

Research Article

IMPROVING TEXTBOOK UNDERSTANDING IN WRITE TO LEFT LANGUAGE (CASE STUDY OF PERSIAN TEXTBOOK)

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ABSTRACT

This study aimed to investigate the effect of Persian font type on reading speed, accuracy and comprehension of textbooks. The research plan was pretest-posttest experimental design with control group. The population of study was third grade elementary student at Bakarz city in academic year of 2014-2015. Using clustering sampling 4 classrooms with 60 students selected and assigned in 4 groups, 19 students in control group and 41 students in 3 experimental groups. In order to gather data a text from the course of “reading Persian” presents to groups with four different font types. Reading speed assessed with chronometer, accuracy assessed with the number of student incorrect answers and comprehension assessed with teacher made test. Validity of test analyzed by teachers and the reliability estimated .85 by test-retest method. Covariance test where used to analyze data. Results revealed there is no differences between groups in “reading speed” and “comprehension” but significant differences were found in “accuracy” variable. Based on finding “Zar” as a Persian font type improve accuracy of reading. According to system view students and their study habit are the input of university and they are the readers of university books therefore this study conclude and recommend finding for university level.

Keywords: Textbook, Font Type, Reading Speed, Reading Accuracy, Reading Comprehension

INTRODUCTION

The current education system in country is centralized system and its curriculum limited to textbooks that are used in whole country (Mashayekh, 2000). "Textbook is tool that teachers use to motivate students that maximum awareness and understanding about an issue, use and intelligent teacher takes to make it work and is appropriate levels for different types of students" (Fathi Vajargah & Aghazadeh, 2007). Despite the diversity of resources and educational technologies, textbooks are still an important element of the teacher and the student in the learning process benefits (Keklik, 2011). Some authors have gone further and claimed that the only reason for extraordinary illustrate science given at one time introduction to the book that is offered in any field (Mestre *et al.*, 2002). Also, because of educational structure and curriculum of educational system, including university and pre-university education system, media as important and widely used textbooks in country's educational structure. Textbooks, teachers and students of media that they use every day, so sometimes whole curriculum, teacher emphasizes on it (Nourian, 2008). However, given breadth of country, ethnic diversity and its complications (e.g., bilingual students), rapid growth of science and technology, rapid changes in social norms and values, it is necessary to carefully and textbooks as far as possible, free from any defects in accordance with defined goals and scientific principles are written and designed.

Or systems based on published textbooks in the field of design, six elements must be considered: consistency, shape, organization, interest, font size and use of white space (Loshin *et al.*, 2010). As mentioned technical features and appearance and shape can book directly or indirectly to facilitating the learning process, motivation of students and facilitate learning and deepen the understanding and its influence. Reading is students learn the basic tools (Sen, 2009).

Active learning is self-motivated and is one of the main objectives of teaching reading in primary school (Pintrich Mar and Boyle, 1993). The problem that occurs in the process of reading the "comprehension" is. Comprehension skills are the most important in life of student's progress. Unfortunately numbers of

Research Article

students are even though text could be read as mental but are not able to understand it. As a result, effective teaching reading has attracted comprehension attention of teachers, researchers and specialists in education (Williams and Atkins, 2009).

Making a mental comprehension of text information and its interpretation have been described (Van Keer and Verhaeghe, 2005). The communication that takes place through texts there are three main factors: the author, text and reader, if all three factors do duty properly, in a matter of good singer and this relationship will be effective communication. Given that the words are a major source of transmission of information to different people in the community and more training, especially in classroom, in the form of lectures or through the literature about reading comprehension increases (Free, 2004). These concerns in particular our country due to poor results of Iranian students in the Perls (2001 and 2006) has increased, because the results of the Iranian students in the field of literacy, reading comprehension were extreme weakness.

International study of reading literacy progress (Perls) is one of the most extensive studies of the International Association for Evaluation of Academic Achievement (IEA) said. The results of 2001 and 2006 show that the average global scores in PIRLS 500 and the average scores of Iranian students is significantly lower than the global average. Reports the National Center of Perls studies suggest that Iran's position in 2001 among thirty-five countries participating in Perls 2006, between forty-five grade 32 education system is ranked 40 (Karimi, 2005).

Various factors in the development of these complications can be considered that one of the factors related to the text. Werner and Boucher (2007) believe that the text using rules writers or designers can increase legibility and comprehension of texts. Readability and typography refers to visual factors. Readability of printed material refers to physical appearance. Line length, type size, font, spacing between lines and letters, margins and physical form are some of the elements of physical appearance.

The researchers in the study came to the conclusion that non-Persian font's typography vital role in fluency and reading articles. One of the main criteria of typography, form, style or type of item is. Font is complete set of characters (letters) that due to specific characteristics of their drawings are distinguished from other categories (Hmouni and Niko Maram, 2001).

When a person chooses particular stimulus and to get a certain reaction in front of it and make it ready to pick up, then it is said that his attention toward the certain attention has been In other words, accuracy, power for road concentrate the what stimulating the brain and get basic features. Carefully prior to perception, learning and thinking (Shariatmadari, 2004).

Speed, an important factor in your reading is closely linked to its readability. A legible text should be read quickly and easily (Hughes and Wilkins, 2000).

Before 1900, there was almost no pre-test by regarding readability. With arrival of twentieth century, especially after 1925, research in this area was common until 1950, but for some reason did not extend (Soleimani and Mohammadi, 2012). For example, Paterson and Tinker in 1944 seven of the most common type of font chosen three different fonts (total of 10 font) and with 900 students, reading speed compared them together. In eight of the 10 font stylus or the small difference was not statistically significant. Only in the font American Typewriter and Cloister Black that were part of three different fonts, others had significant differences in reading speed (Paterson and Tinker, 1949).

Sankei two types of text presented to participants that in one of the texts were only one type of font and the font type was used in the context of a combination of the two. The results showed that when writing letters belong to a better performance can be achieved. He concluded that the visual system to process information more efficiently regulated to font (Subbaram, 2004).

In a study by Gasser *et al.*, (2005), the effect of the courier font (sans serif), platinum (toothed), Helvetica (toothed), Monaco (sans serif) size 12, the recall was tested and showed Fonts toothed better remind (Gasser *et al.*, 2005).

Proof and Muniandy (2014) as the effect of the type of font and line spacing in student performance on screen readability and did that for this purpose, two Times New Roman font (sans serif) and Verdana

Research Article

(toothed) and on 30 graduate student readability test was performed on a computer screen. The results showed a significant difference between the two types of font legibility on screen and font type Verdana as a better choice in the long text displayed on the screen.

Chandler (2001) study type and font size for speed and reading comprehension investigated. His two platinum and Helvetica font in sizes 8, 10 and 12 used the results of his work showed that the size 12 has a significant effect on reading speed and read faster than other fonts. But the font type had a significant effect on speed and comprehension reading.

Findings of De Lange *et al.*, (1993) are similar to findings in Chandler. To determine the effect of type font's readability of four tests: word recognition, speed, accuracy and comprehension were used. The results of this test showed that jagged fonts and sans serif no effect on reading speed and comprehension. In another study, Bernard *et al.*, (2003) Times New Roman fonts (toothed) and Arial (sans serif), in sizes 10 and 12-point matrix formats and anti-alloyed, alloyed anti-examined font Arial 10 font were read slower than others.

In Iran, much research has been done in this case and only in research of Kangari and colleagues (2012) the impact of recruitment on that screen content and electronic reading speed of Tehran University student did on 70, concluded that Tahoma Persian fonts (sans serif) Times New Roman font (toothed) no significant difference in mean scores and reading speed.

In this study, to test readability and reading comprehension were eight different typing styles. The results showed that the font size of 12 was read faster than others, but the font and line spacing no significant effect on the speed and understanding and did not recall reading.

Another study by Soleimani and Mohammed (2012) examine the relationship between the font type, font size and line spacing and readability, the reading speed and comprehension in a language center in Urmia. In this study, to test readability and reading comprehension were eight different typing styles. The results showed that the font size of 12 was read faster than others, but the font and line spacing no significant effect on the speed and understanding and did not recall reading.

As noted readability of printed material that influences the perception and understanding more than a century, has attracted a lot of attention. Comments and recommendations expressed in previous years, but many of these recommendations and opinions instead of being based on scientific research based on observation, intuition, and so is the (Mohammadi *et al.*, 2012). The impact of each factor on the reading experiment is studied.

It has obtained remarkable results in this field. But in Persian script with specific characteristics such as the distinction letters of each point of the tooth more difficult and together wrote most of the letters in the word, unfortunately, experimental research on typography and its impact on readability and comprehension.

The importance and necessity of history that have passed, including the purpose of the study is to assess the type of font writing Farsi on speed, accuracy, reading comprehension third-grade students is in line with this objective, hypothesis "Persian Writing font on speed, accuracy and the students' reading comprehension" is discussed.

MATERIALS AND METHODS

Method

In this study, three main hypotheses are as follows:

1. Font writing Persian influence on students' reading speed.
2. Font writing Persian influence on students' reading accuracy.
3. Font Persian writing influence on the students' reading comprehension.

Experimental study with pretest-posttest control group was carried out with respect to variables and groups and design study analysis of covariance was used to analyze the data. Students' performance in speed, accuracy and reading comprehension as the dependent variable and Persian fonts (Times New Roman, gold, and children) were considered as independent variables.

Research Article

Population, sample and sampling

Population this research all third grade students to the number of 1015 students from 90 schools are Bakharz city that between the schools by cluster sampling from 4 schools and 60 third-grade students were selected.

19 students in the control group and 41 students were tested in the 3 groups. To collect the data, two different text from text books the students were provided with 4 different font and speed reading students with stopwatch precision based on the number of mistakes they made in the context of understanding the self-test was used.

Verified test comprehension: Standard test to measure language comprehension skills not available in the third grade reading comprehension test was developed by the researchers. Two parallel forms for use as a pre-test and post-test reading comprehension test was developed.

A) Pre-comprehension text comprehension test in advance by the researcher of third-grade textbook called "beautiful forest" in the same font to write textbooks and was 5 multiple choice questions. The validity of this test and post-test reading comprehension by four third-grade teacher and three professors were confirmed. According to Anastasi (1976) on tests of academic skills such as reading comprehension, calculation of the Validity of the best and most common methods for calculating the validity of pre-test reliability using the software SPSS (Cronbach alpha coefficient) was 0.75.

B) Reading comprehension test: reading comprehension test text from the third grade primary school textbooks as "eyes in the sky" with 4 different font (writing, dear, wealth and children). The test consists of 5 questions multiple choice pretests were like. Kuder-Richardson reliability coefficients vary from 850 to test the formula was obtained.

Procedure

The first two lessons from third grade to read the lessons taught were not yet called "beautiful forest" and "eyes in the sky" were selected. It should be noted that the selected text from the two courses (beautiful forest and the eyes of the sky) in terms of number of words and number of words hard times and almost close to each other.

In the first experimental groups and one control group lesson every 3 beautiful forest of the same size and font of their textbooks that line was written to read the read speed with a stopwatch to measure individual students and their errors were recorded. At the end of the test the ability of the survey is to assess students' comprehension of the text were educated.

The next day again to control group of same size and font of text book was eyes of heaven and the previous sample, they measured the speed and accuracy and comprehension. But in the eyes of the sky with 3 different font lesson 3 groups (Nazanin, Zar and the Kudak is more story books) were given the book with the same size and speed (with stopwatch), accuracy (by counting the number of errors) and comprehension (the ability to gauge test) students were tested. Finally, the post-test and pre-test results of students in the control group and 3 groups were compared.

RESULTS AND DISCUSSION

Findings

The results of the mean, standard deviation, deformation and elongation for all variables are presented in Table 1. The results of tilt and strain revealed that none of the variables has tilt and elongation higher than 2, meaning there is no need to convert variables.

It should be noted that the average accuracy on average participants in the test is less accurate in the sense that number of errors has been reduced, so as to be observed in subjects in the experimental group increased accuracy. Levine went on to test the homogeneity of variances assumption was proven that the results are in Table 2; given that the probability of an online index for the two tests conducted for the degrees of freedom (3) for all three variables is greater than 0.05.

It can be concluded that the samples have homogeneity of variance and variance analysis test results are valid.

Research Article

Table 1: Normal Distribution of Data

	Mean	SD	Skewness	Stretch
Pretest of Reading Comprehension	3.5667	1.3323	-0.526	-0.986
Change of Font	3.0667	1.3884	-0.202	-1.22
Pretest of Speed	1.8713	0.8190	1.099	-0.107
Change of Font	1.7845	0.81568	0.843	-0.457
Pretest of Accuracy	3.2833	2.675	0.763	-0.292
Change of Font	3.1833	2.843	0.668	-0.627

Table 2: Test of Homogeneity of Levin Variances

	Levin Index	Sig.
Change of Font	0.109	0.954
Pretest of Reading Comprehension	0.062	0.980
Change of Font	2.977	0.090
Pretest of Speed	6.558	0.11
Change of Font	2.309	0.086
Pretest of Accuracy	1.362	0.264

The statistics to analyze data and test hypotheses following significant guarantees were used:

The main hypothesis of this study is the effect of font writing in Persian on speed, accuracy, reading comprehension of students surveyed, according to that scale is interval and data collection methods based on experimental research projects, pre - test and control groups, covariance analysis was used to analyze the data obtained from results in Table 3 for variable comprehension, variable speed and variable in Table 4 accuracy is reported in Table 5.

Table 3: Analysis of Covariance Reading Comprehension Test and Control Groups

Source	Sum of Square ³	Df	Sum of Square	F	Sig.
Constant	13.396	1	13.396	8.39	0.005
Pre-Exam	22.625	1	22.625	14.17	0.001
Change of Font	1.342	3	0.447	0.28	0.84
Error	87.816	55	1.597		
Total	678	60			

Since $F(55, 3) = 0.28$ $P > 0.05$, $P = 0.84$, main hypothesis was not confirmed and the font has no effect on reading comprehension.

Table 4: Analysis of Covariance Reading Speed in the Experimental and Control Groups

Source	Sum of Square ³	Df	Sum of Square	F	Sig.
Constant	0.021	1	0.021	0.283	0.597
Pre-Exam	19.545	1	19.545	165.158	0.000
Change of Font	0.554	3	0.185	2.523	0.067
Error	4.024	55	0.073		
Total	230.321	60			

Since $F(55, 3) = 2.523$ $P > 0.05$ $P = 0.067$, main hypothesis was not confirmed and the font has no effect on reading speed.

Research Article

Table 5: Analysis of Variance Accuracy of Reading the Experimental and Control Groups

Source	Sum of Square ³	Df	Sum of Square	F	Sig.
Constant	18.488	1	18.488	7.431	0.009
Pre-Exam	178.895	1	178.895	71.906	0.000
Change of Font	35.075	3	12.358	4.967	0.004
Error	136.834	55	2.488		
Total	1087	60			

Since $F(55, 3) = 4.967$ $P = 0.004$ $P < 0.05$, main hypothesis was not confirmed and the font has no effect on accuracy of reading.

Discussion and Conclusion

Reading one of the students' learning needs in today's life. The problem that occurs in the process of reading the "comprehension" is reading comprehension extract meaning from words, sentences and texts. Attention is also focused on the need for road work and gets the basic characteristics of stimulus in the brain. Speed reading is also an important factor to be considered in the first reading. Each variable was defined, the "comprehension", "accuracy" and "speed" are read closely associated with readability of the text, i.e. the text more readable speed, accuracy and comprehension of the text will increase.

In this study, with choice of 4 different groups and Persian text writing font with 4 different to each group and measuring accuracy, speed and reading comprehension, the results were:

The use of new fonts to increase students' attention, but does not affect the students' reading speed and comprehension. The findings were consistent with the results of research both inside and outside Iran, including the external investigation (Chandler, 2001) and De Lange, Esterhuizen and Beatty (1993), the results showed that both the font type on speed and comprehension readers did not affect the results, as well as internal research findings and Mohammad Soleimani (2012) and (Knagarani *et al.*, 2012) that they concluded that the font does not have the same speed and comprehension readers. The difference with previous research findings on the impact of the change the font type on the accuracy of readers and students increased by changing the font type and accuracy of their mistakes and errors were reduced. School textbooks authorities to preserve the culture and Persian literature "Thahiri" with "Naznin" combined than from the students become familiar with Persian writing, according to the findings of this study, comprehension and reading speed, the line written and three other font types were seen, therefore, recommended that, given the importance of the integration of students with writing Farsi when used in combination with a gold line written to be used.

In order to increase the accuracy of font writing, also recommended other methods of attracting attention, such as full color coding and other techniques to draw attention to their notes. This finding is also noteworthy for development of academic and practical curriculum, textbooks, and pre-academic readers in about twelve years to get used to the lines.

The system including the reading habit of the students with all their attributes, are input into higher education and academic books. However, in terms of methodology research in the field of higher education, but we need to repeat the rational perspective on university students' educational experiences and habits is very natural. Therefore, it's recommended coordinated approach between education and higher education in the development of textbooks in the field carried font. For example, academic textbooks use in order to coordinate and enhance comprehension, speed and accuracy of reading students of the font "Zar" and "Tahriri".

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Research Article

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Research Article

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