

Reading comprehension skills and syntactic comprehension skills of bilingual children: From a linguistic perspective

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Abstract

This study investigates the reading comprehension and syntactic comprehension skills of bilinguals. It is considered that bilinguals have cognitive, neural and social advantages as they have a rich linguistic environment. Studies suggest that bilingual children have better metalinguistic awareness and show cognitive advantages compared to monolinguals. In this study reading comprehension skills and syntactic comprehension skills were evaluated in 14 bilingual English-Turkish and 18 monolingual Turkish children. To evaluate reading comprehension skills, the 'Reading Comprehension Scale' and to evaluate syntactic comprehension, 'Grammatical Judgment Test' were used. Attitude questionnaire was used to evaluate the bilinguals' attitudes towards the Turkish language. The results of this study revealed that in the reading comprehension scale monolingual group performed better than the bilingual group in reading texts. Within bilingual group comparisons, the mean scores revealed that the bilingual group had the best test scores in narrative and explanatory texts, followed by scientific texts and poetry. Syntactic comprehension evaluations revealed that bilinguals have difficulties in detecting the grammaticality of word constructions. Attitude Questionnaire revealed that most of the bilingual children have a negative attitude towards the Turkish language. The difficulties of reading and syntactic comprehension skills bilinguals display are usually associated with the environment they live in. It has been found that bilinguals fail to comprehend complex sentences correctly in some settings. These findings led to the question whether bilinguals have learnt all of the complex syntactic properties of the grammatical system. Bilinguals' limitations to access the language may cause difficulties in processing. This study tries to get a better understanding of the basis of bilinguals' failure in reading and syntactic comprehension.

Keywords: Bilingual, reading comprehension skills, syntactic comprehension skills, Turkish language

İki dilli çocukların okuduğunu anlama ve sözdizimsel kavrama becerileri: Dilbilimsel bakış açısıyla

Öz

Bu çalışma, iki dilli bireylerin okuduğunu anlama ve sözdizimsel kavrama kabiliyetlerini araştırmaktadır. İki dilli olan bireylerin zengin dilbilimsel çevreye sahip oldukları için bilişsel, sinirsel ve sosyal olarak avantajlı oldukları bilinmektedir. Çalışmalar iki dilli bireylerin gelişmiş metadilbilimsel farkındalığa sahip olduklarını ve tek dilli bireylere göre bilişsel olarak daha avantajlı olduklarını göstermiştir. Bu çalışmada 14 iki dilli ve 18 tek dilli Türk çocuklarının okuduğunu anlama ve sözdizimsel kavrama kabiliyetleri karşılaştırılarak değerlendirilmiştir.

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Okuduđunu kavrama becerilerini deđerlendirmek için ‘Okuduđunu Anlama Ölçeđi’, sözdizimsel kavrama becerilerini deđerlendirmek için ‘Dilbilgisel Deđerlendirme Testi’ kullanılmıřtır. Türkçeye karřı tutumlarını deđerlendirmek için ‘Tutum Anketi’ uygulanmıřtır. Çalıřmanın sonuçları deđerlendirildiđinde, tekdilli bireyler iki dilli bireylere göre okuduđunu anlama ölçeđinde daha başarılıdırlar. İki dillilerin grup ii karřılařtırmasında ise iki dillilerin en iyi hikaye řeklinde olay anlatımına dayalı metinleri kavradıkları daha sonra açıklayıcı metinleri ve bilimsel metinleri en son ise řiiri kavradıkları gözlenmiřtir. Dilbilgisel Deđerlendirme Testinde ise iki dilliler cümledeki kelime sırasını belirlemede zorluk yařamıřlardır. Tutum Anketi sonuçları iki dillilerin Türkçeye karřı olumsuz tavır sergilediklerini göstermiřtir. İki dillilerin okuduđunu anlama ve sözdizimsel kavrama beceri zorluklarının, yařadıkları çevrenin etkisine bađlı olarak geliřtiđi düşünölmektedir. İki dillilerin karmařık dil yapılarını kavrama güçlüđü çektikleri bulunmuřtur. Bu bulgular iki dillilerin karmařık dilbilgisi yapılarını edinip edinmediklerini düşöndürmektedir. Bu çalıřma, iki dillilerin okuduđunu anlama ve sözdizimsel kavrama becerilerinin zayıflıđının nedenlerinin daha iyi anlaşılmasını sađlamaktadır.

Anahtar kelimeler: İki dilli, okuduđunu anlama becerisi, sözdizimsel kavrama becerisi, Türke

Introduction

Bilingualism is the capacity to speak two different languages. Bilingualism is increasing as the world becomes more multicultural. The language acquisition processes of bilinguals have been an interesting area for researchers for many years. Language acquisition is one of the most attractive features of human development. Developmental sequences of first language acquisition have been described by researchers (Lightbown & Spada, 2013). There is a similarity in the early language acquisition of children all over the world. All normal children develop language at roughly the same time with the same schedule. During the first three months, the child creates distinct vocalizations. The earliest use of speech-like sounds has been described as cooing. Children produce sequences of vowel-like sounds during the first few months. Between six and eight months, the child is producing many different vowels and consonants, this type of sound production is described as babbling. Between twelve and eighteen children begin to produce single-unit utterances. This period is called the one-word stage. The two-word stage begins around eighteen and twenty months (Yule, 2010). The children follow a definite route of language development and there is a sophisticated relation between grammar acquisition and vocabulary development. After a child has learnt a lot of vocabulary, grammar skills are accomplished (Wong Kwok Shing, 2006). It is worth investigating whether bilinguals follow the same path with monolinguals in acquiring phonological, morphological, syntactic and semantic items in language.

Theoretical background

Bilingualism involves the acquisition of two languages which have dissimilar speech sounds, vocabulary, and grammatical rules (Weiten, 2010). There are many benefits of learning multiple languages. For this reason, bilinguals are considered to be lucky people. There are two different kinds of bilingualism: sequential and simultaneous. The difference is the age when the child learns the second language. According to Gauthier (2012) if the child experienced the first language at birth and then had exposure to the second language later in childhood or adulthood is called sequential bilingualism. The second type of bilingualism is simultaneous bilingualism which is defined as an exposure to more than one language during the first year of life.

Being bilingual or knowing two different separate linguistic systems at the same time may have both advantages and disadvantages. (MacLeod, 2010). Individuals who can speak two or more languages may have delays in naming words (Gollan et al. 2005) and may have more tip-of-the-tongue states (Gollan et al. 2004). Houwer (1999) stated that researchers believed that being exposed to two different languages during early stages of language learning will confuse the child's mind and will lead to language acquisition difficulties. For this reason, parents were recommended to use one language with their child. It was believed that exposing a child to two languages simultaneously will slow down the typical sequence of language development. However, Gauthier (2012) stated that no current data has shown language learning problems for bilingual children. On the other hand, there are lots of benefits to being bilingual. Bilingual children can speak and they can communicate with wider people, they can read literature and they learn about different cultures. Studies suggest that bilingual children have better metalinguistic awareness and show cognitive advantages and they may be better at learning languages (Weiten 2010).

Researches have also shown that two languages are active at the same time when a bilingual person uses one language. When a person hears a word, the language system begins to activate and tries to recognize the sequential order (Marian & Spivey, 2003). Bilingual people often switch between languages when speaking, this can confuse the listener and understanding a message can be difficult. Bilinguals' language systems are always active and competing and this means that the individual utilizes these control mechanisms consistently and this continual repetition reinforces the control mechanisms and alters the associated brain regions (Bialystok, 2012; Green 2011). Bilinguals often perform better than monolinguals on duties that involve conflict management. Furthermore, bilinguals are also better than monolinguals at substituting the two tasks, reflecting better cognitive control when changing strategies.

Few studies compared bilingual children's vocabulary development to monolinguals. Pearson et al. (1993) found that bilinguals and monolinguals understood a similar number of words also vocabulary size was the same for both. Furthermore, Pearson et al. (1993) held a translation equivalent analysis for comparing vocabulary sizes. Pearson et al. (1993) revealed that bilingual Spanish-English and monolingual English participants did not differ. Bilinguals and monolinguals knew the same number of lexicalized meanings. They stated that the bilinguals were not slower in developing vocabulary before the age of 30 months compared to the monolinguals. Águila et al. (2007) studied bilingual Spanish-Catalan and monolingual Spanish and Catalan speaking children using cognate words from two lexically similar languages. The results of their study indicated that bilinguals were more successful than monolinguals. Hoff et al. (2012) evaluated Spanish-English toddlers' vocabulary production with monolingual English toddlers. They reported lower production vocabulary in bilingual children when English was taken into account.

Language is a complex cognitive function that includes various processing mechanisms such as word-level for lexical processing, sentence-level for syntactic processing, pragmatic level where words or sentences are contextualized and a discourse level where those sentences are combined to retrieve its general meaning (Kintsch and van Dijk, 1978). Psycholinguists investigate the processes of oral and written language production and comprehension. Comprehension can also depend on familiarity and background knowledge. Children may comprehend very differently in literature, social studies, math and science. Children who comprehended a narrative text on a familiar topic may have difficulties in comprehending an expository passage. Caldwell (2008) described proficient middle school readers

who performed very differently with narrative versus expository text. In conclusion in addition to the text genre, the topic is another issue in assessing comprehension.

The aim of this study is to investigate the reading comprehension skills and syntactic comprehension skills of bilinguals compared to monolinguals and to evaluate bilingual children's attitudes towards Turkish language.

These are the research questions asked in this study:

1. Is there any difference in reading comprehension levels of bilinguals compared to monolinguals?
2. Is there any difference in comprehension of various types of texts in bilingual and monolingual groups?
3. Is there any difference in syntactic comprehension levels of bilinguals compared to monolinguals?
4. What is the attitude of bilinguals towards Turkish language?

Methodology

Participants

The data of the study were collected from a group of 14 bilingual children who spoke English and Turkish and 18 monolingual Turkish children. Fourteen bilingual, eight female, six male children, eighteen monolingual, ten female, eight male children aged eleven and twelve years old attended the study. Two bilingual children withdrew the study. Children in the monolingual group just heard Turkish spoken to them by their parents or other people from birth. They haven't started to learn a foreign language. Bilingual children were attending a state school in the USA. Monolingual children were attending a state school in Western Turkey. Monolingual children were all native speakers of Turkish. Bilingual children were all native speakers of both Turkish and English. Bilingual children were all born in the USA and have been living there for twelve years. Their parents were Turkish. They were all using both Turkish and English at home. All bilingual children were dominant in English.

Data collection tool

Reading comprehension scale

To evaluate reading comprehension skills of bilinguals and monolinguals, the 'Reading Comprehension Scale which was developed by (Ateř, 2008) was used. Four different types of text, narrative, explanatory, poetry and scientific texts were used. The participants were asked to read each text silently and answer the multiple-choice comprehension questions. For narrative and explanatory text 30 questions and for poetry and scientific texts 15 multiple choice questions were asked.

Syntactic comprehension

Syntactic comprehension was assessed through the use of a grammatical judgment test presented in Turkish. A grammatical judgment test was prepared by an experienced faculty member from Turkish Language Teaching Department. Bilingual and monolingual children were asked to judge the grammaticality of language structures such as word order. Twenty-five sentences such as “Eşyalarımız yağmasıyla unuttuğumuz yağmurun islandı dışarıda.” were presented and wanted the participants to decide if the word order is correct or not in each sentence.

Attitude questionnaire for Turkish language

Attitude questionnaire for Turkish language named “An Attitude Scale for Mother Tongue of Turkish Children Living Abroad” developed by (Şen, 2011) was used. The questionnaire was developed to evaluate the attitudes. The questionnaire was considered to be an appropriate form of data collection to explore bilinguals’ beliefs about their language.

Procedure

All the study was conducted by the researcher. The monolingual and bilingual children’s data were collected only by the researcher. The data was collected in 2018. The researcher informed both the participant and his/her legal guardian about the study and took an informed consent form from the each participant’s legal guardian. Bilingual and monolingual children were run individually and each session took approximately half an hour. It was performed in a silent room. All the demographical data including age, sex, education, grade and home language were asked.

Statistical evaluation

The statistical evaluation of the Reading comprehension scale, Syntactic comprehension: Grammatical judgment test and Attitude questionnaire were described.

Reading comprehension scale

For each comprehension question, correct answers were coded as “1” and wrong answers as “0”. For every participant, the total count of correct answers were calculated in each text category. All statistical calculations were made in PASW 18. Descriptive data were calculated for each group. A Students t test was held to compare the bilingual and monolingual groups in scores of four text categories after checking for normality with Kolmogorov-Smirnov Test. For evaluation of the difference within the bilingual group test performances, test scores were calculated in percentage for each participant. A variance analysis comparing text types within the bilingual group was held after checking for variance homogeneity using Levene’s test. A Bonferroni test was used for post-hoc comparison.

Syntactic comprehension: Grammatical judgment test

Syntactic comprehension was assessed through the use of a grammatical judgment test. For grammatical judgment test, correct answers were scored as “1” point. The total number of correct answers were documented. The Kolmogorov-Smirnow Test was used to test for normal distribution of the data. As the normality was refused a Mann-Whitney U test was held to compare the differences among the groups.

Attitude questionnaire

The attitude questionnaire consisted of 23 closed-ended questions and participants were asked to rate their opinions on a Likert-type scale ranging from 1 to 5 (strongly agree to strongly disagree). Percent rates of the responses were calculated.

Results

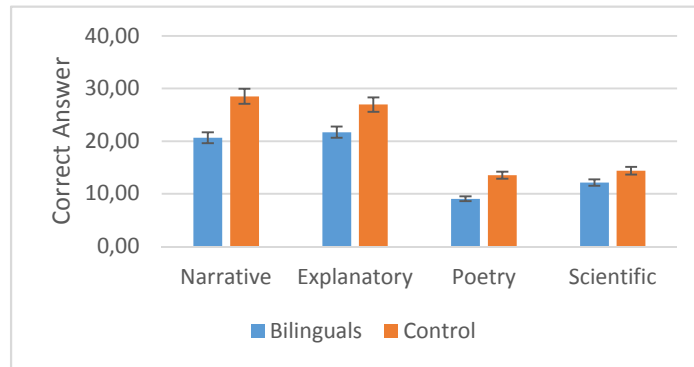
The results of the Reading comprehension scale, Syntactic comprehension: Grammatical judgment test' and Attitude questionnaire were presented. (Table-1)

Reading comprehension scale

	Reading Comprehension Scale								Grammatical Judgment Test	
	Narrative		Explanatory		Poetry		Scientific		Mean	± SD
	Mean	± SD	Mean	± SD	Mean	± SD	Mean	± SD	Mean	± SD
Bilinguals	20,64	± 3,00	21,71	± 3,17	9,07	± 2,56	12,14	± 1,75	17,86	1,61
Control	28,50	± 1,15	26,94	± 1,63	13,56	± 1,29	14,39	± 0,98	23,94	0,80

Table-1 Mean ± SD scores are given in the table for the Narrative, Explanatory, Poetry and Scientific texts and Mean score for the Grammatical Judgment Test. SD=Standard Deviation

There was significant difference between the bilingual group (M= 20,64, SD= 3,00) and the monolingual group (M= 28,50, SD= 1,15) in narrative text comprehension test ($t(30) = -10,217, p <$



0.001). There was significant difference between the bilingual group (M= 21,71, SD= 3,17) and the monolingual group (M= 26,94, SD= 1,63) in explanatory text comprehension test ($t(30) = -6,063, p < 0.001$). There was significant difference between the bilingual group (M= 9,07, SD= 2,56) and the monolingual group (M= 13,56, SD= 1,29) in poetry comprehension test ($t(30) = -6,473, p < 0.001$). There was significant difference between the bilingual group (M= 12,14, SD= 1,75) and the monolingual group (M= 14,39, SD= 0,98) in scientific text comprehension test ($t(30) = -4,614, p < 0.001$). (Table-1) (Figure-1)

Figure 1 Mean ± SD scores are illustrated in the figure for the Narrative, Explanatory, Poetry and Scientific texts. Student's t test revealed a significant difference among the Bilingual and Control groups in all text categories. ($p < 0.001$)

A one-way ANOVA test showed a significant difference in the test scores among the text types within the bilingual group ($f(3,52)= 75,069, p < 0,001$). A post-hoc Bonferroni revealed no difference between the narrative ($M= 69 \%$, $SD= 10 \%$) and explanatory tests ($M= 72 \%$, $SD= 11 \%$) ($p=1$). However, the post-hoc test indicated a significant difference among narrative versus poetry ($M= 30 \%$, $SD= 9 \%$) ($p < 0,001$) and narrative versus scientific ($M=40 \%$, $SD= 6 \%$) ($p < 0,001$). As well as explanatory test versus poetry test ($p < 0,001$) and explanatory versus scientific test ($p < 0,001$) and poetry versus scientific test ($p=0,023$). The mean scores revealed that the bilingual group had the best test scores in narrative and explanatory texts, followed by scientific texts and poetry having the worst scores. (Figure-2)

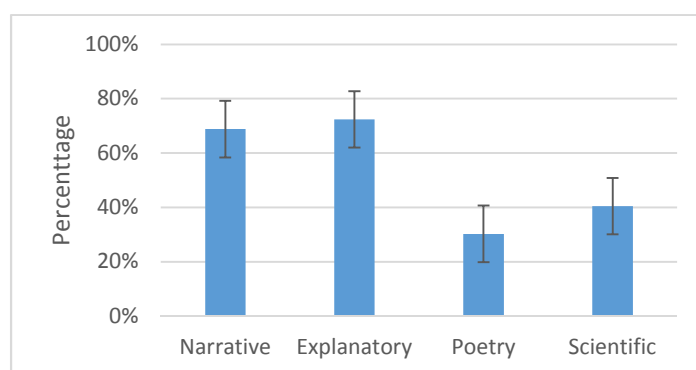


Figure 2 Mean \pm SD scores are illustrated in the figure for the Narrative, Explanatory, Poetry and Scientific texts in the Bilingual group. ($f(3,52)= 75,069, p < 0,001$).

Syntactic comprehension: Grammatical judgment test

There was a significant difference between the bilingual group (Median=18) and the monolingual group (Median=24) in grammatical judgment test scores in the Mann-Whitney U test ($U= 0, p < 0.001$) $r=-0,86$). (Table-1) (Figure-3)

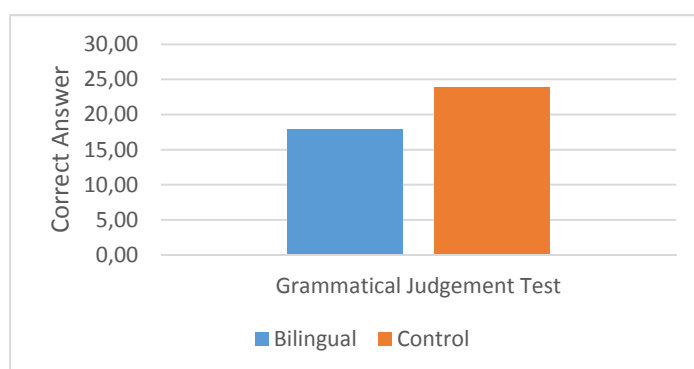


Figure 3 Mean scores are illustrated in the figure for grammatical judgment test between the bilingual and monolingual groups.

Attitude questionnaire for Turkish language

The results of the attitude questionnaire are given below. Attitude Questionnaire revealed that most of the bilingual children in this study have negative attitude towards Turkish language. (Figure-4)

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Question 1	71,43%	28,57%	0,00%	0,00%	0,00%
Question 2	42,86%	57,14%	0,00%	0,00%	0,00%
Question 3	100,00%	0,00%	0,00%	0,00%	0,00%
Question 4	21,43%	42,86%	35,71%	0,00%	0,00%
Question 5	0,00%	7,14%	28,57%	64,29%	0,00%
Question 6	0,00%	0,00%	7,14%	57,14%	35,71%
Question 7	0,00%	7,14%	50,00%	42,86%	0,00%
Question 8	0,00%	7,14%	21,43%	64,29%	7,14%
Question 9	0,00%	0,00%	0,00%	21,43%	78,57%
Question 10	0,00%	0,00%	7,14%	7,14%	85,71%
Question 11	0,00%	0,00%	0,00%	14,29%	85,71%
Question 12	0,00%	7,14%	14,29%	71,43%	7,14%
Question 13	0,00%	0,00%	0,00%	35,71%	64,29%
Question 14	42,86%	35,71%	21,43%	0,00%	0,00%
Question 15	0,00%	0,00%	0,00%	0,00%	100,00%
Question 16	0,00%	0,00%	0,00%	21,43%	78,57%
Question 17	0,00%	0,00%	0,00%	0,00%	100,00%
Question 18	0,00%	0,00%	14,29%	14,29%	71,43%
Question 19	0,00%	0,00%	0,00%	14,29%	85,71%
Question 20	0,00%	0,00%	0,00%	0,00%	100,00%
Question 21	0,00%	0,00%	0,00%	21,43%	78,57%
Question 22	0,00%	0,00%	0,00%	28,57%	71,43%
Question 23	100,00%	0,00%	0,00%	0,00%	0,00%

Figure 4 The percentages obtained from the responses to the questionnaire.

Discussion

The results of this study revealed that in the Reading Comprehension Scale monolingual group performed better than the bilingual group in reading texts. Within bilingual group comparisons, the mean scores revealed that the bilingual group had the best test scores in narrative and explanatory texts, followed by scientific texts and poetry. Poetry has the worst scores. Syntactic comprehension evaluations by Grammatical Judgment Test revealed that the monolingual group had better scores than the bilingual group. Bilinguals have difficulties in detecting the grammaticality of word constructions. Attitude Questionnaire revealed that most of the bilingual children in this study have negative attitude towards Turkish language. As they have not been using Turkish in daily activities and

conversely speaking English in public, they have a negative attitude towards speaking in Turkish. They cannot develop Turkish reading, writing, listening skills properly, for this reason, they cannot use the language effectively. They rarely read Turkish novels. Lack of formal education in Turkish, reading and writing skills were not developed. It is believed that it will be easier for bilingual individuals who have gained the basic skills of their mother tongue to learn and adapt to the society. Their reading skills must be improved. Syntactic awareness is a kind of metalinguistic awareness which means knowing and being aware of the grammatical structures of sentences in a language (Reder et al. 2013). In this study, it is found that bilingual children have difficulty in detecting grammaticality of word order constructions. For this reason, educators and parents should improve bilinguals' syntactic comprehension skills.

De Houwer (2009) revealed that bilinguals had better scores than monolinguals in lexical understanding. In other words, bilingual participants reached a more developed lexical understanding than monolinguals. Bilinguals' faster lexical development may be due to bilingual input settings, where there will be more input as two languages are heard and the child is exposed to different versions of input (De Houwer, 2009). However, the results of this current study revealed that bilinguals' reading comprehension skills were worse than monolinguals.

Davidson et al. (2019) evaluated monolingual and bilingual children. The children were asked to complete a grammatical judgment test to assess their awareness of syntactic structures. All children were better at finding grammatically correct word order. Children with the highest receptive vocabulary scores were more successful in finding incorrect word order constructions. The results of their study emphasize the importance of receptive vocabulary ability on syntactic awareness performance.

Researchers have stated that white matter volume changes in bilingual's brain. It appears that they process information faster than monolinguals (Mohades, 2012). For this reason, it is believed that bilinguals have cognitive and neurological benefits what is more they have enriched cognitive control. Despite some linguistic limitations such as naming difficulty, bilingualism has been associated with improved metalinguistic awareness, as well as better visual-spatial skills, creativity and better memory. Limia et al. (2019) reported that monolinguals use gestures to express different meanings before they interpret words. Their results showed that bilingual children also identify referents in gestures. Bilingual children have the ability to code-switch. Code-switching is the ability to substitute words in different circumstances (Macrory, 2006). Bedore et al. (2005) suggested that semantic knowledge enhances productivity and leads to creativity. The results of this current study supports the findings that semantic and paradigmatic knowledge influence productivity, creativity and comprehension.

MacLeod (2010) reports that if a child prefers one language more than the other, the less-preferred language will be weaker. According to Mattock et al. (2010), bilinguals are better at comprehending abstract linguistic representations. The results of this study are in consistence with MacLeod (2010) study indicating that bilingual children use English more than Turkish. For this reason, Turkish becomes weaker. To benefit from bilinguals' cognitive advantages, bilingual input settings should be improved. There should be more input and the child should be exposed to various forms of Turkish language.

Weiten (2010) stated that bilinguals perform better in measures such as cognitive flexibility, analytical reasoning, selective attention and metalinguistic awareness. Hakuta (1986) reports that when mental capacities are measured, the bilingual children perform better than monolingual children. Macrory (2006) states that bilingual children develop the same sequence with monolinguals. Houwer (1999) stated that children may confuse grammar rules moreover they may use vocabulary from both languages in a single sentence but still, they can separate the two different languages from one another. Bilingual children may prefer to use the familiar word or substitute an unfamiliar word with the known word. The results of this study are in consistence with Houwer (1999) study stating that bilinguals face with difficulties in syntactic comprehension.

Wong Kwok Shing (2006) stated that sometimes a bilingual child is more dominant in one language because one language may be easier than the other. However, the situation changes when the child begins the school. The results of the study support the idea that if bilinguals have the chance to expose Turkish language more, their comprehension skills will improve.

Conclusion

The purpose of the study was to investigate the reading comprehension skills and syntactic comprehension skills of bilinguals compared to monolinguals and to evaluate bilingual children's attitudes towards Turkish language. In the Reading Comprehension Scale monolingual group performed better than the bilingual group in reading texts. Within bilingual group comparisons, the mean scores revealed that the bilingual group had the best test scores in narrative and explanatory texts, followed by scientific texts and poetry. The results of the Grammatical Judgment Test indicate that children's ability to detect the grammaticality of word order constructions change according to being monolingual or being bilingual. In this study, it is found that bilingual children have difficulty in detecting grammaticality of word order constructions. For this reason, educators and parents should improve bilinguals' syntactic comprehension skills. Attitude Questionnaire revealed that most of the bilingual children in this study have negative attitude towards Turkish language. The results of this study indicate that if enough effort is given to the reading and syntactic comprehension, skills of bilinguals will improve. In conclusion, to benefit from bilinguals' cognitive advantages, bilingual input settings should be improved. There should be more linguistic input and the child should be exposed to different social settings of Turkish.

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