

Determining an Attainable Threshold: The Effects of Extensive Reading and Timed-Reading Activities on Student Mock TOEIC Results

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達成可能な閾値の測定：
TOEIC 模擬試験のスコアを指標にした多読と速読活動の効果

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本研究では、TOEIC 模擬試験の結果に基づいた推定スコア（以下、TOEIC 模擬試験のスコア）を指標に、学生が多読プログラムへの参加度と速読活動（時間を計りながら読む活動）の効果を調査した。東海大学で外国語として英語を学ぶ学部生を対象に、セメスター中に多読プログラムと速読活動を行ったグループ（112名）と行わなかったグループ（54名）の TOEIC 模擬試験のスコアを比較した。多読と速読活動とを行ったグループではセメスター開始時と終了時の TOEIC 模擬試験のスコアに有意差がみられた。また、多読としてセメスター中に15万語以上読んだ学習者は、速読に関しても、セメスター開始時と比較し、セメスター終了時には1分間に読める単語数が平均で27.8語増加した。これは多読量が15万語以下の学習者の増加率と顕著に異なるものであった。英語を第二言語として学ぶ大学生に対して、1セメスターで行える多読プログラムには限界があるものの、時間的制約の中で効果を上げるためには、多読として1セメスターで少なくとも15万語を達成することが重要な要因であることが本研究で示唆された。

Key Words: Extensive reading, Timed-reading, Reading fluency, TOEIC

1. Introduction

Extensive Reading (ER) has gained increasing support within English as a Foreign Language (EFL) curricula and communities. With this acceptance comes an obligation to show that ER provides measurable gains in student language proficiency (O'Neill, 2012). This is not an easy task, as Grabe and Stoller (2002) note the benefits of ER “cannot be seen in a relatively short period of time and L2 teachers and reading programs abandon extensive

reading as an integral component of the curriculum before they see its real impact” (p.144). For a program to be effective, it needs to expand and develop learner’s vocabulary, word recognition skills, and reading motivation to attain a level of reading fluency which makes reading pleasurable (Grabe, 2009). Therefore, the underlying issue still rests with the need to encourage reluctant learners and instructors of the underlying benefits of extensive reading with concrete evidence.

Several studies have investigated the possible link between ER, reading fluency, and language proficiency; however, results greatly hinge on students reading an excessive amount of words/graded readers that may not be sustainable in the long-term or practical within the course of a semester, often rendering insufficient evidence as to whether such practices lead to reading fluency (Grabe, 2009; Huffman, 2014). Therefore, by setting a practical and attainable goal of 150,000 words with graded readers over the course of a semester, this study examined seven EFL classes at Tokai University to determine the impact of ER (using graded readers) on reading rate gains (using a series of timed-reading activities) and language proficiency (using the TOEIC Challenge, a mock Test of English for International Communication (TOEIC)).

2. Literature Review

2.1 Extensive Reading

Extensive reading (ER) is commonly characterized as quantitative L2 pleasure reading over an extended period of time in which students choose easy and enjoyable books they wish to read (Day & Bamford, 1998; 2002). This requires an ER user to process words and sentences without dictionary assistance, usually with 98% fluency and efficiency (e.g. 3-6 unknown words out of 300) (Grabe, 2009). Graded readers with their high frequency words and repetitive syntax are an ideal source of simplified texts for learners to improve their overall language abilities by reading (Day & Bamford, 1998).

Needless to say, graded readers can assist with fluency and enhance language acquisition (Day & Bamford, 1998; Grabe, 2009; Huffman, 2014), but they do rely on learners to be highly motivated, resulting in obvious disparities in learning outcomes (Kirchhoff, 2013). The underlying hope is that positive attributes will boost a learner’s decision to read and ultimately establish a continuous cycle of reading (Yamashita, 2013). However, it is hard to disagree with Grabe (2009) when he suggests that “students only become skilled readers when they read a lot, and motivation for reading is critical for addressing this challenge” (p. 192).

2.2 Reading Fluency

Reading fluency can be defined as the ability to read rapidly with ease and accuracy with appropriate expression and phrasing (Grabe, 2009; Kuhn & Stahl, 2003). It is also the ability to recognize and group words automatically and comprehend meaning at the same time. Essentially, to attain fluency, the low-level processes of automaticity, accuracy, and reading rate need to work spontaneously. Evidently, when a reader reads too slowly (below

200 wpm), they run the risk of poor comprehension and inability to recall the text (Chang, 2010). In comparison, L2 university students may only read 80–120 wpm and usually require sufficient time to perform reasonably well on comprehension tests (Gabe, 2009; Waring & McLean 2015). In terms of comprehension, the L2 reader needs to score about 70%–80%, whereas a score above 80% indicates that the reader is reading for detail (Nation, 2005). Balancing speed and comprehension within timed-reading activities requires considerable attention and specific instructions. It should also be noted that accurate reading rates are difficult to ascertain as conditions such as reading purpose, text difficulty, vocabulary load, reading experience, and background knowledge will also factor into the equation (Carver, 1992).

In addition to ER, timed-reading activities provide another means of addressing reading fluency. Timed reading by definition requires students to read under time constraints to improve reading speed and optimize comprehension (Chang, 2010). Chang's (2010) study on timed-reading activities among Taiwanese students, demonstrated a marginal increase in reading speed by 29 wpm (25%) and minimum comprehension gains of .63 (4%). Her study supports the theory of automatic information processing: students increased their reading rates even though their comprehension gains were insignificant which is likely due to the fact that the participant's reading rates had not reached optimal levels. The study concludes that curriculum inclusion of a timed-reading activity can improve learners' reading speed and reading confidence.

2.3 TOEIC and Extensive Reading

Reading is a critical skill for TOEIC success as 75% of the test items, not just in terms of reading comprehension but also written questions in the listening sections, are based on reading (Brown, 2006). For the most part, TOEIC instruction relies on what Krashen refers to as "direct instruction" which includes the processes of "skill-building" and "error correction" (2004; 18). Skill-building refers to the process in which rules are learned and practiced until they become automatic, whereas "error correction" aims to prevent repetition of a mistake. However, some have called into question the benefits of direct instruction, as it tends to be limited to low-level learners (Brown, 2006; Robb & Ercanbrack, 1999). In general, Japanese EFL learners continually face challenges given that TOEIC prep courses tend to focus exclusively on the meaning of questions, rather than how to deal with ambiguity or how to increase reading speed (Brown, 2006). Instead, ER practices may be a supplemental means to boost language proficiency scores.

Although several studies have examined the correlation between TOEIC scores and ER, there tend to be varying discrepancies in the amount of reading and consistency required. According to Nishizawa, Yoshioka and Fukada (2010), a sustained silent reading (SSR) program at a Japanese university resulted in an average increase in TOEIC scores from 373 to 507 over four years. This required a threshold of 300,000 words read over 2–3 consecutive years with a guaranteed scheduled in-class reading time of 45 minutes per week. Overall, this long-term study lacks immediate returns which may cause students to lose interest quickly. Research by O'Neill (2012) indicates a 19.4 TOEIC score point gain

with ER compared to an 8.1 point gain for non-ER users when comparing freshman and sophomore TOEIC scores. What is unclear with O'Neill's (2012) study is the number of words that students actually read. The program simply required students to read one book per week which does not necessarily set clear word target goals.

3. Purpose of Study

Although ER has grown in popularity, there still appears to be some resistance within post-secondary education to fully incorporating it within the L2 curriculum. This may be due to a lack of empirical research on reading fluency development in regards to ER and the ability to directly correlate those results to language proficiency testing such as TOEIC, which is seen to measure achievement (Grabe, 2009; Belgar, Hunt & Kite, 2014).

In a previous study, Cheetham, Elliott, & Tagashira (2016) examined whether there was a correlation between timed-reading activities and ER, in terms of both speed and comprehension. The study found that while student reading speed improved over the course of the semester, there was no strong correlation between reading speed and ER and no discernible improvement in reading comprehension scores. One of the limitations of the study was found to be a lack of a pre- and post-comprehension test. This study builds upon the previous research and attempts to address this limitation to better explore the impact of ER and timed-reading activities in terms of reading fluency and how it may impact student TOEIC test results. The research questions are as follows:

- RQ1. What roles do extensive reading (ER) and timed-reading activities play in increasing student TOEIC scores?
- RQ2. How much ER (words read) is required for students to increase their TOEIC scores within a semester?
- RQ3. Is there a correlation between timed reading and ER based on the number of words read by a student over the course of the semester?

4. Research Methods

To measure student TOEIC achievements and level of reading fluency in relation to ER and timed reading, the participants in the treatment group of this study were encouraged to read over 100,000 words (the number of words read which was tracked and monitored through MReader), take weekly timed-reading quizzes, and take the TOEIC Challenge as a pre- and post-tests (see 4.1 below). In comparison, the control group of this study only took the TOEIC Challenge pre- and post-tests.

To analyze reading rates, we measured words per minute (wpm): total words divided by total time in seconds. The analysis for this study was conducted with JMP 11.0.

4.1 TOEIC Challenge Pre- and Post-Test

The TOEIC Challenge is a mock TOEIC test designed by Lint Co., Ltd. specifically for

Tokai University. The TOEIC Challenge was administered as a pre- and post-test for this study. The TOEIC Challenge is a half TOEIC test containing 50 listening questions and 50 reading questions. The test was computer-based with a time limit of 60 minutes and conducted in the third and twenty-sixth class of the semester. The students' full TOEIC equivalent scores are generated based on Item Response Theory (IRT), a two-parameter logistic model and Maximum Likelihood Estimation (MLE) in accordance with the actual TOEIC testing scale. IRT is used to assess item difficulty indexes for each question and estimate the examinee's ability through MLE. The TOEIC Challenge computer program then estimates the student's full TOEIC score using the statistical program "R" which calculates both formulas simultaneously within the server, generating test scores for the students immediately after test completion.

4.2 Participants

The participants in this preliminary study were 174 students from seven advanced-level (CEFR B1) required Listening and Speaking 2 (LS2) classes taught over 15 weeks in Fall 2016 and Spring 2017. Only participants with both pre- and post-mock TOEIC test scores were included in this analysis ($N=166$), and the remaining participants ($N=8$) who did not complete the pre- and post-test requirements were excluded from the analysis.

Table 1. *Total Number of Participants*

Group	Class Name	Number of Classes	Required/ Elective	Level	Student Total
Treatment group	LS2	5	Required	Advanced	112
Control group	LS2	2	Required	Advanced	54
Total					166

4.3 Procedure

4.3.1 Extensive Reading Class Requirements and Procedures

Twice a week, teachers in the treatment group brought their mobile library cart of graded readers to class. Each mobile library cart consists of baskets of graded reader titles from various publishers such as *Cambridge*, *Cengage*, *Compass*, *Oxford*, *Penguin*, and *Scholastic*, which are selected for learner reading abilities. For the advanced-level classes, there are 5 book levels from 700 to 2,200 headwords (Tokai University Foreign Language Center Graded Reader Library levels: brown, lime, red, purple and blue) from which students may choose level-appropriate books (Cheetham, Harper, Elliott, & Ito, 2016). In class, students were given 15 minutes to silently read and encouraged to select and take books home. Each week, students were given 5 minutes to discuss the book they read with a partner. In addition, students were also encouraged to seek out other graded reader titles at the appropriate level through the main library.

After reading a graded reader predominately outside of class time, students were required to pass (pass mark=50%) a ten-item MReader quiz to assess whether the student

had actually read the book or not. A pass meant that the number of words in the book were added to the total number of words read. As an online reading management system, MReader allowed teachers and students to track their extensive reading progress through their accumulated word count over the course of 15 weeks based on the number of quizzes passed. The reading goal for these classes was set at 150,000 words with MReader quizzes passed.

4.3.2 Timed-Reading Materials and Procedure

Reading for Speed and Fluency Book 2 by Nation and Malarcher (2007) at the 1,000-word level was adopted for the timed-reading activity that was used with the treatment group. Book 2 is part of a four-book series designed to practice accelerated reading. The books are written with familiar high-frequency vocabulary. Based on Tokai University in-house student placement testing results and the researchers' own experience, Book 2, at the 1,000-word level, was considered suitable for the participants. The content chosen included four topics: art, money, space, and transportation. Each of these topics included five texts of approximately 300 words followed by five multiple-choice comprehension questions with four answer choices (a-d). A total of 20 texts were used in this study.

Over the course of 15 weeks, students completed a series of timed readings in class using the selected readings from *Reading for Speed and Fluency* Book 2. Students were required to complete the reading, answer the corresponding five multiple-choice comprehension questions and record their reading speed and comprehension scores using a Reading Chart (Appendix A) and Student Record Sheet (Appendix B). To assist with data processing, students were given a QR code enabling them to use their smartphones to input their answers and reading time into a specially formatted Google Drive application. Students were required to complete all steps within the 5-minute timeframe stipulated by the teacher. Upon completion of the activity, teachers provided the students with the correct answers to the comprehension questions.

5. Analysis

Results for groups with and without the treatment before and after the TOEIC Challenge were compared with the paired *t*-test.

6. Results

Table 2 shows the pre- and post-mock TOEIC test scores for each group. In the treatment group with ER and timed reading, there was a statistically significant difference between pre- and post-tests ($t=5.646$, $df=111$, $p<.05$), while in the non-treatment group, the results were not significant ($t=1.446$, $df=53$, n.s.). This points to the possible role of the treatment (ER and/or timed reading) in improving student performance on the TOEIC.

Table 2. Pre- and Post-Mock TOEIC Test Scores for Treatment and Non-Treatment Groups

Group	Pre-test Mean	Post-test Mean	SD
Group with treatment (N=112)	436.5	463.1	4.70
Group without treatment (N=54)	411.9	422.7	7.49

Within the treatment group, students were divided into four groups depending on the total number of words read: Group A read over 150,000 words, Group B read 149,999 to 100,000, Group C read 99,999 to 50,000, and Group D read under 49,999 words.

Table 3. Treatment Group Participants, Grouped by the Number of Words They Read

Group	Total Number of Words	Student Total
Group A	150,000 +	28
Group B	149,999 ~ 100,000	29
Group C	99,999 ~ 50,000	21
Group D	49,999 ~	34
Total		112

In the pre- and post-test mean scores, the mean difference, SD, and *t*-value are shown for all four treatment groups (A-D) divided by the total number of words read in Table 4. The *t*-value was statistically significant for Groups A, B and D ($p < .05$). Although all groups showed improvement on post-test scores, Group A students who read over 150,000 words notably improved their post-test scores by a mean difference of 32.5 as shown in Table 4.

Table 4. Pre- and Post-Mock TOEIC Test Scores for Treatment Groups Divided by Total Number of Words Read

Group	Pre-test Mean	Post-test Mean	Mean Difference	SD	<i>t</i>	<i>p</i>
Group A (N=28)	498.2	530.7	32.5	9.75	3.33	$p=0.0025^*$
Group B (N=29)	389	407.6	18.6	7.58	2.45	$p=0.0206^*$
Group C (N=21)	455.5	479.8	24.29	11.66	2.08	$p=0.0502$
Group D (N=34)	414.6	444.4	29.85	9.26	3.22	$p=0.0028^*$

In regards to words per minute (wpm), the results from the treatment groups at the beginning and end of the semester were compared with the paired *t*-test. The wpm mean scores, the mean difference, SD, and *t*-value are shown for all four groups in Table 5. For Groups A, B, and C the *t*-values were statistically significant ($p < .05$). Results show that students who read over 50,000 words during a semester increased their reading speed, and the mean difference was quite significant, in particular for students who read over 150,000 words.

Table 5. Wpm Results Compiled from Timed-reading Quizzes for each Treatment Group Based on their Total Number of Words Read

Group	Quiz 2 [†] to 5	Quiz 17 to 20	Mean Difference	SD	<i>t</i>	<i>p</i>
Group A (N=28)	146.1	173.9	27.8	7.96	3.49	<i>p</i> =0.0017*
Group B (N=29)	132.3	141.3	9.03	4.08	2.21	<i>p</i> =0.0352*
Group C (N=21)	121.2	129.7	8.5	4.03	2.11	<i>p</i> =0.0480*
Group D (N=34)	124.1	126.3	2.25	6.11	0.37	<i>p</i> =0.7147
Average (N=112)	131.2	142.7	11.57			

[†] Quiz 1 was used as a practice quiz and was not included in the data.

7. Discussion

The control group did not partake in the timed-reading activities or ER treatment; and therefore, showed no significant difference between pre-and post-mock TOEIC tests. Only the treatment group has a significant difference, which means that the treatment (ER and/or timed reading) had some effect on student performance by the end of the course as the post-test scores had indicated. Of course, other factors might affect overall student performance. Being able to isolate the reason for proficiency gains or reading fluency is not simple. Furthermore, the researchers do caution that previous research in the field of reading fluency has had varying results and is subject to many variables.

Although all treatment groups showed improvement in their post-test scores, students in Group A, who read the most, notably improved their post-test scores as shown by the mean difference of 32.5 in Table 4. However, the researchers are unsure why Group C's results were not statistically significant while Group D's were. One explanation could be that Group C was less consistent in their extensive reading habits and on average completed a MReader quiz every 6.6 days, whereas the students in Group B on average completed a quiz every 4.3 days. Consistency is important when we consider that "automaticity develops with practice in consistent environments" in which repetition is more frequent (Beglar, 2014; 43). As a result, the less-consistent reader may not develop a sufficient level of automaticity. The researchers feel that this issue requires additional research and at this time can still not fully account for Group C's results.

As ER purports to improve reading fluency and automaticity (Grabe, 2009), it is understandable that students who engage in ER would eventually be able to process TOEIC questions at a greater rate. However, Grabe (2009) questions whether proficiency tests can effectively be measured by extensive reading due to the nature of the test. It should be noted that TOEIC does not measure the speed in which a student answers individual questions. Chapman and Newfields (2008) also concur that the style of questions (multiple choice and gap-fill) are not reflective of the way that people actually read. Regardless of the perceptions of the test, they still hold validity for students, institutions, and employers as a standard of achievement.

Students in Group A read faster at the beginning of the course which effectively helped them read over 150,000 words by the end of the semester. These students progressed from a mean of 146.1 wpm to 173.9 wpm by the end of the semester. This may support the assertion that L2 learners are able to perform reasonably well on comprehension tests at 120 wpm (Grabe, 2009; Waring & McLean, 2015). In Quizzes 2 to 5, Groups C and D showed similarities in wpm. However, in Quizzes 17 to 20, only Group C showed a statistically significant difference, which indicates that ER can affect reading speed. Evidently, students who read the least (Group D) did not improve their reading speed as their results from the beginning to the end of the treatment tended to be almost the same.

ER programs that do not demonstrate the effectiveness of ER to students run the risk of being ineffective. It is possible that students may lose confidence in their English abilities if they do not make significant gains in proficiency tests like TOEIC (Nishizawa, Yoshioka & Fukada, 2010). Other studies in reading research (Grabe & Stoller, 2002) conclude that the positive effects of ER on TOEIC scores require more reading over a longer period. In order for automaticity and reading fluency to develop, a university EFL curriculum would need to make ER an integral part of their required freshmen and sophomore classes, not just limited to one 15-week semester.

The proposal of 300,000 words over 2-3 years by Nishizawa et al., (2010) as the tipping point for TOEIC scores may hold true for many EFL learners, particularly for those students who may be less proficient and unable to read the 150,000 words in one semester as achieved in this study. A long-term goal may be more attainable or realistic for some learners; and therefore, achieving reading fluency might only be possible in small increments. However, since many ER programs find it nearly impossible to continue beyond a semester within the current university framework, a strong level of motivation would be necessary to entice many students to continue reading for 2 to 3 years.

In addition, students may have difficulty in connecting their TOEIC achievements to ER, as other influences in all likelihood may be viewed as contributing factors. Ideally, students need a means to track the differences in their study habits for them to fully comprehend what impact, if any, ER has on their proficiency scores. MReader as a reading management system does provide instant completion recognition when students pass the online comprehension quiz, but whether students connect their progress to a broader application such as the TOEIC, remains to be seen.

Of the 28 participants in this study who reached 150,000+ words over a semester, they showed significant gains compared to those who read under 150,000. It is plausible that under the right circumstances learners could relatively improve their TOEIC scores and read 150,000 words or more within a semester. This may require a considerable amount of dedication for a student if their reading speed were approximately 120 wpm at the beginning of the semester, a considerable 26 wpm below those students who read 150,000 words. Although the data shows a positive relationship between words per minute and number of words read during a semester, whether or not this is a causal relationship is unclear. Students in Groups C (121.2 wpm) and D (124.1 wpm) who initially read closer to the minimum threshold of 120 wpm for reading rate for LS2 learners (Grabe, 2009; Waring

& McLean, 2015), read fewer wpm at the start of the semester than the average (131.2 wpm) of all students in the treatment group. Correspondingly, these groups read fewer words in total during the semester—see below. At the end of the semester, Group D (126.3) had only modest wpm gains (+2.25) while groups A (173.9 wpm/+27.8), B (141.3 wpm/+9.03), and Group C (129.7 wpm/+8.50) had more significant gains and also read above the average (142.7 wpm/+11.57) of all words read. However, if consistent reading over the course of a semester, as in the case of Group A, results in an incremental increase of 27.8 wpm, it is reasonable to assert that Groups B, C and D are capable of similar results.

8. Limitations and Future Studies

To understand the impact that the different treatments have on student performance, future research needs to isolate each treatment. Since two treatments were applied at the same time it is not possible to determine whether one had a greater impact. Therefore, future data collection requires a separate administration of ER and timed-reading treatments.

Another factor in gauging reading fluency that was not included in this study is reading comprehension. As *Reading for Speed and Fluency* Book 2 only contains five multiple-choice questions (a-e), the researchers felt that the results were insignificant and showed no correlation to reading speed. Future studies would benefit from text that included at least eight to ten questions that would provide a greater measureable index for comprehension.

Although our research aim was to understand reading achievements over one semester, perhaps a longitudinal study that would track student achievements over a longer period might provide different results. Given the difficulties of continuing to track students once they leave a particular course, the pool of results for such a study would likely be much smaller. However, a study based over 4-semesters would most likely generate better data on lower-proficiency readers, an element that is lacking in this study.

9. Conclusion

The purpose of this study has been to examine the relationship between ER, timed-reading activities, and the mock TOEIC results. The 112 participants who received the treatment were subdivided into 4 groups based on the number of words they read over the course of 15 weeks. The results suggest that there is plausibility to the notion that ER and timed reading are beneficial to improve TOEIC scores under certain conditions. Namely, a student needs to read at least 150,000 words or more with an average of 160 wpm or an average incremental increase of 27.8 wpm over a 15-week period. Although perhaps controversial as there is no conclusive evidence within the L2 community, Higgins and Wallace (1989) cite 180 wpm as the minimum threshold at which reading may be regarded as pleasurable. In reality, this is not an implausible goal to attain if students are motivated. It is therefore a necessity for an ER program to demonstrate the power of reading not only to administrators, but also to students, since TOEIC results speak volumes to both

students and administrators. Finding a way to effectively connect TOEIC achievements to incremental gains attained from ER and ultimately greater reading fluency is key.

Although questions still remain as to the true impact that ER and timed-reading activities have on TOEIC achievements, this research does concur with other research which indicates that a large amount of ER is necessary for reading fluency to improve. Time, especially under the constraints of many ER programs which are limited to one semester, plays a significant factor in gathering enough evidence to show the relation between ER and reading fluency.

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Appendix 1: Reading Chart

Chapter 1: Art
Reading 1 The Artist in You p. 11-12

Question 1 2 3 4 5

if x
Score .05

Reading 2 Art and Artists p. 13-14

Question 1 2 3 4 5

if x
Score .05

Reading 3 Sculpture p. 15-16

Question 1 2 3 4 5

if x
Score .05

Reading 4 Leonardo da Vinci p. 17-18

Question 1 2 3 4 5

if x
Score .05

Reading 5 Cave Paintings p. 19-20

Question 1 2 3 4 5

if x
Score .05

Chapter 2: Money
Reading 6 Allowance p. 23-24

Question 1 2 3 4 5

if x
Score .05

Reading 7 Mowing p. 25-26

Question 1 2 3 4 5

if x
Score .05

Reading 8 Currency p. 27-28

Question 1 2 3 4 5

if x
Score .05

Reading 9 Stocks p. 29-30

Question 1 2 3 4 5

if x
Score .05

Reading 10 Mining Money p. 31-32

Question 1 2 3 4 5

if x
Score .05

Name: _____ Student Number: _____

Chapter 7: Space
Reading 17 Satellites p. 63-64

Question 1 2 3 4 5

if x
Score .05

Reading 18 Falling Stars p. 65-66

Question 1 2 3 4 5

if x
Score .05

Reading 19 Space Garbage p. 67-68

Question 1 2 3 4 5

if x
Score .05

Reading 20 Is Pluto a Planet? p. 69-70

Question 1 2 3 4 5

if x
Score .05

Reading 21 The Space Race p. 71-72

Question 1 2 3 4 5

if x
Score .05

Chapter 8: Transportation
Reading 26 Trains in Travel p. 99-100

Question 1 2 3 4 5

if x
Score .05

Reading 27 History of Flight p. 97-98

Question 1 2 3 4 5

if x
Score .05

Reading 28 Cars in America p. 99-100

Question 1 2 3 4 5

if x
Score .05

Reading 29 Flying Fishes p. 101-102

Question 1 2 3 4 5

if x
Score .05

Reading 40 The Channel p. 103-104

Question 1 2 3 4 5

if x
Score .05

Appendix 2: Student Record Sheet

Reading Speed Chart																				
Name: _____										Student Number: _____										
Time										WPM										
0m 30s										60										
0m 45s										40										
0m 45s										45										
0m 45s										44										
0m 30s										42										
0m 45s										41										
1m 0s										40										
1m 0s										37										
1m 15s										35										
1m 20s										34										
1m 20s										32										
1m 30s										31										
1m 30s										30										
1m 30s										27										
1m 45s										25										
1m 45s										24										
1m 50s										22										
1m 50s										21										
2m 0s										20										
2m 0s										18										
2m 15s										18										
2m 15s										17										
2m 20s										16										
2m 20s										15										
2m 30s										14										
2m 30s										13										
2m 45s										13										
2m 45s										12										
2m 50s										12										
2m 50s										11										
3m 0s										11										
3m 15s										10										
3m 15s										10										
3m 20s										10										
3m 20s										9										
3m 30s										9										
3m 30s										8										
3m 45s										8										
3m 45s										8										
3m 50s										8										
3m 50s										7										
4m 0s										7										
4m 15s										6										
4m 15s										6										
4m 20s										6										
4m 20s										5										
4m 30s										5										
4m 30s										5										
4m 45s										4										
4m 45s										4										
4m 50s										3										
4m 50s										3										
Reading	1	2	3	4	5	6	7	8	9	10	31	32	33	34	35	36	37	38	39	40