lust (2006, p.127) "the development of MLU does not correlate with grammatical stages in the full sense of the term."

On the other hand, Johnson (2001) maintains that since Brown's (1973) study, MLU has been the most commonly used index of language development for spontaneous language sample data. According to Brown

(1973, cited in Lust 2007, p.79), a child's MLU is an 'excellent simple index of grammatical development because almost every new kind of knowledge increase length.' Nevertheless, Brown (1973, cited in Johnson, 2001) had earlier pointed out that MLU would be less informative once children had reached stage five of L1 acquisition because differences in utterance length would then reflect properties of particular interactions rather than new language knowledge.

Brown's (1973) five stages, according to Ingram (1999, p.50), are as follows: The first is semantic roles and syntactic relations in which the acquisition of basic semantic relations used in language such as Agent vs. Patient are acquired. The second stage is modulation of meaning in which the child begins to acquire inflections and grammatical morphemes. The third stage is modalities of the simple sentence in which the active acquisition of the English auxiliary as it appears in yes/no question, wh. questions, imperatives and negatives is acquired. The fourth stage is embedding of one sentence within another in which complex sentences appear with object noun phrase complements, embedded wh. questions and relative clauses. Finally, the fifth stage is coordination of simple sentences and propositional relation in which the active development of sentences, noun phrase and verb phrase coordination with the use of conjunctions, are observed.

Furthermore, some researchers argue that MLU is a valid developmental measure into the school years (Jones, Weismer & Schumacher, 2000, Miller, Frieberg, Rolland & Reves 1992 cited in Johnson 2001). Some other researchers, such as Bernstein and Tiegerman-Farber (1997, cited in Johnson 2001), suggest that MLU is useful only up to the ceiling of approximately four to five morphemes, corresponding to an upper age limit between forty-five to fifty-four months for typically developing children. Yet, others such as Bloom and Lahey (1978, cited in Johnson 2001) question the applicability of MLU greater than three, corresponding to an upper age limit of approximately thirty-six months. Finally, Peccei (2006, p.57) argues that "in assessing a child's language, age must still be considered in relation to the MLU and in relation to other aspects of the child's language use to determine whether the child is developing within normal limits or showing delays or deviations in

their language development". The normal limits referred to above are the limits proposed by Brown (1973, cited in Peccei, 2006, p.57) in terms of which a child of 1.6-2.3 age usually has an MLU of 1.75, a child of 1.9-2.6 age has an MLU of 2.25, a child of 1.11-3.1 age has an MLU of 2.75, a child of 2.2 -3.8 has an MLU of 3.50 and a child of 2.3 to 4 has an MLU of 4.

Mean Length of Utterance and grammatical judgments have already been the focus of a good number of first language and second language acquisition studies. Regarding the MLU, for example, Sachs and Devin (1976) recorded four children aged 3.9 to 5.5 who were talking to an adult, a peer, a baby, and a baby doll as well as role-playing as "a baby just learning how to talk." The results indicated that their MLU differed in terms of who the children were talking to. For instance, talking to their mother the MLU was 4.35, to peer it was 3.84, to baby it was 3.98, to baby doll it was 3.35 and as a baby it was 2.38.

With respect to grammatical judgments, the following studies may suffice here to note. According to Clark (2003), second language acquisition researchers studied Chinese learners of English as a second language. The learners had to read and judge sentences that contained both semantic violations such the following sentence: 'The event of the theorem' instead of the 'The proof of the theorem' and syntactic violation such as the following sentence: 'of proof the theorem' instead of 'the proof of the theorem'. The results revealed that judgments of semantic anomalies from speakers exposed to English before age sixteen were closer to those of native speakers than judgments from speakers exposed only after age sixteen.

Moreover, in two studies carried out by Johnson and Newport (1989, 1991), grammatical judgment was used as instrument of data collection. In their first study, Johnson and Newport (1989) had Chinese and Korean second language learners of English listen to recordings of 246 sentences and make a grammatical judgment as to whether each and every sentence was ok or not. The sentences exemplified twelve basic rule-types of English such as past tense, plural, third-person singular, present progressive inflections, auxiliaries, yes/no questions, wh-questions, and basic word order. For some judgments, no difference was found between second language learners and native speakers while for others there were differences. It was on the basis of such

differences that Johnson and Newport (1989) argued for a critical period around age twelve to fourteen for second language learning.

In their second study, Johnson and Newport (1991), focused on just one syntactic principle, that is, subadjacency which "forbids movement across more than one bounding node" (Richards and Schmidt, 2002, p.58). Johnson and Newport (1991) divided the participants into two groups on the basis of their age of arrival to the US, that is, either before or after fifteen. The results indicated that the earlier the age of arrival, the more native-like their linguistic judgments were about English. In other words, if they arrived after age fifteen, their performance was dropped to near-chance levels. These learners did not distinguish between grammaticality vs. ungrammaticality of the following two declarative versus interrogative sentences: "My mother heard that Tam is buying a computer. [vs.] What did my mother hear that Tam is buying?" And, "My mother heard the news that Tam is buying a computer. [vs.] What did my mother hear the news that Tam is buying a computer?" Johnson and Newport (1991) concluded that older learners did not have access to the same mechanisms that were available to younger learners.

Using Mean Length of Utterance, and grammatical judgment as instruments of data collection, this study was carried out to answer the following research questions.

1. Is there any difference between grammatical competence development of children aged 2.6 vs. children aged 3.6?
2. Is there a significant difference between the two age groups concerning their Mean Length of Utterance?
3. Is there a relationship between the children's Mean Length of Utterance and their caretakers' Mean Length of Utterance?
4. Is the normal limit proposed by Brown (1973) also observed in the acquisition of Persian?

Method

Participants

From among seventeen children who were occasionally attending a nursery school in Shiraz during the summer holidays, six children (three boys and three girls) were selected as the main participants of the study. The reason for such sampling was that the rest of the children did attend so irregularly that it was practically impossible to decide whom to select and whom to reject for the final analysis. The six children who were selected actually participated more consistently than the others in the six-week data collection period. The children were of two age groups: A group aged 2.6 consisting of three boys, that is, *Parsa*, *Farzan* and *Arian* and a group aged 3.6 consisting of three girls, that is, *Helia*, *Parmis* and *Parmida*. The children in both groups came from the same linguistic as well as the same socioeconomic background. In other words, their parents spoke Farsi at home and belonged to the upper-middle class. However, gender was not controlled because participants consisted of both male and female learners. This per se may be taken as a limitation of the study.

Procedure

To answer the first research question, the children in both age groups, that is, 2.6 vs.3.6, were tested to find out if their overall grammatical competence development differed in terms of their comprehension and their meta-linguistic judgment. To answer the second research question, the two groups were compared to find out if there was a significant difference between the two age groups concerning the MLU. To answer the third research question, correlation was run to find out about the relation between the childrens' MLU and their caretaker's MLU. Finally, to answer the fourth research question, the normal limit proposed by Brown was checked.

To this end and on the basis of the procedures of the grammatical competence development test, the required data were collected. According to Lust (2007), for testing grammatical competence development, one might draw upon three methods. The first is tapping production through either the spontaneous speech samples or elicited production. The second method is making meta-linguistic and/or grammatical judgments such as self-initiated corrections and/or questions and answers. The third method is to test

comprehension through natural commands when tested naturalistically, or through act-out, question and answer, picture- choice, truth value judgment and infant head turn/ preferential looking technique when tested experimentally.

In this study, the following three steps were taken: First, around five hours of speech samples of the children with their caretaker's at a nursery school in Shiraz were collected by means of audio recordings. The recordings were jotted down to calculate both the children's as well as their caretaker's MLU. Next, the children's grammatical competence was tested according to a grammatical judgment test to distinguish between two syntactically and two semantically violated sentences. Finally, their comprehension was tested using a natural command test. The commands, that were the same for both groups, were of the following type: "open the door", "close the door" Or "give me the pen that is on the table" which were followed by the children's correct reactions.

Results

Before touching upon the results of the spontaneous speech sample (as one of the three methods of testing grammatical competence), it might be a good idea to report the results of the other two tests. The first test was a natural command test which was given on the assumption that if the children can indeed comprehend the commands in their native language (Farsi), they must be able to follow the oral directions given. As for the results, no difference was actually obtained between the performances of the two groups. In other words, the children in both age groups performed quite similarly showing no difference whatsoever in the extent to which they comprehended the commands no matter if their ages differed. That is why they actually did whatever they were asked to do as correctly as possible.

The second test was a grammatical and meaningfulness judgment test on the basis of which the children had to decide upon the grammaticality as well as the meaningfulness of two syntactically and two semantically violated sentences respectively. To make a grammatical judgment, for example, a sentence was read and the children were asked to say if the sentence was

grammatical or not. For example, they had to see if the following sentence was syntactically correct or not: "Man daram harf mizanam vs. Man harf zad [I am talking vs. I am talked]". Furthermore, to make a judgment of meaningfulness, a sentence was read and they were asked to say if the sentence made sense or not. For example, they had to decide if the following sentence was semantically correct or not: "Mashine babaye Mahsa xarab ast. vs. Babaye mashine Mahsa xarab ast" [Mahsa's father's car is broken vs. Mahsa's car's father is broken].

As for the results, there was a real difference concerning the judgments they made. In other words, the children belonging to the older age group outperformed the younger one. That was possibly due to the point that the group of 3.6 years, could probably see the difference in meaning more easily and could distinguish between the syntactically as well as the semantically correct vs. incorrect sentences without any hesitation whereas the younger group needed much more explanations to differentiate between the two.

With respect to the results of the spontaneous speech sample, the following results were obtained. Figures 1-6 are the graphic representations of each and every child's MLU along with his/her not stable but changing (as a result of summer holiday) caregiver's MLU.

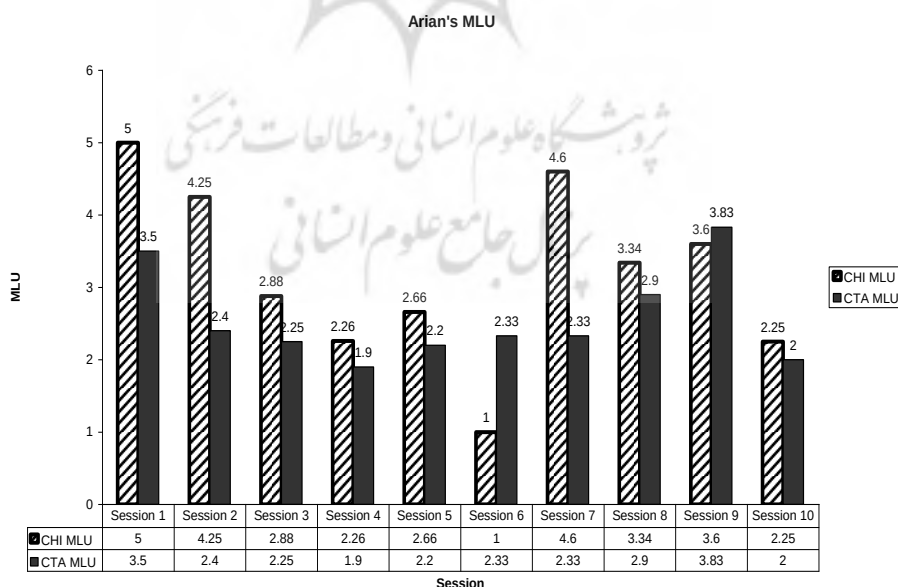


Figure 1 shows Arian's and his caretaker's MLU

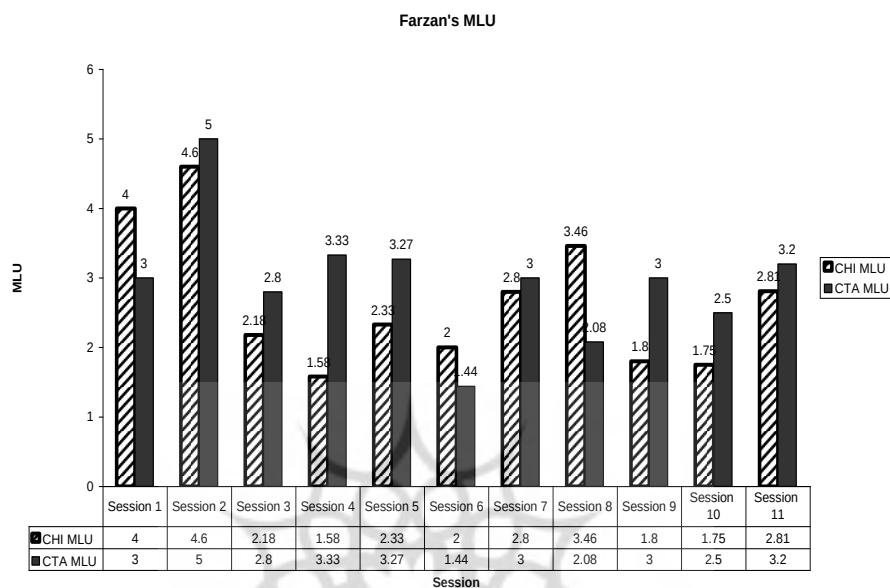


Figure 2 shows Farzan's and his caretaker's MLU

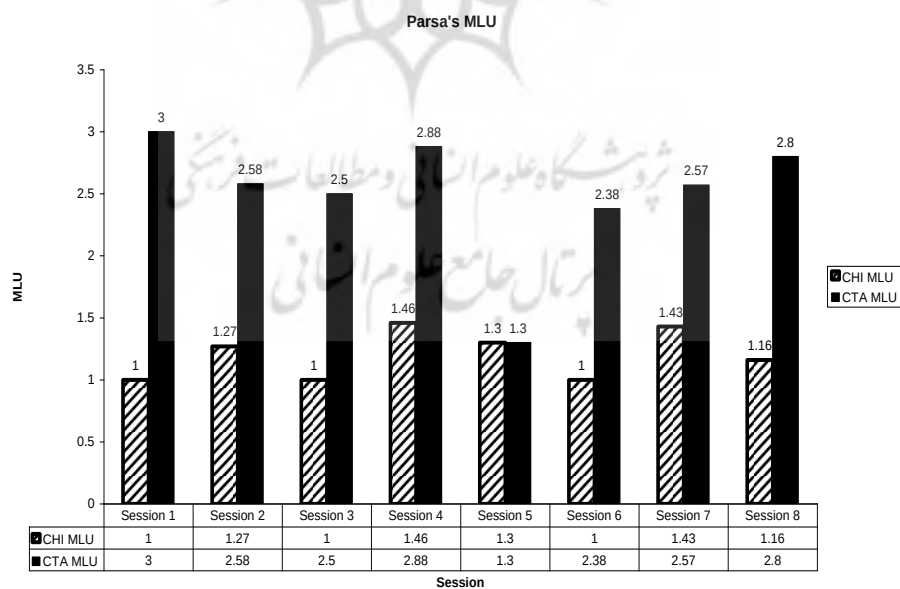


Figure 3 shows Parsa's and his caretaker's MLU

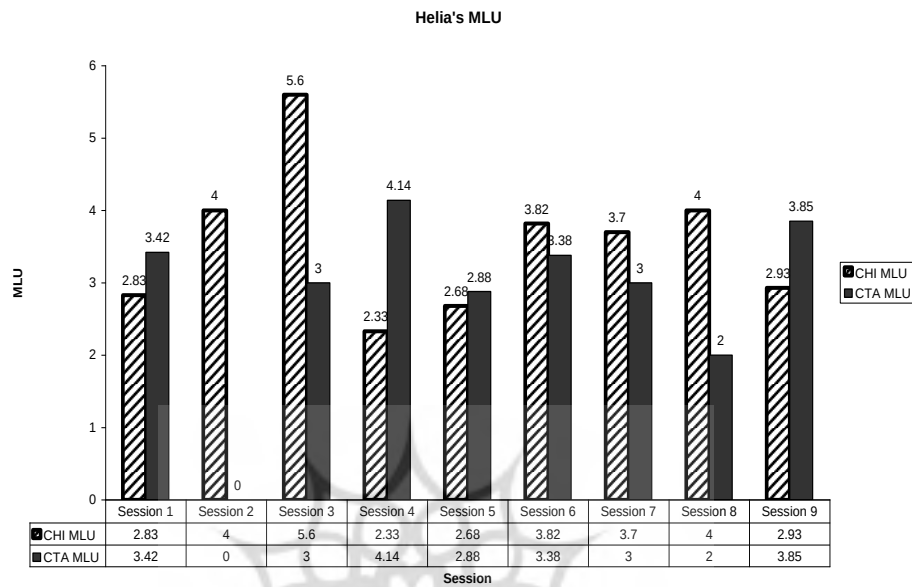


Figure 4 shows Helia's and her caretaker's MLU

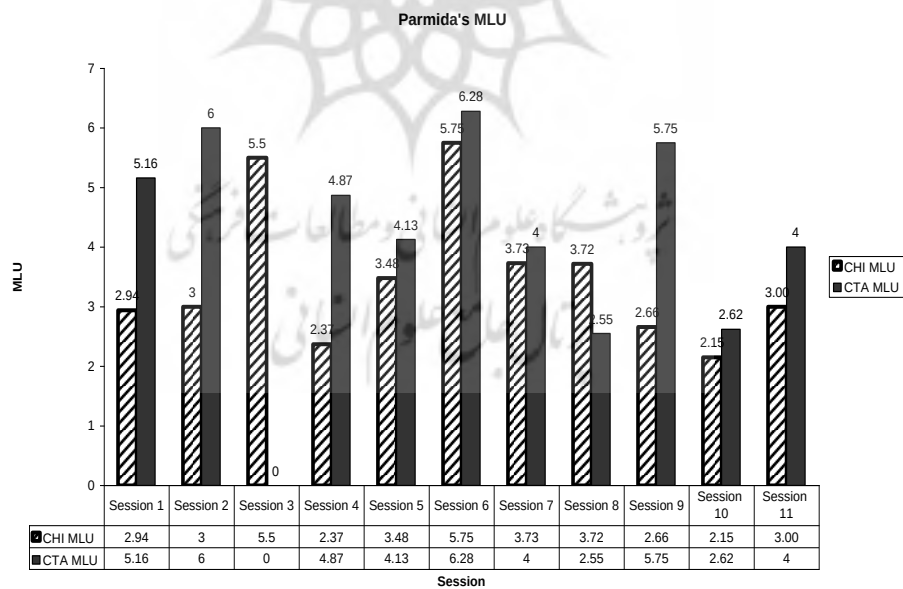


Figure 5 shows Parmida's and her caretaker's MLU

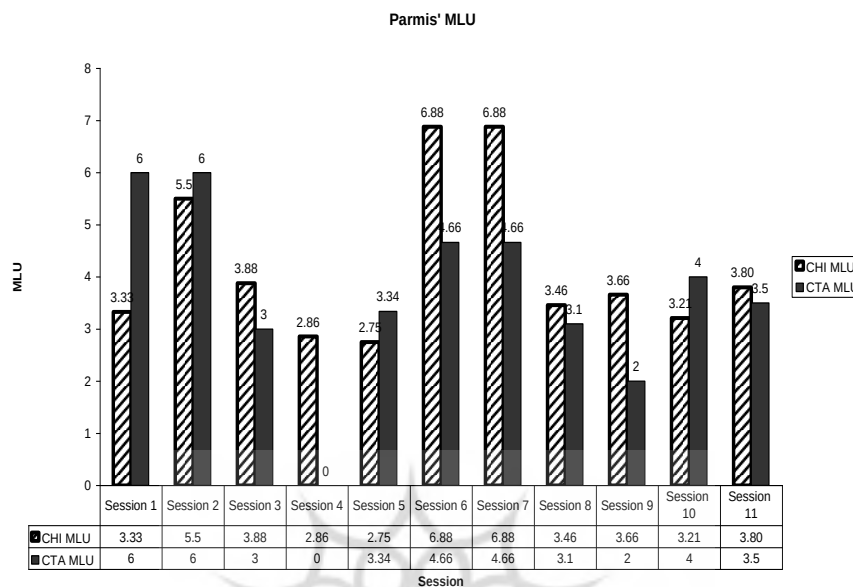


Figure 6 shows Parmis' and her caretaker's MLU

Regarding the first research question as to whether there was a difference between the two age groups concerning grammatical competence development, the answer is neither an unequivocal yes nor a definitive no. That is because of the fact that each test provided us with a rather different and somewhat conflicting pieces of evidence. As far as the comprehension test is concerned, no difference was found in the degree of their comprehension as the two age groups did comprehend the commands in a similar way as if they belonged to the same age and did whatever they were asked as correctly as possible. An explanation for this similarity might be that they both had already completed L1 comprehension as fully as possible accounting for why speech comprehension is said to precede speech production.

On the other hand, and considering the grammaticality judgment test, the older group did actually outperform the younger one. In other words, the two age groups differed to a great extent in the sense that the age group of 3.6 was much better than the age group of 2.6. The explanation might be related to the processing efforts needed to comprehend the sentences meaning that it might

have been much easier for the older group to process the semantic load of the sentences to make a distinction between correct and incorrect sentences.

With respect to the second research question, a nonparametric Mann-Whitney U test was run which was due to the limited number of participants in the study (N=6) and the following result was obtained indicating that the difference between the two age groups concerning their MLU is significant.

Table 1
Comparison between the two age groups

	UtteranceNo
Mann-Whitney U	.000
Wilcoxon W	6.000
Z	-1.964
Asymp. Sig. (2-tailed)	.050

On the other hand, no significant correlation was obtained concerning the children's MLU and the caretaker's MLU though in some cases the correlation was as high as 0.77. Tables 2-7 are given for a better illustration of the point.

Table 2
Correlation for Parsa and his Caretaker

		Parsa CHI	Parsa CTA
Parsa CHI	Pearson Correlation	1	-.124
	Sig. (2-tailed)		.771
	N	8	8
Parsa CTA	Pearson Correlation	-.124	1
	Sig. (2-tailed)	.771	
	N	8	8

Table 3
Correlation for Helia and her caretaker

		Helia CHI	Helia CTA
Helia CHI	Pearson Correlation	1	-.389
	Sig. (2-tailed)		.301
	N	9	9
Helia CTA	Pearson Correlation	-.389	1
	Sig. (2-tailed)	.301	
	N	9	9

Table 4
Correlations for Arian and his caretaker

		Arian CHI	Arian CTA
Arian CHI	Pearson Correlation	1	.524
	Sig. (2-tailed)		.120
	N	10	10
Arian CTA	Pearson Correlation	.524	1
	Sig. (2-tailed)	.120	
	N	10	10

Table 5
Correlations for Farzan and his caretaker

		Farzan CHI	Farzan CTA
Farzan CHI	Pearson Correlation	1	.495
	Sig. (2-tailed)		.122
	N	11	11
Farzan CTA	Pearson Correlation	.495	1
	Sig. (2-tailed)	.122	
	N	11	11

Table 6
Correlations for Parmida and her Caretaker

		Parmida CHI	Parmida CTA
Parmida CHI	Pearson Correlation	1	-.249
	Sig. (2-tailed)		.460
	N	11	11
Parmida CTA	Pearson Correlation	-.249	1
	Sig. (2-tailed)	.460	
	N	11	11

Table 7
Correlations for Parmis and her Caretaker

		Parmis CHI	Parmis CTA
Parmis CHI	Pearson Correlation	1	.496
	Sig. (2-tailed)		.121
	N	11	11
Parmis CTA	Pearson Correlation	.496	1
	Sig. (2-tailed)	.121	
	N	11	11

According to Tables 2-7, the obtained correlations were as follows: 0.77 between Parsa and his caretaker; 0.30 between Helia and her caretaker; 0.12 between Arian and his caretaker; 0.12 between Farzan and his caretaker; 0.46 between Parmida and her caretaker and 0.12 between Parmis and her caretaker. Why is it so then?

Discussion

The following explanations may be given regarding the results. With respect to indeterminate difference between the two age groups and their grammatical competence development, one explanation might be that children develop speech perception before speech production. That was possibly why they followed the command test and the orders given in a similar way whereas they did not do so when it came to grammatical judgment test.

As for the difference between the two age groups concerning their MLU, gender may have been an intervening variable in the sense that age and gender may have been conflated in this study making it a bit difficult to separate so that in the analysis aiming to see the difference between the two age groups and their MLU, the gender variable was also willy-nilly there because the participants did come from both genders. Therefore, no matter which variable you would choose, the other one was there so that whenever you wanted to study age, gender was there and the other way round. Another explanation for such indeterminacy is that according to the SPSS manual, the minimum number for such a comparison is that the sample should be at least 15 people whereas in here we had only 6 participants to compare. This means that the more the members of the groups, the more reliable results would be obtained.

With regard to the correlation between the children's MLU and their caretaker's MLU which was not significant, the explanation might be that MLU by nature seems to be a context-sensitive, task-dependent measure. This means that depending on the nature of the speech of the caretaker's and/or the nature of the particular task, a child's MLU may fluctuate from being either quite high to being rather low. In some cases a caretaker's word or sentence might be of interest to one child inducing him/her to produce a lengthy sentence resulting in high MLU whereas the same word or sentence might be

quite boring to a second child causing him/her to lose any interest and, in turn, leading to a sharp decrease in the rate of the MLU.

As for the normal limit proposed by Brown (1973), it might be interesting to note that the average MLU of both age groups seemed to follow the limits proposed by Brown (1973). In other words, the MLU limit for the age range of 1.9-2.6 is said by Brown to be around 2.25 and here it is 2.31. Moreover, the MLU limit for the age range of 2.2-3.8 is said to be around 3.50 and here it is 3.71. Therefore, Brown's normal limit seems to be operating in languages other than English (including Persian) though more studies have to be carried out in future to generalize cross-linguistically.

Taking into account the above mentioned results, it seems that age does not make much difference when it comes to speech perception whereas it does matter when it comes to speech production as the older the children, the better they can distinguish between syntactically and semantically violated sentences. Furthermore, age makes a difference when it comes to the children's Mean Length of Utterance meaning that the older the children are, the more utterances they may be able to produce. However, Mean Length of Utterance may be more appropriate to study in longitudinal rather than cross-sectional studies because, as Brown (1973) points out, beyond stage five when Mean Length of Utterance reaches four morphemes and afterwards, Mean Length of Utterance is not indicative of grammatical competence development but is rather reflective of the nature of interaction between the children and their caretakers.

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Biodata

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