

## THE EFFECTS OF GAMIFIED READING OF PICTURE BOOKS ON YOUNG CHILDREN'S READING ABILITY IN KINDERGARTEN

Guohui Zhang<sup>1</sup>, Anchalee Chayanuvat<sup>2</sup>

Yunnan Technology and Business University, Kunming, Yunnan, CHINA;  
Suryadhep Teachers College, Rangsit University, Pathum Thani, THAILAND.

<sup>1</sup>zgh1988825@gmail.com, <sup>2</sup>anchalee.c@rsu.ac.th

### ABSTRACT

*This study aimed to 1) investigate whether the gamified reading of picture books method could improve young children's reading ability, and 2) find the attitude of young children towards learning picture books :using an emotion questionnaire. This experimental research was conducted in a kindergarten, located in Honghu City, Hubei province .224 third year young children, aged between 5 and 6 years old, were divided into 7 classes .The researcher used convenience sampling to get two classes of 60 young children after the pretest .The 60 young children were divided into two groups, a control group (using the traditional method), and an experimental group (using the gamified reading of picture books method), each having 30 young children, matched for prior knowledge of picture book reading .A pre-post test was used to gather learning achievement data .The findings revealed that the gamified reading of picture books method was more effective than the traditional method in reading activity to young children .The post-test mean score of the experimental group was 22.37, while that of the control group was 16.67 .The difference in the two scores was statistically significant .The experimental group outperformed the control group .An emotion questionnaire was administered at the end of each of the first four activities to compare young children attitudes between the two groups towards learning picture books .The data showed that there was no difference :the young children in both groups were equally happy learning picture books .*

**Keywords :** Gamified reading of picture books, Reading ability, Young children

### INTRODUCTION

In recent years, with the change of the public's concept of reading ability, the implementation of early childhood education curriculum reform and relevant policies, many kindergartens in China have realized that reading ability has positive value for children's lifelong learning development (Li et al, 2020; Nation, 2019).

The Learning and Development Guide for Children aged 3-6 years old (2012) pointed out that young children should be guided to observe the pictures carefully, discuss the story content in combination with the pictures, and learn to establish the connection between the pictures and the story content, so as to help young children have preliminary reading ability. The document also set out three goals for young children's reading ability. First, young children should be encouraged to listen to stories and reading books. Second, young

children should have a preliminary reading comprehension ability. Finally, young children should be allowed to express themselves willingly and preliminary develop their written language expression ability.

In this context, the reading problem for young children becomes increasingly prominent, especially the use of improper teacher methods: The most common is one-sided emphasis on memory, with children being able to retell stories as the main purpose; the second is an emphasis on the text of the material to convey information to children, literacy instead of reading; and the third is ignoring cultivation of independent reading habits (Gao, 2020; Gu, 2020).

The young children's developmental gains is impacted by the quality of reading (Goldin-Meadow et al. 2014; Marulis, & Neuman, 2013; Wasik, Hindman & Snell, 2016). Creating effective learning games for young children may be one solution. In games, fun in its varied facets is a strong motivator (Ismail & Ibrahim, 2018). Studies have shown that gamified reading of picture books has many benefits for young children including supporting the development of knowledge acquisition and meaning making skills (Paris & Paris, 2003; Gao, 2020). Guidelines for Kindergarten Education (trial) (2001) mentioned "To create a free, loose language communication environment..... and through a variety of activities to help children deepen their experience and understanding of the work." Gamified reading of picture books is an ideal teaching method for early childhood teachers to develop young children's reading ability. Characterized by a study as 'fun', 'interactive' and 'challenging', learning through games enables young children to proactively solve problems they see and improve their reading ability (Deterding, Dixon, Khaled, & Nacke, 2011; Hanus & Fox, 2015).

Therefore, this study intended to analyze the effects of gamified reading of picture books on young children's reading ability so as to provide certain theoretical guidance and practical suggestions for kindergartens to effectively carry out the method of gamified reading of picture books.

## **LITERATURE REVIEW**

### **1. Picture books**

The concept of 'the picture book' is not a new concept, but because of availability of various types of picture books and no clear boundaries between them, there are no proper definitions of 'the picture book'. Picture books have been defined in a number of ways.

Picture books for young children should be simple and clear and colorful (Nodelman, 1981). As defined by Arizpe and Styles (2003), picture books consist of text and pictures, 'in which the story depends on the interaction between the written text and images and where both have been created with a conscious aesthetic intention.'

Nikola Jeva and Scott (2000) define that the picture book is a book type that narrates stories through the interaction of verbal and visual pictures. The "picture book" cannot be simply equated with "a book with pictures"; it is an independent book form, which emphasizes the internal relationship between the text and the pictures.

The 'picture book' is identified as a meaningful context for introducing new words to young children and enhancing their vocabulary skills (Lowman, Stone & Guo, 2018; Snell, Hindman, and Wasik, 2015).

Words and pictures play the important role of "storyteller" together. Pictures become the main body of books rather than the appendage of characters. Some picture books have no

words but illustrations .They convey information through pictures and expand the space of imagination in specific aspects )Cao, 2018(.

To sum up, the picture book is a kind of book form that expresses content and emotions by pictures and words, or only by pictures .The two complement each other and are indispensable.

## **2. The Method of Gamified Reading of the Picture Books**

Deterding et al)2011( define “gamification” as the “idea of using game design elements in non-game contexts to motivate and increase user activity and retention”. Using this concept, gamified reading of picture books combines games with picture books deeply .It is not a random or rigid combination of reading and games, but a seamless connection between reading and games .Games serve as a catalyst for young children to deepen their reading content.

Gamified reading of picture books has two levels of meaning :one is to treat reading as a game; the second is reading in a game. Creatively adding games to match the story’s plot points is the optimum way of enhancing narrative flow )Kuo, 2013(. The basic approach of gamified reading is to provide toys related to picture books, to encourage children to respond to reading content in the way of games, and to encourage children to express reading content in various forms )Gao and Zhou, 2007(.

In this study, gamified reading of the picture books is defined as a teaching method that integrates diversified game elements into the picture book learning activities, namely, listening games, watching games, talking games, drawing games, jumping games, playing games, thinking games. These rich and interesting game activities were expected to help young children understand the content of the picture books.

## **3. The Traditional Method**

The traditional method of teaching reading is often teacher-centered, with the early childhood teachers delivering the meaning of the text in an activity and the young children assume the role of a listener )Şimşek & Erdoğan, 2021(. This methodology largely depends on the teacher’s knowledge, didacticism and capacity to keep young children motivated during the activity )Khoshnevisasl et al, 2014(.

In literature, there are two traditional methods of teaching picture books: the non-interactive method and the interactive method .For a non=interactive method, early childhood teachers transfer the text of picture books to the young children, while young children as passive learners are asked to keep quiet and sit in the same place at the same time in order to comprehend the story. Teachers do not pause reading for asking a question or giving additional information. (İşikoğlu Erdoğan and Akay, 2015; Morrow, 2007(. For an interactive method, early childhood teachers sometimes ask young children questions and allow them to express their own opinions about the story and keep asking questions without sticking a plan )Sénéchal, Cornell and Broda, 1995(.

## **4. Early Research Evidence :Gamified Reading**

Galda )1984( considers that playing drama in reading activity is very suitable for young children to improve their reading ability in kindergartens .This method can provide an environment for young children to choose, control and challenge, and help teachers to motivate young children to think about the surrounding environment through their own

drama performances. Roskos and Christie )2001( conducted a research about whether game playing in reading activity can promote children's literacy development .They agreed with the major claims of 12 of the 20 studies, judging the research to be sound and complete .

These studies supply strong evidence that play game can serve literacy by: a( providing settings that promote literacy activity, skills, and strategies; b( serving as a language experience that can build connections between oral and written modes of expression; and c( providing opportunities to teach and learn literacy.

Cai )2018(demonstrated that the gamified reading aims to give full play to the game spirit and education value of picture books so that children will have an all-round development in rich game experience. Teachers instruction in reading activities should be based on a correct attitude toward the game spirit and educational value of picture books and accurate understanding of the instructional strategies. Teachers should try to satisfy "children's game reading" experience and avoid knowledge-oriented teaching.

Chen )2019( mentioned that gamified reading can help young children quickly into reading environment. Full of game elements reading activities make children's physical and mental relaxation ease tension and quickly go into the fun of reading atmosphere; Reading with games can help young children maximize their enjoyable reading experience .

Through the previous studies, it is found that the knowledge of picture book reading is quite mature, but the related research of gamified reading of picture books still needs to be further studied. At present, the research on gamified reading of picture books is not only lack of systematic and comprehensive discussion in theory, but also only a few early childhood teachers put it into practice, which provides a large research space for this study.

## **OBJECTIVE**

- 1 .To investigate whether the method of gamified reading of picture books could improve young children's reading ability
- 2 .To identify the attitude of young children towards learning picture books :using an emotion questionnaire

## **MATERIALS AND METHODS**

### **1. Research Location and Population**

The study was carried out in a kindergarten, which located in Honghu city, Hubei province, China .There were 224 third year young children, aged between 5 and 6 years old, who were divided into 7 classes .The researcher used convenience sampling to get two classes of 60 young children after the pretest. The 60 young children were divided into two groups, a control group and an experimental group, each having 30 young children .The two groups were taught by the same teacher .The pretest scores showed that both classes were equal with respect to their current knowledge of picture books reading .

Therefore, the reason for choosing young children from high-level kindergarten classes was that young children at this stage can read most of the pictures, understand the general idea of the story, anticipate the content of the story, and answer questions and ask questions about the content they do not understand.

## 2. Research Procedure

The tests for picture book reading were administered by two adult test assistants during school hours. The young children of high-level kindergarten were tested individually in a quiet room, and the tests lasted about 20 min per child.

The picture book “Do My Best” was faced down on the table. One of the test assistants elicited a reading attempt by saying to the child “Read me this book”. If the child said that s/he could not read, the test assistant encouraged with, “Well, pretend you can. Pretend-read it to me”.

After reading, some questions about the picture book’s content were asked by the test assistant, such as “who’s in the story? Where does the story take place?” Given scores according to the young children’s answers.

The entire sessions were audiotaped and checked against the tape by at least two other teachers.

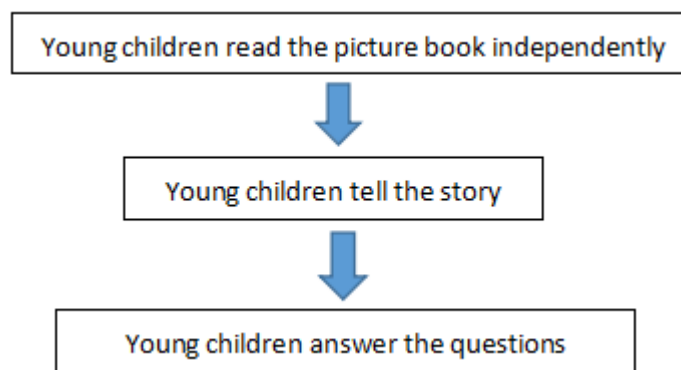


Figure 1. Lesson Procedure

## 3. Research Instruments

The following instruments were used in this study.

### 3.1 Pre-post test

In this study, a picture book named “Do My Best” was selected for the pre-post test of the control group and the experimental group, which was not read by young children and has a complete story, mainly paintings, less words.

According to the picture book’s content, the young children were asked to answer the matching questions. Twelve questions were asked from three dimensions of reading ability. When it is finished, the answers are given corresponding scores. The scoring system is “0, 1, 2” three-level scoring method. For more information, please refer to the below:

2 scores are awarded to show the ability to integrate the answers of all aspects of information; 1 score means the ability to cover only some of these aspects of incomplete answers and 0 score means showing no answer or irrelevant answer.

Since the objects of this study are young children aged 5-6, there is no learning task of literacy in kindergarten, so literacy is not included in the scope of this study.

### 3.1.1 Validity of the Pre-post Test

Three early childhood teachers were asked to validate the instrument using a content validity technique known as the IOC Index (Item Objectives Concurrence). The test validity was above 0.863.

### 3.2 Emotion Questionnaire

To measure the attitude of the young children towards learning picture books, a non-right or wrong response instrument was used. The instrument used was the Emotion Questionnaire consisting of 5 faces: Very Happy (1), Happy (2), Neutral (3), Not Happy (4), Very Unhappy (5).

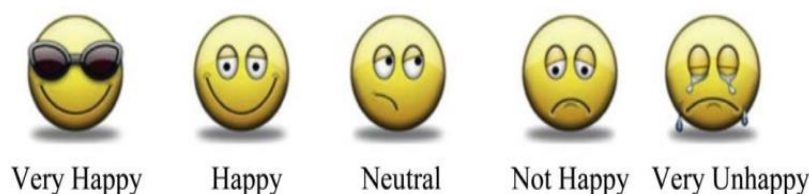


Figure 2. Emotion Picture Scale) Yilmaz, 2016(

### 3.3 Curriculum Design

Considering the young children’s development level, three picture books were selected for use in this study, in order “I Like Myself”, “A Little Tiger’s Loud Voice” and “Dirty Harry.”

Take “I Like Myself” as an example to show the activity design.

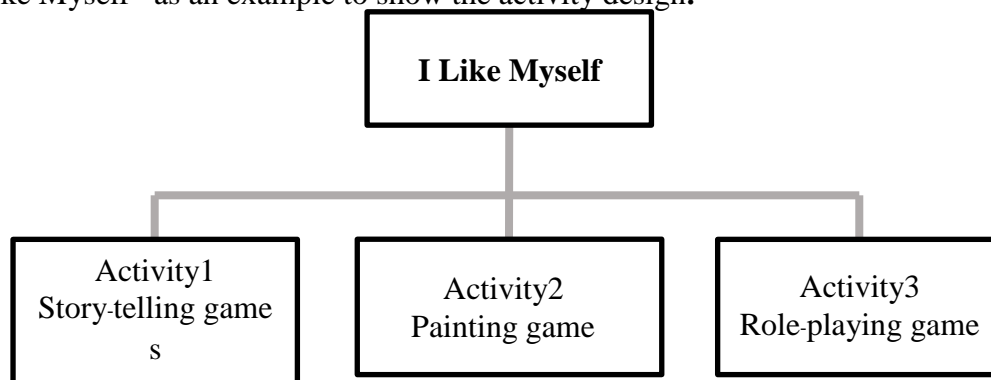


Figure 3. Schedule of Activities

#### Picture Book Title: I Like Myself

#### Design Intent:

"I Like Myself" is a picture book that makes children fall in love with themselves. Piggy in this picture book is full of confidence and heartfelt appreciation of herself, and this energy makes her shine. She's not beautiful or talented, but she takes care of herself and does what makes her happy. If she makes a mistake and suffers a setback, she will give herself another chance to try.

Many children say "I like my father" or "I like my mother" to their dear parents, but very few say "I like myself." In daily life, parents and friends always expect their children to



learn from others' strong points, but ignore their own good points. Through this picture book story hoped that children to improve confidence, and understand themselves, and love themselves.

**Activity Aims:**

- 1 .Learn to communicate with peers.
- 2 .Cultivate young children's ability of observation and oral expression of pictures.
- 3 .Cultivate young children's creative painting ability.
- 4 .Get personal emotional experience and explore the information contained in picture books.

**Activity Design:**

The early childhood teacher uses the gamified reading of picture book method to teach young children, taking three activities to complete one theme .

**The first Activity**

**Step 1 :Warming Game**

Please take a small mirror to see your own appearance.

T :Do you like yourself? What do you like about yourself? There is a piggy who likes herself very much .Who can guess why the piggy likes herself? Let's go into the picture books and have a look!

**Step 2 :Story-Reading Hour**

Before the beginning of the story, children are divided into different activity groups by using the game of “driving a train” to ensure that the ability level of each group of young children is balanced .In addition to listening, watching and speaking, the game of observation provides young children with the opportunity to think. In the form of reading teaching, the mode of collective reading --independent reading --collective reading is adopted.

**Step 3: Story-telling Activity**

Using the speech games :the game is carried out in the form of group. Some pictures were distributed to the young children .They need to sort the pictures and tell the story .It can improve the flexibility of children's story telling.

**The Second Activity**

**Step 1 :Painting Game**

In the process of painting, young children use a small mirror to observe themselves carefully and discuss with other children what they see in their eyes. Draw a picture of themselves on a piece of paper and say at least one good thing about themselves.

**Step 2 :Show the Pictures**

The early childhood teacher shows the pictures of the young children and ask them to introduce themselves and tell their advantages.

### The Third Activity:

#### Step 1: Role-playing Game

Using role-playing games :The early childhood teacher and children explore together how the piggy like herself. Pay attention to the production of the game, invite children to participate in the game arrangement and the formulation of rules.

#### 4. Testing Timeframe

The pre-test was given at the beginning of this study, and the post-test was given after the ninth activity .Both tests took approximately 20 minutes per child .

### FINDINGS

The study was: 1(to demonstrate whether the gamified reading of picture books method can improve young children's reading ability; 2( To identify the attitude of young children towards learning picture books :using an emotion questionnaire.

A comparative statistical analysis was done using the paired sample t-test and an independent sample t-test, and the comparison used mean test scores, standard deviation and significance value.

#### 1. Pre-test Scores

The first analysis is a comparison of pre-test scores of each group .Table 1 shows those scores.

**Table 1. Pre-test scores of both groups**

<i>Group</i>	<i>N</i>	<i>Full score</i>	<i>M</i>	<i>SD</i>	<i>T</i>	<i>Sig(2-tailed)</i>
Control	30	24	14.20	2.024	-1.512	.136
Experimental	30	24	14.93	1.721		

Significance level :>0.05 not significant <0.05 significant

The control group mean scores was 14.20; the standard deviation score was 2.024 .In the experimental group, the mean score was 14.93 and the standard deviation score was 1.721.

The 2-tailed significance value was 0.136, which indicated that there was no significance difference between mean scores of the two groups .These data revealed that the mean pre-test scores for both groups were similar .Thus, the two groups were equal with respect to prior knowledge of picture book reading.

#### 2. Post-test Scores of Both Groups

The second analysis is a comparison of post-test scores for both groups .Table 2 shows the post-test scores.

**Table 2. Post-test Scores of Both Groups**

<i>Group</i>	<i>N</i>	<i>Full score</i>	<i>M</i>	<i>SD</i>	<i>T</i>	<i>Sig(2-tailed)</i>
Control	30	24	16.67	2.279	-	.000
Experimental	30	24	22.37	1.326	11.840	

Significance level :>0.05 not significant <0.05 significant

The mean scores in the control group was 16.67, while the standard deviation was 2.279 . In the experimental group the mean score was 22.37 and the mean standard deviation was 1.326 .



The results of the data analysis revealed that the post-test score for the experimental group was higher than the post-test score for the control group. The 2-tailed significance value was 0.000, which indicated that there was significance difference between mean scores of two groups .Comparing the experimental group and the control mean scores, the experimental group mean score was significant higher than the control score.

### 3. Pre-post Test Score Comparisons

Table 3 shows the result of the paired sample t-test of the pre-post test scores for both groups.

**Table 3. A Comparison of Pre-posttest Scores**

<i>Group</i>	<i>Test</i>	<i>N</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>T- value</i>	<i>Sig)2- tailed(</i>
Experimental	Pre- test	3	14.93	1.721	-	.000
	Post- test	3	22.37	1.326	17.590	
Control	Pre- test	3	14.20	2.024	-	.000
	Post- test	3	16.67	2.279	7.370	

Significance level :>0.05 not significant <0.05 significant

The pre-test score of the experimental group was 14.93 and standard deviation was 1.721 .In the post-test, the mean was 22.37 and the standard deviation was 1.326 .In the control group, the mean score of pretest was 14.20 and the standard deviation was .024 .The mean of post-test was 16.67 and the standard deviation was 2.279.

The 2-tailed significance value of both groups were 0.000, which indicated that there were significant differences between the mean scores of the pre-posttest of the two groups .This analysis revealed that both groups 'mean the scores increased from the pre-test to the post-test, but the mean scores for the experimental group was significantly higher than that of the control group.

### 4. Young Children's Emotion Questionnaire

Another objective of the study was to seek the attitude of young children's concerning their learning picture books and if there were any differences between those in the control group and those in the experimental group .

However, half-way through the nine-activity picture book learning programme, it became clear that the young children in both groups enjoyed learning the picture books .The young children in the control group enjoyed the traditional method as did young children in the experimental group who were taught using the gamified reading method .Thus, use of the emotion questionnaire was discontinued .It is possible that because of their young age and their culture, the young children were happy with their teacher and with learning in general.

### CONCLUSION

This study showed a nine-activity picture book learning programme, during which the teacher of the experimental group used the method of gamified reading of picture books to

teach young children, and the teacher of the control group used the traditional method to teach the young children. The experimental group had a post-test mean score of 22.37 compared to the control group which had a post-test mean score of 16.67. This difference was significant. So, young children from the experimental group had a positive effect on reading ability by the Post- test (see Table 5). (Given this spurt, this result indicates a non-negligible effect of the gamified reading of picture books method.

The second objective was to obtain the attitude of young children about the learning picture books. This was done through the use of non-test emotion scale instruments where there was no right or wrong responses. The scale consisted of 5 faces: Very Happy, Happy, Neutral, Not happy, Very Unhappy. Young children were to be asked at the end of each activity to indicate their attitude about learning picture books. However half-way through the nine -activity period, it became clear that the young children in both groups enjoyed learning picture books. The young children in both groups rated learning picture books 'Very Happy' at the end of the first four activities. It was decided that further use of the emotion questionnaire could be discontinued. The assumption that young children might prefer one method over another method was not sustained. It appears that these young children enjoyed learning picture books and that they seemed unconcerned about the teaching method.

## **DISCUSSION**

The present study investigated whether the gamified reading of picture books method would improve young children's reading ability and also to identify the young children's attitude towards learning picture books. The quantitative analysis was used to collected data. First, although different teaching methods were used, a significant increase was found in the reading development of young children in all groups. This mean scores increased was evident of both group (the control group from 14.20 to 16.67; the experimental group from 14.93 to 22.37). (The experimental group outperformed the control group. A possible explanation for this finding is that the gamified reading of picture books method has a positive effect on the young children's reading ability. Many studies have shown the developmental benefits of the gamified reading, such as promoting motivation and engagement, increasing reading speed, expanding vocabulary, and developing learning and problem-solving skills) Attali& Arieli-Attali, 2015; Chen, 2018. (The gamified reading of picture books presents humanistic, emotional interaction and entertainment properties, which is easier to be accepted by young children and bring them novel reading experience) Heuvel-Panhuizen, 2016. (The Gamified reading of picture books is an "edutainment" teaching method, integrating theory into pleasant reading experience, which can better realize the educational function of picture books.

Second, there was no significant difference about young children's attitude towards learning picture books. It is possible that because of their young age and their culture, the young children were happy with their teacher and with learning in general. Altun, Erden and Hartman) 2021( indicated that gender, time spent watching television, and computer use were unrelated to young children's reading attitude. It was related to reading environment, reading habit and maternal reading attitudes) Prislín and Wood, 2005; Altun et al 2021. (According to Ajzen and Fishbein) 2005(, background factors such as individual experience, culture, education, income, and knowledge are instrumental to the attitudes that children develop in relation to any behavior.

This research attempted to explore the effects of two different teaching methods on young children's reading ability. The findings revealed that the gamified reading of picture books method outperformed the traditional method. Clearly, it is important to provide young children with more opportunities to be engaged with the gamified reading activity. Early childhood teachers should adjust the games according to young children's reading needs and realize that games are appropriate for the reading of picture books. For these children, only reading for the purpose of understanding the text is not a major goal. Young children at this age have high multi-sensory abilities. The gamified reading of picture books method is more appropriate for young children's overall development than the traditional teaching method of picture books.

The present study has several limitations that merit consideration. First, a limited number of young children were included in the study, the generalisations to third year young children in other regions should not be made. Getting more robust findings requires further research in which a larger number of classes are involved. Second, the time period of this experiment was only nine activities, this time period is too short to make any generalisations. In this respect, it is recommended to carry out a similar study with longer time. Finally, this study only examined the effectiveness of the two different teaching methods and the young children's attitude towards picture books. Further studies can illuminate the effects of various reading techniques on the children's cognitive development, literacy skills and story comprehension (Şimşek and Erdoğan, 2021).

## **RECOMMENDATIONS**

First, teachers of picture books are encouraged to use a gamified reading of picture books method to teach their young children. Second, researchers are encouraged to carry out similar studies but with children at different grade levels and, also, at other locations which differ from the one in which this study was carried out. Lastly, the methodology used to carry out this study could be a guide for a replication study.

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