

運用電子繪本對學生英語口語閱讀流暢度提升與其對數位教材使用態度之研究

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摘要

閱讀教學主要目的在於協助學生提升其閱讀流暢度。也就是說，閱讀流暢度是熟練閱讀養成的關鍵因素，其原因在於閱讀流暢度是認字與文意理解之間的關鍵連結。流暢的讀者能夠正確認出文本中的字，且自動唸讀出該字。由於台灣國小學生在英文閱讀上遇到的一個困難即是在讀字階段的認字能力，如果沒有流暢地指認或讀出文本的字彙，學生在閱讀理解上也會有挫折感，漸漸地也可能會失去學習信心。另一方面，許多研究發現數位教材的使用對學生的學習有正面的影響。其中電子繪本能夠提供重複接觸與有意義的內容，透過不斷的練習可以幫助學生在字彙讀音與認字連結的進步。因此，本研究旨在透過運用電子繪本融入於英語教學，以探究學生之英語口語閱讀流暢度是否有提升。二十四名國小四年級學生參與為期十四週之研究，研究工具包含口語流暢度測驗與數位教材使用態度問卷。利用成對樣本T檢定與敘述統計做為分析資料方式。結果有以下兩項主要發現：

1. 運用電子繪本能使學生口語流暢度，包含正確性與速度兩方面，皆有顯著提升。
 2. 學生對於數位教材使用有正向的回饋，包含使用數為教材之動機與使用意願。
- 最後，根據本研究發現，作者提供幾點教學上之建議。

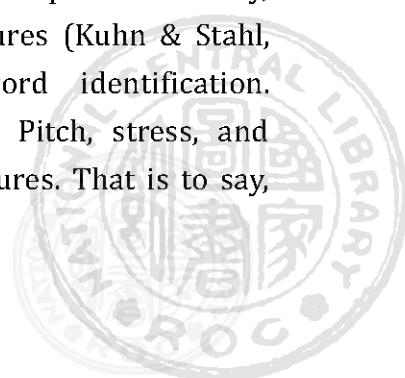
關鍵字：電子繪本、英語口語閱讀流暢度、數位教材使用態度



1. Introduction

Reading plays an essential role in language learning because it is viewed as the foundation of other learning skills, and is essential for academic purposes (Krueger & Ranalli, 2003). It is a complex process that requires readers to understand the written message, make sense of it, and derive meaning from printed words. Good readers are able to decode the written message and comprehend effectively so that they can access information easily (Huey, 2000). In contrast, students with poor reading skills may face challenges in both school and life, such as low academic performance, dropping out, behavior problems, and a loss of learning motivation (Ansary, 1999; Chambers, Dunn, & Rabren, 2004). However, according to the 2015 report of National Reading Panel (NRP), 38% of fourth graders are unable to comprehend text at a basic level (NRP, 2015). In the past, 59% of the fourth graders were below a basic literacy level on reading tests (Calhoon, 2005). The NRP has been trying to reduce the gap between students in terms of literacy in elementary schools. These research findings have indicated that students do not have the required skills to achieve reading proficiency. They have difficulties with word recognition, text comprehension, lack of sufficient vocabulary, and in scaffolding of prior knowledge. If they come across too many unknown words, they may feel frustrated and be unable to achieve reading fluency (Huang, 2006). As a result, efficient reading instruction is necessary and important to help students to become good readers. A key element in assisting students to become successful and fluent readers is to help them to identify printed words accurately and rapidly (Rasinski, 2004). Then, they can connect the meaning of the text efficiently with background information, both orally and at sight. Therefore, the development of reading fluency is necessary.

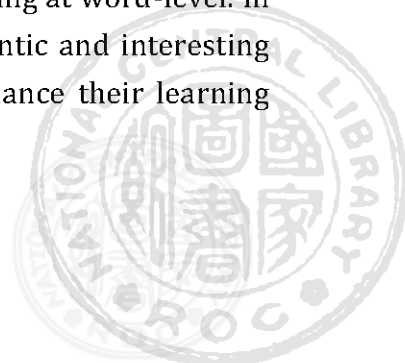
Oral Reading fluency is composed of three major aspects: accuracy, automaticity, and the appropriate use of prosodic features (Kuhn & Stahl, 2003). Accuracy indicates the correctness of word identification. Automaticity is the ability to process words quickly. Pitch, stress, and appropriate expression are considered as prosodic features. That is to say,



oral reading fluency is the ability to read a text rapidly, smoothly, and automatically. Recognizing words accurately and quickly is strongly related to good comprehension. Therefore, fluency is tied to decoding and comprehension (Bashir & Hook, 2009).

In terms of English education in Taiwan, reading is highly emphasized. However, elementary school students encounter many difficulties in word-level reading (Hsu, 2008; Huang, 2001; Kuhn & Stahl, 2003; Shen, 2009). They are often not able to recognize and read words aloud rapidly and fluently. However, word recognition is the first step of successful comprehension. It can be achieved by two strategies: phonological decoding and sight-word reading (Wagner, 2008).

E-storybooks are regarded as a vehicle to connect the art of illustration and the art of writing. E-storybooks can present different cultures, relate to life experience, lead children to know about human life, describe an imaginative world, and reveal useful information and knowledge. In terms of their advantages, E-storybooks are beneficial in two aspects. First, with abundant input presented in the form of visuals, images, animation, and sounds, E-storybooks can provide access to large amounts of language input with meaningful context in a comprehension-based learning environment (Ellermeyer & Rowell, 2005). This assists students to acquire language experiences by listening and reading in a comprehensible and meaningful context (Kowalski, 2002). Also, E-storybooks enable students to learn vocabulary with better understanding through the design of animation and movement of the roles, which also build up confidence in learning and facilitate the connection of text with meaning (Chiang, Wu, & Chiu, 2014). With the integration of multi-media into E-storybooks, students are more naturally involved in reading and listening to the stories than is the case with mechanical vocabulary practice. This facilitates oral reading at word-level. In short, digital learning materials offer students an authentic and interesting environment and atmosphere to learn actively and enhance their learning motivation (Yang, 2013).



Digital learning materials, also referred to as digital teaching materials, include the internet, CDs, computers, and the e-blackboard. The forms of digital learning materials vary, but they are diverse, multiple, interesting, and close to real life. They have evolved from computer-aided instruction to e-learning, and now have become part of a trend in education to make learning fun and practical (Brown & Voltz, 2005). Many studies have indicated that learning efficiency can be promoted in an interactive digital environment (Zheng, Mcalack, Wilmes, Kohler-Evans, & Williamson, 2009). With words, sounds, images, and animations, learning can be fun, effective, and motivating.

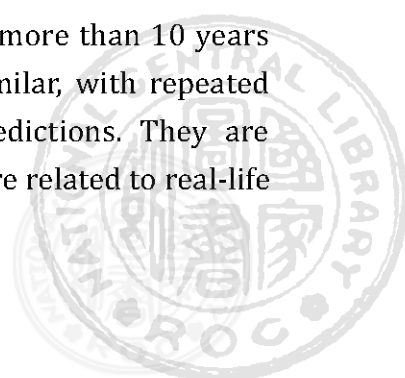
The purpose of this study was to explore whether the use of E-storybooks in English instruction could enhance students' oral reading fluency. In addition, the study investigated students' attitudes toward digital learning materials. Two research questions were posed, as follows

1. How effective is the employment of E-storybooks in enhancing students' oral reading fluency?
2. What attitudes do students have toward digital learning materials?

2. Method

In this section, details of the participants and two research instruments are provided. This 14-week experimental design used a pre-test and a post-test to investigate the improvement of oral reading fluency. The independent variable was the use of digital teaching materials: four E-storybooks. The dependent variables were students' oral reading fluency and their attitudes toward digital learning materials.

In the treatment, four E-storybooks – Handa's Surprise, Henny Penny, Who Took the Farmer's Hat, and Joseph Had a Little Overcoat – were selected and approved by two elementary English teachers with more than 10 years of teaching experience. These four E-storybooks are similar, with repeated sentence structures, and readers can easily make predictions. They are available online with sounds and animation. The topics are related to real-life



themes, including fruits, animals, and clothes. Each E-storybook can be found on Youtube or story websites. The length of each text is around 100 to 200 words. These storybooks were integrated into each English class for 15 minutes at the end, as a wrap-up activity. At the beginning, the teacher led the class to read, and asked students to categorize the words, enabling students to pay attention to the theme of the storybook. Then, students were asked to read as a whole class, in small groups, in pairs, or as individuals, to provide variety.

2-1 Participants

In this 14-week study, the participants consisted of one intact class of twenty four fourth graders in an elementary school. There were fifteen male students and nine female students in this class. All of the participants had learned English as a required subject since the second grade, with two 40-minute classes per week. Due to a decreasing birth rate in Taiwan, intact classes in elementary schools are usually under 30 students, and classes of twenty to twenty-five students are quite common.

2-2 Instruments

There were two instruments employed in this study, including an English Oral Reading Fluency Test used in the pre- and post tests, and a questionnaire on attitudes toward digital learning materials.

2-2-1 English Oral Reading Fluency Test

For the oral reading fluency test, the participants read a story adapted from *The Very Hungry Caterpillar*. In order to measure exactly the amount of progress participants made during the treatment, the story was not taught in this study. The participants' oral reading performances were evaluated based on the criteria of accuracy and speed (Penner-Wilger, 2008). Accuracy was evaluated by measuring the total number of words participants read correctly. Those words that were mispronounced or skipped were not counted. Speed was measured by the time taken to finish the text reading,

mainly focusing on the number of words read correctly per minute (WCMP). Prosody, the third element of oral reading fluency, was not investigated in this study. This element is an advanced skill and requires more practice time to achieve mastery (Flynn, 2007). Therefore, the scores of the English oral reading fluency test in this study were made up of two parts: accuracy and speed.

2-2-2 Questionnaire on Attitudes toward Digital Learning Materials

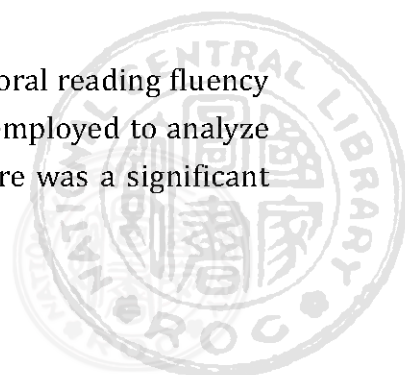
A questionnaire on attitudes toward digital learning materials was designed to investigate the participants' responses. This questionnaire was adapted from the survey employed by Lin (2011) and Chang (2016) respectively. To achieve expert validity, the questionnaire was also revised by two university professors in the fields of English education and Information Education. Based on their suggestions, two questions were revised to use simpler language, so that the statements were clearer and more readable for elementary school students. The questionnaire was distributed to the participants with the post test. Three sections were included in this questionnaire. First, basic information was sought regarding the participants' gender and amount of time spent using digital learning materials per week. Second, the participants' motivation to use digital learning materials was explored, from Q1 to Q9. Then, responses to their willingness to use digital learning materials were explored, from Q10 to Q18. The questionnaire employed a four-point Likert scale ranging from "strongly agree = 4," and "agree = 3," to "disagree = 2," and "strongly disagree = 1."

3. Results and Discussion

The collected data was analyzed quantitatively to examine the two research questions.

3-1 Research Question One

To investigate the improvement of the participants' oral reading fluency by the use of E-storybooks, a paired sample T-test was employed to analyze the data. As shown in Table 1, the results displayed there was a significant



improvement in all aspects, including oral reading fluency ($t=-13.489$, $p=.000$), accuracy ($t=-9.701$, $p=.000$) and speed ($t=-7.969$, $p=.000$).

Table 1

Paired Samples T-test for participants' Oral Reading Fluency

(N=24)	M (pre)	SD	M (post)	SD	<i>t</i>	<i>p</i>
Oral Reading Fluency	50.67	14.60	68.91	14.03	-9.701	.000*
Accuracy	32.67	10.04	43.33	9.35	-7.969	.000*
Speed	18.00	6.37	25.58	6.28	-13.489	.000*

Note. * $p < .05$

The results of this study demonstrated that the use of E-storybooks enhanced participants' oral reading fluency significantly. All the participants made progress in their overall fluency, accuracy, and speed. One possible reason to explain why the participants improved was that the E-storybooks offered a lot of meaningful input in sounds and imagines, so that the participants were able to follow the pronunciation and story plots easily. They could obtain instant support and models online whenever they encountered challenges in reading the text. The support could be repeated as many times as they needed. Plenty of practice of pronunciation would enhance the students' ability to produce correct utterances of words, phrases, and sentences. Once the participants became more familiar with the reading, the speed of reading the sentences orally could be increased as well. Then, overall oral reading fluency was enhanced as well. This finding is consistent with the research (Norton & Norton, 2003), indicating that E-storybooks can provide a natural language setting for students to practice their oral language in an anxiety-free environment.

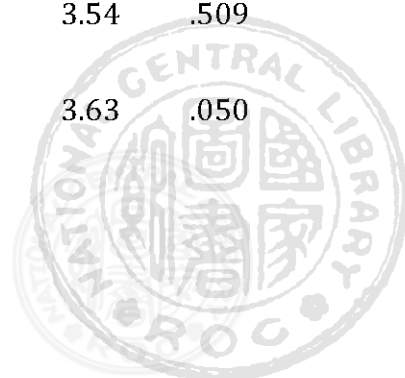
3-2 Attitudes toward Digital Learning Materials

To examine the participants' responses to the use of digital learning materials, a questionnaire on their attitudes toward digital learning materials was employed. Table 2 displays the results, a highly positive attitude toward digital learning materials, including motivation ($M=3.65$, $SD=.528$) and willingness to use digital learning in the future ($M=3.55$, $SD=.149$).

Table 2

Attitudes toward Digital Learning Materials

Item	Question	M	SD
1	I enjoy using digital learning materials (DLM).	3.54	.509
2	I pay more attention when using DLM in class.	3.88	.338
3	I have more interaction when using DLM in class.	3.67	.565
4	I have more learning motivation when using DLM.	3.75	.532
5	I think using DLM is very important.	3.46	.565
6	I do not feel bored when having DLM.	3.54	.509
7	I like the class when the teacher integrates DLM.	3.79	.509
8	I do not feel nervous when using DLM	3.54	.509
9	I am confident using DLM	3.54	.509
	Sub-total for "motivation of using digital learning materials"	3.63	.050



10	Using DLM makes it easy to access to the texts	3.54	.509
11	Using DLM can help me improve my learning	3.46	.565
12	Using DLM can facilitate discussions in class.	3.54	.509
13	Using DLM makes learning more efficient.	3.58	.504
14	I think using DLM is a trend.	3.54	.509
15	Using DLM to learn can help me to learn at my own pace.	3.58	.504
16	I would like to use more DLM.	3.54	.509
17	I am willing to interact more with peers when using DLM in class.	3.54	.509
18	I can understand better when using DLM.	3.54	.509
	Sub-total for "willingness to use digital learning materials"	3.54	.515
	Overall	3.42	.510

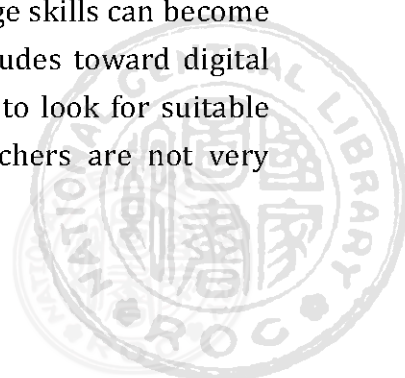
As can be seen from these results, the participants were highly motivated and confident when using digital learning materials. It seems they thought digital learning materials could facilitate their learning, and they did not feel nervous when using them. Since digital learning materials can offer multiple resources of content, learners are likely to become more actively involved in the learning process. This finding is similar to Sung & Mayer's (2012) and Yang's research (2013). The first priority for applying digital learning materials was to create an interesting and interactive environment. As for the willingness to use digital learning materials, the participants

demonstrated highly positive responses to this study. They thought digital learning materials could assist them understand content better and generate better interaction with peers; hence, positive responses to questions about their willingness to use digital learning materials were provided. This finding corresponds with some suggestions from other research (Mayer, 2009). With lots of visual and audio input, participants are more willing to get into the environment and to obtain more information. Once they are highly motivated with the willingness in using the digital learning materials, their learning achievement can be enhanced as well. With the learning motivation, they are able to be involved in the learning process, which leads to the positive change in the learning output. This result can explain and support the improvement of the participants' oral reading fluency in the first research question in this study as well.

4. Conclusions and Pedagogical Implications

The use of E-storybooks in English instruction enhanced students' oral reading fluency, including accuracy and speed. Also, highly positive responses to the survey on attitudes toward digital learning materials indicated a perception that a digital-learning environment was user-friendly. However, one limitation needs to be mentioned in relation to this study. Since the study involved only twenty four students from one intact class, the results cannot be overgeneralized.

Two pedagogical implications are offered. First, teachers can integrate E-storybooks, one kind of digital learning material, into assignments to be completed at home. With the ease of access to digital learning materials everywhere, students can use E-storybooks. They can share the E-storybook with their parents or family members. It will help to generate topics for parents to discuss with their children. In this way, students will obtain more and more opportunities to read and practice, and language skills can become more and more fluent. Second, since the students' attitudes toward digital learning materials were so positive, teachers may need to look for suitable online materials to facilitate students' learning. If teachers are not very



familiar with the integration of digital learning materials into English teaching, professional development on using digital learning materials may need to be offered. With the integration of digital learning materials into the curriculum design, students and teachers may attain many positive benefits.

Appendix A

Questionnaire of Attitudes toward Digital Learning Materials

I. Basic information

1. Gender: Male <input type="checkbox"/> Female <input type="checkbox"/>
2. How much time do you spend using digital learning materials per week?
<input type="checkbox"/> Less than 1 hour <input type="checkbox"/> Between 1 to 3 hours <input type="checkbox"/> Between 3 to 6 hours
<input type="checkbox"/> More than 6 hours

II. Multiple Choice

(SA=strongly agree; A=agree; D=disagree; SD=strongly disagree)

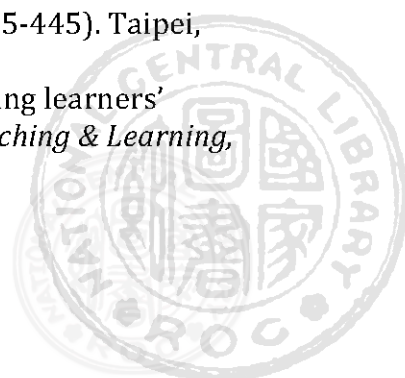
		SA	A	D	SD
1	I enjoy using digital learning materials (DLM).				
2	I pay more attention when using DLM in class.				
3	I have more interaction when using DLM in class.				
4	I have more learning motivation when using DLM.				
5	I think using DLM is very important.				
6	I do not feel bored when having DLM.				
7	I like the class when the teacher integrates DLM.				
8	I do not feel nervous when using DLM				
9	I am confident using DLM				
10	Using DLM is easy to access to the texts				
11	Using DLM can help me improve my learning				
12	Using DLM can facilitate the discussion in class.				
13	Using DLM makes the learning more efficient.				
14	I think using DLM is a trend.				

15	Using DLM to learn can help me to learn at my own pace.				
16	I would like to use more DLM.				
17	I am willing to interact more with peers when using DLM in class.				
18	I can understand better when using DLM.				



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The Employment of E-storybooks to Enhance English Oral Reading Fluency and Attitudes toward Digital Teaching Materials

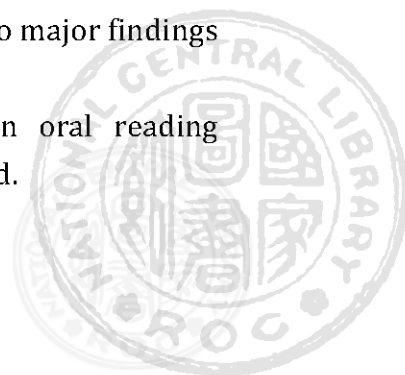
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Abstract

Helping students enhance their reading fluency is the central goal of reading instruction; that is, reading fluency is a critical component of proficient reading since it is a key link between word recognition and comprehension. Fluent readers are able to recognize words in a text accurately and automatically. One of the difficulties faced by students in primary schools in Taiwan is word-level reading. Without fluent recognition of words in texts, students feel frustrated in reading comprehension and are likely to gradually lose confidence. On the other hand, it has been found that the employment of digital teaching materials can have positive effects on students' learning. E-storybooks can offer students repeated exposure to meaningful input, especially in word acquisition. They are able to offer repeated input and constant practice for students to acquire the sounds of English and improve word recognition. Therefore, this 14-week study aimed to integrate E-storybooks into English instruction to evaluate their effect on students' English oral reading fluency. Twenty-four 4th graders participated in this study. Two instruments, an oral reading fluency test and a questionnaire on attitudes towards the use of digital learning materials were employed. Using Paired Sample T-tests and descriptive statistics, two major findings were produced, as follows.

1. Students made a significant improvement in oral reading fluency by using E-storybooks, both in accuracy and speed.



2. Students showed a positive attitude toward digital learning materials, including the motivation to use and the willingness of using digital learning materials.

Finally, some pedagogical implications are provided

Keywords: E-storybooks, English oral reading fluency, attitudes toward digital learning materials

