A Comparison of Morpho-Syntactic Development in monolingual and bilingual Preschoolers

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Abstract

The present study aims to compare the language development of normal Persian and Persian-Turkish preschoolers using PDSS as a morpho-syntactic measure, and determine if the bilingualism has any effects on the language development. Subjects included 30 Persian and 30 Persian- Turkish preschoolers from middle social class at the three age groups of 37-46, 47-56 and 57-66 months old. Language background and ASQ II questionnaires were completed by the children's parents in order to match the subjects in terms of their language background and some abilities like problem-solving, communication, and personal-social skills. Picture description and storytelling was used as a way to collect the language samples of the subjects. Intragroup and intergroup comparisons were done by ANOVA and independent t-test, respectively. Correlation between the age and PDSS scores of both language groups indicates the PDSS score sensitivity to the age. Moreover, results show that monolinguals outperform their bilingual peers in PDSS procedure only at the age of 57-66 months old. In sum, no evidence was found in support of positive effect of bilingualism on language development of the preschoolers.

1. INTRODUCTION

The stages of language acquisition in bilingual children are similar to those in their monolingual peers.

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At the same period of time, they produce the first words, memorize about 50 words, and begin to make sentences by combining words. Although the linguistic load which bilinguals are faced with is higher than that of their monolingual peers, the process of language acquisition in simultaneous bilingual children is the same as that of monolinguals. A 5-month-old bilingual child is aware that s/he hears two languages, even if the sounds of the two languages are very similar. The brain of a human infant has this ability to distinguish between languages which s/he knows and understand verbal clues from the appropriate linguistic contexts in different situations (Macrory, 2006; Barry, 2011; Gauthier, 2012; Javier-Rivero, 2018).

Similarly, American Speech-Language-Hearing Association (ASHA) (2001: 2) points out that Children follow the same sequence of language learning, whether they acquire one language or two. There are a lot of people around the world who speak more than one language, without having any speech or language problems. Bilingual children may combine grammatical rules of their languages or use the words of both languages in a single sentence. This is a part of the language development process in bilingual children anyway.

While the findings of some studies indicate that bilingualism has positive effect on language development (e.g. Cromdal, 1999; Bialystok, 2003), some other studies show that bilingual children have difficulty in some language skills, for example more grammatical errors and lower vocabulary compared to their monolingual peers (e.g. Saer, 1922; Brown, 1944; Harris, 1948). Such language delays at the vocabulary level and the lower grammatical ability of bilingual children considered as evidence in support of the negative effect of bilingualism on the linguistic development of the bilingual children.

Due to the ongoing increase in the number of bilingual people as the result of some events such as migration, and because of contradictory results of the studies on the effect of bilingualism on development of language, the present study aims to compare the morpho-syntactic development in normal Persian and Persian-Turkish speaking children at three age groups of 37-46, 47-56 and 57-66 months old using Persian Developmental Sentence Scoring (PDSS) (Jalilevand et al., 2016) measure. As the subjects in this research are simultaneous bilingual who have acquired both language at the same time, and considering that the process of language development in bilingual and monolingual children is similar, it is expected that the morpho-syntactic development of the subjects to be the same in both language groups, without any significant differences.

Moreover, the results of this study can provide us with evidence in supporting or rejecting the findings of those research which indicate that monolinguals outperform their bilingual peers on verbal language tests. In sum, it can be possible to determine if the bilingualism has any effects on language development.

2. PERSIAN DEVELOPMENTAL SENTENCE SCORING (PDSS)

Lee and Canter (1971) introduced Developmental Sentence Scoring (DSS) as a procedure for assessing children's language progress by scoring some grammatical features in 50 sentences of their tape-recorded speech samples. Criteria for selecting sentences are completeness, consecutiveness, and intelligibility. As

the scoring of each grammatical feature in a child's language sample was clinically impractical and time-consuming, only eight grammatical sub-categories are selected: indefinite pronouns and noun modifiers; personal pronouns; main verbs; secondary verbs; negatives; conjunctions; interrogative reversals; WH questions. The selection of these eight grammatical categories is based on the order of their emergence in the process of language development. Higher scores are given to those features which emerge later in the child's speech progress. In fact, the procedure for scoring grammatical features is based on their level of difficulty for children- the scores range between 1-8 points.

Jalilevand et al. (2016) adapted DSS for Persian language research. They presented PDSS as a tool for morpho-syntactic assessment in Persian. It includes eight grammatical categories that seems to appear in a successive sequence in the process of language development of Persian-speaking children. The grammatical subsets are: verb morphology, modals and compound verbs, grammatical morphemes, separate pronouns and noun modifiers, interrogative words, prepositions and conjunctions, sentence construction, and sentence type.

The points of grammatical categories range between 1-6. Grammatical components which appear earlier than others in the process child's development are given lower points. For example, point 1 for declarative sentence and point 3 for exclamatory one shows that t 1-point category (declarative sentence) emerges earlier than the other one in the course of language development of a Persian speaking child.

In order to determine the PDSS score for a child's language sample, 50 comprehensible and consecutive sentences from the sample are determined. Then, each sentence is segmented to its grammatical components and scored based on PDSS chart. Score of each sentence is obtained by adding the points of each grammatical subcategories. To obtain the PDSS score, total score of 50 sentences is divided by the total number of sentences (50).

3. METHOD

3.1 Subjects and Materials

Subjects were selected among the preschoolers of some kindergartens of Hamedan Province. Language background and ASQ II questionnaires were completed by the children's parents in order to match the subjects in terms of their language background and some abilities like problem-solving, communication, and personal-social skills. Note that due to the limited number of the kindergartens and lack of the number of balanced bilingual children, the total number of subjects were restricted to 60 (30 Persian and 30 Persian-Turkish children) (Table 1).

Criteria such as having no hearing or speech problem, mental disorder or seizure were considered in selecting subjects. All of the children were selected among middle social classes. Picture description and storytelling was used as a way to collect the language sample of subjects. On average, each child was given 20-25 minutes to describe the pictures of Sentence Picture Dictionary (Shafi'i, 2016). All the language samples were recorded by Sony PX440 voice recorder.

TABLE 1: DEMOGRAPHIC DATA OF THE SUBJECTS.

subjects	age range (months)	mean age	N	gender		total number
				f	m	
monolinguals	37-46	41;34	10	5	5	
	47-56	52;53	10	5	5	30
	57-66	61;61	10	5	5	
bilinguals	37-46	42;08	10	5	5	
	47-56	52;40	10	5	5	30
	57-66	61;33	10	5	5	

3.2 Data Analysis

The language samples were transcribed using IPA. Then, in each sample 50 intelligible, complete, spontaneous, and consecutive sentences were determined. Repetitive and incomplete sentences were excluded. Within each sentence, 8 sub-categorical items were determined: verb morphology, modals and compound verbs, grammatical morphemes, pronouns, question words, prepositions and conjunctions, sentence structure and sentence type. A point was given to each one of these items based on PDSS chart (Jalilevand et al., 2016). The score for each sentence was determined by adding all of its items points and dividing by 50. For example, the score for sentence "khodesh dare mire madrese" (i.e., "she is going to school by herself") will be as follows.

So, the total score of the grammatical components of the phrase /ξοδ= εΣ δαρ–ε μι–ρ–ε μΘδρεσε/ will be 11 (Table 2). Then, PDSS score for each subject was calculated as follows:

$$PDSS = total\ score\ of\ 50\ sentences \Big/ 50$$

Data analysis was done by SPSS 24. Pearson correlation test was used to determine the correlation between the variables of age and PDSS score of children in each language group. Using ANOVA and LSD post hoc test, the level of significance between PDSS mean scores of children in each language group at three age groups of 37-46, 47-56 and 57-66 months old was determined. Finally, independent t-test was used to compare the PDSS mean score of the Persian children with that of their Persian-Turkish peers.

TABLE 2: SCORING A SENTENCE IN PERSIAN.

verb morphology	modals & compound verbs	grammatical morphemes	separate pronouns & noun modifiers	interrogative words	prepositions & conjunctions	sentence structure	sentence type
/ξοδ= εΣ δαρ-ε μι-ρ-ε μΘδρεσε/							
2	-	1+1+1+1	3	-	-	1	1
present continuous		/= eΣ/, /-e/, /mi-/, /-e/	/ξοδεΣ/ reflexive pronoun			declarative sentence	simple sentence

4. RESULTS

PDSS score for each subject was calculated, then PDSS mean score of each age group was determined by adding PDSS scores of the subjects of the same age group and dividing the result by the total number of the subjects of that group (i.e., 10) (Table 3).

TABLE 3: PDSS MEAN SCORE OF EACH LANGUAGE GROUPS.

Language groups	age range (months)	PDSS mean score	SD	min	max
Monolinguals	37-46	10.30	0.71	9.14	11.32
	47-56	11.19	1.03	10.04	13.08
	57-66	12.14	1.20	10.66	14.86
Bilinguals	37-46	10.11	0.47	9.22	10.74
	47-56	10.61	0.87	9.70	12.10
	57-66	11.10	0.94	9.50	12.52

As Table 3 shows PDSS mean score of children in both language groups increases with age. Data analysis by SPSS will determine whether the differences between their performances on PDSS are statistically significant.

In the following, correlation between age and PDSS mean score (Section 4.1), intragroup comparison of PDSS mean score of the subjects (Section 4.2) and finally, intergroup comparison of PDSS mean score of peers from two language groups (Section 4.3) will be presented.

a)   *Correlation between age and PDSS mean score in two language groups*

The results of Pearson correlation test show a significant correlation between age variables and PDSS mean score of children in each language groups at the significance level of 0.01 (monolingual group: r = 0.602; bilingual group: r = 0466). The significant correlation between age and PDSS score indicates that PDSS score increases with age in the subjects. Figure 1 illustrates the language development of children with age in monolinguals and bilinguals.
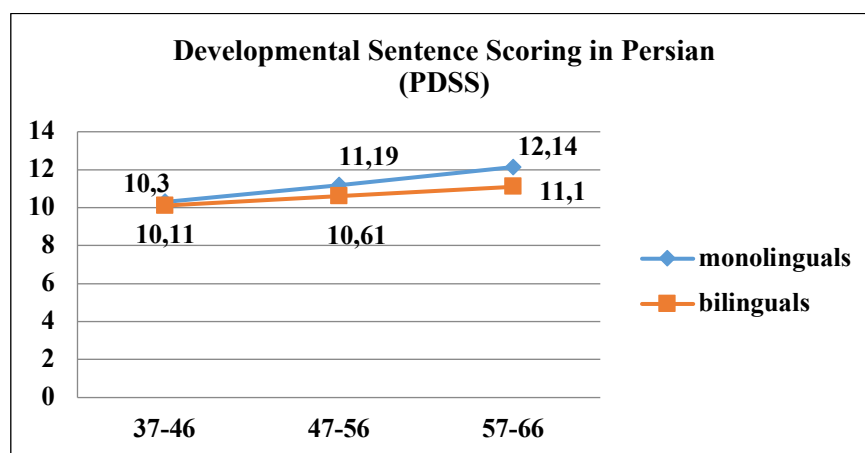

Figure 1. Morpho-syntactic development of monolinguals and bilinguals.

b)   *Intragroup comparison of PDSS score in each language group*

Using ANOVA and LSD post hoc test, the level of significance of the observed differences between PDSS mean score of children in each language group is determined.

➢   *Monolingual group*

The results of ANOVA and LSD post hoc test shows that the observed differences between the mean score children at the age of 46-37 months and the 57-66 months (p = 0.000), and the difference between mean score of them at the age of 47-56 months and 57-66 months (p = 0.044) are significant (Table 4). However, the difference between the mean scores of Persian-speaking children at the age groups of 37-46 and 47-56 months is not statistically significant.

TABLE 4: INTRAGROUP COMPARISON OF PDSS SCORE IN MONOLINGUAL GROUP.

Monolinguals	37-46	47-56	57-66
37-46	-	-	-
47-56	0.058	-	-
57-66	0.000***	0.044*	-

* p < 0.05

*** p < 0.001

➢ *Bilingual group*

The results of ANOVA and LSD post hoc test shows that the difference of the mean scores of Persian-Turkish children is significant only between the age of 37-46 months and 57-66 months (p = 0.009). In other words, the difference between the mean scores of the age groups of 37-46 and 47-56 months and, also, 47-56 and 57-66 months is not significant.

TABLE 5: INTRAGROUP COMPARISON OF PDSS SCORE IN BILINGUAL GROUP.

Bilinguals	37-46	47-56	57-66
37-46	-	-	-
47-56	1.172	-	-
57-66	0.009*	0.175	-

* p < 0.05

c)   Intergroup pairwise comparison of PDSS score between monolinguals and bilinguals

Figure 2 shows the difference in the PDSS mean score of two language groups. In all three age groups, the PDSS mean score of Persian-speaking children is higher than PDSS mean score of their Persian-Turkish peers.

The intergroup pairwise comparison of PDSS mean score of peers using independent t-test (Table 6) shows that the observed differences between the mean scores of language groups are significant only at the age of 66-57 months (p = 0.045). In other words, the difference between the mean scores of two language groups at the age of 37-46 months (p = 0.483) and also, 47-56 months (p = 0.186) is not statistically significant.
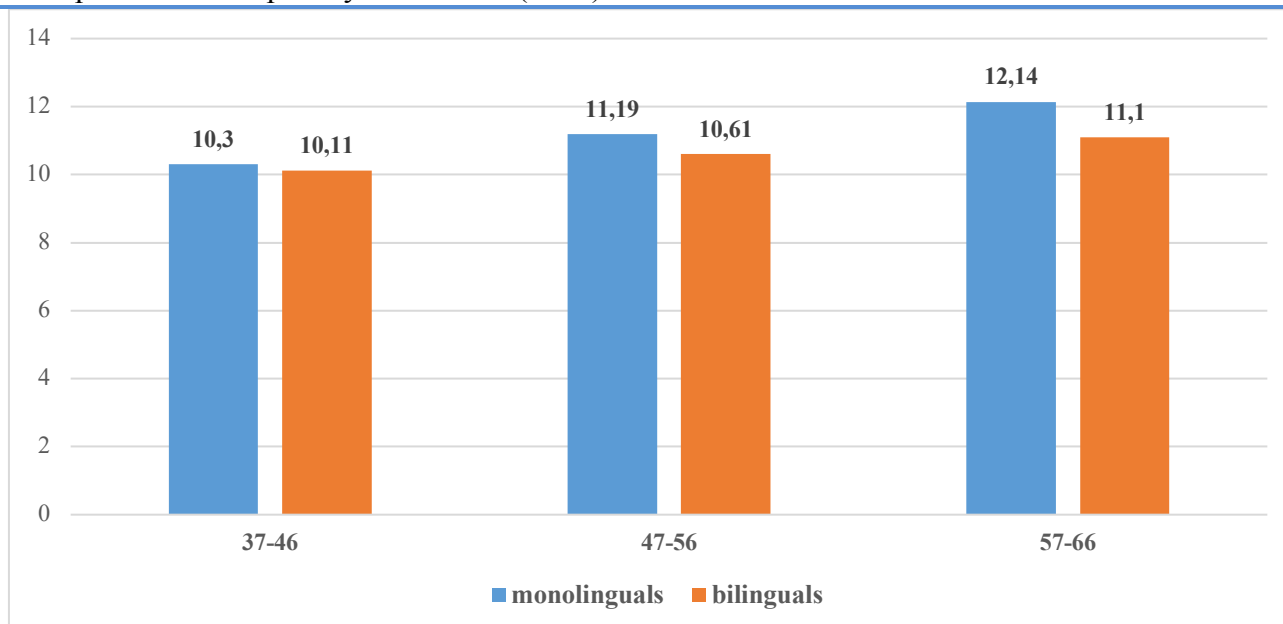
Figure 2. Intergroup pairwise comparison of PDSS mean scores of monolinguals and bilinguals.

TABLE 6: INTERGROUP PAIRWISE COMPARISON OF PDSS MEAN SCORE USING INDEPENDENT T-TEST.

Bilinguals / Monolinguals	37-46	47-56	57-66
37-46	0.483	-	-
47-56	-	0.186	-
57-66	-	-	0.045*

*$p < 0.05$

5. CONCLUSION

This study aimed to compare the morpho-syntactic development in Persian and Persian-Turkish speaking children in a descriptive-analytical manner using Persian Developmental Sentence Scoring (PDSS). The results of the comparisons of normal monolingual and bilingual children performances are as follows:

- a) *Significant correlation between the age and PDSS scores of children in each one of the language groups (p <0.01) shows that PDSS score increases with age. This indicates the sensitivity of PDSS to the age increase (Section 4.1).*
- b) *Intra-group comparisons of PDSS scores in each language groups shows that:*

In monolinguals, the observed differences of PDSS mean scores were statistically significant between 37-46 and 57-66 months old (p = 0.000), and also, between 47-56 and 57-66 months old (p = 0.044). In

fact, the difference between PDSS scores of children at the age of 37-46 and 47-56 months was not significant (Table 4).

In bilinguals, the observed differences of PDSS mean scores were significant only between 37-46 and 57-66 months old scores (p = 0.009). In fact, the differences between PDSS scores of the other age groups (between 37-47 and 47-56 months, and also, 47-56 and 57-66 months) were not significant in Persian-Turkish children (Table 5).

c) *Inter-group comparisons of PDSS mean scores of two language groups showed that the difference between PDSS mean scores of two language groups was significant only at the age 57-66 months (p <0.05). In fact, monolinguals outperformed their monolingual peers in PDSS procedure at the age of 57-66 months old. No significant difference was found between PDSS scores of younger children (Table 6).*

Although bilingual subjects have started Persian acquisition since the birth, their PDSS scores is lower than their monolingual peers at the age of 57-66 months. Perhaps being exposed to two languages at the same time prevents them from having the same speed of Persian development as their monolingual counterparts. it doesn't mean that their Persian language proficiency will be lower than monolinguals, it means that their progress of acquiring Persian language will be done at the lower speed. Maybe they need much more input of Persian language to get the same ability as their monolingual peers at the age of 57-66 months old. Moreover, this finding provides evidence in support of the results of some studies such as Pinter and Keller (1922), Saer et al. (1924), and Brown (1944) which indicate the monolinguals outperform their bilingual peers on verbal language tests. According to these results, there was no evidence in support of positive effect of bilingualism on language development in the children.

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