Print or Pixels: A Pilot Study of Online Graded Reading

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Abstract

This pilot study reports on the implementation of an online graded reader system as part of a reading curriculum for freshman college students. It aims to determine whether such a system can be helpful in fairly assessing students' graded reader progress, whether such a system can help and encourage students to read more, and whether such a system can lead to greater reading proficiency. The results of the study suggest that an online graded reader system can be effective and should be considered for permanent inclusion in a reading curriculum.

Introduction

This paper reports on a pilot study in which a group of 224 first-year Japanese junior college students were exposed to online graded readers as part of a required first-year, introductory reading course. The study describes the reading curriculum with a focus on graded readers and the challenges this poses for curriculum creators. The study then explains the reasons for including graded reading as part of the curriculum and the reasons for choosing online rather than paper graded readers. It notes the progress made by students in terms of words read, books read, and graded reader level. It includes the results of a survey in which students were asked to comment on their experience with online graded readers and makes recommendations for consideration in implementing online graded reading as a permanent component of an introductory reading course. Finally, it compares achievement on a reading comprehension test between students who read paper graded readers and those who read online graded readers.

Extensive and Intensive Reading

Reading in the target language is a skill that is essential for language learners, but it is also one that is difficult to develop successfully[1]. Reading consists of a range of discrete skills,

and consequently this suggests a range of modes of practice to develop those skills. Research suggests that extensive reading can be an effective component in developing reading fluency[2] including developing vocabulary[3], and the present paper discusses extensive reading as one such mode of practice. Sometimes referred to as reading for pleasure, extensive reading can be elucidated by contrasting it to intensive reading. Intensive reading involves learners engaging in specific tasks in order to achieve a particular aim. Examples of such tasks are skimming, scanning, finding answers to comprehension questions or summarizing, among many others. Usually a teacher determines these aims and tasks. By contrast, extensive reading has no such aim or task; learners read for general enjoyment or pleasure. For this reason, there are two fundamental principles that operate in a curriculum that contains extensive reading. First, learners themselves choose what to read, and second, their choice should not be beyond their current reading ability. In contrast to intensive reading, wherein the reading material is often difficult and requires slow careful concentration, extensive reading material should be easy[4]. In implementing a curriculum that includes graded reading, it is vital to accommodate these principles. Learners should be provided access to books of a wide range of genres and with a range of difficulty so that the reading ability of all learners can be accommodated. Extensive reading as a component of a reading course can be effectively implemented using a library of graded readers. These are books in which the vocabulary and grammatical structure has been simplified to make them more amenable to language learners at a range of levels. Typically, graded readers are "graded" based on word frequency. At a basic level they use more common words; as learners progress, they can choose more challenging readers that include more lower-frequency words.

Problems in Implementing Graded Reading

One frustration for educators in implementing graded reading into a reading curriculum is ensuring that students are actually reading graded readers to a significant degree (research suggests a 300,000-word reading threshold for significant improvement in TOEIC scores for EFL learners)[5]. Reading, especially at beginning level, is a chore for many students. Rather than focusing on meaning content, students at lower levels are forced to concentrate on structural elements of language and vocabulary in order to generate meaning. Graded readers attempt to address this barrier by using high-frequency vocabulary and simple grammar, but this can have the undesired effect of making the content trite and childish. The way through this barrier is for students to read a lot in order to make rapid progress to more interesting reading material, but how can educators encourage learners to persevere with something that many describe as boring? This challenge can be addressed in two ways: by providing an incentive in the form of points for graded reading and to facilitate the

pleasure of reading as much as possible.

Incentivizing graded reading through grades is problematic. According to the curriculum prior to the present study, which had been implemented over a number of years, students were required to read for homework at least one graded reader each week over a 15-week term. These graded readers were selected from a book bag of approximately 50 books that teachers brought to the classroom or from the college library, which contains a much larger number of graded readers. Student progress was measured by recording reading speed each week and by two tests, a mid-term and final. These tests also measured reading speed as well as assessing various reading skills. Students' final grades were calculated on their achievement on these tests as well as other components, including 20 percent for graded reading. This latter grading component has always been difficult to assess. Students were required to read at least one graded reader a week, to keep a record of what they had read and to provide a written or oral book report on the book. These written book reports were to be short (100 words), and their main purpose was to verify that students had actually read the book. Verifying that students had actually read a particular reader raised problems, however. Written book reports were often in the form of a summary. Unfortunately, teachers discovered that these summaries could be created by reading an online review of the book at websites such as amazon.com or from summaries that are included on the back cover of some books. Some graded readers include a list with descriptions of characters appearing in the story that could also form a substantial part of a student's book report. In addition, because the same book titles were circulated among students, students could copy each other's reports. However, this attempt at verifying that students were actually reading had the much greater negative consequence of potentially transforming reading for pleasure into something less than pleasurable. Under pressure to make a report, "reading for pleasure" becomes instead "reading in order to write a report" – essentially, an intensive reading task.

Oral book reports also led to undesirable outcomes. Students felt nervous when asked to give oral reports and tended to over prepare. This detracted from the important goal of extensive reading, namely, that it be pleasurable. The requirement of an oral book report was a source of great stress for some students, especially those who had little confidence in their spoken English ability.

Setting the graded reader requirement to one book per week also led to a further undesirable outcome. Students were tempted to choose books with few words and at lower levels than they could probably handle. Thin books with lots of pictures were popular.

Finally, student choice was limited by the available number of book titles in the teacher's book bag or in the college library. The number of copies of the same title was limited to two or three, and this meant that it was often not possible for all students to obtain access to popular titles.

In order to find a way to verify and quantify the amount of graded reading students are doing while at the same time ensuring that that reading be self-directed and pleasurable, the present pilot study was undertaken. Instead of paper books, students had access to approximately 600 online graded readers. These readers were from several publishers and at a range of levels beginning at 300 words up to 3600 words. The broad aims of the study were as follows:

1. To determine if using an online graded reader system provided a reliable way to determine the amount of reading students were actually doing;

2. To determine if an online graded reader system facilitated graded reading for students;

3. To determine if adoption of an online graded reader system had any effect on reading ability as measured by a standard reading test.

Method

The present study took place in the following context. The students were all first-year Japanese junior college students. All of them had completed six years of English education at junior high and high school although the amount of exposure to English, and particularly the exposure to English reading, likely varied to a significant degree among them. They were enrolled in a coordinated curriculum which consisted of three ninety-minute English language classes each week taught by native speakers: a listening and speaking class, an academic writing class, and a reading class. The reading class consisted of three parts: speed reading, reading skills, and extensive reading. As mentioned above, it is this latter part, extensive reading, that forms the focus of the present pilot study pursuant to which the library of paper graded readers was replaced by a virtual library of online graded readers. These readers were accessed by having students subscribe to xreading.com, an online library of more than 600 graded readers from 11 publishers offering a range of levels from 51 - 3600 headwords. A subscription to xreading allows students access to all of the books in the virtual library. The xreading virtual library webpage lists several advantages for students:

1. They can read detailed information about each book, including the level, genre, length and summary. They can also read ratings and reviews by other students.

2. The virtual library includes a universal level system so that students can compare book levels between publishers.

3. Almost all of the books have audio, so students can listen while they read. In addition, the audio is available at 5 speeds, so they can select the speed most appropriate for their ability.

4. Xreading provides randomized multiple-choice quizzes for every book in the library.

Students and teachers can use these quizzes to assess progress.

These advantages would appear to address the limitations in book selection mentioned above. The xreading virtual library has no limitation on how many students can access a particular title at the same time. The information about each book and the filtering by level should also help students to find interesting titles at their particular level. In addition, the xreading system has a learning management system (LMS) that provides student reading data to teachers and eliminates the need for students to provide a book report.

Results and Discussion

By replacing paper graded readers with electronic texts, it was hoped that both the problem of limited selection and teacher verification could be addressed successfully. Provided that students can smoothly access all the books in the xreading.com virtual library, there being no limitation to the number of students who can choose the same book, the available selection will be greatly increased. Regarding verification that students are reading and to what extent they are reading, the learning management system of xreading.com reports class data on the following items:

1. Number of Books: This represents the number of books checked out by the student.

2. Average Book Level: This is the average level of books, according to the xreading scale, checked out by the student.

3. Total Words: This is the total number of words in all books checked out.

4. Words Read: This is the actual total of words read.

5. Percent Read: This is the percentage of words read in all books checked out by the student.

6. Reading Time: This is the total time spent reading by the student.

7. Reading Speed: This is the average reading speed of the student in words per minute.

8. Quiz Average: This is the average quiz score out of 10.

Table 1 shows an example of this data for a particular class:

Table 1: Class Data

St.	No of Books	Av. Lev	Tot Words	Words Read	% Read	Time	Speed	Quiz AVG
St 1	16	6	51775	34810	94.20	4:38:05	117.6	38
St 2	26	5.2	148297	134010	92.90	20:35:00	108.8	64
St 3	17	5.2	81467	62026	85.10	10:03:45	132.8	51
St 4	15	5.1	35644	22294	88.80	4:44:10	66.9	49
St 5	19	7	170510	5219	94.90	0:53:30	647.4	28
St 6	15	4.8	60946	51088	98.70	5:29:00	174.7	75
St 7	21	7.8	232501	128349	83.40	23:45:10	97.1	46

St 8	18	5.7	78772	44298	76.70	9:23:20	89.2	56
St 9	19	5.7	84167	59766	84.10	14:52:55	99.9	54
St 10	13	4.7	38804	13663	100.00	2:36:15	88.7	31
St 11	29	3.4	84322	49827	92.70	7:42:55	109.2	51
St 12	31	6.4	170411	147243	96.30	34:48:35	72.2	71
St 13	14	5.6	26110	23380	100.00	3:40:00	99.7	63
Av	19.5	5.6	97210	59690	91.40	11:00:58	146.5	52.1
Tot	253		1263726	775973				

The LMS also provides additional detail for individual students. This information includes the following:

Title, Xreading Level, Total Words, Words Read, Percent Read and Reading Time. Table 2 shows an example of such data for one student.

Table 2: Individual Student Data

Book	Lev	Tot Words	Words Read	% Read	Reading Time
The Children of the New Forest	6	6773	6773	100%	1:50:10
The Magic Flute	9	1913	1913	100%	0:25:40
A Tale of Two Cities	5	6380	6380	100%	2:00:05
Agatha Christie, Woman of Mystery	6	6163	6163	100%	2:25:40
Marco	5	2082	2082	100%	0:23:10
Noahs Ark	5	319	319	100%	0:13:15
Sherlock Holmes Short Stories	6	6410	6410	100%	1:29:10
Milo	7	6053	6053	100%	1:20:35
Pride and Prejudice ELI	8	15786	15786	100%	1:56:35
Lost City Macchu Picchu	6	1169	1169	100%	0:32:40
The Three Little Pigs	5	360	360	100%	0:03:10
Young Riders Mongolia	6	689	689	100%	0:10:50
Jack and the Magic Beans	5	659	659	100%	0:07:50
Princess Diana	5	10192	10192	100%	2:16:40
William Shakespeare	6	9644	9644	100%	2:46:35
Robinson Crusoe Oxford	6	6986	6986	100%	1:54:00
Through the Looking-Glass	7	10671	477	4.47%	0:10:25
Frankenstein	8	6946	6946	100%	1:59:45
Frankenstein	8	6946	6946	100%	0:50:05
The Mystery of Allegra	6	6297	6297	100%	1:32:35
Daedalus and Icarus	7	781	781	100%	0:15:55
The Lady or the Tiger	7	1298	1298	100%	0:16:00
Gulliver's travels	7	1241	1241	100%	0:28:20
Romeo and Juliet ELI	6	7420	7420	100%	1:55:40
Aladdin and the Enchanted Lamp	4	5382	5382	100%	1:03:20
The Last of the Mohicans	5	6561	6561	100%	1:37:45
Heidi CMD	7	966	966	100%	0:11:50
Macbeth ELI	8	13433	13433	100%	3:17:25
The Three Goats	5	276	276	100%	0:02:55
Circle Games	6	9416	9416	100%	1:36:55
Oliver Twist	10	11199	9114	81.38%	1:55:45
Total Books Added 31 Average	6.4	5497.1	5258.7	96.30%	
Total Books Passed 28 Total		170411	147243		

The data in tables 1 and 2 provides prima facie evidence that the first aim of this study is achieved in that xreading provides a more reliable way of assessing the amount of graded reading students are actually doing than requiring students to write a book report. Words actually read, rather than the number and quality of book reports, provided the means of assessment in this regard. Table 1 shows that words read ranged from a low of 5219 to a high of 147243 in a particular class. The same data show a Reading Time range from 53 minutes to 35 hours. These numbers provided a means for teachers to fairly assess the graded reader grade component for the course. The present reading course is part of a coordinated curriculum taught by a number of different teachers, and using xreading has the added advantage of avoiding an inter-rater reliability problem wherein different teachers are rating book reports differently. Using the data from xreading on words read and time spent reading, it is possible to create an algorithm for a graded reading score that is independent of an individual teacher. The above conclusion is predicated on the assumption that students are actually reading books and not cheating by accessing the xreading.com website, choosing a book, and merely turning pages. The xreading system acts to prevent such cheating by including quizzes on each book. Students are not given credit for having read a book unless they achieve a minimum score (set by the teacher) on the quiz. A further assurance against cheating is an algorithm on the site that prevents students merely turning pages in the book without reading.

The second aim of this pilot study was to determine whether or not an online graded reader system facilitated graded reading for students. To obtain information on this question, students were surveyed in a questionnaire about aspects of xreading that obtained the following results from 144 responses:

Reading Survey Results

1. What do you read in Japanese?

Websites 46.9%

Magazines 32.2%

Books 18.2%

Other 2.7%

2. Before entering college, how often did you read Japanese books?

Frequently 11.1%

Sometimes 45.8%

Not often 23.6%

Almost never 19.4%

3. Before entering college, how often did you read English books?

Frequently 4.8%

Sometimes 22.4%

Not often 30.8%

Almost never 42.0%

4. To what extent did you experience any problems in using the xreading website?

Frequently 11.9%

Sometimes 56.6%

Not often 27.3%

Almost never 6.1%

The nature of these problems is set out in Table 3

Table 3: Problems in Using xreading

Problem	Responses
Can't access books on the site	22
Can't access next page in the book.	18
Screen freezes	10
Can't access quizzes	4
xreading does not recognize that I read the book	4
The display becomes strange	3
Cannot close the book	3
Site suddenly crashes	4
Site suddenly returns to homepage	3
It is hard to write a book review	2
Difficult to search for books	1
I can only read the book once	1
Screen became white and could not access books	1
Page fails to load	1
Slow page loading means I can't continue reading a book	1
Somebody else read my book	1
My quiz result doesn't appear	1
There are often errors	1
I can't answer quiz questions	1
Suddenly jumps to quiz while I am reading the book	1
Suddenly jumps to beginning of book	1
I can't return a book	2
Site is slow	1
The book I chose does not appear	1
I have no wifi at home and a data limit on my phone	1
Server is down	1
I was able to read books without logging in	1
Can't read on the subway	1
Site logs me out	1
Hard to search for books	1
Slow on the subway	1
Book jumps to the last page	1

5. Do you prefer online books or paper books?

Online books 36.8%

Paper books 63.2%

6. Do you want to continue with online graded readers in the second term?

Yes 61.1%

No 38.9%

Reasons for "Yes" answers are set out in Table 4:

Table 4

Comment	Responses
It is easy to read stories/ Readable anywhere/Convenient?	18
I can learn English	5
I can read during my commute	4
I want to read English books	4
I can find books that suit me	3
Usually I have no chance to read English books	3
Wide selection	3
Don't have to carry books or go to a bookstore	2
My reading speed has increased	2
I want to read faster	2
I have to pay, so I feel I have to read	2
I can read many books	1
Illustrations help me understand	1
Feedback score is a helpful reminder	1
My reading speed will increase	1
Enjoyable	1
I want to do my best	1
Buying or borrowing books each week is troublesome	1
Easy to find books	1
Buying books one at a time is expensive	1
Unless I had to do homework, I wouldn't read in English	1

Reasons for "No" answers are set out in Table 5:

Table 5

Comment	Responses
Can't login/Can't proceed/Server trouble/Crashes	12
Paper books are better/less confusing	8
Poor usability	6
Reading on a screen hurts my eyes	4
Having to read each week for homework is too hard	2
I have no time to read	2
I want to be able to read the same book again	2
I don't like reading	2
Have to insert a password each time - troublesome	1
Without a physical book, I forget to read	1
I want answers to quizzes so I know my mistakes	1
Too expensive - I want to use the library	1
Book selection is not interesting	1
I have a data cap	1

The survey results were interesting. The amount of reading of books in Japanese is disappointingly low; almost half the students responded with “not often” or “almost never” to this question. What is also significant is that websites account for almost half of students’ reading materials and books only 18 percent. The “almost never” rate of reading English books of 42 percent is also disappointingly low. The frequency and nature of problems, and the students’ experience generally with xreading require analysis to determine if this online graded reader system facilitated graded reading for students. The results are mixed – more than 60 percent of students preferred paper books, and yet almost the same percentage of students wishes to continue with online books in the second term. Viewing student comments, it appears evident that problems with using the xreading website led to high numbers of students preferring paper books. On the other hand, it is evident that many students appreciated the convenience of online books, and perhaps this is the reason that a majority of them wishes to persevere with online books in the second term. The nature of problems outlined in the survey responses and in anecdotal comments by students in class suggest that many problems with crashes, page freezes, and general slow performance are either due to server side incidents or slow Wi-Fi access. Anecdotally, students also report problems on 4g networks, which suggests that problems cannot be exclusively ascribed to poor or no Wi-Fi access. Students also reported poor usability, for example, students were unable to check out a book unless they had returned a book. This, along with other details was undocumented in both the student and instructor tutorials on the xreading website. Another undocumented limitation that students discovered was that they could not check out a title a second time. This was remedied after communication with the xreading site manager. In fact, lack of information in the online tutorials meant that it was necessary to contact the site manager on several occasions. When we did so, responses were helpful. It should be stressed that xreading is evolving; video tutorials are promised that should help with setup and management. It should also be stressed that not all students reported problems – a third of the students reported problems with a frequency of “not often” or “almost never”. However, since student success at online graded reading directly impacts their grade for the course, student reports of problems cannot be ignored. To address this, two approaches are needed. First, a comprehensive tutorial on how to access and interact with xreading should be held at the beginning of the course, and this should be supported with written instructions in Japanese. The xreading online tutorials can form the basis for these instructions, but a more thorough instruction set is required. At the beginning of the present course, this tutorial was conducted in class by individual instructors. In implementing online graded readers it is of fundamental importance that instructors are competent to conduct such tutorials. Adequate teacher training is essential. A troubleshooting protocol should also be implemented so that students who experience problems can obtain timely

assistance to resolve those problems. Students must be made aware of such protocol and how to use it.

The second approach requires close cooperation and communication with the xreading site manager. Problems that arise should be adequately documented and communicated to xreading. On the xreading side, any such problems should be quickly resolved or explained.

Several students reported that they were limited in using xreading because they had no internet access at home, and data caps meant that they were unable to obtain access with their smartphones. A fundamental limitation with xreading is that books are not downloadable but streamed to the device. This perhaps explains why students also reported problems in accessing the next page in a book – an experience that they found frustrating. Downloadable books with copyright protected by digital rights management might be a future solution to many of the access problems students faced.

The third aim of this pilot study was to determine whether adoption of an online graded reader system had any effect on reading ability as measured by a standard reading test. For ethical reasons, it was not possible to include a control group who read paper graded readers in order to compare test results with those who used online graded readers. However, in the previous year, students used paper graded readers, and it was possible to compare identical test item data from the previous year's end-of-term test. Three sections consisting of 40 questions were identical on the two tests as follows:

10 speed-reading questions. These were questions that followed a short, 550-word, high-frequency-word reading passage. Students read the passage, then handed it in, following which they were given 10 written questions on the passage. They were unable to refer to the passage a second time after reading it. They were given points for speed on a diminishing scale – the faster they read, the more points they were able to gain.

10 reading comprehension questions following a 676-word reading (not controlled for word-frequency)followed by 10 comprehension questions.

20 vocabulary questions based on vocabulary directly taught in the class. There were 242 students in 2016 and 224 in 2017.

Results are shown in Table 6:

Table 6: Comparison of 2016 and 2017 Reading Test Items

	Percent	Percent	Difference
Q. No.	Speed 16 Average %	Speed 17 Average %	
1	69	76	7
2	69	69	0
3	45	50	5
4	47	43	-4
5	30	31	2
6	66	65	-1

7	45	45	0
8	33	28	-5
9	29	26	-3
10	46	50	4
	Comprehension 16 Average %	Comprehension 17 Average %	
36	72	79	7
37	68	78	10
38	53	55	2
39	35	42	7
40	44	49	5
41	50	48	-2
42	32	32	0
43	34	44	10
44	12	12	0
45	28	30	2
	Vocabulary 16 Average %	Vocabulary 17 Average %	
56	80	80	0
57	82	85	3
58	67	73	5
59	61	65	4
60	71	79	8
61	55	59	4
62	58	52	-6
63	62	61	-1
64	60	60	0
65	81	88	7
66	81	85	4
67	60	67	7
68	85	62	-24
69	65	89	24
70	69	66	-3
71	84	87	3
72	62	62	0
73	81	86	5
74	67	75	8
75	78	82	4

The first column represents question numbers, the second and third columns represent 2016 and 2017 average percentage answers correct and the fourth column represents the difference between scores in 2017 and 2016 (2017-2016 - positive numbers indicate a higher average score in 2017).

Regarding speed-reading questions, four questions received higher percentages correct in 2017 over 2016, and four received lower percentages correct. Two questions were unchanged in terms of percentages correct. We can draw no conclusions from these data. The data on the comprehension and vocabulary questions are more interesting. In particular, the comprehension question data show significant gains over the previous year, and this suggests that further research in this area is warranted. Every year, freshman students take

the TOEIC before their first classes and then at the end of the year take it again. It will be possible to use these TOEIC data to conduct a statistically valid study on any differences between successive years' TOEIC scores.

Conclusion

The first aim of this pilot study was to determine if using an online graded reader system provided a reliable way to determine the amount of reading students were actually doing. The result is that, provided that the xreading algorithm against cheating is effective and the xreading quizzes are valid, xreading is reliable and far superior to the book-report method that was previously utilized. Teachers have access to much greater information about individual students, and there is no opportunity for subjective rater differences to affect assessment between classes. This provides a much fairer grading protocol. Further, the xreading LMS reports detailed information on individual students that can be used by teachers to provide targeted instruction.

The answer to the question of whether the second aim, namely, to determine if an online graded reader system facilitated graded reading for students, has been achieved is less clear. The survey suggests that some students had significant problems in using xreading, however, the survey does not quantify the extent of the problem, and in this regard it is deficient. More research is needed. A more comprehensive survey, supported by focus-group interviews with students, would be able to better quantify the problems pointed out by students. The fact that a majority of students wishes to continue with xreading suggests that xreading should be considered for permanent inclusion in this reading curriculum. The suggestions above on thorough tutorials for students, teacher training, and close cooperation with the xreading site manager will go a long way to ensure success in this regard.

Finally there remains the question of whether this online graded reader system had any effect on reading ability. The comparison data are encouraging, but more research needs to be done in order to design a research protocol that removes other variables that could possible affect the results.

Overall, the advantages of an online graded reader system seem clear from the point of assessment and encouraging from the point of the effect on reading ability. There are some problems evident in usability of the system, but these are either of a technical nature or ones that could be resolved through clearer instruction to students or timely troubleshooting.

Notes

1 Grabe, W. (2009). Reading in a second language: Moving from theory to practice. Ernst Klett Sprachen.

2 Mason, B., & Krashen, S. (1997). Extensive reading in English as a foreign language. System, 25(1), 91-102.
Taguchi, E., Takayasu-Maass, M., & Gorsuch, G. J. (2004). Developing reading fluency in EFL: How assisted repeated reading and extensive reading affect fluency development. Reading in a Foreign Language, 16(2), 70.

3 Pigada, M., & Schmitt, N. (2006). Vocabulary acquisition from extensive reading: A case study. Reading in a foreign language, 18(1), 1.

4 Day, R. (2002). Top ten principles for teaching extensive reading. Reading in a foreign language, 14(2), 136.

5 Nishizawa, H., Yoshioka, T., & Fukada, M. (2010). The impact of a 4-year extensive reading program. In JALT2009 conference Proceedings (pp. 632-640).