浙江大学

本科课程论文

课程名称: 当代语言学

论文题目: **Bionic Reading: A new reading method for English language learners at Zhejiang University**

仿生阅读：浙江大学英语学习者的一种新的阅读方法

姓名与学号: 刘士平 **3210105504**

年级与专业: **2021** 级本科生 经济学

所在学院: 求是学院丹阳青溪学园

提交日期: **2022** 年 **6** 月 **14** 日

Abstract This paper is aimed to explore whether Bionic Reading—a new reading mode released firstly by Reeder(an RSS reader for Mac) in its Version 4—increases our reading speed as it claims. Here, using Normality Test and Independent T-test, we find the data of four items all have normal characteristics in general, but there's no significant improvement in reading speed for both the passage. Unfamiliarity and small sample size may be the main reasons. Propose that the font size would be a potential variable.

Key Words Bionic Reading · Normality Test · Independent T-test · reading method

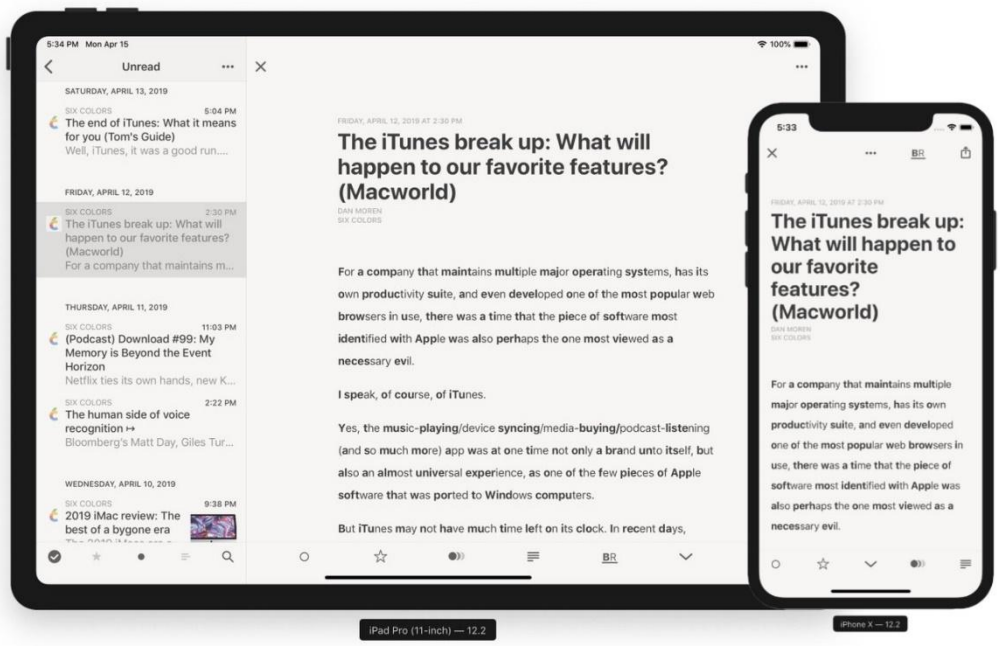
Bionic Reading: A new reading method for English language learners at Zhejiang University

1 Introduction

On April 25, 2019, Reeder 4 was out, with an innovative idea of a “BR button” in the upper right corner of the user interface. When reading articles specially written in the language of English, if we enable the button, a new reading mode named *Bionic Reading* is put into use (Figure 1). Under this mode, the first or first few letters of each word are in bold and the rest are normal, in such a way that our eyes may be guided just by those highlighted parts, while the others completed automatically by our brains.

Figure 1

Reading Articles under Bionic Reading Mode



Note. This figure shows how Bionic Reading mode works. From "開発中のRSS リーダー「Reeder v4 for Mac」が Beta 11 へアップデートし、「Bionic Reading」モードと後で読むサービス「Instapaper」の閲覧に対応。", 2019 (https://applech2.com/archives/20190416-reeder-v4-for-mac-beta-11-support-instapaper.html). In the public domain.

The BR mode has received mixed reviews on Chinese social media, such as Weibo and QQ. Some think it is because of this new reading mode that they do read faster, while others believe that is only a mental effect. To find out, we set up an experiment to compare the difference in reading speed between the BR mode and normal one. One approach to solve this problem involves the use of Independent T-test. We divided our 22 participants at Zhejiang University into two groups, collected their reading time data, and then compared the results by analysis of means. If BR mode is of service to us English learners as expected, it can be popularized in many aspects of English learning.

2 Methodology

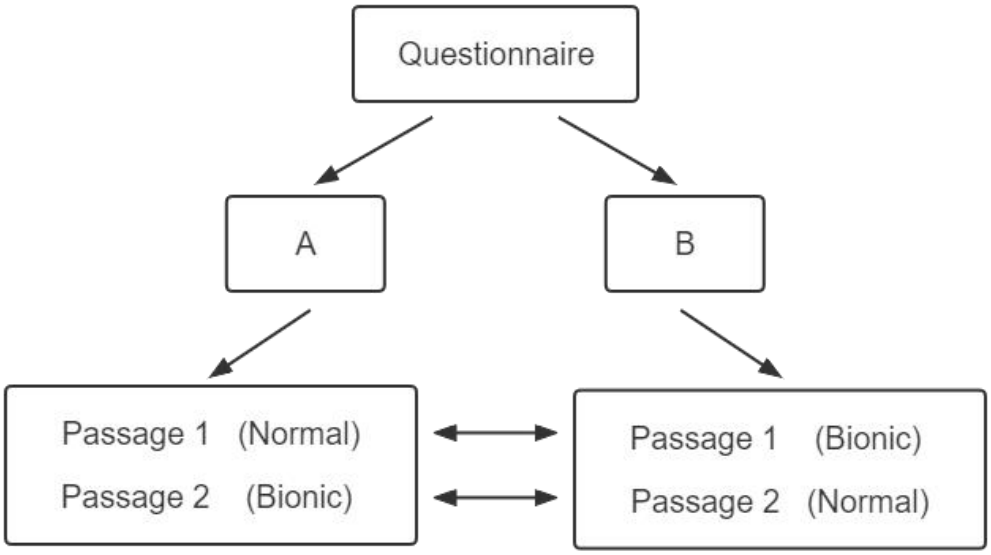
This chapter of the dissertation is about our research design and strategy for primary data collection and sampling.

We designed two types of questionnaires. For Questionnaire A, there are two passages in it. Passage 1 is a simple narrative of about 220 words, and Passage 2 a more difficult argumentation of 370 words. The font is *Times New Roman* and the font size is 11. After each passage, we set some open questions to make sure the

respondent has a general understanding of the passage rather than just giving a cursory glance. The only thing of Questionnaire B distinct from A type is the arrangement of the reading mode of these two passages. In Questionnaire A, Passage 1 is set to the normal reading mode, while Passage 2 BR mode. B is quite the opposite (Figure 2). So, it was expected that equal numbers of participants would fill in the two types. All the respondents to both Questionnaire A and B were told in advance to accumulate time only when they were reading. In this way, the time data given by respondents could reflect their reading speed well. Besides, this method could, to some extent, eliminate the gap caused by the differences in English proficiency between the two groups.

Figure 2

the Design of Questionnaires A & B



In total, we recruited 22 participants from “Duoduo” Alumni Forum, and they were randomly and equally assigned to A and B. After inspection, all the 22 questionnaires are valid.

3 Results

Firstly, we test for normality of the four items (Table 1).

Table 1

the Results of Normality Test

Items	*n*	Mean	Std.	skewness	kurtosis	Kolmogorov-Smirnov test		Shapiro-Wilk test	
						Statistic *D*	*p*	Statistic *W*	*p*
Passage 1 (Normal)	11	80.000	23.091	0.893	-0.129	0.210	0.192	0.891	0.143
Passage 1 (Bionic)	11	88.909	31.412	1.858	4.897	0.259	0.037*	0.822	0.018*
Passage 2 (Normal)	11	204.000	55.140	0.925	1.470	0.184	0.374	0.933	0.439
Passage 2 (Bionic)	11	219.455	89.802	1.527	3.032	0.174	0.465	0.881	0.106

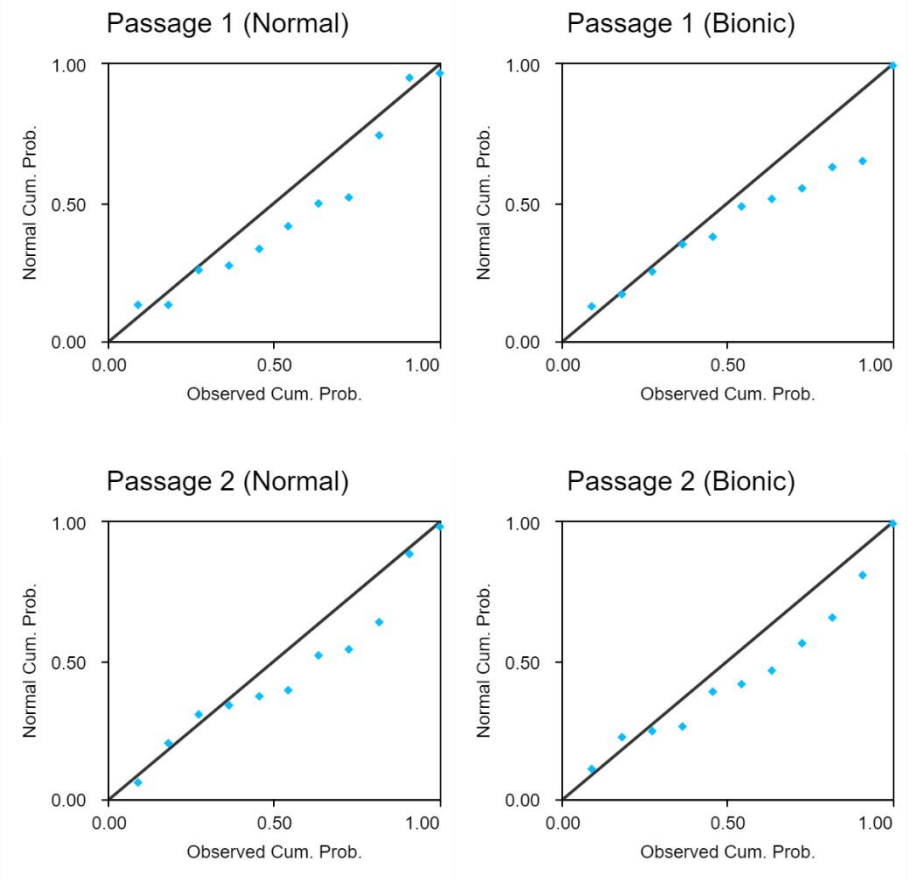
* $p<0.05$ ** $p<0.01$

Note. n refers to the sample size. Tabulated by SPSSAU.

Since the sample size is less than 50, we use the S-W test. As is shown in Table 1, Passage 1 (Normal) (hereinafter called the “1N”, the same below), Passage 2 (Normal), and Passage 2 (Bionic) have normal characteristics, but Passage 1 (Bionic) does not. However, the absolute value of its kurtosis is 4.897(less than 10) and the absolute value of its skewness is 1.858(less than 3), so it can be accepted as normal distribution. The PP plots of all four items are given below (Figure 3). Approximately, the four scatter plots all appear as diagonal lines.

Figure 3

PP Plots of the Items



Note. Tabulated by SPSSAU.

Then, we use Independent T-test in order to examine differences in reading speed between reading modes (Table 2).

Table 2

the Results of Independent T-test

	Reading Mode (M±SD)	*t*	*p*

	Bionic (*n*=11)	Normal (*n*=11)		
Time for Passage 1	88.91±31.41	80.00±23.09	0.758	0.457
Time for Passage 2	219.45±89.80	204.00±55.14	0.486	0.632

* $p<0.05$ ** $p<0.01$

Note. t is used to calculate *p*. Tabulated by SPSSAU.

According to Table 2, the values of *p* for both Passage 1 and Passage 2 groups do not indicate significant differences in time spent in reading, regardless of the difficulty level of the passage. And contrary to expectations, participants spent a longer average time reading 1B than 1N. So too for Passage 2.

4 Discussion

Although the desired results are not achieved, we can still find something worth analyzing based on the data.

Firstly, the two BR items both have less obvious normal characteristics than the normal two (0.018 and 0.106 for Bionic Reading, compared with 0.143 and 0.439 for normal mode, see Table 1). Many factors may account for the consequence. One possibility is that participants were not accustomed to the BR mode. After finishing the questionnaire, some responded that they felt a little uncomfortable when seeing those letters with inconsistent thickness. Some even mistook BR mode for ink leakage! But those who believed they read faster did exist. It seems that whether BR mode is effective varies greatly from person to person. In addition, the sample size is too small so the accuracy and reliability of the calculated results can’t be guaranteed.

Additionally, from Table 2, we can find the value of p in the Passage 2 group (0.632) is greater than that in Passage 1 (0.457), which means the difference in reading speed between the two modes is less obvious in Passage 2. This is a reasonable result, because Passage 2 is more difficult and longer than Passage 1, and the difficulty factor makes BR mode ineffective. Participants may use more time to reread or to understand a difficult passage.

Finally, we return to the improvement of this research. From the communication with some of our respondents, we think that Bionic Reading mode may take effect especially when the font size is big. Chances are that our eyes are more effectively guided by them when there are only five to seven bold parts in a line. Too many of those stressed parts per line are counterproductive. However, this dissertation loses that part of the research. We expect future studies could fruitfully explore this issue further.