The Effect of Time Pressure on Saudi Students’ Reading Fluency

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Abstract

The paper investigates the effect of time pressure on Saudi students’ reading fluency on the basis of the hypothesis that the time pressure alone can bring a significant change as the Saudi students are not motivated to utilize their acquired reading competence when they read something new. The study was conducted with 24 King Khalid University level 1 students from the science, commerce and arts faculties for 9 weeks. The students’ timed reading was found to have a significant impact on their reading speed and comprehension. At the end of the study, their reading speed increased from 30 WPM (Words Per Minute) to 40 WPM with the simultaneous improvement of reading comprehension—from the mean score of 3.95 to the mean score of 4.83 out of five.

Keywords: timed reading, reading speed, reading comprehension, Saudi Arabia
Introduction

Nation (2007, p 1.) argues that the opportunities for language learning can be divided into four strands: fluency development, language-focused learning, meaning-focused input and meaning-focused output. He terms these as strands because he thinks, these long continuous sets of learning conditions should run through the language courses. Nation also argues that to be well balanced, a language course should give roughly equal amounts of time to each of the four strands. From this point of view, English language courses in King Khalid University cannot be termed as well designed course as fluency activity is almost neglected here. To be precise, fluency development is not even mentioned in the objectives set for the skill courses. In this context, the paper tries to find out whether fluency activity can bring any change to the reading skill course or not.

The data were collected from six reading classes without interfering the regular class modes. The teacher conducted the classes as he always does using the texts from the prescribed textbook. The texts are only slightly modified to make them equal in terms of readability. The only new thing added there was time pressure—the students had to read the texts and answer the reading comprehension questions in a fixed time without skimming and scanning.

It is widely acknowledged that reading fluency is positively correlated with reading comprehension and reading speed can be enhanced by timed reading (Chang, 2010). However, the effect of only the time pressure on reading speed and comprehension are not properly explored yet. The study aims to explore the effects of timed-reading on reading speed and comprehension. It addresses the following two research questions:

1. Does time pressure alone improve the students’ reading speed?
2. Do readers comprehend better when they are forced to increase their reading speed?

Literature Review
Reading fluency and reading comprehension

Many studies found, as mentioned above, that reading comprehension positively correlates with reading fluency. Reading fluency is “the ability to read text rapidly, smoothly, effortlessly, and automatically with little attention to the mechanics of reading such as decoding” (Meyer, 1999, p. 284). In addition to that, reading fluency, according to Segalowitz (2000) and Kuhn & Stahl (2003), also refers to accuracy.

Fluent reading generally involves lower-level and higher-level processes (Laberge & Samuels, 1974; Stanovich, 2000). Lower level processes are more automatic and are typically viewed as more skills-oriented, including syntactic parsing, word recognition, working memory activation and meaning proposition encoding. This means a fluent reader must have the ability to
“recognize the word forms, the graphic form and phonological information, activate appropriate
semantic and syntactic resources, recognize morphological affixation in more complex word
forms, and access her or his mental lexicon” (Grabe, 2009, p. 27). On the other hand, the higher
level processes are so-called comprehension processes, which includes interpretation of ideas
and understanding text meaning.

The fluent readers can do all the things, mentioned above, quickly, efficiently, and
automatically. “Automaticity” refers to “the absence of attentional control in the execution of a
cognitive activity” (Segalowitz & Hulstijn, 2005, p. 371), and arises through constant practice.

The theoretical underpinning of the relationship between reading fluency and reading
comprehension is based on research on short-term memory which mediates reading
comprehension (Smith, 2004; Macalister, 2010). As short-term memory has limited capacity and
fading content, it badly affects reading comprehension. This problem is aggravated when the
reader reads very slowly because when she/he reads word by word he forgets what is being read.

A few studies have been conducted to find out the relationship between reading speed
and reading comprehension in L1. In a series of studies, Breznitz and Share (1992) investigated
the impact of fast-paced and self-paced reading on the reading accuracy and comprehension of
Israeli pupils reading short passages. The reading comprehension in fast-paced reading was
much better than that in self-faced reading. The results of these experiments were similar to
Breznitz’s (1987) earlier study. In another study (Walczyk et al., 1999), reading fluency was
found to have a positive impact on reading comprehension. However, some contradictory
findings were shown in an experiment by Meyer, Talbot, and Florencio (1999), who explored the
effects of three types of time constraint: no time pressure (90 WPM), mild time pressure (130
WPM), and severe time pressure (300 WPM). The participants’ performances on the three recall
tasks uniformly improved as the speed decreased and they achieved best at the speed of 90 wpm.
However, in another case with younger and older adults, the readers comprehended best under
mild time pressure.

In L2, no significant studies have been conducted to find out the correlation between
reading fluency and reading comprehension except Cushing-Weigle and Jensen (1996). They
found that their students (n = 64) perceived a significant improvement in their reading speed and
comprehension. Although with the improvement of reading rate (from 158 WPM to 195 WPM),
the students’ comprehension scores decreased from 6.59 to 5.80 out of 10, the authors considered
it to be a progress in reading comprehension as more difficult academic texts were used.

Therefore, the studies mentioned above do not substantiate Carver (1982) who found that
reading at a rate between 250 WPM and 350 WPM allows readers to comprehend a text most
efficiently. However, one conclusion can be drawn from all the studies done on this area and that
is each learner at a certain level of her/his proficiency in a particular language has an optimal
reading rate. If she/he reads at that speed, she/he comprehends the best. However, the problem is that in self-paced reading, the L2 learner, for her/his lack of confidence, is usually slower than the speed which she/he can actually afford. Hence, the researchers hypothesize that if the teacher finds out the students’ actual reading rate through “timed reading” and persuades her/him to read in that rate, a student will have her/his best reading comprehension.

Timed Reading

In a typical timed reading activity, according to Nation (2007, p.6) learners have to read a controlled text (where content and language are largely familiar to them) in a fixed time and then answer comprehension questions. Reading under time pressure improves reading speed to an optimal rate that supports comprehension rather than developing speedy readers (Anna C-S Chang, 2010). In other words, “timed reading” promotes mindfulness in readers, “a construct which involves exertion of more effort and motivation” (Walczyk et al., 1999, p. 156).

Several studies have been conducted regarding positive correlation between timed reading and reading speed/comprehension. Chung and Nation (2006) conducted a time reading activity with a group of 49 Korean university students and found that after reading a total of 23 texts over a period of nine weeks, the students’ reading speed improved from 73 WPM to 97 WPM (the highest rate minus the lowest one) to 132 WPM (the 20th passage reading rate minus the first one) using different scoring methods. However, this study did not have any control group and comprehension was not reported. In Cramer (1975), 30 Malaysian elementary students showed a great improvement in reading speed in both their native language and English after reading eight passages in fixed time over four weeks. However, like Chung and Nation (2006), this study also did not report comprehension.

Although the studies mentioned above did not report about the correlation between timed reading and reading comprehension, they clearly show that the students’ reading speed can be enhanced through timed reading activities. Therefore, synthesizing these studies with the studies mentioned above (Smith, 2004; Macalister, 2010) which found a positive correlation between reading speed and reading comprehension, it might be argued that timed reading improves reading comprehension.

Method

The study was conducted at King Khalid University in the Kingdom of Saudi Arabia. The data were collected from a period of nine weeks.
Participants

A total of 24 students (aged 19-21) who participated in the study were the students of Physics (1), Accounting (14), Business Administration (4), Mathematics (1), Chemistry (3) and Biology (1). All of their English teachers, while interviewed, unanimously opined that these students’ proficiency level was at the lowest in reading and writing. They assumed that in terms of Flesch Kincaid Grade Level, during the time of data collection the students’ position was somewhere lower than level five.

Materials

As the study was integrated to university curriculum, the nine reading texts used for “timed reading” were taken from the students’ regular textbook—Well Read 1 (Blass, 2008). The nine texts used in this study were taken from the chapters titled “Polite Behavior in Four Countries” and “The MacArthur ‘Genius’ Grants” (Blass, 2008, pp. 82-83, 101). As the textbook was used as the source, the texts were supposed to be suitable to the students’ competence. The nine texts were distributed in three sets each of which had three texts. The first set (Text 1, Text 2, and Text 3) about different cultures was used in pilot study by which the researchers got the idea of the students’ current reading speed. The second (Text 4, Text 5, and Text 6) and the third (Text 7, Text 8, and Text 9) sets were about special people—“geniuses”. It is to be noted here that the textbook texts were changed a little in order to make them equal in terms of readability. They were being modified until the following statistics showed (see Table 1) that they have almost the same readability.

<table>
<thead>
<tr>
<th>Text</th>
<th>Words per text</th>
<th>Words per sentence</th>
<th>Characters per word</th>
<th>Passive Sentence</th>
<th>Flesch Reading Ease</th>
<th>Flesch-Kincaid Grade Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>60</td>
<td>9.5</td>
<td>5.0</td>
<td>4%</td>
<td>58.2</td>
<td>7.4</td>
</tr>
<tr>
<td>2</td>
<td>59</td>
<td>9.5</td>
<td>5.0</td>
<td>0%</td>
<td>58.2</td>
<td>7.4</td>
</tr>
<tr>
<td>3</td>
<td>58</td>
<td>10.3</td>
<td>4.9</td>
<td>4%</td>
<td>60.8</td>
<td>7.1</td>
</tr>
<tr>
<td>4</td>
<td>60</td>
<td>8.1</td>
<td>4.4</td>
<td>6%</td>
<td>69.7</td>
<td>5.5</td>
</tr>
<tr>
<td>5</td>
<td>57</td>
<td>8.1</td>
<td>4.4</td>
<td>0%</td>
<td>69.7</td>
<td>5.5</td>
</tr>
<tr>
<td>6</td>
<td>62</td>
<td>8.1</td>
<td>4.4</td>
<td>0%</td>
<td>69.7</td>
<td>5.5</td>
</tr>
<tr>
<td>7</td>
<td>61</td>
<td>7.3</td>
<td>4.6</td>
<td>3%</td>
<td>66.7</td>
<td>5.7</td>
</tr>
<tr>
<td>8</td>
<td>60</td>
<td>7.3</td>
<td>4.6</td>
<td>3%</td>
<td>66.7</td>
<td>5.7</td>
</tr>
<tr>
<td>9</td>
<td>62</td>
<td>7.3</td>
<td>4.6</td>
<td>3%</td>
<td>66.7</td>
<td>5.7</td>
</tr>
</tbody>
</table>

Table 1: Readability Statistics of nine texts
Pre-reading activities

The teacher, one of the researchers, conducted the same kind of pre-reading activities for 15 minutes in all the classes. In the first five minutes, the teacher stimulated the students’ relevant schemata and then in the next 10 minutes he explained the meanings of unknown words to the students. All the pre-reading activities were conducted keeping Nation’s (2007,p.6) suggestion in mind that speed reading activities should be based on the texts which are largely familiar to the students in terms of content, grammar, structure, and vocabulary.

Test

When the pre-reading activities were over, the students read the following texts in fixed times (2.00, 1.40, and 1.20 minutes). They were not allowed to see the multiple choice questions while reading the text silently. They could see the questions only when the reading time was over and once they saw the questions they could not go back to the texts to find out the answers. The time for answering the questions was also fixed—five minutes. For each text, there were five multiple-choice questions each of which had three distractors. The teacher used a stopwatch to maintain the time.

Data analysis

Inter-rater reliability for marking the papers: Pearson Correlation Coefficient Test was not used to analyze the marks given by two independent raters as the questions were objective. Two raters marked the papers in order to avoid mistakes.

Statistical analysis: SPSS was used to analyze the participants’ posttest scores and a post-hoc LSD (Least Significant Difference) test was employed to find out the difference between the tests. Cohen’s $d$ was used to calculate the effect size.

Results

The descriptive statistics are presented in Tables 2 and 3 below.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Texts</th>
<th>Words</th>
<th>Time</th>
<th>WPM</th>
<th>N</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Text 4</td>
<td>60</td>
<td>2.00 minutes</td>
<td>30</td>
<td>24</td>
<td>3.958333</td>
<td>1.122078</td>
</tr>
<tr>
<td></td>
<td>Text 5</td>
<td>57</td>
<td>1.40 minutes</td>
<td>40</td>
<td>24</td>
<td>3.666667</td>
<td>1.129319</td>
</tr>
<tr>
<td></td>
<td>Text 6</td>
<td>62</td>
<td>1.20 minutes</td>
<td>51.66</td>
<td>24</td>
<td>4.125</td>
<td>0.740887</td>
</tr>
<tr>
<td>2</td>
<td>Text 7</td>
<td>61</td>
<td>2.00 minutes</td>
<td>30</td>
<td>24</td>
<td>4.5</td>
<td>0.978019</td>
</tr>
<tr>
<td></td>
<td>Text 8</td>
<td>60</td>
<td>1.40 minutes</td>
<td>40</td>
<td>24</td>
<td>4.838069</td>
<td>0.380693</td>
</tr>
<tr>
<td></td>
<td>Text 9</td>
<td>62</td>
<td>1.20 minutes</td>
<td>51.66</td>
<td>24</td>
<td>4.541667</td>
<td>0.58823</td>
</tr>
</tbody>
</table>

Table 2: Descriptive statistics of the results obtained in the last two phases
After the pilot study, the students participated in “timed reading” activities in two phases. Both the phases had three steps where the students were allowed to read the first text for two minutes at the reading speed of 30 WPM, the second text for one minute and 40 seconds at the reading speed of 40 WPM, and the third text one minute and 20 seconds at the reading speed of 51.66 WPM. In the first five texts (three texts from Phase 1 and the first two text from Phase 2), reading comprehension increased gradually and decreased in the sixth text. It is to be noted here that the students’ reading speed is positively correlated to their reading comprehension until Text 8—the faster they read the better they comprehended. Another significant pattern of the Table above is that at the reading speed of 30 WPM, the reading comprehension ($M=4.5$) in Phase 2 is more than that in Phase 1 ($M=3.95$). In the same vein, at the reading speed of 40 WPM, the reading comprehension ($M=4.83$) in Phase 2 is more than that in Phase 1 ($M=3.66$). The pattern is the same in the case of reading at 51.66 WPM where Phase 2 comprehension ($M=4.54$) is again more than Phase 1 comprehension ($M=4.12$).

It is to be noted here that the results of both the phases are satisfactory as according to Nation (2005), after careful reading the good readers are supposed to obtain between 70% and 80% marks.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Mean Dif.</th>
<th>Comprehension building in percentage</th>
<th>$p$</th>
<th>Cohens $d$</th>
<th>Effect size $r$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text 7 versus Text 4</td>
<td>0.54</td>
<td>13.67%</td>
<td>0.05*</td>
<td>0.51</td>
<td>0.24</td>
</tr>
<tr>
<td>Text 8 versus Text 5</td>
<td>1.16</td>
<td>31.69%</td>
<td>0.01*</td>
<td>1.38</td>
<td>0.56</td>
</tr>
<tr>
<td>Text 9 versus Text 6</td>
<td>0.41</td>
<td>9.95%</td>
<td>0.01*</td>
<td>0.62</td>
<td>0.29</td>
</tr>
</tbody>
</table>

Note. * $p < .05$

**Table 3: Comparisons between the texts read in the same speed in the last two phases**

As can be seen from the Table above, the timed reading activity improved the students’ reading comprehension inside and across the phases and the improvement is significant. At the reading speed of 30 WPM, the students did much better in Text 7 ($M=4.5$) than in Text 4 ($M=3.95$) with a large effect size ($d=.51$). The effect size is larger ($d=1.38$) in the mean difference between Text 8 ($M=4.83$) and Text 5 ($M=3.66$). However, at the reading speed of 51.66 WPM, the effect size ($d=0.62$) of the mean difference between Text 9 ($M=4.54$) and Text 6 ($M=4.12$) becomes smaller than the previous one although it is still considerably large.
Discussion

From the results presented above, it is clear that timed reading activity improves reading speed and thus reading comprehension. The L2 readers, at any point of their “interlanguage” (Elaine, 2006), have the potentiality of reading at a certain speed. If she/he reads at that speed, she/he comprehends the best. However, L2 readers are not often aware of their reading speed and so for the lack of the confidence, they do not read at that speed. Therefore, it is the teachers’ responsibility to make her/his students, especially L2 students, aware of their reading speed and to persuade them to read in their optimum speed. But as speed reading is not a part of English curriculum, the teachers, in most of the cases, neither try to improve their students’ reading speed nor do they want to know their actual speed.

However, in answer to the research question no. 1—“Does time pressure alone improve the students’ reading speed?”—we can say that time pressure has a significant impact on reading speed. The data analysis, presented above, also shows that the answer to the research question no. 2—“Do readers comprehend better when they are forced to increase their reading speed?”—is positive to a certain extent. In both the phases, the participants’ mean score is higher at the reading speed of 40 WPM than that at the reading speed of 30 WPM. However, there is a slight difference between Phase 1 and Phase 2. In the case of Phase 1, they did better at the reading speed of 51.66 WPM than at the reading speed of 40 WPM. However, at Phase 2 they did better in 40 WPM than in 51.66 WPM.

This study shows that it is neither difficult nor time-consuming for a teacher to know their students’ real reading speed. This kind of timed reading activity does not put the teacher to inconvenience as it can be integrated with regular curriculum and as in the case of this study it took only around 22 minutes for each text, the teacher can do it within her/his class time without disturbing her/his regular teaching.

Conclusion

Two conclusions might be drawn with some caveats described below. Firstly, the teachers should know and let the students know their real reading speed which is often more than what they assume. In most of the cases, this discovery enhances students’ self-esteem which further helps to improve their reading fluency. Therefore, secondly, the teacher should do check their students’ speed periodically—at least twice a semester.

The study is not without limitations. First of all, this study was conducted with a few participants from one foundation course of King Khalid University. A larger sample could tolerate individual variations better in statistical analysis. Moreover, the findings could be easily generalized to all L2 readers, if the data were collected from other levels and other educational
institutions like Elementary, Intermediate, and Secondary schools. Secondly, for the lack of qualitative data, teachers’ and students’ opinions remained unexplored.

Despite these limitations, the results of this study have important pedagogical implications. The findings clearly indicate that wherever English is taught as a second/foreign language, reading fluency should be a part and parcel of curriculum and the teachers should continuously try to improve their students’ reading fluency. Of course they can adopt other methods like “repeated reading” or “reading aloud”, but “timed reading” can be always considered to be one of the best choices.
References


