Investigating the Effect of Farsi Font Type and Font Size on the Speed of Text Reading by Gaidence School Students

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Abstract

This thesis intends to study the effect of size (12, 14, 16) and type (Nastaligh and Tahrir) of Persian font) on the speed of text reading. The population of this project is a number of 30 boys and girls (11-13 years old)‹of Isfahan gaidance school Students who are randomly chosed from the students who have the same level of physical (with no visual and lingual defects…) and intelectual and personal (not being shy, fearful…) competence and also have the same average of 16-19. The instruments used in this study are 6 passages made in different fonts and reading comprehension tests were the other instruments in this project. After that texts were given to the students and they had 120 seconds for reading each of them. Eventually the number of read words by each student in each test were enumerated and registered. The achieved scores were entered into Spss software and after measuring the

averages, using the statistical analysis paired *t*-test, they were compared with each other in order to be specified wether the achieved differences relating averages were meaningful or not. The speed of text reading in 12 Tahrir font and familiar texts and normal letter space were faster than Nastaligh font and had the fastest rate. In all tests, the amount of error in Nastaligh was higher than Tahrir. The overall result of the project was representative of the fact that the rate of morpheme recognition and the speed of text reading with Tahrir font and size 12 and the normal letter space cause the most speed and the lowest error.

Keywords: Font type, Morpheme recognition, Non-word, Normal, Condensed, Expanded

1. Introduction

Nowadays the topics of improving language teaching, enriching reading skills and special attention to reading comprehension are followed seriously in world educational systems from the beginning of the educational year.

The aspect which must be considered about problems of reading and relationship of font type and font size that is used in students book is their relationship with the skills such as morpheme recognition and text reading speed. Reading is an accepting and uncoding skill with which reader receives and uncodes the writer's message. Various definitions have have been given by the clear-sighted people.

Boder (2002) defines reading as thought process, evaluation, judgement, mental image making and argumentation. Pollaczek (1999) believes that skill of reading is the ability of taking information out of written texts and comprehending the meaning of that text.

The action of reading is consisted of three main and essential activities. The first step of individual activity is to take part in the act of reading and see words, the second activity is word recognition and pronunciation. The third one is the act of understanding the meaning of read material. These three activities are correlated and complementary. Therefore the factors which affect these three activities, that is, see words, recognition and pronunciation of words and understanding the meaning of the materials have great importance. The speed of reading an the rate of morpheme recognition, which is itself one of the reading steps and affect the speed of reading, depends on numerous factors that one of them is font and font size and letter space.

Some of the researchers believe that reading takes place at two steps: 1-code reading of words 2-reading in order to gain meaning. This approach implies that reading takes place through letters recognition, Letter and phone concordance, putting the phones together and searching words for word meaning (Menyuk & Flood1998)

Since the main deep structures of reading have basic relationship with reading speed and learning, we must see how we can improve speed of reading in children in the best way.

Experts declare that "students' educational problems have close relationship with criminality and anormal behaviors, as such, one of characteristics of criminal students is the existence of reading and writing problems in them" (Pollaczek, 1999)

Some of the people in charge announced that children gratually increase their speed of reading through learning continuos and Impressive skills (Carillo, 1952)

In this case one of the effective skills in reading development is word analysis skill which is classified in the categories of bodiment, structural analysis, contextual symbols, pictorial symbols and formal analysis. Structural analysis is concerned with word recognition through using different parts of it, such as prefixes and suffixes and words root and morphological enclosures and recognize bodimental analysis of words with their length and shapes (Hilman, 1976)

Weiss (1978) while his studying gets this result that the size and shape of font and the effect of these factors on the legibility of book's text, is an important factor in choosing book for students.

Among many fonts that exists in Farsi language, the two Tahrir and Nastaligh fonts are used in educational books (for Farsi literary books). Since in Farsi language no study has been done in the field of the effect of font type and font size on the speed of reading and considering the importance of this subject and the fact that what font type with what size children read and comprehend better, we have decided to investigate the relationship between the effect of font type and font size and speed of text reading and through this way we step in the way of standardizing educational books.

The questions of the current project are as follows:

1) Which of the Tahrir and Nastaligh fonts with the size of 12, 14, 16, increases the speed of text reading?

2. Plan of Sampling

1.2 Instrument for Collecting Data

1.1.2 Texts

For investigating the effect of font type and font size on the speed of reading six students' educational books in Nastaligh and Tahrir fonts, font sizes 12, 14, 16 prepared.

-three texts with Tahrir font with sizes 12, 14, 16

-three texts with Nastaligh font with sizes 12,14,16

For specifying the relationship between font type and font size with the speed of reading, 6 texts of guidence students lesson books with two fonts Nastaligh and Tahrir in three sizes 12, 14, 16 were provided.. In here again the variable letter space is normal and the texts were familiar for the students.

2.1.2 Text comprehension Tests

At the end of each text three text comprehension questions were prepared, to ensure that students haven't just cited while reading and they also have comprehended it. The students who couldn't answer the text comprehension questions were omitted from the population.

3. Method

In this project the method of random grade sampling has been used and a number of 6 male and female guidence schools and a number of 30 person from the whole grades of first, second and third of guidense school who had the named conditions, were randomly chosed.

The existing variables were Nastaligh and Tahrir fonts, font sizes12,14,16 .For reading each of each texts, each student had 120 seconds.

After determining the relationship between font type and font size with text reading rate,

studnts read 6 texts in two Nastaligh and Tahrir and sizes 12, 14, 16 loudly and the number of read words and also the number of errors in each text in time span of 120 seconds were registered and at the end of each text three questions were being asked from students orally. Also in this part 6 scores for reading of texts and 6 scores for errors and 3 scores for text comprehension were registered for each student.

After collecting the data, eventually the calculated scores were entered into Spss software and the data were compared with each other.

4. The Method of Analysis

The obtained scores from studying the relationship between Nastaligh and Tahrir fonts in sizes 12, 14, 16 with the speed of text reading were entered into Spss and and after calculating the averages with paired-t-test were compared to see that in each case wether the obtained differences about the averages had been meaningfull or not.

1.4 The comparison of Nastaligh and Tahrir font 12 in speed of text reading

In this part pare the speed of text reading in Nastaligh fonts 12and Tahrir font 12have been investigated and compared.

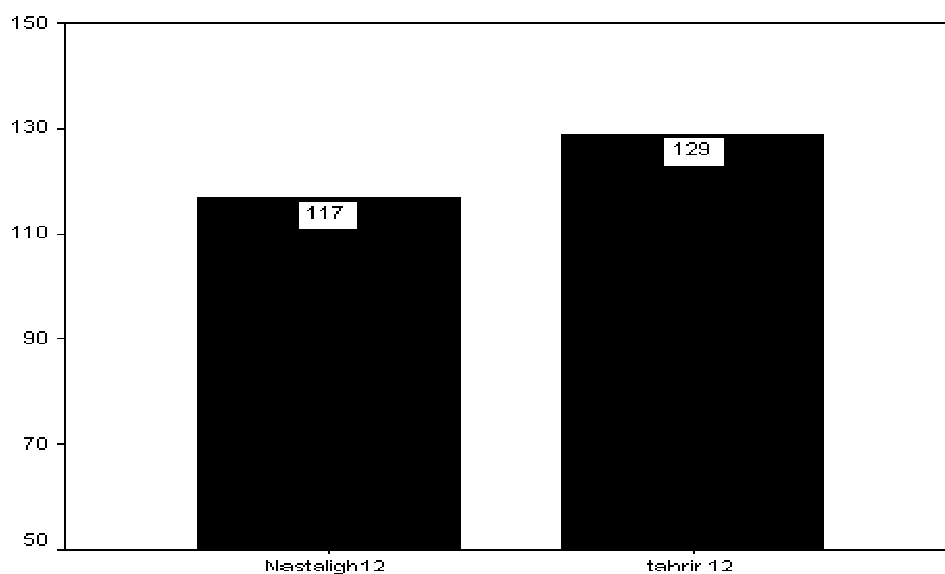The number of read words with Nastaligh font and Tahrir 12are given in figure 1.

Figure 1. The average of the number of words while text reading with Nastaligh and Tahrir 12

What is obtained from the figure 1 represents the fact that the number of read words in time span of 120 in Tahrir 12 and thus the speed of text reading in this font and size had been more than Nastaligh 12. To determine if this difference between the two averages is meaningful, a t-test on the obtained scores while text reading was done.

Table1. The t-test on the scores text reading with Nastaligh and Tahrir 12

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Nastaligh12text Norm Familiar - tahrir 12tex normal familiar	-12,06	16,71	4,05	-20,65	-3,47	-2,976	16	,009

As table 1 shows the obtained difference has been meaningful from statistical point of view

(p:0.009 , t: -2.976)

2.4 The comparison of Nastaligh and Tahrir font   14 in speed of text reading

In this part   pare the speed of text reading in Nastaligh fonts   14and Tahrir font 14, have been investigated and compared. the number of words while text reading with Nastaligh and Tahrir 14 are given in figure3.
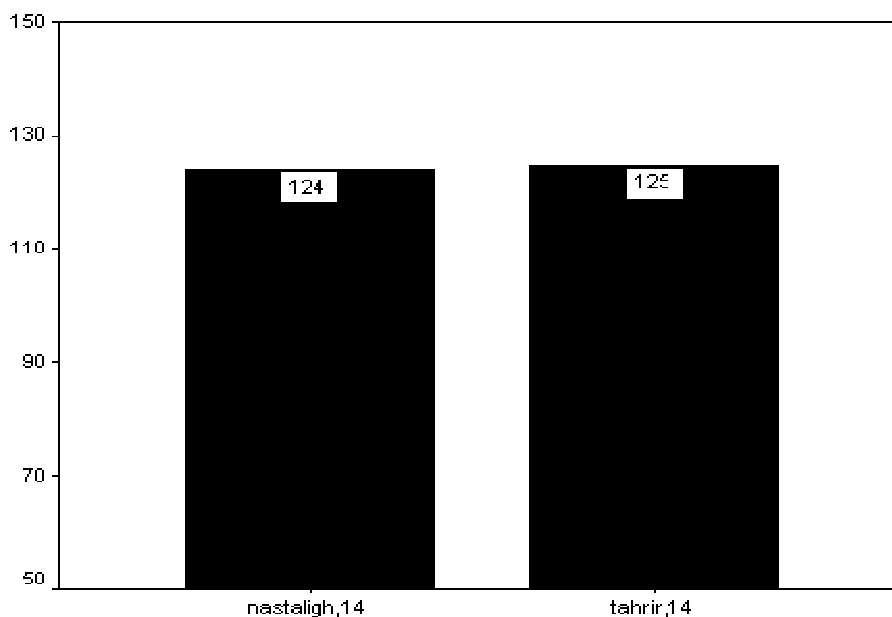

Figure 2.The average of the number of words while text reading with Nastaligh and Tahrir 14

The average of the number of words reading in Tahrir14 are 125 and in Nastaligh14 are 124.

To determine if this difference between the two averages is meaningful, a t-test on the obtained scores while text reading was done.

The results of the test is given in table2.

Table2. The t-test on the scores text reading with Nastaligh and Tahrir 14

Paired Samples Test

		Paired Differences							
				Std. Error Mean	95% Confidence Interval of the Difference				
		Mean	Std. Deviation		Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	nastaligh 14text normal familiar - t 14text normal fam	-,71	12,87	3,12	-7,32	5,91	-,226	16	,824

As table 2 shows the obtained difference hasnot been meaningful from statistical point of view

(p:0.824 , t: -0.226)

*3.4 The comparison of Nastaligh and Tahrir font 16 in speed of text readin***g**

In this part pare the speed of text reading in Nastaligh fonts 16 and Tahrir font16 have been investigated and compared. For doing this the averages t-test has been used. The number of read words with Nastaligh font and Tahrir are given in figure 3.
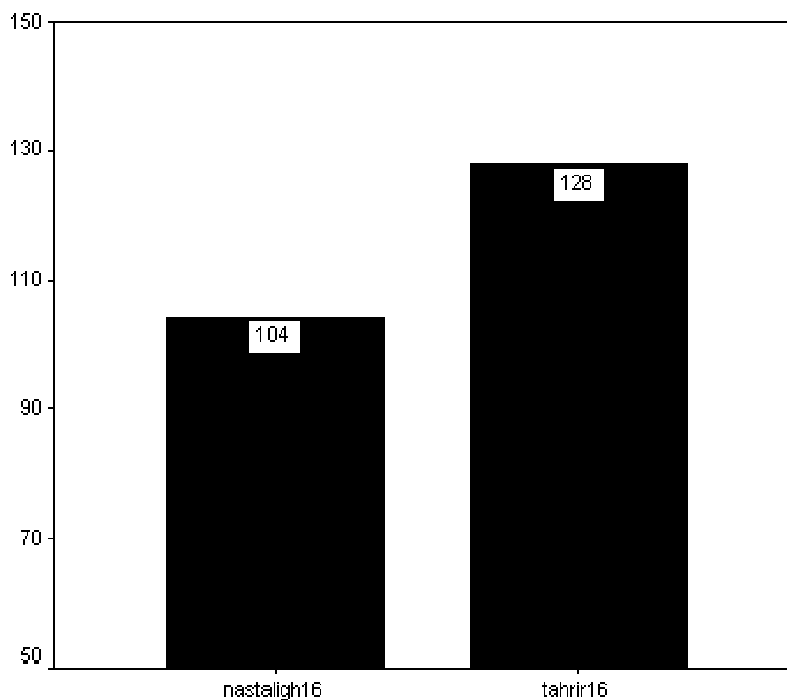

Figure 3.The average of the number of words while text reading with Nastaligh and Tahrir 16

The average of the number of words reading in Tahrir 16 are 128 and in Nastaligh16 are 104. To determine if this difference between the two averages is meaningful, a t-test on the

obtained scores while text reading was done. The results of the test is given in table3.

Table3. The t-test on the scores text reading with Nastaligh and Tahrir 16

Paired Samples Test

		Paired Differences							
				Std. Error Mean	95% Confidence Interval of the Difference				
		Mean	Std. Deviation		Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	nastaligh 16text norm familiar - tahrir 16text normal familiar	-23,47	22,42	5,44	-35,00	-11,94	-4,316	16	,001

As table 3 shows the obtained difference has been meaningful from statistical point of view (p:0.001, t: -4.316)

4.1.3 The comparison of The averages of the number of errors in reading with Nastaligh and Tahrir 12, 14, 16

After determing the number of read errors in this time span and the percent of the number of errors, the variables are compared with eachother two by two. For investigating in which of Nastaligh and Tahrir font 12, 14, 16 the amount of errors had been more, we compare them together. The amount of errors in reading the texts are given in figure 4.
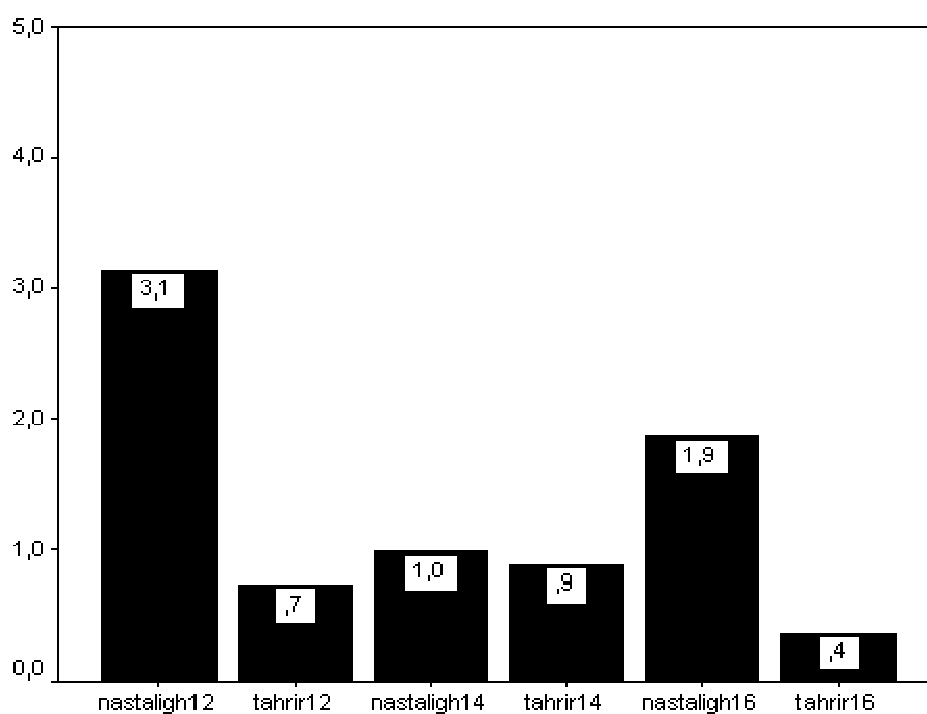

Figure 4. The averages of the number of errors in reading with Nastaligh and Tahrir 12, 14, 16

As the figure 4 shows the average of errors in text reading in Nastaligh font 12, 14, 16 is more than Tahrir 12, 14, 16 and texts reading with Nastaligh font 12 has the most

percentage of errors. To determine if this difference between the two averages is meaningful, a t-test on the obtained scores while text reading was done. The results of the test is given in table4.

Table 4. The t-test on the errors in reading with Nastaligh and Tahrir 12, 14, 16

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	the percent of error nastaligh12text normal familiar - the percent of error tahrir12text normal familiar	2,40	1,50	,36	1,63	3,18	6,587	16	,000
Pair 2	the percent of error nastaligh14 text normal familiar - the percent of error tahrir14text normal familiar	9,59E-02	1,11	,27	-,48	,67	,355	16	,727
Pair 3	the percent of error nastaligh16text normal familiar - the percent of error tahrir16text normal familiar	1,50	1,06	,26	,96	2,05	5,855	16	,000

(p_1:0 , t_1:6.58), (p_2:0.727 , t_2:0.355), (p_3:0, t_3:5.85),

5. The Conclusion

Among the sizes 12, 14, 16 the speed of reading was more in Tahrir 12 and in Tahrir font as the shape of the letters are in a form that the letters are placed next to each other appropriately, it decreased the increase in level of text reading and it seems that in similar fonts like Tahrir font with increase in size, it decreases the recognition of familiar and non-familiar(in here non-words). The average of the number of read words with Nastaligh font 12 was more than Tahrir font 16 with a little difference and it is specified that in Nastaligh font reading is difficult because the letters space is small and reading becomes easier as the font becomes bigger. The number of read non-words in Tahrir font and Nastaligh 16 have little difference. And thus it is specified that Nastaligh font in bigger sizes is better than Tahrir font in bigger sizes when the dependency on letters recognition becomes more.

The speed of text reading in Tahrir font 12 and normal letters space was more

than Nastaligh font and had the most speed.

In the speed of text reading, since the existing words in the text are related together, basically the human eye while reading a word, also identifies the next word, for this reason in a font like Tahrir that the letters have angle and appropriate space with each other, the increase in size and space causes fewer words to be placed in reader's sight domain and thus the recognition process and speed of reading decrease but in contrast, in a font like Nastaligh that the letters are so close together, the increase in font size and space, increases the speed of reading

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