

Optimizing speed reading practice for reading fluency: How many practice sessions are enough?

流暢に読むための有効な速読練習：
どれくらいの練習が必要か？

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Abstract

Speed Reading has been demonstrated to be an important element in an L2 Reading course for improving reading fluency. However research has not been published on how many sessions of Speed Reading should be done in each class. Is one Speed Reading session enough, or do two per class produce dramatically better gains in reading speed? Does any differential gain remain after controlling for the quantity of Speed Reading text? Examining reading speed gains from two equivalent class samples, the first which practiced speed reading once per class and the other twice, this study shows: (1) Both courses improved their reading speed; (2) The course which practiced speed reading twice a class improved more than six times as much as the course which practiced only once per class; (3) When controlling for quantity of readings, the results also showed significantly greater reading speed improvement for the students in the course where speed reading was practiced twice per class, although results of tests of homogeneity variances were also significant, leaving further analysis for future study.

Keywords:

[速読] Speed reading・[読みの流暢さ] reading fluency

[時間を計りながら読むこと] timed readings・[読解] reading comprehension

Introduction and Literature Review

If students of English can reach a higher reading speed, they can enter the virtuous cycle of increased understanding, increased enjoyment and therefore increased motivation (Nutall, 1996). There are several methods normally utilized to improve reading rates:

- Repeated readings (reading the same passage several times)
- Easy extensive reading (reading many books below their actual level or re-reading books)
- Taking a speed reading course (reading a series of timed reading passages with no re-reading) (Macalister, 2008; Chang, 2010)

There is little research on speed reading effects on EFL learners (Chung & Nation, 2006; Macalister, 2008; Chang, 2010). Chung & Nation's 2006 study on Korean students of English showed that a speed reading course could increase the average reading speed by 52% (73 wpm). On the basis of this result, the authors recommend that "a speed reading course should be included in every reading class" (Chung & Nation, 2006, p. 198).

Macalister attempted to test if the increase in reading speed is due to the practice effect¹ and/or other factors in an ESL environment. Students in his sample generally retained word per minute gains in a speed reading course weeks after the speed reading course was completed. He concluded that "teachers should, therefore, be encouraged to include a speed reading course in their program" (Macalister, 2008, p. 32).

In a subsequent study Macalister looked at the effect of a speed reading course on authentic texts (Macalister, 2010). He confirmed the speed gain results of his own and Chung & Nation's previous studies. He concluded that "(S)tudents who do a speed reading course are significantly more likely than those who do not do a speed reading course to read authentic text more quickly at the end of the speed reading course than they did at the start of the speed reading course. They are also more likely to read an authentic text more quickly at the end of the language programme than they did at the start of the language programme" (Macalister, 2010, p 112).

Chang focused on not only on the increase in reading speed, but also the students' comprehension and student perceptions of a speed reading course. She reported that the experimental group that undertook a speed reading course increased 25% (29 wpm) in reading speed vs. 5% (7 wpm) for the control group, and concluded that "when the comparison was done within the group, observable improvement was found in both speed and comprehension for the experimental group but not for the control group" (Chang, 2010, p 297). She also reported that the students who undertook the speed reading course perceived it to "improve their concentration", and "help them obtaining more knowledge and feeling confident" (Chang, 2010, p 299). The speed gain results were not statistically significant, however. In her discussion, Chang posited that "...it is likely that the low

¹ Students become practiced at reading the type of texts and responding and therefore increase in reading speed but this increase is not maintained when the programme ceases (Macalister, 2008, p 25).

frequency of the weekly meetings and varied quantities of reading were the most important factors in the results" (Chang, 2010, p 298).

Like Chang's class, Ryukoku University reading classes normally meet only once a week. Given that limiting factor, what is the optimal number of speed reading texts per session? Chung and Nation recommend that "learners should read about three short texts per week for several weeks" (Chung & Nation, 2006, p. 183), but they do not justify why this is the optimal frequency. The overall number of readings is recommended to be "twenty or more texts" (Quinn & Nation 1974 in Chung & Nation, 2006, p. 184). In this study, we posed the following hypotheses:

1. Students who read two speed reading passages per class would gain in reading speed more than those who read only one speed reading passage per class.
2. The difference in reading rate gains between the groups would remain after controlling for the overall number of speed reading passages over the span of the different curricula.

Method

Participants

The participants in the study were Ryukoku freshman students enrolled in the highest level reading class for their faculty. They were divided into two groups- the first group was from the Literature faculty on the Fukakusa campus and the second group was from the Intercultural faculty on the Seta campus. The majors between groups were different, as the larger group were part of the literature faculty, while the smaller group were Intercultural majors. Intercultural majors had five compulsory English classes a week, but the literature students had only two per week.

Procedure

Each author taught one of the courses and followed the almost identical curriculum except that the 37-student Fukakusa group practiced speed reading once per class, and the 20-student Seta group practiced speed reading twice. Speed Reading texts were taken from the speed reading section of the course text *More Reading Power: reading for pleasure, comprehension skills, thinking skills, reading faster* by Mikulecky & Jeffries (2004) and *Reading for Speed and Fluency* by Nation & Malarcher (2007) which were designed to be level-appropriate for speed reading practice.

Speed Reading sessions followed a strict protocol. Students would have a maximum

of five minutes to finish a text of approximately 500 words. Upon finishing, the students would note the elapsed time and convert the number to a reading rate using a table provided by the course text. Then the students would turn the page and answer eight comprehension questions. Finally, the teacher revealed the answers and students recorded their comprehension score and reading rate for the passage. One complete speed reading session took about ten minutes, two speed reading sessions about twenty minutes. Both classes met for 90 minutes once a week. The remainder of both classes followed almost identical curriculum, which was focused on skills development, vocabulary building, and student discussion/reports on extensive reading done for homework.

The Fukakusa class practiced speed reading once per class, for a total of ten unique texts per semester and twenty unique texts for the academic year. The Seta class practiced speed reading twice per class, for a total of twenty unique texts per semester and forty unique texts for the academic year. In both classes, the study dropped students from the sample if they had no score noted for 20% or more of the practice sessions, resulting in fourteen dropped students from the Fukakusa group and one dropped student from the Seta group, leaving the Fukakusa sample at 23 and the Seta sample at 19.

Results

The researchers noted the reading speed and comprehension scores for both classes at the beginning of the course to test for equivalence between samples. The study averaged the raw results from the first three reading practice sessions in order to avoid spurious results, a conservative method commonly followed in the field (Macalister, 2010; Chung & Nation, 2006). All statistics were analyzed using SPSS version 19. These initial reading rate scores were submitted to test for equivalence. A Levene test for homogeneity of variance showed significant difference in variances between the two groups ($p = .02$). As a result, the samples did not meet a critical assumption necessary for analysis of variance (ANOVA).

Examination of the histograms revealed a distribution for the Fukakusa group quite different from the Seta group due to high outliers which contributed to a high standard deviation and variance statistics. The top decile of results from each sample was trimmed, resulting in a non-significant Levene statistic ($p = .53$). Resubmission of these trimmed samples to one-way ANOVA showed no significant difference between groups, $F(1,37) = 2.77$, $p = 0.11$. The initial mean reading speed scores for the trimmed Fukakusa group (C1) and Seta (C2) samples were 126.9 wpm and 137.6 wpm respectively. The standard deviations of trimmed C1 and C2 were 19.0 and 20.6 respectively. All succeeding statistical analyses were done on the trimmed samples from the Fukakusa and Seta classes, hereafter referred to as C1 ($n = 21$) and C2 ($n = 17$) respectively.

The study then averaged each student's reading rates of the last three speed reading practice sessions. When these data were submitted to a mixed-model ANOVA to measure within-subject and between-subject effects, the results were significant for both. For within-subject effect, the statistics were $F(1,35) = 103.99$, $p = .00$, partial Eta squared = .74. For between-subject effect, the statistics were $F(1, 36) = 37.66$, $p = .00$, partial Eta squared = .51. In order to assess within-subject effects by group, follow-up t-tests were performed. Results of paired sample test for both groups were also significant. C1 results were $t(1,20) = 3.12$, $p = .00$. C2 results were $t(1, 16) = 8.97$, $p = .00$. Results of the analyses significantly improved their reading speed with C2 significantly outscoring by more than six times the average gain of C1.

In order to compare reading score gains while controlling for quantity of speed reading texts, the average of the first three scores and the average scores for readings 17-20 for both C1 and C2 were submitted to a mixed-model ANOVA. As was the case in the first analysis, the Levene statistic was again significant, indicating non-homogeneous variances. However, the differential gain between C1 and C2 was significant, within-subject effect $F(1, 36) = 44.43$, $p = .00$, partial Eta squared = .55. The between-subject effect was $F(1, 36) = 14.42$, $p = .00$, partial Eta squared = .29. The p value was small enough as to suggest that the quadruple gain of C2 relative to C1 would not be invalidated despite heterogeneous variances.

With regard to comprehension, C2's mean of the first three comprehension scores compared to C2's mean of the last three comprehension scores dropped only slightly from 5.4 to 5.2. By comparison, C1's mean score rose from 5.5 to 6.2 by the end of the course.

Discussion and Conclusion

This study examined the reading speed gain through speed reading practice activity. The results show that both groups improved over the academic year. C1 improved 13% or 17 wpm in speed and C2 improved 81% or 112 wpm in speed.

There are a number of factors which qualify recommendations made from this study. First of all, the sample sizes were small. Secondly, no control group was used. It is possible that the gains in the group which practiced only one speed reading session would have made those gains without practicing speed reading, since they were taught reading skills as part of the curriculum. Although both courses followed the same curriculum, the teachers were different, and the differential gains between groups may be due to differential teacher effectiveness.

The original class sizes were 37 and 20. Although the final samples used for

analysis were closer in size (21 & 17), the smaller class may have contributed to the larger gains. Because of smaller class size, student desks in the smaller class could be grouped in a "U" pattern. Due to this class arrangement, those students in the smaller class were likely more aware of when their peers were finished with the speed reading text than in the larger class, since students turned the reading page to answer the comprehension questions upon finishing the text. Students' noticing their peers' reading rate may have encouraged greater competition for faster reading speeds in the smaller class than the larger class, leading to higher gains in reading speed for the smaller class. The study also noted that another large difference between groups was the proportion of students dropped from the samples due to not recording reading rates for at least 80% of the practice sessions. Due to this filter, the large class sample shrunk from 37 to 23 (dropping 38% of potential sample), while the small class lost only one student, shrinking from 20 to 19 (dropping 5% of potential sample). The small class students were allowed to make up speed reading texts at home after an absence, but the large class students were not. This differential treatment may have contributed to higher gains for the smaller group, as teacher insistence on completing speed reading may have reinforced the importance of the activity in student minds.

In contrast, dropping a greater proportion of large class students from the sample (38% vs. 5%) is unlikely to have increased differential speed reading gains between the classes, and may have decreased differential gains. In both classes, students who did not record their reading score normally did this due to absence. If students who are more often absent are less diligent, then it may be true that the experimental treatment would have less effect on students who are absent more often. If this is the case, then including those students in the larger sample would have lowered the larger sample's mean reading gains, thus expanding the difference between groups.

Concerns about the appropriateness of the testing instrument also qualify recommendations from this study. While both groups were tested for equivalence on initial reading speed, the study did not make a separate test of the size of their receptive vocabulary. For reading practice to allow decoding rapid enough for speed reading, readers should "be within a controlled vocabulary so that the learners are not held up by unknown words" (Nation 2009, p 69). Although the speed reading texts were designed with a limited vocabulary, the study did not test the receptive vocabulary of the students nor the vocabulary size for the texts. It is possible that many students in one or both of the groups did not reach the threshold of vocabulary knowledge for these speed reading texts. Although the difference between trimmed samples in initial reading scores was not statistically significant, the larger group was observed to have a lower initial mean score. If the speed reading texts were too difficult for either group because of vocabulary level that was too difficult, then they were likely more difficult for the larger group than the smaller, which may have led to smaller reading speed gains over the course of the academic year.

Other differences beyond differences in samples, testing procedures and the appropriateness of the testing instrument qualify the recommendations of the study. Greater reading speed gains for C2 may be in part due to the practice effect. One method of determining if the practice effect is present is to re-test the sample some significant time after the experimental treatment is completed. In this way, the study can determine if the reading speed gains are durable. If not durable, it may be posited that recorded reading speed gains were not due to any actual increase in reading speed, but only to a practice effect. The study examined reading speed scores immediately before and after the semester break for both C1 and C2 in order to search for possible practice effect. C2, the group that practiced speed reading twice per class, did show a significant drop in mean reading score from 218 wpm to 174 wpm, while the C1 mean remained constant, posting scores before and after the semester break of 129 wpm and 131 wpm². This result implies that a practice effect may have been partially responsible for the difference in speed gains between C1 and C2. However, all but one student in C2 regained their semester break reading speed loss and surpassed it by the end of the academic year. This pattern of “ratcheted” gains for C2, in contrast to the smaller rise for C1, may point to a practice effect. Although all C2 students’ scores fell, only one of the C2 students lost all their reading speed gained over the first semester. All 16 other students retained a portion of their gain over the semester break. Despite evidence for an apparent practice effect for C2, this does not invalidate their first semester reading gains.

Finally, while this study did record comprehension scores, it did not integrate those scores with the speed reading gains. There is limited evidence of this being done in the literature on speed reading effects on L2 (Chang, 2010). Because of this lack of data integration, it is possible that C2 raised their reading rates by sacrificing comprehension. However, C2’s mean of the first three comprehension scores compared to C2’s mean of the last three comprehension scores dropped only slightly from 5.4 to 5.2. In addition, the latter number is likely inflated. Although all the readings were accompanied by eight multiple choice comprehension questions, the number of answer choices in the first thirty speed reading texts offered four choices for comprehension answers but the last ten speed reading texts offered only three choices. Since C1 only read twenty texts, they were always tested on comprehension with four choices, but the C2 switched to three comprehension answers on readings 30-40. Therefore, C2’s year-end 5.2 comprehension score likely overestimates C2’s comprehension. By comparison, C1’s mean score rose from 5.5 to 6.2 by the end of the course. As previously noted, C2 raised their mean reading speed six times greater than C1, but it appears C1’s gain extracted a cost in comprehension, especially when compared to C1. How much of a cost is unclear, due to the change in comprehension measurement

² The study compared the average of each student’s first three readings scores for the beginning of both semesters.

instrument for C2. Further research is required to better integrate these comprehension findings with reading scores.

Another interesting phenomenon observed is that C1 raised the mean comprehension score while raising the mean reading speed score less than 20% of C2. The authors posit that the method of checking answers may account for this difference. C2's teacher wrote the answers to the comprehension questions on the board for all students to check anonymously. C1's teacher generally had students read their answers out loud in class. It is likely that students regarded announcing a wrong answer to be embarrassing. If so, this risk of embarrassment would encourage C1's students to more regard comprehension as more important than reading rate. This differential method of checking may have inhibited C1 students from risking raising their reading speed scores at the cost of lowering their comprehension score. If this hypothesis is true, then it underscores the small procedural decisions teachers make can have outsized consequences in the extent and manner of student learning.

Despite the above qualifications, the study provisionally recommends speed reading practice at least twice a class in reading courses. The differential gain of 112 wpm (81%) vs. 17 wpm (13%) of C2 over C1 is sizeable and statistically significant. The study did not determine if the experimental effect between C1 and C2 was due to the doubling of practice sessions per class or the greater total number of practice sessions. The authors plan for further study employing a control group to separate confounding factors that were unable to be separated in this study.

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