

Enhancing Struggling Undergraduate Students' English Reading Proficiency through Local and Global Online Learning Resources

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Abstract

This study reports the success of an innovative English reading course for non-English majors at a university. Teaching English to students majoring in subjects other than English is increasingly important these days in many countries (including Taiwan), where English has little local currency but which aim to become fully competitive in a globalized world where English dominates as the language of commerce and international affairs. However, the best way to prepare today's graduates in general for this challenge is far less reported and researched than the teaching of English to English majors. The dedicated co-taught reading course developed at HungKuang synthesizes several features that have been separately shown to be successful, including a reading circle approach to foster interest, encouragement of extensive reading out of class to promote learning through reading, and a blended approach to support reading both in class and online. To maximize input, the researcher exploited a Chinese medium version of the local CoolEnglish eLearning resource to serve as a scaffolding platform to complement an American Lexile-based approach to extensive reading via the global English medium Scholastic eLearning platform. The latter assists in grading input so that it is comprehensible. Test and questionnaire results from 52 students showed a significant increase in reading proficiency, especially among those who were relatively lower in proficiency at the start. There were high levels of student approval of the course. In particular, greater Lexile improvement was associated with the use of more English-related websites and a greater degree of positive attitude to the instruction.

Keywords: English as a foreign language, reading, tertiary level, literature circle, blended learning, Lexiles, Scholastic, CoolEnglish

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1. Introduction

Around the world, in many countries where English is little used in everyday life, there is nevertheless an ever greater interest in promoting English language learning. English is rightly seen as a world lingua franca of great value in a country's economic, commercial and general international life. Taiwan, along with other countries of the non-English speaking world with strong emerging economies such as Saudi Arabia and Thailand [23], is one such country, where the government believes that producing university graduates with good English ability is one of the keys to the country taking its merited place in the world.

While such countries often make great efforts to develop English teaching at school level, for instance by making it obligatory in the curriculum from an early age, the effective teaching of English to non-majors in English at university level often remains undiscussed and neglected. In Taiwan there is some reliance on a 'stick' approach to achieve the desired outcome: in order to graduate from many universities, students have to pass a recognised English test at a certain level [1]. This follows Ministry encouragement rather than imposition, and results in a variety of tests and levels being used. Often the test is either the locally recognised GEPT or the international TOEIC test. The level required varies but typically is not greater than B2 in the international CEFR

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scale which runs from A1 through A2, B1, B2, C1 to C2 at the top. For a person to communicate with proficient English speakers with success, a minimum of B2 is needed (similar to IELTS 5) [2]. At the university of this study, the TOEIC test of English reading and listening proficiency with a score of at least 350 is required (= low B2). However, universities generally set in place some weaker alternatives (e.g. taking an extra course) for those who were unable to pass the English test, the test requirement is in practice often circumvented.

On the other hand, the 'carrot' approach is relatively lacking. There is less apparent concern with what are the effective types of English teaching to encourage non-English majors at the tertiary level, or how to make students self-motivated to improve, especially in contexts (such as Taiwan) where non-English majors are predominantly taught through the national language (Mandarin). Yet it is widely agreed that reliance purely on the 'stick' (e.g. required English tests) to improve standards is insufficient [3]. The present paper, therefore, is devoted to an intervention undertaken at one university in Taiwan to provide a well-conceived, modern, and motivating English reading course to assist in achieving the wider national goals for graduate levels of English proficiency. This situation is not unique to Taiwan. Hence it is hoped that the study will be informative for tertiary level English teachers in many EFL contexts.

2. Literature review

Since the course involved is a reading course, this review briefly provides the rationale for relevant aspects of the teaching of EFL reading.

The role of reading in the teaching and learning of English as a foreign language remains a core issue. From the literature, it can be understood that it has two sides. On the one hand, reading is widely seen as a key route by which, as a consequence, the language as a whole is acquired [4]. On the other hand, numerous subskills are recognised as prerequisites, i.e. as needing to have been acquired by learners in order to read in the first place [5].

The former is a very old idea exemplified, for example, by the famous 19th century archaeologist Schliemann who reputedly

learned many languages by not just reading but learning by heart entire books in the language [6]. It was Krashen [4], however, who in modern times located it within his famous hypotheses about successful language learning. The input hypothesis proposes that what is needed for language acquisition is large amounts of comprehensible input. That input can come either from exposure to speaking or, more often in the case of learners who live in contexts where English is not widely spoken, like Taiwan, through extensive reading out of class. The input however must be neither too easy nor too difficult for the learner: it should afford some opportunity for encountering new language, yet remain understandable. This idea continues relevant [7] although there is debate over its details [8].

In the Taiwanese context, Yang et al. [9] recently explored the effects of reading at a level slightly above the reader's current reading proficiency level (Krashen's $i+1$) versus slightly below (Krashen's $i-1$) [4]. The results showed that comprehension was better at the latter level. It was the former that exhibited better reading motivation and reading self-efficacy, i.e. self-perception of reading ability. However, this study did not assess how much actual learning/acquisition had occurred in either case. Other studies around the world have abundantly shown that language learning, especially vocabulary, occurs from reading, although typically the effect of the difficulty of the text relative to the reader's knowledge is not a factor considered [10]. Nevertheless, there seems to be a consensus that reading material around or just above the reader's current ability is needed both for learning to occur and for motivation to read extensively out of class to be maintained.

By contrast, other studies have emphasised prerequisite knowledge, i.e. what needs to be known before meaningful reading, especially authentic texts, can begin. Some relevant information, such as the broad rhetorical structure of a traditional story, may be transferable from what is already known in L1. However, basic knowledge of the target language writing system and grammar is required, along with at least the first 1000 most frequent English vocabulary words, which are often emphasised [11]. Indeed, for viable reading of non-specialist authentic English texts, a vocabulary of at least 5000-word families has been suggested as necessary [12].

Milton and Alexiou [13], however, find a more modest estimate of the 3500 most frequent words as equivalent to B2 CEFR level.

The present study concerns a reading course for students entering mostly with at best A2 proficiency (on the CEFR international scale). The aim is to improve their English as much as possible to enable them to read and understand the kind of authentic written English they might ultimately encounter in their later employment e.g. as nurses (minimum requirement B2). However, for most takers of the course, it is not a feasible goal to achieve that much improvement in a one-year course of two contact hours per week. Hence the emphasis needed to be partly on equipping them and encouraging them to continue self-learning through reading throughout their later years in the university.

The central rationale of the course then was that, apart from practising English reading itself in traditional classes, it should implement the two key aspects of reading highlighted in the literature review. In both of these, a key decision was to employ online digital technology to benefit from the individualisation of learning and extent of availability for self-practice that online delivery affords. Other agencies in the region are also moving to supplement reading courses with online resources in various ways. Guo [14], for example, reports the use of online reading management in courses for non-English majors, but without apparent attention to individual matching of texts to readers. Yang [15] has explored the training of learners in self-use of reading strategies out of class, to deal with their reading difficulties. That included especially interpersonal strategies involving peer contact via online chat and discussion. Yang [16] again in a tertiary-level English reading context, compared blended learning with classroom-only learning and found the former more effective, again in part due to greater peer interaction online. Such studies are relevant to us because they concern tertiary-level students like ours, who often struggle with weak English. We have not however found a study like the present one which systematically involves two kinds of online resources: one is local and designed to help with the prerequisite knowledge for reading; the other is global and designed to facilitate the consequential learning benefits of reading.

In order to work on the prerequisite language improvement in the present study, a Chinese version of the website CoolEnglish was utilized, for its wealth of colourful and entertaining games and activities, focused mainly on basic English vocabulary and grammar. This site is locally made in Taiwan at the National Taiwan Normal University and has been adopted by the Ministry of Education. To work on the use of extensive reading as itself an aid to consequent proficiency improvement, the Taiwan Learning Zone of the global Scholastic website (in English) was chosen. This was implemented in the second term, after the students' general proficiency had, hopefully, been boosted closer to a suitable level by the work of the first term. The Chinese CoolEnglish platform, in fact, contains three Scholastic modules to support full use of the Scholastic site. The key feature of the full Scholastic site for the present study was its wealth of reading texts (including whole books) of all levels, and system of matching texts to student ability which is essential for learning to occur (see Method).

3. Research questions

Following on the above, over the period of the intervention with the new course (Sept 2021 to June 2022), the research questions target our main comparisons: between two online resources, between attitudes and performance, and between more and less struggling students:

RQ1 What are the effects of local and global online learning resources on college students' English reading proficiency?

RQ2 What are college students' learning attitudes (in four categories in a survey) concerning use of local and global online resources to improve their reading proficiency?

RQ3 Do either of the above differ between students with different background characteristics, especially between those who are initially weak (struggling) and those who are not?

4. Method

4.1 The reading course and interventions

Takers of the reading course experienced an instructional regime as follows. In the first term, all lessons were with the

teacher/researcher and were based on an English textbook with a strong cross-cultural focus (containing both reading texts and language practice materials). This was implemented in Literature Circle mode as follows. Students were divided into four groups at the beginning of the term, and each group member had to choose a unique Literature Circle role, e.g. illustrator, connector, word finder, discussion director. In order to enhance learner autonomy and motivation, the class then agreed on a topic, e.g. My Childhood Diary, Flowers, Easter, Food, Leisure and Art, Survival English, etc. Next, they looked for reading material. They then did homework and made a presentation based on the topic they selected from the handbook, as the basis for their mid and final report.

CoolEnglish (Chinese medium) and Scholastic (in English), which are the new features focussed on in this study, were introduced in the second term. Since a pilot study had shown that students got nervous with an English learning platform compared to a Chinese one, CoolEnglish was registered and introduced by the course teacher one week prior to the orientation week of Scholastic. This was helpful due to the fact that CoolEnglish incorporates some Scholastic features in its learning resources: Bookflix with English animated e-books, English Scholastic Trueflix, and the English Scholastic watch and learn library. Therefore, this helped the class to become familiar with the Scholastic learning platform initially through Chinese. Both learning platforms served in and out of class as sources of learning materials. Both allowed individual differences to be accommodated and supported self-paced adaptive learning. CoolEnglish did so with its wide range of resources to choose from, while Scholastic allows students to choose the book they like at their proficiency level, and work on their reading at their own pace.

CoolEnglish is a Chinese eLearning platform with grammar, song and game-based activities, i.e. language practice. Scholastic contains short reading texts and books in diverse genres such as fiction, science, geography, etc. Each is followed by a short quiz, not only to assess compatibility of the story's Lexile level with the student but also to serve as a record to track students' progress.

Training was necessary for the use of the Scholastic reading program [18] (but not CoolEnglish), and this was mostly provided by a Scholastic employee (TS) who is the representative advisor to assist school teachers or students to become familiar with the Scholastic eLearning platform. She was scheduled to teach a class once a month while the principle researcher continued with the usual textbook material, at the same time, working closely with the TS to involve the Scholastic and CoolEnglish eLearning platforms in homework assignments, and midterm as well as final term assessments.

In lessons taught by the Co-teacher (TS) in the second term, computer labs were reserved to facilitate TS instruction and students' computer-based learning. TS chose a story for the class based on their Lexile pretest general result, so the text would not be too difficult nor too easy for the class in general. TS first went through the key vocabulary of the story and then read it aloud to the class followed by explanation or illustration of the content. TS synchronized her computer screen so every student could see clearly and read the story. Interactive activities were also designed to engage the class with the reading aloud to ensure their attention and comprehension as a result. A short quiz was given after the storytelling. Crucially, in order to help students to fully take advantage of the Lexile proficiency measurement, TS also explained to each group of students how to use their personal Lexiles that they learned from Scholastic to choose books that fit their own proficiency level in the bookstore or online shopping list.

Figure 1 shows the overall procedure. In a nutshell, the course teacher (researcher) followed the Literature Circle framework to encourage in and out of class reading, using CoolEnglish for language support in the second term. TS targeted students' reading progress monitored through lexiles on Scholastic and reminded those who struggled and did not use Scholastic as frequently as others. She also awarded prizes to those who achieved the top score for reading the most books at or above their level, or the highest total of words read. Both the course teacher and TS, therefore, sought not only to promote reading and

language proficiency at the time, but also to nurture students' love for reading via CoolEnglish and Scholastic learning platform

resources as a basis for continuing motivation and learning through reading after the course finished.

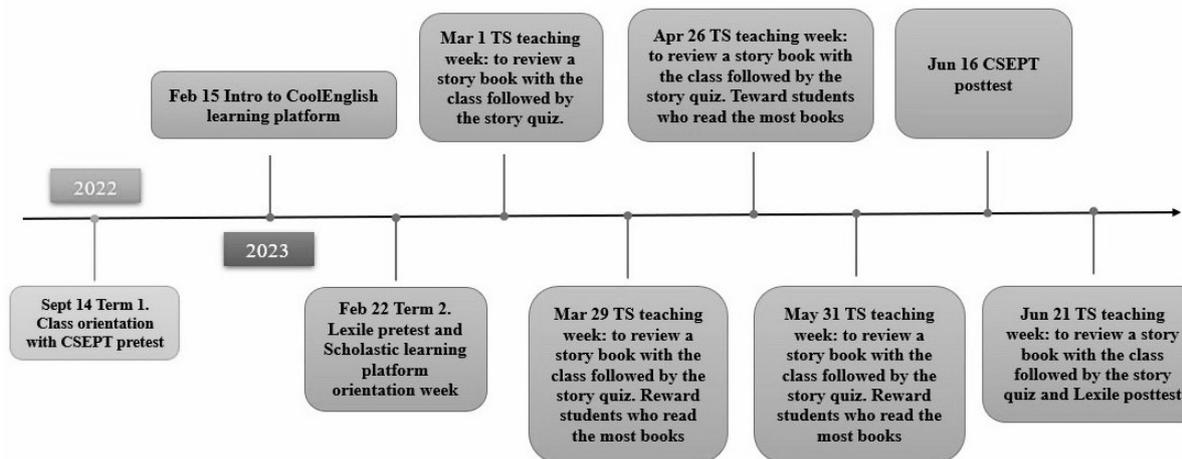


Figure 1. Co-teaching schedule

4.2 Participants

The class of participants contained 52 L1 Chinese sophomore non-English-majors, studying nursing at HungKuang University in central Taiwan. 90% were female; English proficiency (initially maximum 85, measured by CSEPT) corresponded predominantly to A1 in the CEFR scale (beginner) (CSEPT, 2016).

4.3 Instruments

4.3.1 CSEPT

This refers to the College Student English Proficiency Test [19], which, like GEPT, is professionally made in Taiwan for students who would like to prepare for more challenging international tests, i.e., TOEIC, TOEFL or IELTS. Only the reading part was administered to test vocabulary, grammar and reading comprehension. The pre- and post-tests were equally difficult and were administered at the start and end of the whole two term intervention. This was the main measure of how far the students' English reading proficiency progressed over that period.

4.3.2 Lexiles

These are a measure designed by Metametrics Inc. [17] and implemented in the Scholastic site to place students and reading material on the

same scale, thus facilitating students and teachers in choosing suitable reading material for student ability, which was important in the second term of the present intervention. For the students, it involves a reading test and therefore also provides a further measure of their reading proficiency level, which was applied at the start and end of the second term of the intervention. For books and other reading material, it relies on simple text measures such as word and sentence length to provide a difficulty (or readability) value. The full details of how the two types of Lexiles are arrived at and equated between books and students are a trade secret. Although the whole Lexile system has attracted some criticism [20], it was used in the present study due to its simplicity of use and ready availability associated with reading material on the Scholastic website.

4.3.3. Student questionnaires

Two parallel questionnaires were used in the second term to elicit background participant information, and attitudes to (a) the full Scholastic website (26 April) and (b) the CoolEnglish website (5 May). This allowed a comparison to be made between the sites. Each questionnaire included 50 website-related statements, responded to on a five-point agreement scale (all previously expert-

approved and piloted). Five concerned the role of the collaborative teaching accompanying the use of the sites, e.g., 'After the collaborative teaching of the company and teachers, I can find my favorite books or topics on the digital learning website'. The rest concerned three aspects of the website itself. Visual design (9 items) was represented by items such as 'The digital learning website has a moderately sized font and is easy to read'. Interface usability and friendliness (14) was represented by items like 'The names or symbols of the menus, buttons and icons of the e-learning website are easy to understand. Satisfaction with the language learning content (22) was represented by items like 'My learning ability is enhanced through the e-learning website'.

All but three items were positively worded (i.e., greater agreement indicated stronger approval); responses to those three items were reversed for later handling and presentation so that in the account below higher scores always indicate greater positive endorsement of the sites. Internal reliability of each item subset was very high in all cases (Cronbach alphas >.9).

4.3.4 Student e-portfolios

These were records made by each student as a reading log to record their weekly learning progress on CoolEnglish and Scholastic with details, i.e., whether they used animated films, grammar exercises, English songs, puzzle word games, etc. They also recorded books read, specified with Lexile level and use of the post-reading quiz practice. Aside from providing usage information to the researcher, this learning log served to remind students how much they had achieved and helped them to monitor their own reading each week and maintain regular progress.

4.3.5 Qualitative data

This came from some open response items in the questionnaires and from informal interviews held with each student group during term time, i.e., at a time arranged by the teacher and TS during class time. Since CoolEnglish was in a language more familiar to the students and served as a general basic English remedial learning platform for the class, the interviews focused more on Scholastic, with its specialist lexile and reading facilities, seeking to investigate the best design for online learning where students' learning motivation and

proficiency will be updated as a result. The focus was on finding out whether Scholastic was user friendly and inviting platform for them. After those interviews, we summarised the feedback (reported below) which was also provided to the Scholastic staff for them to evaluate it and consider whether these reading opinions were worth taking into consideration for improvement of the platform.

5. Results and Discussion

5.1 RQ1: Increase in proficiency

The CSEPT result is shown in Table 1.

Table 1. CSEPT change result

<i>n</i> =47	Mean	<i>SD</i>	Change	Wilcoxon <i>z</i>	<i>p</i>
CSEPT Pre-test	61.17	17.47	+5.42	-2.07	.038
CSEPT Post-test	66.59	16.02			

Scores were not normally distributed (Kolmogorov-Smirnov test with Lilliefors correction $p < .05$). Therefore, the Wilcoxon test was used rather than the paired *t*-test. Helping to answer RQ1, this result shows that there was a significant improvement in English reading and related skills, as measured by the test. On average the scores increased by a little over 5 points. Since the students were learning English only in this reading course during the period of the study, this then reflects the effect of the instruction associated with our intervention. However, it represents only a small movement in CEFR proficiency terms and does not indicate an increase to B1, let alone B2 level.

Student personal lexiles were measured before and after the second term. This data is normally distributed (Kolmogorov-Smirnov test with Lilliefors correction) so the one sample *t*-test was used to see if the increase differed significantly from zero (Table 2).

Table 2. Student lexile change result

<i>n</i> =52	Mean change	<i>SD</i>	One sample <i>t</i>	<i>p</i>
Lexile change	11.42	162.4	0.507	.614

Although the average change is positive (mean 11.42), showing a small increase, the variation in changes was very high: the SD is huge and reflects the fact that some participants obtained initial personal Lexiles smaller than 0. The greatest increase was 284 but the greatest fall was -525. Therefore, the overall increase is not significantly different from zero. Possibly if Lexile change had been measured over the whole two terms, like CSEPT, a more substantial increase would have been detected.

Still, this seems to support the finding of an earlier study [21] that personal Lexiles, as a measure of reading proficiency, do not increase in a simple way as time passes but are subject to factors other than the student's proficiency. Also, variation was great, which throws doubt on the accuracy of how personal Lexiles are calculated, or at least their reliability.

Furthermore, the correlation of Lexile change with CSEPT change was positive but low and not significant: $\rho=.223$, $p=.123$. This again shows that Lexile change is not a straightforward measure of reading proficiency.

5.2 RQ2. Student attitudes to the CoolEnglish and Scholastic sites

The quantitative questionnaire findings on attitude are summarised in Table 3.

Table 3. Difference between CoolEnglish and Scholastic sites in four aspects of student attitude ($n=52$; scale = 1-5).

Aspect of digital instruction	Site	Mean	SD	Diff. CE - SC	Wil-coxon z	p
Visual design	SC	4.31	.828	-.007	-.038	.970
	CE	4.30	.824			
Interface usability	SC	4.07	.713	.018	-.112	.910
	CE	4.09	.725			
Learning satisfaction	SC	4.32	.769	-.065	-.997	.319
	CE	4.25	.805			
Collaborative teaching	SC	4.34	.833	-.097	-.865	.387
	CE	4.24	.878			

The results are very similar for the two websites. First, all means on both were >4 , and significantly above the midpoint of the scale (3), using the binomial test ($p<.001$). Indeed, the same is true for each of the 50 individual items in both questionnaires. This showed clear agreement that both sites were regarded as very good on all four aspects that were measured (visual design, interface usability, user learning satisfaction, and the associated collaborative teaching).

Second, on the Wilcoxon test (Table 3), there were no significant differences between the websites in how they were rated on each of the four aspects. Again, this was also true for each individual item. Descriptively, the Scholastic site (SC) was marginally preferred on three of the four aspects, and CoolEnglish (CE) on the other. That last was interface usability, possibly due to that site being in Chinese, which made its menus and instructions easier to understand. However, the small size of the difference shows that the disadvantage of the SC site being in English had only the smallest of effects.

Third, there were significant differences between the four areas judged, but those differences were very much the same for both websites. Both sites were found to show overall significant differences among the four measures (SC: Friedman $\chi^2 = 36.50$, $p<.001$; CE: Friedman $\chi^2 = 19.66$, $p<.001$). In follow-up paired Wilcoxon tests with Bonferroni adjustment, the pairs that were different were almost identical in both sites.

In both sites, visual design was judged to be significantly better than interface usability (SC: Wilcoxon $z = -4.06$, $p<.006$; CE: Wilcoxon $z = -3.29$, $p=.006$). In both sites learning satisfaction was rated above interface usability (SC: Wilcoxon $z = -4.15$, $p<.006$; CE: Wilcoxon $z = -3.11$, $p=.012$). In addition, collaborative teaching was rated better than the interface usability, but not quite significantly in CE (SC: Wilcoxon $z = -3.64$, $p<.006$; CE: Wilcoxon $z = -2.45$, $p=.084$).

Thus, regardless of the site, interface usability emerges as, relatively, the feature that is least satisfactory, although its approval is still good (just above 4 on average on the 1-5 scale). It seems that, regardless of language, it remains hard for learner websites to achieve an ideal level of clarity in the menus, instructions, page architecture and input facilities that make up the interface.

In the open response data, mainly about SC, this picture was further illuminated. Generally, students expressed that they really loved the Scholastic stories and enjoyed the richness and breadth of the selection, including many animated and audiobooks. However, if there had been no orientation and coteaching sessions, they felt that it might be too hard to follow and understand how to use Scholastic.

One group of students asked TS to teach non-fiction books with a higher Lexile level because

the books being dealt with in class were too easy. This was clearly important for one student who mentioned that she used Scholastic to help boost her reading literacy and proficiency to prepare for the GEPT English proficiency test (a standard English Proficiency exam often taken in Taiwan).

Besides that, students also raised questions about the following aspects of the working of the site. 1. How to look for a different genre of story in the Literacy Pro library? How to choose fiction or non-fiction books? 2 Can the size of the font be enlarged in the follow-up quiz? The longer the vocabulary item, the more the font seems to be smaller and difficult to read. 3 It is really hard to use Scholastic by mobile phone because the screen is unstable and one has to sign in again and again! 4 The dictionary function is good but some students still need to resort to translation to understand the vocabulary. These then relate to interface usability and learning value, but could all have been dealt with by more comprehensive teaching about the use of SC.

5.3 RQ3. *Effect of factors other than the instructional intervention itself, especially initial proficiency level, possibly affecting personal lexile change or CSEPT change*

In this section, the results are provided concerning factors potentially affecting the change of student CSEPT scores or personal lexile scores. Due to the mostly non-normal nature of the data, non-parametric versions of correlation (Spearman ρ) and regression (Optimal scaling) were used. Furthermore, we consider results not only for the whole sample but also for the more 'struggling' students separately. Those were identified as students scoring less than 69 on the pretest CSEPT. That cutting point was decided by inspection of the score distribution which showed a natural division at that point. Above it was a tight cluster of 21 students scoring 70-85, and below it was a looser cluster of 28 scoring 33-68.

Personal lexiles and the reading part of CSEPT are both measures of reading ability so, first, five measured aspects of the reading that were done throughout the study were investigated to see if any of them related to improvement in either of those measures. They were:

number of texts read;

post-reading quizzes attempted as % of texts read;

average quiz score;

average lexile of texts whose quizzes were passed; and

wordcount of texts read whose quizzes were passed.

Some of those reflect the amount of reading input, others the difficulty of the input. According to Krashen [4], both those are crucial for learning to occur: learning is better with more input, but it must be just a little beyond the reader's competence (not too easy or too difficult). Therefore, some correlations with proficiency change were expected.

In fact, in an optimal scaling analysis, none of these correlated remotely with personal lexile change or indeed with CSEPT score change either for the group as a whole or the strugglers considered separately. Possibly the choice of reading texts, whether made by the teacher in class or the student at home, was at a level that was easy even for the weakest students. Mean accuracy on post-reading quizzes was as high as 69.15% (SD 17.69). For that reason, perhaps some students were not challenged and did not increase their reading ability depending on what texts were read, or how many. Furthermore, some students, in fact, recorded reading only texts that the Scholastic co-teacher taught in the class. That means, they did not use Scholastic out of class to read further texts on their own initiative, as was the researchers' intention.

For the group that initially had higher CSEPT scores, the average lexile of texts whose quizzes were passed correlated negatively with personal lexile change ($\rho = -.583$, $p = .006$). This suggests perhaps that they had a strategy of reading well below their proficiency level, at least initially, thus lowering the mean lexile of the texts read; this then enabled them later to read harder texts and appear to improve their personal lexile more. All that indicates perhaps the need for greater control of student reading quantity and choices, if a systematic beneficial effect on proficiency growth is to be established.

Next, the impact of background variables on the participants was investigated. First of interest among those is whether participants' initial CSEPT scores, as a measure of how far they are struggling with English, relate to how much they improve with the use of the chosen websites.

An interesting difference between Lexiles and CSEPT emerges. Correlations show that on Lexiles, those who had higher CSEPT scores initially increased more, and those with lower initial CSEPT scores increased less, although the relationship was not quite significant ($\rho=.274$, $p<.057$). CSEPT change however showed the opposite ($\rho=-.422$, $p=.004$). Those who scored higher on CSEPT initially increased less, and those who scored lower initially increased more, with high significance. This suggests that, relevant to answering RQ3, it was the students who were struggling the most that were helped in their proficiency the most by the interventions of the present study. Among those who scored below 69 on the pretest, the highest improvement was 35 CSEPT points. However, among those that scored high on the pretest (70 - 85) the best improvement was only 10 points. Initial CSEPT score however had no overall significant relationships with any of the attitudes to the focused websites reported above.

In addition, the impact of other self-reported background variables of the participants, not specific to reading, was investigated together (using Optimal Scaling):

Gender

Average time spent online per day

Number of English learning-related websites used

Average time spent per week on the internet, during the period of participation, in English learning-related websites

Whether English learning-related websites were accessed at college

Whether English learning-related websites were accessed at home

Number of different English-related website functions used

Overall approval of the websites as reflected in the two questionnaires

For the whole sample, CSEPT improvement was significantly greater only for students who reported greater average time online per day, in the Scholastic questionnaire ($\beta = .431$, $F=7.88$, $p=.002$). Modal response for average time was over three hours, but that does not separate use for English from other uses. A similar result was found for the struggling group considered on its own ($p=.036$).

For the whole sample, the lexile improvement was significantly greater for students who reported using a greater number of English

related websites (mean=2.3, range 1-4; $\beta=.477$, $F=3.26$, $p=.050$), and for those who approved more highly of the CoolEnglish provision ($\beta=.791$, $F=4.68$, $p=.008$). A similar result was found for the strugglers separately with respect to approval ($p=.020$), but that group also exhibited a gender distinction ($p=.028$): females ($n=25$) showed significantly better lexile improvement than males ($n=3$). Although the number of males is very small, that could be because the content of the reading chosen in the TS classes suited females better and males did report dissatisfaction with the amount of fiction chosen for the class reading. That was remedied by TS after the interviews, by introducing class reading about the sport of wrestling. However, the overall implication is perhaps that it is never going to be possible to choose a reading text for a class that suits all students in level or genre. Attention has to be paid more to getting students to read individually out of class, making proper selections based not only on personal interest in the content, but also text lexile level. That may well not have happened fully in the present study.

Overall, then, it seems to be the general use of websites for learning English, including CE, that impacts more on proficiency than the amount of reading of self-selected English texts. This perhaps reflects that English learning websites deliver far more than just graded reading material and that the other types of activity (e.g., games and exercises) probably deliver English proficiency improvement much faster than learning through extensive reading, even when done at an appropriate level [22]. That is consistent with the view of Nation [11] that, at lower levels of language proficiency (such as that of the students in this study), it is more efficient to rely on direct teaching/learning of high-frequency vocabulary than to rely on the much slower process of vocabulary expansion incidentally through extensive reading.

6. Conclusion

The study supported the fulfilment of our intention to provide a reading course that was both effective and motivating. Approval of the websites used was high, and reading proficiency increased, especially among

students who liked the websites more and used them more.

The increase in proficiency was however in absolute terms modest, not rising above CEFR A2 [19]. Furthermore, there were signs that the general English learning aspects of the websites (e.g., CoolEnglish exercises) were at least as effective as the reading texts in promoting English proficiency: possibly the struggling students were still at a level where they primarily needed direct teaching/learning of English to prepare for reading (more as provided by CoolEnglish) and could not yet rely greatly on exploiting the reading to indirectly learn more English (in Scholastic). Therefore, this may imply a limit to Krashen's [4] input hypothesis for students of our level. However, we believe that the greatest potential success of the course lies not in its immediate proficiency improvement. Rather, given the highly positive attitudes to the websites, it offers the likelihood that the students will indeed be motivated to continue using them and reading in English throughout their time at university, and indeed maybe in later life. If they can be persuaded to choose texts to read at an appropriate level, not just to suit their interest in the content, by that means they may eventually attain a level of overall English proficiency that exceeds the minimum that the Government expects (B2), and equips them better as global citizens.

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Appendices

<i>Cool English questionnaire items in descending order of agreement</i>	Min	Max	Mean	SD
The names or symbols of the menus, buttons and icons of the e-learning website are easy to understand.	3	5	4.37	0.793
The overall interface of the e-learning website is well designed, so that I don't have to spend a lot of time learning how to use the functions inside.	3	5	4.37	0.817
The functions of digital learning meet my needs in learning English.	3	5	4.33	0.834
The eLearning website menu is well designed, allowing me to quickly find the learning features, courses, quizzes, etc. I want to use it.	3	5	4.33	0.810
The video on the digital learning website is clear and distinct.	3	5	4.33	0.834
The digital learning website has a soft background that does not interfere with learning.	3	5	4.33	0.834
The themes and content of the e-learning website are consistent and clear and easy to understand.	3	5	4.31	0.829
I think the digital learning site layout has a visual animation that guides me through the interface.	3	5	4.31	0.829
The digital learning website videos are related to the list of course content topics.	3	5	4.31	0.829
The layout of each page of the digital learning website is consistent and unified.	3	5	4.31	0.829
Each page of the digital learning website only teaches one unit, which is not easy to confuse.	3	5	4.31	0.829
The digital learning website allows me to practice with teaching materials an unlimited number of times.	3	5	4.31	0.829
For me, the how-to instructions of the digital learning site are clear and complete.	3	5	4.31	0.829
The digital learning site gives a good idea of where to click and roughly where to link.	3	5	4.31	0.829
A feedback function is provided on the e-learning website to help me get relevant supplementary materials quickly.	3	5	4.29	0.825
I think the overall visual color of the e-learning website is in harmony with the design style.	3	5	4.29	0.825
The title of each page of the digital learning website is clear and easy to understand and read.	3	5	4.29	0.825
One comes to use the digital learning website to learn and make English more handy in the workplace.	3	5	4.29	0.825
Difficulty levels are clearly listed on the digital learning website.	3	5	4.29	0.825
I will share with others about the lessons I learned with eLearning.	3	5	4.29	0.848
The teacher will invite professional teachers or foreign teachers to use computer-assisted teaching in the classroom for collaborative teaching from time to time, which is very helpful for my English learning.	2	5	4.27	0.888
The teacher regularly invites professional teachers to the classroom for collaborative teaching, and assists in tracking and reminding students of the learning status of the platform, which is helpful for my English learning.	2	5	4.27	0.888
Digital learning has helped me in learning English.	3	5	4.27	0.843
One can understand all the functions of eLearning.	3	5	4.27	0.819
I think the various quiz modes in the digital learning are easy to use.	3	5	4.27	0.819
The instructions for the practice questions on the digital learning website are clearly explained.	3	5	4.27	0.819
I am satisfied that the teaching materials of the digital learning site are rich and interesting.	3	5	4.27	0.819

<i>Cool English questionnaire items in descending order of agreement</i>	Min	Max	Mean	SD
I can enhance my English learning through e-learning and get high marks in course-related assessments.	3	5	4.27	0.814
Class teachers regularly invite professional teachers to cooperate with teaching and provide rewards from time to time, which is helpful for our English learning.	2	5	4.25	0.883
Through the digital learning website, I can make English more integrated into my life in learning English.	3	5	4.25	0.837
The course learning method through the digital learning website can apply the professional knowledge I have learned to develop my potential.	3	5	4.25	0.813
The mode of course learning through the e-learning website can increase my motivation for active learning.	3	5	4.25	0.837
My learning ability is enhanced through the e-learning website,	3	5	4.25	0.837
The feedback provided by digital learning is very helpful for learning English.	3	5	4.25	0.837
When I need listening practice in the future, I will use the digital learning website as a practice tool.	3	5	4.25	0.837
If I need to learn English by myself in the future, I will use the digital learning website as a tool for practice.	3	5	4.25	0.837
Through digital learning, I am more satisfied with my sense of achievement in English learning.	3	5	4.25	0.837
The digital learning website has a moderately sized font and is easy to read.	2	5	4.25	0.905
In the class, the professional teachers are specially invited to guide the learning platform and assist the students to log in on the spot. I am satisfied.	2	5	4.23	0.899
I think using digital learning is helpful for my professional English related learning.	3	5	4.23	0.854
The videos in digital learning are helpful for listening training.	3	5	4.21	0.848
When I need vocabulary practice in the future, I will use the digital learning website as a practice tool.	3	5	4.21	0.848
After the collaborative teaching of the company and teachers, I can find my favorite books or topics on the digital learning website.	2	5	4.19	0.930
The digital learning website, providing a platform for me to learn English actively, is an indispensable auxiliary teaching material after class.	3	5	4.19	0.841
I think the pros of digital learning sites outweigh the cons.	1	5	4.17	0.944
The videos in digital learning are helpful for oral training.	3	5	4.17	0.879
After meeting the functions of the digital learning website, the next time you enter this website, you don't need to explore how to use it.	1	5	4.12	1.041
The digital learning website design is so complicated that I don't know where to start. N	1	5	3.50	1.379
I can't understand some parts of the digital learning website, and I don't know what the function is. N	1	5	3.29	1.348
The function labels on the e-learning website are not clear, and I often click the wrong link. N	1	5	3.27	1.359

<i>Scholastic questionnaire items in descending order of agreement</i>	Min	Max	Mean	SD
The video on the digital learning website is clear and distinct.	3	5	4.37	0.841
The digital learning website has a soft background that does not interfere with learning.	3	5	4.37	0.841
After the collaborative teaching of the company and teachers, I can find my favorite books or topics on the digital learning website.	3	5	4.35	0.837
The teacher will invite professional teachers or foreign teachers to use computer-assisted teaching in the classroom for collaborative teaching from time to time, which is very helpful for my English learning.	3	5	4.35	0.861
Class teachers regularly invite professional teachers to cooperate with teaching and provide rewards from time to time, which is helpful for our English learning.	3	5	4.35	0.837
My learning ability is enhanced through the e-learning website,	3	5	4.35	0.764
When I need listening practice in the future, I will use the digital learning website as a practice tool.	3	5	4.35	0.789
If I need to learn English by myself in the future, I will use the digital learning website as a tool for practice.	3	5	4.35	0.764
The functions of digital learning meet my needs in learning English.	3	5	4.35	0.789
The digital learning website videos are related to the list of course content topics.	3	5	4.35	0.861
Through the digital learning website, I can make English more integrated into my life in learning English.	3	5	4.35	0.789
The teacher regularly invites professional teachers to the classroom for collaborative teaching, and assists in tracking and reminding students of the learning status of the platform, which is helpful for my English learning.	2	5	4.33	0.901
In the class, the professional teachers are specially invited to guide the learning platform and assist the students to log in on the spot. I am satisfied.	3	5	4.33	0.857
I think the pros of digital learning sites outweigh the cons.	2	5	4.33	0.857
The layout of each page of the digital learning website is consistent and unified.	3	5	4.33	0.857
The digital learning website allows me to practice with teaching materials an unlimited number of times.	3	5	4.33	0.810

<i>Scholastic questionnaire items in descending order of agreement</i>	Min	Max	Mean	SD
The course learning method through the digital learning website can apply the professional knowledge I have learned to develop my potential.	3	5	4.33	0.785
The videos in digital learning are helpful for listening training.	3	5	4.33	0.785
Through digital learning, I am more satisfied with my sense of achievement in English learning.	3	5	4.33	0.785
I think using digital learning is helpful for my professional English related learning.	3	5	4.33	0.785
I can enhance my English learning through e-learning and get high marks in course-related assessments.	3	5	4.33	0.810
The overall interface of the e-learning website is well designed, so that I don't have to spend a lot of time learning how to use the functions inside.	3	5	4.33	0.834
I think the overall visual color of the e-learning website is in harmony with the design style.	3	5	4.33	0.857
The title of each page of the digital learning website is clear and easy to understand and read.	3	5	4.33	0.857
I am satisfied that the teaching materials of the digital learning site are rich and interesting.	3	5	4.31	0.781
The feedback provided by digital learning is very helpful for learning English.	3	5	4.31	0.805
Difficulty levels are clearly listed on the digital learning website.	3	5	4.31	0.829
One comes to use the digital learning website to learn and make English more handy in the workplace.	3	5	4.31	0.805
Each page of the digital learning website only teaches one unit, which is not easy to confuse.	3	5	4.31	0.853
For me, the how-to instructions of the digital learning site are clear and complete.	3	5	4.31	0.829
The digital learning site gives a good idea of where to click and roughly where to link.	3	5	4.31	0.829
The mode of course learning through the e-learning website can increase my motivation for active learning.	3	5	4.29	0.800
The digital learning website, providing a platform for me to learn English actively, is an indispensable auxiliary teaching material after class.	3	5	4.29	0.776
The videos in digital learning are helpful for oral training.	3	5	4.29	0.776
The eLearning website menu is well designed, allowing me to quickly find the learning features, courses, quizzes, etc. I want to use.	3	5	4.29	0.848
Digital learning has helped me in learning English.	3	5	4.29	0.825
I will share with others about the lessons I learned with eLearning.	3	5	4.27	0.819
The names or symbols of the menus, buttons and icons of the e-learning website are easy to understand.	3	5	4.27	0.843
I think the digital learning site layout has a visual animation that guides me through the interface.	3	5	4.27	0.888
The themes and content of the e-learning website are consistent and clear and easy to understand.	3	5	4.27	0.866
I think the various quiz modes in the digital learning are easy to use.	3	5	4.25	0.837
When I need vocabulary practice in the future, I will use the digital learning website as a practice tool.	2	5	4.23	0.877
The instructions for the practice questions on the digital learning website are clearly explained.	3	5	4.23	0.831
One can understand all the functions of eLearning.	3	5	4.21	0.871
The digital learning website has a moderately sized font and is easy to read.	2	5	4.21	0.893
A feedback function is provided on the e-learning website to help me get relevant supplementary materials quickly.	2	5	4.15	0.916
After meeting the functions of the digital learning website, the next time you enter this website, you don't need to explore how to use it.	1	5	4.13	0.950
The digital learning website design is so complicated that I don't know where to start. N	1	5	3.48	1.229
I can't understand some parts of the digital learning website, and I don't know what the function is. N	1	5	3.42	1.304
The function labels on the e-learning website are not clear, and I often click the wrong link. N	1	5	3.29	1.348