

The Joint Effects of Storytelling and Independent Reading on EFL Children's Critical Thinking, Vocabulary Acquisition, and Learning Attitude in a Technology-Enriched Environment: A Preliminary Study

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Abstract: This study explored how teachers can provide comprehensible input through storytelling and independent reading to improve critical thinking skills and increase second language development. Technology played a pivotal role in classroom teaching activities. Technology tools enriched resources and increased young English as a foreign language (EFL) learners' engagement in presentation, examination, communication, and information searching. A total of 34 fourth graders (17 in the experimental class and 17 in the control class) participated in the study at a public primary school in Northern Taiwan for eight weeks. A two-cycle teaching approach was developed from the result of a pilot study and implemented in the experimental class, while the control class attended regular classes with a standard curriculum. Each teaching cycle involved teacher-led storytelling and independent reading. Data were collected through vocabulary pre- and post-tests, leveled critical-thinking (CT) worksheets, midterm and final exam results, focus group interviews, and a questionnaire. For the CT worksheets, Bloom's Revised Taxonomy provided a practical framework for teachers to create questions that matched each level to help develop children's CT ability. The findings showed that the combination of the teacher's questioning, active discussions, and use of students' first language (L1) noticeably cultivated CT skills. The story-based instruction enhanced learning attitude and vocabulary acquisition. The result of the general English ability measured by the school exams revealed that the experimental class performed slightly better on the final exam, though it spent only half the time on textbook instruction. This study presents an empirically supported and feasible pedagogical framework for integrating story-based instruction into the regular English curriculum, embedded with the teaching of CT in the EFL setting.

Keywords: Bloom's Revised Taxonomy, EFL, leveled critical-thinking worksheet, story-based instruction, vocabulary acquisition

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在科技環境運用故事教學與自主閱讀之複合效應提升國小學生英語批判思考、字彙習得與學習態度

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摘要：本研究旨在探索英語教師如何透過故事教學及自主閱讀活動提供理解輸入，以提高學生的批判思考能力，強化第二語言發展。教學歷程大量使用資訊科技作為展示、測驗、溝通與資訊搜尋工具，豐富語言資源，帶動投入學習。本研究在臺灣一所公立小學進行研究，國小四年級學生參與 8 週的教學研究，17 位參與實驗組和 17 位參與對照組。實驗組執行雙週期教學程序，乃根據先導試驗結果而開發，包含教師帶領故事教學和學童獨立閱讀。檢驗課程效果收集的資料包括：字彙前後測、分級批判性思考學習單、期中和期末考試成績、焦點小組訪談以及問卷。根據布魯姆修訂版認知分類設計批判性思考學習單框架，教師可以根據每個層次創建相應的問題，引導學童回答，培養批判性思考能力。結果顯示，英語故事教學與自主閱讀課程提高學生的閱讀意願與字彙習得能力，由學校期末測驗發現實驗班比控制班在一般英語能力之表現略佳，雖然實驗組僅花了原定的一半時間在課本教學，但成果竟能稍勝對照組。此外，教師提問、積極討論以及允許學生使用母語（first language, L1）之組合，明顯提升了學生的批判思考能力。此研究結果提供了經實證支持、具可行性之課程架構，以故事為基礎之教學法融入校訂英語自主閱讀課程，可在英語為外語的學習科技環境中教導批判思考。

關鍵字：布魯姆修訂版認知分類、英語為外語、分級批判性思考學習單、故事教學、字彙習得

1. Introduction

For citizens in an ever-changing world, critical thinking (CT) for problem-solving and decision-making in difficult circumstances are required abilities in addition to possessing sufficient domain knowledge (Ben-Chaim et al., 2000; Facione & Facione, 2007). In their book, *21st Century Skills: Learning for Life in Our Times*, Trilling and Fadel (2009) echoed the need for soft skills in job readiness. They stated that an educated person must also possess “the learning and innovations skills such as critical thinking and problem-solving.” Then, what is critical thinking and how can it be cultivated via a language

classroom?

Critical thinking is viewed from different perspectives. Ennis (1993) considered critical thinking to include “reflective and reasonable thinking that is focused on deciding what to believe or do.” Lipman (1995) maintained that critical thinking is practiced upon criteria, self-correction, and is sensitive to context. Fischer et al. (2009) thus proposed that critical thinking consists of reasoning, judgment, meta-cognition, reflection, questioning, and mental processes. A critical thinker has the capability to develop relevant questions and to collect relevant information resulting in logical conclusions (Sahibzada et al., 2020). Synthetically in line with the above arguments, the Ministry of Education (MOE)

in Taiwan defines CT as “the competency in systematic thinking to understand problems, engage in analyses, and endeavor in meta-thoughts, with the ability to reflect and conduct actions, to effectively tackle and solve problems in daily life.” (Ministry of Education, 2014).

Thereafter, critical thinking has been emphasized as an essential skill in learning, and language learning may be the best medium to exercise that skill. Taiwan's newly released 12-Year Basic Education Curriculum Guidelines have officially made the instruction of CT a significant element in English as a Foreign Language (EFL) classes for all school levels. Moreover, the 2030 bilingual nation policy (National Development Council, 2021) further proclaims for students of all grade levels to learn different subject matters in English, determining to upgrade the English proficiency of Taiwanese students. However, scant attention has been paid to the development of instructional approaches and content to appropriately enhance primary school students' CT skills, especially in the way English is taught in Taiwan. In this study, only with the support of technology tools, many CT-related activities can be realized. Technology tools were utilized to enrich resources and increase young EFL learners' engagement in presentation, examination, communication, and information searching. For example, Kahoot has been used in this study to effectively assess the learning outcomes of the storytelling program. PowerPoint and the Internet have been utilized throughout this story-based and questioning intervention to enhance young EFL learners' reading comprehension and boost their learning motivation.

1.1 Language Learning and the Development of Critical Thinking

Researchers have emphasized critical thinking in the EFL context since the 1990s. For example, Schafersman (1991) contends that children are not born with critical thinking skills; instead, it is “a learned ability that must be taught” (p. 3). This assertion has been empirically confirmed and shown that CT facilitates the acquisition of language skills and enhances general language proficiency (Liang & Fung, 2021). Brown (2016) specifically states that in an ideal English program “the objectives of a curriculum are not limited to linguistic factors alone, but also include developing the art of critical thinking.”

Teachers in EFL contexts, particularly in Asian countries, have shown great interest in critical thinking instruction and teaching strategies in the language classroom. For example, Liaw (2007) proposed that the implementation of content-based instruction could develop EFL Taiwanese students' language skills and critical thinking abilities. Luk and Lin (2015) observed Hong Kong students with low English proficiency conduct critical thinking in English through reading popular cultural texts. In Taiwan, Lai (2011) and Liao (2009) cultivated critical thinking by integrating literature circles into EFL college freshman classes. And, Su (2018) investigated how critical thinking instruction can be incorporated into regular English classes for high school students in East Asia. Despite the need to emphasize critical thinking, however, many primary schools in Taiwan based their English curriculum on textbooks that focus on skill-oriented activities.

EFL instruction in Taiwanese elementary schools is heavily form-focused, ignoring the practice of critical thinking in the curricular design. After regular school hours, students also attend cram schools. These extra lessons are repetitive and focus on memorization, with the sole purpose of helping students pass their English examinations. Moreover, in conventional teacher-centered reading classes, the interactions follow the pattern of students repeating orally after the teacher (Lai, 2011). Many of these interactions lack meaning and comprehension. As a result, students in Taiwan have become passive thinkers loaded with knowledge of the mechanization of linguistic structure rather than critical users of the language (Chern, 2010). Consequently, it is paramount to embed higher-order thinking skills into EFL programs, especially the reading curriculum.

1.2 The Interrelationships Between Critical Thinking, Reading, Storytelling and Questioning

Numerous research studies have confirmed the significant correlation between reading and critical thinking skills (Cottrell, 2017; Roche, 2014). Among them most were studies with college students who had to express their reasoning, refutation, argumentation, justification, analysis, and evaluation through writing after reading (Taglieber, 2003; Yeh et al., 2023). These interactive processes that require higher-order thinking during reading are believed to be the crucial factors that helped enhance the language improvements students perceived in their reflection writing after reading (Lee, 2014, 2015). As argued in Lee (2015), “The

blogging in this programme enabled learners to express their thoughts after reading, increasing their chances of actually using the language for a real purpose.” Literature circles have also been applied among EFL college students to cultivate higher-order, reflective thinking when deeply delving in the questions raised by the participants (Liao, 2009). Then with less ability in independent reading and written expression, how do children build their critical thinking through reading?

More than a decade ago, several researchers and teachers investigated using picture books to teach science concepts (e.g., Sackes et al., 2009). The teachers read the books first, and the young learners made observations, generated questions and formed conclusions from the evidence as follow-up activities. Also, researchers argued that storybooks with pictures assisted students in making predictions, cultivating students’ science literacy as well as their critical thinking ability (e.g., Darmawan & Wuryandani, 2022). Plausibly, critical thinking may be built more efficiently in the reading class that applies storytelling and story reading as demonstrated through abundant research in the field. In addition, prior work has supported the benefits of storytelling in language acquisition among EFL learners (Mason et al., 2020; Mason & Krashen, 2018). Among them, Mason and Krashen found that storytelling plays a significant role in enhancing skills such as listening, reading, speaking, writing, as well as fostering imagination and vocabulary development. Similarly, McQuillan (2019) also demonstrated the positive impact of storytelling on vocabulary acquisition. Moreover, Trelease (2013) and Smith (2012) supported the beneficial effects of storytelling

on learning attitude and willingness to read, highlighting its critical role in cultivating engaging readers. Richter and Courage (2017) demonstrated that storytelling, with scaffolding provided during the reading process, increases children's reading ability and engagement in reading.

In studies on cultivating critical thinking in regular reading classes, Carr (1988) stated that "Teaching students to think while reading—critical reading—should be central to any discussion of thinking skills." In this approach, teachers were viewed as facilitators and mediators rather than knowledge transmitters (Pithers & Soden, 2000). Open-ended questions were proposed by teachers for group discussion to foster innovation, divergent thinking, and critical analysis skills (Tang, 2016). Law (2012) analyzed the classroom observations to examine strategies used during picture book reading. She found that using open, thought-provoking questions had a positive impact on young learners' critical thinking.

Questioning is a useful instructional tool to promote dialogic interactions in the classroom (Gibbons, 2002) and to encourage students to think critically (Christenbury & Kelly, 1983). Blank-Libra (1997) argued that a divergent or higher-order questioning strategy after reading is effective in prompting students' thoughts and increasing their ability to think. Döş et al. (2016) found that primary school teachers' questioning strategies highlight the importance of divergent questions in engaging students and promoting critical thinking ability. Similarly, in a study with fourth-grade students, Rashid and Qaisar (2016), after analyzing classroom interactions and pre- and post-questionnaires, found that questioning is a

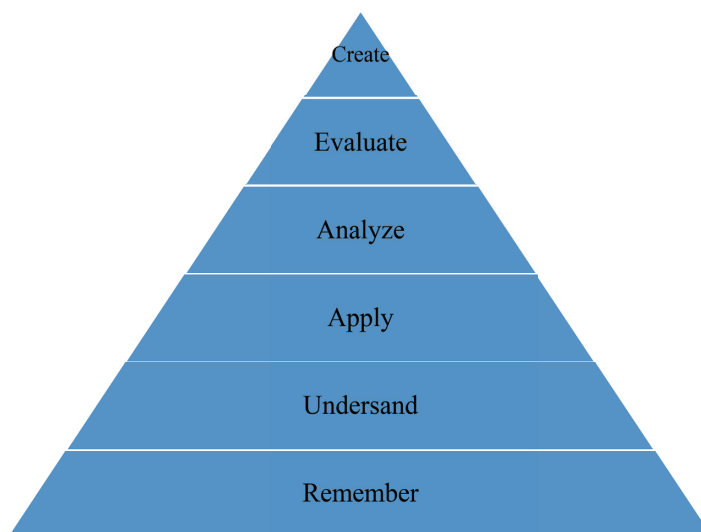
productive teaching approach in promoting critical thinking. However, questioning as an instructional strategy needs meticulous framing design; hence Bloom's Revised Taxonomy (BRT) (Krathwohl, 2002) provides a valuable framework and enables researchers to categorize different levels of questioning to effectively foster critical thinking in learners.

1.3 Bloom's Revised Taxonomy as a Practical Framework for Questioning

The core theoretical framework for critical thinking in the cognitive domain concentrates on Bloom's Revised Taxonomy (Krathwohl, 2002) that provides teachers with a useful and practical guide for students to perform lower- to higher-order thinking. Figure 1 indicates that Bloom's Revised Taxonomy is comprised of six key levels, with certain actions taken at each level during the thinking process, and teachers designed thinking activities accordingly and applied them to lesson planning. For instance, lower-order questions help students recall information and gain understanding. Higher-order questions, along with Bloom's Revised Taxonomy, help students "further examine the concept through application, analysis, evaluation, and synthesis" rather than give only one correct answer (Nappi, 2017).

Other research has adopted this taxonomy to assess test items of reading comprehension or as an instrument to investigate EFL students' development in critical thinking in high school and college classrooms (Liao, 2009; Liaw, 2007).

Figure 1.
Bloom's Revised Taxonomy



Source: Reproduced from Anderson and Krathwohl's (2001, p. 44) adaptation of Bloom's taxonomy.

Furthermore, recently, researchers have utilized Bloom's Revised Taxonomy as a theoretical lens to investigate language learners' critical thinking (Reid & Mang, 2023; Vavilina, 2020). Nevertheless, few studies have employed this framework on young EFL learners. In this study, BRT is used to design higher-order questions to promote Taiwanese EFL children's engagement in critical thinking.

2. The Current Study

While most studies discussed here focused on the learning of CT with L1 children or EFL older learners, our study centered on EFL children developing CT through storytelling supported by the instructor's scaffoldings using the questioning technique. This current study aimed to investigate Taiwanese fourth-graders' performance of critical thinking skills as they

interacted with storybooks. It was hoped that the observations of students' responses and test scores would provide insights regarding the design of a critical thinking curriculum for EFL children in Taiwan. Second, teachers' questioning strategy framed by Bloom's Revised Taxonomy was examined to explore the usefulness of such a taxonomy as the lens to children's development of CT. In addition, group discussions kept students engaged in activities and provided opportunities for peer input and further learning. Lastly, independent reading presented opportunities for students to apply and practice the skills learned in this story-based, questioning intervention. Three research questions were addressed in this study:

- (1) Can authentic storybook reading and listening enhance EFL children's vocabulary acquisition as well as general English learning tested by the school exam?
- (2) How can the teacher's questioning

technique during storytelling, utilizing Bloom's Revised Taxonomy as a guiding framework, help improve EFL children's critical thinking skills?

- (3) How can the story-based curriculum applying storytelling and questioning approaches affect EFL children's learning attitude and willingness to read?

3. Method

3.1 Participants

The study took place at a public primary school in Northern Taiwan. A convenient sampling strategy was utilized in this study. Two fourth-grade classes were selected as the experimental and control groups, each consisting of 17 participants aged 9 to 10. All participants were native speakers of Mandarin and had had three years of English learning experience at school. Based on the instructor's observation, more capable learners had no difficulty expressing their opinions in simple sentences. Conversely, less capable learners could hardly understand English spoken in the classroom.

3.2 The Course

The study was implemented over an eight-week period in an English course, from week 1 to week 8. The researcher instructed the experimental group, while another teacher taught the control group. For fourth graders, there are two English class periods per week in regular primary schools in Taipei City. Each week, students in the experimental group attended one class with a self-designed story-reading curriculum and

another with textbook-based instruction, while the control class followed the school-regulated curriculum. The reading program featured selected stories for various reading activities. The teacher read aloud two books, *The Duckling Gets a Cookie* and *Joseph Had a Little Overcoat*. Students independently read the storybooks *A Big Guy Took My Ball* and *There Was an Old Lady Who Swallowed a Fly*.

Two teaching cycles were implemented in the experimental group. During the storytelling sessions, the instructor slowly read the story aloud, sentence by sentence, and used various intonations to make the story exciting and vivid. The instructor also incorporated body language and facial expressions to enhance students' comprehension of the story. The instructor clarified complex sentences when needed by offering explanations in English or interpretations in Mandarin. In addition, students could see the illustrations projected on a screen in the classroom.

On the other hand, the comparison group attended two traditional, form-focused language classes where a textbook-based approach was implemented. In this study, technology played pivotal roles in both groups, such as supporting classroom teaching activities, with technological tools like Kahoot, PowerPoint, and the Internet utilized to enrich resources and increase young EFL learners' engagement.

3.3 Instructional Procedure for the Experimental Group

Table 1 delineates the procedure of the study. During the first week, all participants

Table 1.
Pedagogical procedure for the study

Week	Session	Pedagogical Procedure	Technology Use
One	One	1. Students do the pre-test	Kahoot!
Two	One	1. Read the story aloud The teacher reads the story <i>The Duckling Gets a Cookie</i> . 2. Group Discussion	PowerPoint & the Internet
Three	One	Teaching Cycle 1	PowerPoint, the Internet, & Kahoot
Four	One	1. Re-read the story aloud 2. Present the questions 3. Teach how to use Sentence Starters 4. Students answer the designed questions 5. Evaluate the responses of the students	
		Teaching Cycle 2	Kahoot!
Five	One	1. Read the story aloud The teacher reads the story <i>Joseph Had a Little Overcoat</i> . 2. Group Discussion	PowerPoint & the Internet
Six	One	1. Re-read the story aloud 2. Present the questions 3. Teach how to use Sentence Starters 4. Students answer the designed questions 5. Evaluate the responses of the students	PowerPoint, the Internet, & Kahoot
Seven	One	1. Read the story independently Students read the story <i>There Was an Old Lady Who Swallowed a Fly</i> independently. 2. Students answer the designed questions 3. Evaluate the responses of the students	Kahoot!
Eight	One	1. Students do the post-test 2. Focus Group Interview and Story-based Learning Attitude Questionnaire	Kahoot!

Source: Table 1 is originally depicted for this study.

were given the vocabulary pre-test. Two teaching cycles were implemented for the experimental group, with different storybooks in each cycle. After the storytelling session, students were asked the follow-up questions and divided into groups to discuss their opinions (the second session). It is worth noting that the instructor introduced sentence starters, such as “I learned...,” “I think...,” or “The picture shows...,” to enhance the students’ ability to articulate their thoughts. During the third session, the instructor continuously read the story, inviting students to participate in the read-aloud if they felt comfortable doing so. After listening to the story, students wrote their responses to the leveled critical-thinking

worksheet. The final session of Teaching Cycle 1 provided students another storybook written by the same author, which allowed them to engage with familiar content in an independent reading experience. During the independent reading session, the instructor provided explanations for less able learners to aid their comprehension when necessary. After the independent reading session, another leveled critical-thinking worksheet was administered.

Teaching Cycle 2 followed the same procedure as Teaching Cycle 1, lasting three weeks, but used two new storybooks. After the eight-week procedure, all students took a post-test on vocabulary, but only the experimental group had a focus group

interview and a story-based learning attitude questionnaire.

3.4 Data Collection

3.4.1 A 30-Word Vocabulary Test

This vocabulary test composed of 30 words (14 from the textbook and 16 from the storybooks), was administered to both classes at the onset of the study to establish a baseline of the students' vocabulary knowledge. The vocabulary test was designed as a multiple-choice format, with each question accompanied by a picture to aid understanding. The criteria for selecting the vocabulary words followed the principle applied in Gao et al. (2023), where words recognized by 70% of the children would be removed to avoid the ceiling effect. The objective was to gauge any new vocabulary acquisition through the eight-week pedagogical procedure.

The same test was conducted after the eight-week procedure again as the post-test, aiming to measure students' vocabulary acquisition and comprehension progress after the teaching cycles. It would allow a comparison with the pre-test results to evaluate the effectiveness of the pedagogical procedure, as well as a comparison between the two teaching approaches, e.g., story-based and textbook-based.

3.4.2 A Focus Group Interview

Focus group interview was used to gain insights into their learning experience, perceptions, and attitudes toward the teaching method. It was conducted only with the experimental group at the end of the study.

3.4.3 A Leveled Critical-Thinking Worksheet

The worksheet was implemented to gauge children's critical thinking performance prompted by the teacher's designed questions. Each worksheet comprised 8 to 10 questions, ranging from lower to higher levels of cognitive complexity, modeled after Bloom's Revised Taxonomy.

3.4.4 A Story-Based Learning Attitude Questionnaire

This questionnaire was designed to assess the experimental group's attitudes toward story-based intervention. It comprises 6 items, measured on a 4-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree). A sample item from the questionnaire was "I like that the teacher told me English stories." The results of the attitude questionnaire provided additional data on the effectiveness of the pedagogical procedure.

3.4.5 School Midterm and Final Examinations

Two school exams, midterm and final, were used to examine if the story-based instruction impacted the overall English learning in school for the experimental class and if this impact made a difference from the control class.

3.5 Data Analyses

The pre-and post-test scores of the vocabulary test were calculated to answer the first research question. This vocabulary test included 30 words with 14 sourced from the textbook and 16 from the storybooks. A

paired-sample *t*-test was utilized to assess the significance of the difference between pre- and post-test scores. Independent-sample *t*-tests were conducted to compare the two groups' performance on the vocabulary test. The same test was applied to compare these two classes' midterm and final exam results.

Second, the leveled critical-thinking worksheets were distributed to the participants four times, at the end of story listening and reading in each teaching cycle. Quantitative data was obtained through the leveled critical-thinking worksheets which targeted the second research question. To investigate whether the instructor's questioning technique during storytelling helped improve EFL children's critical thinking skills, two raters from the research team scored students' responses in accordance with the rubrics (see Table 2). Each response on the worksheet was scored by two raters based on the designed rubrics in two aspects: completeness (maximum 3 points) and complexity (maximum 3 points). Completeness refers to the extent to which responses were fully elaborated, and complexity denotes the presence of creative ideas or critical opinions in participants' responses. These criteria were selected to comprehensively assess the depth and breadth of learners' responses. Constant comparisons

and discussions between the two raters were conducted frequently until an agreement was reached for a rating.

Lastly, content analysis was conducted to identify patterns and themes regarding the participants' learning attitudes and willingness to read after the intervention. The iterative data analysis involved reading through the interview transcripts to understand the content comprehensively. We then systematically identified and coded recurring patterns and themes. Prior work in the literature has been reviewed to help locate the two key themes emerging from the participants' responses.

4. Findings and Discussion

This section pertains to the three research questions based on the findings and practical insights that are worth further discussion. The study delved into how teaching and learning critical thinking was developed in the EFL primary school setting through storytelling, questioning, and independent reading. Equally important is how such joint effects enhanced vocabulary acquisition and general English learning in school. Next, an in-depth investigation of the effect of questioning

Table 2.
The scoring rubrics for the leveled questions

Points	Completeness	Complexity
One	One- or two-word answers (e.g., cat).	One or two key words adopted from the text (e.g., Q: What is she celebrating? A: birthday).
Two	Key information in phrase form (e.g., a black cat).	The response beyond the vocabulary (lexis) of the story (e.g., Q: What is she celebrating? A: Her fifth birthday).
Three	Complete sentence structures giving facts and opinion in response to a question (e.g., It is a black cat).	Contextual clues used and the individual's opinion shown in the response by using linking words (conjunctions), i.e., because and so (e.g., Q: What is she celebrating? A: She is now five years old, so she is celebrating her fifth birthday).

Source: Table 2 is originally depicted for this study.

strategies on students' critical thinking was explored. Lastly, the perceived effects of storytelling and independent reading from focus group interviews and a story-based questionnaire were reported. The qualitative and quantitative data revealed that integrating the questioning strategy to help exercise critical thinking into a story-based curriculum is vital in an EFL setting.

4.1 Research Question 1: Can Authentic Storybooks Reading and Listening Enhance EFL Children's Vocabulary Acquisition as Well as General English Learning Tested by the School Exams?

4.1.1 Vocabulary Acquisition

Table 3 shows no statistical difference between the groups before the intervention and that the experimental group started slightly lower than the control group. For the post test, Table 4 shows that the experimental students performed significantly better than the pretests on both types of vocabulary ($t(32) = -4.48, p < .000$, for textbook words; $t(32) = -5.93, p < .000$, for storybook words). Despite

the experimental group spent only half the time on textbook instruction compared to the control group, the paired t -test results revealed that they still managed to acquire the vocabulary from the textbook more successfully (Table 5).

Compared to the experimental group, children in the control class also made significant gains on both types of vocabulary ($t(32) = -3.52, p < .003$, for textbook words; $t(32) = -2.03, p < .000$, for storybook words) (Table 4). The gains, however, were smaller than those made by the experimental group, with the difference in the storybook words reaching the significance level ($t(32) = 2.69, p < .01$), as shown in Table 5.

4.1.2 General English Learning

We did not expect the school exams to be valid instruments to display reliable improvements in a subject matter, for there was no control of the difficulty level when giving items based on the content of particular units included in the midterm and final exams. However, they were used to compare groups that received different treatments and for the researchers to see how the new intervention (story-based instruction) may affect the experimental class's learning in school, which was textbook-based.

Table 3.
Independent sample t -test results of pre-test scores

Item	Group	$M (SD)$	SE	t	df	$Sig.$
Textbook	Experimental $n = 17$	9.41 (3.99)	.97	-0.67	32	.510
	Control $n = 17$	10.24 (3.09)	.75			
Storybook	Experimental $n = 17$	7.47 (3.56)	.86	-1.19	32	.240
	Control $n = 17$	8.76 (2.73)	.66			

Source: Table 3 is originally depicted for this study.

Table 4.
Paired sample *t*-test results of vocabulary tests

Experimental Group <i>n</i> = 17		<i>M</i> (<i>SD</i>)	<i>SE</i>	<i>t</i>	<i>df</i>	<i>Sig.</i>
Textbook	Pre-test	9.41 (3.99)	.97	-4.48	16	.000
	Post-test	13.35 (0.86)	.21			
Storybook	Pre-test	7.47 (3.56)	.86	-5.93	16	.000
	Post-test	11.00 (2.50)	.61			
Control Group <i>n</i> = 17		<i>M</i> (<i>SD</i>)	<i>SE</i>	<i>t</i>	<i>df</i>	<i>Sig.</i>
Textbook	Pre-test	10.24 (3.09)	.75	-3.52	16	.003
	Post-test	12.29 (2.11)	.51			
Storybook	Pre-test	8.76 (2.73)	.66	-2.03	16	.003
	Post-test	10.00 (2.72)	.66			

Source: Table 4 is originally depicted for this study.

Table 5.
Independent sample *t*-test results of word gains

Item	Group	<i>M</i> (<i>SD</i>)	<i>SE</i>	<i>t</i>	<i>df</i>	<i>Sig.</i>
Textbook	Experimental <i>n</i> = 17	3.94 (3.63)	.88	1.78	32	.080
	Control <i>n</i> = 17	2.05 (2.41)	.58			
Storybook	Experimental <i>n</i> = 17	3.53 (2.45)	.59	2.69	32	.010
	Control <i>n</i> = 17	1.24 (2.51)	.61			

Source: Table 5 is originally depicted for this study.

Table 6 indicates no significant differences between the two classes on both school exams ($t(32) = -1.09, p = .280$, for midterm; $t(32) = .23, p = .820$, for final), though the experimental class obtained a mean score four points lower than the control group at the midterm exam. But the situation was overturned at the final exam when the experimental group managed to catch up with the control group ($M_{\text{Experiment}} = 87.06$; $M_{\text{Control}} = 86.12$), suggesting the story-based instructional package may very likely to enhance children’s general English learning following the school curriculum.

4.2 Research Question 2:
To What Extent Can the
Teacher’s Questioning
Technique During
Storytelling, Utilizing
Bloom’s Revised
Taxonomy as a Guiding
Framework, Help
improve EFL Children’s
Critical thinking skills?

4.2.1 Teacher’s Questioning
Technique Engaged
EFL Learners in the
Storytelling

Results indicated that the instructor’s
guided questions during the storytelling

engaged the young EFL learners in the storytelling and encouraged more responses than in traditional classes. Examples of students’ responses and the corresponding scores obtained are shown in Table 7. The ratings for the examples shown in Table 7 were noteworthy. While the completeness scores were all 3 for the three responses, each response demonstrated a different level of complexity, with the last one a thoughtful reflection on treasuring things.

In general, students’ scores were lower when answering higher-order thinking questions compared to lower-order ones, a trend corroborated by the researcher’s data (Table 8). Furthermore, the results also

unveiled intricate findings, including the link between proficiency level and reading comprehension. In detail, students’ answers to “Remember” and “Understand” questions serve as a gauge for the teacher to assess reading comprehension. Slower learners often struggled to provide answers that could be directly traced back to the content, such as responding to the “Remember” question “What did Duckling get?” This difficulty was typically attributed to their lower English proficiency and reading or listening comprehension. Table 8 shows the results of the leveled critical-thinking worksheet for the storybook *The Duckling Gets a Cookie!?* The average score for the

Table 6.
Independent sample *t*-test results of school exams

Item	Group	<i>M</i> (<i>SD</i>)	<i>SE</i>	<i>t</i>	<i>df</i>	<i>Sig.</i>
Midterm	Experimental <i>n</i> = 17	88.12 (9.73)	2.36	-1.09	32	.280
	Control <i>n</i> = 17	92.24 (12.11)	2.94			
Final	Experimental <i>n</i> = 17	87.06 (8.42)	2.04	0.23	32	.820
	Control <i>n</i> = 17	86.12 (15.54)	3.53			

Source: Table 6 is originally depicted for this study.

Table 7.
Examples of rating responses 1 and 2

Responses 1	Completeness	Complexity
7	1	1
She eats 7 種 . {translation: <i>She eats 7 kinds of things.</i> }	2	2
She eats seven insects and animals.	3	3
Responses 2	Completeness	Complexity
拿舊衣做新衣。 {translation: <i>reuse the old cloth</i> }	3	1
學到破掉的東西可以做很多的東西。 {translation: <i>I learned that the clothes with holes could be turned into new things.</i> }	3	2
我學到要愛惜物品 {translation: <i>I learned to cherish things.</i> }	3	3

Source: Table 7 is originally depicted for this study.

Table 8.

The Average, Maximum, and Minimum scores of students' answers, and examples for the leveled questions for *The duckling gets a cookie!?*

The level of questions	Avg.	Max.	Min.	Examples
				Teacher's Questioning Student's Responses
Remember	4.06*	6	1.5	1-1 What did Duckling get? S7: <i>Cookie.</i> S4: <i>He gets a cookie.</i> 1-2 Did Pigeon get a cookie? S26: <i>I think Pigeon did no [sic] get cookie.</i> {translation: <i>I think Pigeon didn't get a cookie.</i>} S14: <i>Yes, he did. (Incorrect)</i>
Understand	4.74	6	1	2-1 Why did Duckling get a cookie? S5: <i>I think 牠有禮貌。</i> {translation: <i>I think because he is polite.</i>} S4: <i>He 拜託天神 and got a cookie.</i> {translation: <i>He pleaded to Heavenly God and got a cookie.</i>} 2-2 Why did Pigeon not get a cookie? S7: <i>因為沒有拜託</i> {translation: <i>Because he didn't say "please"</i>} S11: <i>因為 the Pigeon is not every [sic] 禮貌。</i> {translation: <i>Because Pigeon is not very polite.</i>}
Apply	4.65	6	2.5	3-1 What would have happened if Pigeon asked politely? S5: <i>他會有餅乾。</i> {translation: <i>He will have a cookie.</i>} S10: <i>他會得到一部分的東西，有些東西太貴，就會拿不到。</i> {translation: <i>He will get a few things he wants. If something is too expensive, then he won't get it by asking politely.</i>} 3-2 What should you do if you want something? S17: <i>I will say plase [sic].</i> {translation: <i>I will say "please."</i>} S12: <i>我也想吃，給我一個好嗎？</i> {translation: <i>I want to eat cookies. May I have one?</i>}
Analyze	3.59	6	2	4. What can you conclude about Duckling's personality? S11: <i>The duckling is bad.</i> S8: <i>會搶鏡頭的人。</i> {translation: <i>He is good at stealing the spotlight.</i>}
Evaluate	3.79	6	1.5	5-1 Would you let Pigeon have a cookie if he asked nicely? S16: <i>我會給他一半。</i> {translation: <i>I would give him half of my cookie.</i>} S6: <i>No. 因為鴿子是吃 bread.</i> {translation: <i>No. Because pigeons eat bread, not cookies.</i>} 5-2 What if he was mean? S16: <i>我吃完了。</i> {translation: <i>I would tell him, "I ate it."</i>} S1: <i>No, no, no, baby!</i>
Create	3.53	6	1	6. What would you say to Pigeon if you were his mother? His teacher? S17: <i>要有禮貌的問，說不一定別人會給你。</i> {translation: <i>Probably someone will give it to you if you ask politely.</i>} S14: <i>You wont [sic] what, you talk to me, I will by [sic] it.</i> {translation: <i>Tell me if you want something, I will buy it for you.</i>}

Source: Table 8 is originally depicted for this study.

Note. *The score worth discussing.

“Remember” question on the worksheet was low (4.06), despite the expectation that it would be a relatively easy question to answer.

4.2.2 Well-Designed Bilingual Questions Facilitated Young EFL Learners' Responses to Stories

The effectiveness of well-designed bilingual questions is evident. Students were encouraged to answer six-leveled questions, and their ability to respond was greatly facilitated by well-crafted bilingual questions and additional learning support, such as extra time, regardless of their English proficiency level. Additionally, data from the focus group interviews revealed that the teacher's use of the questioning strategy encouraged most students to participate in group discussions, enabling them to glean more information from their peers.

These findings resonated with Luk and Lin's (2015) study that questioning, followed by group discussion, offered opportunities to express oneself, leading students to foster critical thinking abilities.

4.2.3 The Questioning Intervention Strengthened Young EFL Learners' Critical Thinking

The questioning intervention in this study, utilizing Bloom's Revised Taxonomy as a guiding framework, effectively enhanced students' critical thinking skills. For example, in response to the “Evaluate” question (“Joseph reused his clothes. Do you agree with him? Why or why not?”), the answer provided by S1 was “同意。因為有些人沒

錢買衣服，他們就把破舊的衣服，做成看起來新的，看起來就不會那麼舊，而且很環保。” (Translation: I agree. Because some people can't afford a new coat, they refurbish their old one to make it like new.) To answer the question, the student needed to have the lower-order thinking skill, “Understand,” to understand the content of the story “*Joseph Had a Little Overcoat*.” Afterward, the student used two types of higher-order thinking skills, “Apply” (using the information learned in the story to generate new insight for a new situation) and “Evaluate” (making a judgment from a personal standpoint) to answer the question. The response demonstrated the young EFL learners' development in critical thinking, marking a progression from understanding to both applying and evaluating concepts. This finding was supported by Limbach and Waugh (2010), which emphasized that students must first master lower-order thinking skills before progressing to higher-order thinking abilities.

Nevertheless, the Chinese translation of the questions might have influenced the student's response. For example, the question, “What can you conclude about Duckling's personality?” (see Table 8) is translated into “你覺得 duckling 是一個怎樣的‘人’?” (What kind of ‘person’ is he?) The students answered the translated questions literally, such as “He is bad.” and “會搶鏡頭的人。” (Translation: He is good at stealing the spotlight.) The responses did not demonstrate an understanding of the originally designed question in English, leading to a lower score for this particular answer.

Moreover, as seen in Table 9, in response to the higher-order “Evaluate” question,

Table 9.
Student’s evolved responses over time

Item	The “Evaluate” Questions
Worksheet 1	Would you let Pigeon have a cookie if he asked nicely? <i>S17: 會。 {translation: Yes.}</i> <i>What if he was mean?</i> <i>S17: 我不要給你。 {translation: I don’t want to give it to you.}</i>
Worksheet 2	How will Elephant and Piggie solve their problem? <i>S17: 他們會跟他一起玩。 {translation: They will play with him.}</i>
Worksheet 3	Joseph reused his clothes. Do you agree with him? Why or why not? <i>S17: I agree with him because 這樣不會浪費資源。 {translation: I agree with what he did because it won’t waste material.}</i>
Worksheet 4	Do you think it is a good thing or a bad thing to keep eating? Why? <i>S17: I think it is a bad thing, because will get fat. [translation: I think it is a bad thing, because you will get fat.]</i>

Source: Table 9 is originally depicted for this study.

S17 reflected on the question and made an effort to provide an answer, demonstrating an attempt to engage with the more complex level of thinking required. Initially, S17 wrote one-word answers in her native language on Worksheet 1. However, in Worksheets 3 and 4, she began attempting to provide reasons to support her opinions, using nearly complete sentences in English. This evolution in S17’s ability to think critically is aligned with Ennis’s (1993) definition of critical thinking, which describes a critical thinker as having a reflective disposition and reasonable thinking skills. S17’s progress was also in line with the core competencies and logical thinking outlined in the Curriculum Guidelines of 12-Year Basic Education (Ministry of Education, 2014) in Taiwan.

4.3 Research Question 3:
How Can the Story-Based Curriculum Applying Storytelling and Questioning Approaches Affect EFL Children’s Learning Attitude and Willingness to Read?

Responses from the focus group interviews and questionnaires administered at the final step of the process were analyzed to see the effect of the story-based curriculum combined with the teacher’s questioning strategy on students’ learning attitudes and willingness to read.

4.3.1 EFL Children’s Learning Attitudes

Storybooks as well-illustrated and appealing learning materials. Students’ learning attitudes on story-based curriculum were mostly positive. This is shown in the following focus group interview data. For example, S3 stated, “My favorite story is ‘The

Old Lady' who keeps eating and gets crazy. Also, the story is funnier than the others." Similarly, when inquiring about their favorite storybooks in the reading program, S16 responded, "I like the story in which the cloth gets smaller and smaller (*Joseph Had a Little Overcoat*). I think it is creative and interesting because the cloth could be turned into different things." It confirmed that students regarded storybooks as the more favorable materials in an English Language Arts class due to the engaging plotlines. This finding was consistent with those of Krashen et al. (2017), who reported that the most effective form for language acquisition is one that is not only comprehensible but also compelling, which makes students in a state of flow and forget that they are listening to a story in another language.

Moreover, students also said in the interview that they enjoyed student-centered discussion in groups as a result of shared ideas, enhanced comprehension, and received praise from their peers. For example, S11 reported, "Listening to others helps me get smarter." Likewise, S1 said, "Group discussion helps me get a deeper understanding of the book." The result is in accordance with Krashen's report (2004) that there were "greater gains with SSR (sustained silent reading) when students discussed their reading with each other in pairs and small groups." Moreover, open-ended questions provided students with extra opportunities to expand their imagination, therefore decreasing the fear of reading and discussing English stories, which in turn, encouraged more reading.

4.3.2 Rethinking the "Slower Learner" Label

In the focus group interviews, students labeled as "slower learners" were surprisingly more capable of thinking critically and "outside the box"; on the contrary, advanced students tended to give typical "textbook" responses. However, students with lower scores were assigned to a lower level regardless of their creative and reasonable responses. It is generally believed that a student's language proficiency is more valued, which keeps pace with the test-driven culture in Taiwan (Chern, 2010). On the other hand, critical thinking is one of the main competencies in the 21st century where our younger generation needs to deal with more and faster advancement of technology, multimodal communication, and more sophisticated life and work style. Monotonous traditional language instruction with heavy form-focused and test-oriented teaching no longer suffice and often misjudges the true competence of a learner.

4.3.3 EFL Children's Willingness to Read

A desire to be read to. The data (Table 10) collected from questionnaires at the end of the eight weeks of instruction showed that 15 (88%) out of 17 students liked storytelling compared to 9 (53%) who preferred independent reading. Based on the results, it should be noted that more capable learners tended to have an advantage in reading independently for they are more likely to understand the texts with larger vocabulary

Table 10.
Frequency and percentage of students' attitudes toward story-based learning

Statements	Strongly Disagree	Disagree	Agree	Strongly Agree
	Frequency	Percentage	Frequency	Percentage
1. I like that the teacher told me English stories.	0 0%	2 12%	9 53%	6 35%
2. I like to read English storybooks by myself.	4 23.5%	4 23.5%	6 35%	3 18%
3. I have the habit of reading English storybooks outside school.	7 41%	7 35%	3 18%	1 6%

Source: Table 10 is originally depicted for this study.

size and better reading comprehension. On the other hand, less capable learners, without independent reading ability, enjoy being read to for teachers' scaffolding aids their comprehension and engagement. The discrepancy is also in line with Wang and Lee (2007) perspective that, in terms of independent reading, students "need to develop enough competence to start reading," and storytelling is the bridge to help them transition from a listener to a reader.

4.3.4 Reading Habits Should be Encouraged

Most students did not have access to English books, hence no reading habit before the treatment (7 opted for Strongly Disagree and 7 for Disagree, a total of 76%); however, four students regularly read English books outside of school. As revealed in the interview, S10 had access to a bunch of English children's books at home, resulting in a daily reading habit, while S3, S4, and S16 attended cram schools after school, where English storybooks were supplied. As confirmed in Krashen (2004), the overall reading experiment showed that "when books are readily available, when the print environment is enriched, more reading is done."

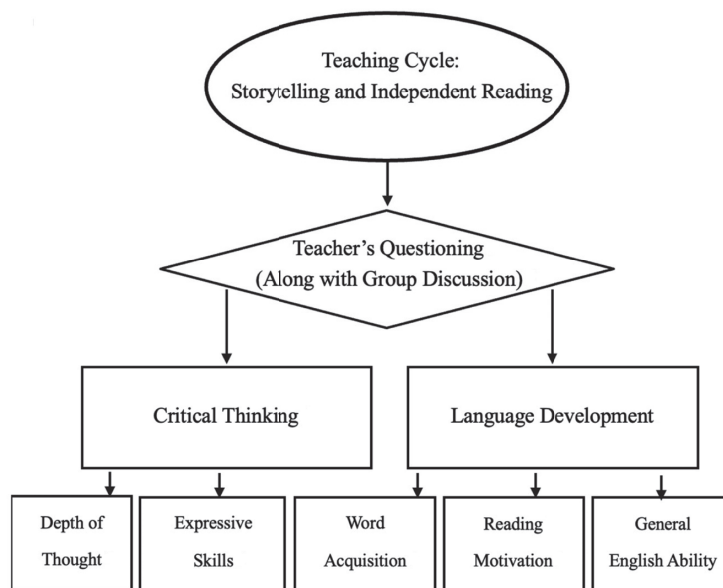
Even though most students had few reading experiences outside of school, the results generated profound insights into cultivating students' reading attitudes. If teachers model reading stories to students and use instructional activities, such as discussion, to promote engaged reading, then teachers will pass on the passion for reading to their students, as Applegate and Applegate (2004) and Trelease (2013) strongly suggested.

5. Conclusion

This paper presents a pedagogical model of teaching EFL young learners critical thinking in a language classroom and displays the key elements of the teaching procedure in this study (Figure 2). The teaching procedure integrated storytelling, independent reading, and teacher's questioning, which effectively and pleasurably led to increased vocabulary acquisition, invited critical thinking performance, and fostered reading willingness in primary school students. We are not able to conclude that storytelling, integrating independent reading into the pedagogical package, directly results in the development of students' critical thinking.

Figure 2.

A model of the teaching and learning Critical Thinking through storytelling and independent reading



Source: Figure 2 is produced by this study.

This is admittedly a limitation in our study because of the lack of a standardized CT measure that could be administered with both groups, but it is believed that storytelling followed by independent reading provides authentic English conversations and discussions that engage students in different levels of critical thinking practices. It is hoped that this model can be replicated in the EFL classroom, even in any L1 classroom.

This study also shows that: to cultivate the critical thinking and language skills in the long term, young EFL students must have access to the kind of language program, in which they can express supporting ideas for their perspectives, elaborate on reasons, and consider different views from others. Thus, it is strongly suggested that the teachers focus mainly on content considering the limited time slot for the English class in an EFL situation. And, teachers should provide chances for

learners to read independently, think critically, and therefore be able to learn autonomously.

One aspect that deserves more description here is the role of technology in this story-reading program. Although the application of technology was not in any comparison in this study, the use of technology is indispensable. While the teacher teaching the control group may also use some classroom technologies, the textbook-based instruction limited their usefulness to some extent. On the contrary, the resourcefulness provided on the Internet (e.g., the story websites) greatly expanded the efficiency of delivering stories with their audio- and visual effects; the PowerPoint slides the instructor used to present the leveled CT questions drew better attention from children; and Kahoot definitely made the interaction more fun and boosted the children's learning interest and motivation.

Just as in all areas of research, there are gaps that the current study did not fill. One of the flaws of this research is that no possible comparison of children's critical thinking could be made because the control group did not receive instruction in storytelling and critical thinking training. There is still room for improvement when it comes to a standardized measurement to assess critical thinking, without being confined by the stories told in class, or the instructional type used by the teachers.

Moreover, although the program was designed for any length of time in a classroom, the duration of the study was only eight weeks with a very small sample size. Therefore, a continuing need for longitudinal research with a larger population of various language proficiency levels is needed to help address the issues this present study could not.

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