

**THE EFFICIENCY OF DIGITAL PICTURE BOOKS TO ENHANCE
CHILDREN'S EMOTIONAL EDUCATION**

RUSHAN HU

**A THESIS SUBMITTED IN PARTIAL FULLFILLMENT OF THE
REQUIREMENT FOR THE DEGREE OF MASTER OF EDUCATION
PROGRAM IN LEARNING TECHNOLOGY AND INNOVATION
FACULTY OF TECHNICAL EDUCATION
RAJAMANGALA UNIVERSITY OF TECHNOLOGY THANYABURI
ACADEMIC YEAR 2022
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
Thesis Title The Efficiency of Digital Picture Books to Enhance Children's Emotional Education
Name – Surname Ms. Rushan Hu
Program Learning Technology and Innovation
Thesis Advisor Assistant Professor Tiamyod Pasawano, Ed.D.
Thesis Co-Advisor Assistant Professor Tipat Sottiwan, Ph.D.
Academic Year 2022


THESIS COMMITTEE


..... Chairman
(Assistant Professor Metee Pigultong, Ph.D.)



..... Committee
(Associate Professor Nattaphon Rampai, Ed.D.)


..... Committee
(Miss Naruemon Thepnuan, Ph.D.)


..... Committee
(Assistant Professor Tipat Sottiwan, Ph.D.)


..... Committee
(Assistant Professor Tiamyod Pasawano, Ed.D.)

Approved by the Faculty of Technical Education, Rajamangala University of Technology Thanyaburi in Partial Fulfillment of the Requirements for the Master's Degree


..... Dean of the Faculty of Technical Education
(Assistant Professor Arnon Niyomphol, M.S.Tech.Ed.)

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หัวข้อวิทยานิพนธ์	ประสิทธิภาพของหนังสือภาพดิจิทัลเพื่อเสริมสร้างพัฒนาการทางอารมณ์ของเด็ก
ชื่อ - นามสกุล	Ms. Rushan Hu
สาขาวิชา	เทคโนโลยีและนวัตกรรมการเรียนรู้
อาจารย์ที่ปรึกษา	ผู้ช่วยศาสตราจารย์เทียมยศ ปะสาวะโน, ศษ.ด.
อาจารย์ที่ปรึกษาร่วม	ผู้ช่วยศาสตราจารย์ธิปไตย โสตถิวรรณ, ประ.ด.
ปีการศึกษา	2565

บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อ 1) ระบุประสิทธิภาพของหนังสือภาพในการช่วยให้เด็กสร้างแบบจำลองทางอารมณ์ที่ดี 2) เปรียบเทียบอิทธิพลของหนังสือภาพกระดาษและหนังสือภาพดิจิทัลที่มีต่อการศึกษาด้านอารมณ์ของเด็ก และ 3) ประเมินข้อดีของหนังสือภาพดิจิทัลในการพัฒนาการศึกษาทางอารมณ์ของเด็ก

กลุ่มตัวอย่างในการวิจัยนี้ ประกอบด้วย เด็กอายุ 3 - 4 ปี จำนวน 60 คน แบ่งเป็นกลุ่มดั้งเดิมและกลุ่มดิจิทัล เครื่องมือที่ใช้ในการวิจัย ประกอบด้วย 1) แบบประเมินพัฒนาการทางอารมณ์ของเด็ก 2) แบบสอบถาม และ 3) หนังสือภาพเป็นพาหนะในการวิจัยเชิงทดลองเรื่องอารมณ์ศึกษา วิเคราะห์ข้อมูลโดยใช้ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และการทดสอบค่าที

ผลการวิจัยพบว่า 1) ทั้งหนังสือภาพกระดาษแบบดั้งเดิมและหนังสือภาพดิจิทัล มีบทบาทที่ดีต่อพัฒนาการทางอารมณ์ของเด็ก 2) การใช้หนังสือภาพดิจิทัลมีข้อดีบางประการสำหรับการพัฒนาการศึกษาทางอารมณ์ของเด็ก 3) เมื่อเปรียบเทียบกับหนังสือภาพกระดาษแบบดั้งเดิมและหนังสือภาพดิจิทัล เด็กที่ใช้หนังสือภาพดิจิทัลมีการแสดงออกทางอารมณ์ และการควบคุมอารมณ์ ความอยากรู้อยากเห็น และความเห็นอกเห็นใจดีขึ้น อย่างมีนัยสำคัญ

คำสำคัญ: ประสิทธิภาพ หนังสือภาพดิจิทัล อารมณ์ของเด็ก

Thesis Title	The Efficiency of Digital Picture Books to Enhance Children's Emotional Education
Name - Surname	Ms. Rushan Hu
Program	Learning Technology and Innovation
Thesis Advisor	Assistant Professor Tiamyod Pasawano, Ed.D.
Thesis Co-Advisor	Assistant Professor Tipat Sottiwan, Ph.D.
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ABSTRACT

The purposes of this research were to: 1) identify the efficiency of picture books on helping children establish a healthy emotional model, 2) compare the influence of paper picture books and digital picture books on children's emotional education, and 3) assess the advantages of digital picture books in the development of children's emotional education.

The samples of this research included 60 children aged 3 – 4 years old divided into traditional group and digital group. The research instruments consisted of 1) children's emotional development rating scale, 2) questionnaires, and 3) picture books as the carrier for carrying out experimental research on emotional education. The data were analyzed using mean, standard deviation, and t-test.

The research results showed that: 1) both traditional paper picture books and digital picture books have played a good role in children's emotional development. 2) The use of digital picture books has certain advantages for the development of children's emotional education. 3) Compared with traditional paper picture books and digital picture books, children using digital picture books have significantly improved in emotional expression and regulation, curiosity, and compassion.

Keywords: efficiency, digital picture books, children's emotion

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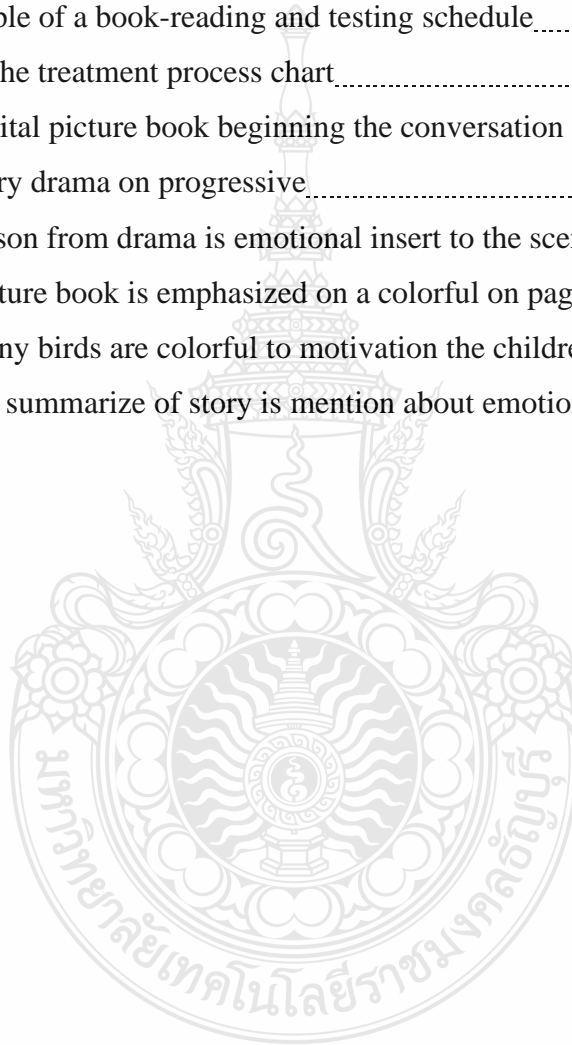
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CHAPTER 1

INTRODUCTION

1.1 Background and Statement of the Problem

At present, various kinds of social and psychological problems among Chinese teenagers and college students have been paid wide attention, and student suicide, depression and other situations appear frequently. Tracing back to the root cause, the lack of emotional education in childhood has a great impact. The educational significance of early childhood will play a key role in the human life. But in the past, people simply understood the early childhood education as the intellectual development, and ignored the cultivation of emotional education. Many parents want to have a strong desire. At a very young age, they will give their children a variety of interest classes, or for a certain subject and skills education, such as writing, mathematics, dance, various Musical Instruments, this single knowledge or skill training has obvious utilitarian and one-sided. With the continuous development of society and the continuous renewal of educational concepts, people gradually realize that the future generation needs not only a good intellectual foundation, unique survival skills, but also a sound personality. The essential purpose of education is to cultivate people with sound body and mind. In order to become a sound body and mind, we must first have good emotional quality. Norman (1995) found that emotional quality is much more important than IQ, which has a decisive impact on people's communication, work, life, career, and even people's happiness.¹ Therefore, in carrying out the early education of children, the education should focus on cultivating children's beautiful mind, rather than on the development of intelligence and the accumulation of knowledge. In early childhood, attention should be paid to the cultivation of children's emotional feelings and personality shaping. In our daily life, we often see such children, they have a rich material life, with the love of many people around them, but capricious, arrogant, irritable, selfish, stubborn, self-centered, temper, or autism, timidity, jealousy, dissociable, silence, lack of confidence and so on. This also makes some caring and responsible parents and teachers to discuss and learn the necessity and importance of emotional education together, and also begin

to get involved in the research of the effective path of early childhood emotional education.

Ruker, a famous psychologist in the former Soviet Union, once pointed out: " A high level of emotion is not inherited, but it is the result of cultivating children by parents and teachers. If we ignore the emotional education of children work, it will inevitably lead to the moral and emotional life of a generation to return to the primitive barbaric state. From this, emotional education is an important part of early childhood education, and it is one of the necessary lessons of every complete and sane individual. Children are like the morning bathed in the sun and rain of the small bud, need adult care and care, in order to thrive in the right direction. But in our daily life, we can inevitably meet some unworldly children, who are cold, aloof, withdrawn, without compassion, love or even cruel, do not know how to cherish life, this is the impact of the lack of our early emotional education. No matter how high his intellectual talent and his knowledge and skills are, it is difficult to become a qualified sane person. Therefore, in children's early emotional education is of great significance for children to grow into a mentally sound and qualified person in the future.

1.2 Research objective

1.2.1 The role of picture books in helping children to establish healthy emotional and emotional patterns.

1.2.2 Compare the impact of paper picture books and digital picture books on childhood emotional education.

1.2.3 Assess the advantages of digital picture books for the development of children's emotional education.

1.3 Research hypotheses

There are three research hypotheses regarding the following points:

1.3.1 Picture books can promote in helping children establish a healthy emotional and emotional pattern.

1.3.2 Both traditional paper picture books and digital picture books have played a very good role in children's emotional development.

1.3.3 Using digital picture books has certain advantages for the development of children's emotional education.

1.4 Conceptual framework

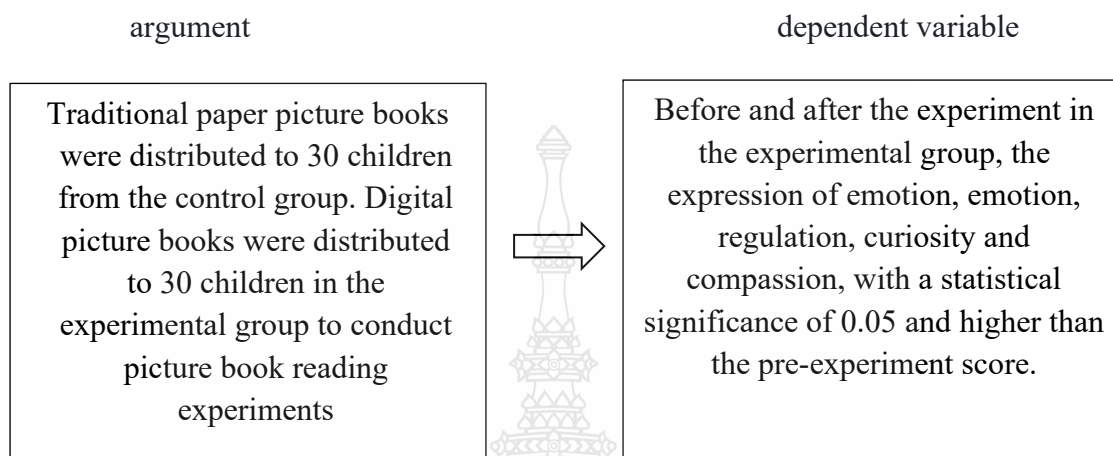


Figure 1.1 The conceptual framework of picture book reading effect on children's emotional education

1.5 Methods study

1.5.1 Population: The sample in this study included 60 young children aged 3-4 years who were divided into traditional and digital groups.

1.5.2 The research tools include 1) design of children's emotional development assessment scale, 2) collection and analysis of questionnaires, and 3) experimental research on emotional education with picture books as the carrier.

1.5.3 Data were analyzed using the mean, standard deviation, and *t*-test.

1.5.4 Variable: The independent variable is the distribution of traditional paper picture books to 30 children in the control group. Digital picture books were distributed to 30 children from the experimental group to conduct picture book reading experiments. The research tools include 1) design of children's emotional development assessment scale, 2) collection and analysis of questionnaires, and 3) experimental research on emotional education with picture books as the carrier. Data were analyzed using the mean, standard deviation, and *t*-test.

1.5.5 Capacitor variables: There were significant differences between and after the experimental group in emotion, emotion expression, regulation ability, curiosity and compassion, with a statistical significance of 0.05 and higher than the pre-experiment score.

1.5.6 The content is a picture book reading of "emotion, emotion expression and control ability".

1.5.7 For data collection, the researchers used a set of pre-test and post-test designs; the population was selected by purposeful sampling, with 60 children aged 3 – 4 years old. Design children's emotional development assessment scale, collected and analyzed questionnaires, and studied emotion education with picture books as the carrier. Data were analyzed using the mean, standard deviation, and t-test. Accumulate the statistical data after the experiment, calculate (O1) and (O2) mean (\bar{x}), and compare, the experimental model is arranged to be read by the picture book of "emotion, emotion expression and regulation ability" for parents and children to read.

1.5.7.1 Request collaboration with 60 families of 60 young children aged 3 - 4.

1.5.7.2 The final 16 picture books were research tools to test the emotional education level of 60 children before the picture book reading experiment. 1, including 30 people in the control group and 30 people in the experimental group. The emotional education level of the two groups will then be compared.

1.5.7.3 Then we start the picture book reading experiment. For 30 children in the control group, we will distribute traditional paper picture books. For the 30 children in the experimental group, we will distribute digital picture books to them, and the experiment will be conducted for two months. Every week, we will issue a picture book to the two groups to use picture books for family emotional education. After all 16 traditional paper and digital picture books are distributed, we will issue a second questionnaire to the two groups, The Research on Early Childhood Emotional Education based on picture books Volume and data analysis in control and experimental groups.

1.5.6 Data Statistics used to analyze the data.

1.5.6.1 According on efficacy according to E1 / E2 criteria

1.5.6.2 Different forms of picture books were used to observe the differences after emotional education.

1.5.7 Differences before and after control and experimental groups.

1.5.7.1 To study whether children have a significant emotional improvement after the use of picture books for family emotional education.

1.5.7.2 Does the use of digital picture books have advantages for the development of children's emotional education?

1.5.7.3 Compared with traditional paper picture books and digital picture books, what are the emotional advantages of children who use digital picture books?

1.6 Definition and scope of this study

The definition of this study: China's kindergarten work procedures emphasize that "kindergarten conduct education should focus on emotional education". In early education, emotional education occupies a very important position, but at this stage in early childhood education when most kindergarten often ignore children's inner experience and perception, do not pay attention to cultivate children's tolerance, love, grateful heart, cause children to form negative emotions after growing up, such as anxiety, loneliness, etc. The growth and development of people are composed of three parts: emotion, understanding and behavior, among which emotion is the drive driving the formation of understanding, a golden ruler to measure the level of psychological quality, and also an important evaluation mechanism of life enjoyment mechanism and behavior choice. People is not vegetation, who is heartless. Without emotion, can not be called real people, people's life will become lifeless, lack of moral sense and internal value, life will be endless empty and boring. Healthy and rich emotion is an important prerequisite for the rapid development of people's spiritual life and the key element of quality education. For children's emotional education, although many teachers and parents began to pay attention to it, not only in the daily life and parent-child interaction to raise points and education, combined with some examples to let children get inspired.

However, after all, the energy and experience are limited, the lack of real and effective ways, so we can not have a more comprehensive education for children. In the process of children growing up, most children and their parents must contact picture books every day. Picture books are called as children's bedside books, which are loved by children. Picture books play a significant role in the cultivation of children's emotional feelings, children's growth and development and education.

The scope of this study is mainly on the basis of previous research in the form of experimental questionnaire, observation and conversation, from more than 200 groups of mothers, select the level of emotional education for children and children after reading picture books, research questionnaire, understand the emotional education before and after children. When reading children's picture books, we will extensively collect and summarize meaningful and valuable materials and phenomena, and adopt the educational experiment method to study the importance of reading picture books and its relationship with children's emotional development. In addition, through this study, preschool teachers and parents can learn to look at children's picture book reading in a new position, and actively participate in it, so as to fully grasp the psychological characteristics of children when reading and understand the children's real needs.

1.7 Definition of the key terms

1.7.1 Picture books is a kind of book with a little text, its English name is "Picture Book", picture books are different from other ordinary picture books, picture books usually have independent painters, pictures have personal style, that is, love is the scene, can be drawn alone, with the function of "picture language". Picture books were originally evolved from illustrated books, which are relatively casual and independent. They are different from traditional Chinese comic books or Japanese and American comics. The content and format of picture books can play more space, which can break the style of traditional plane books. Picture books can also be divided into children's picture books and adult picture books. There is no obvious limit between the two, mainly depending on the content of the text. Children's picture books appear relatively earlier.

1.7.2 Traditional paper picture books are a kind of book mode that combines pictures and text. Pictures and words are interdependent and survive, with a certain continuity and narrative, is the best reading book for children's knowledge enlightenment. Traditional picture books are the most direct and common cognitive carrier of graphic activities of the general public, and they are widely used in children's enlightenment and the entertainment of adult story mapping. The traditional picture books in this paper mostly refer to the picture books that still take the integration of pictures and text as the traditional picture books in the multimedia information age.

1.7.3 Digital picture books are also known as multimedia picture books. It is the extension and expansion of paper picture books in the new media era. It is a new media digital publication based on paper picture books, makes full use of digital information technology, and presents the pictures and words of paper picture books in the form of sound, animation and game interaction.

1.7.4 Emotional education is a kind of education that integrates emotion and cognition. However, there are significant differences in cognitive education and emotional education in the educational mechanism, educational mode, educational objectives and educational process. The former is to impart knowledge to produce skills, aiming to promote the development of intelligence, the latter is to cultivate children's positive emotions as the main purpose, and adapt to it, children's emotional education refers to the educator according to the age characteristics of children to create the corresponding.

1.8 Significance of the present study

The research focus is as follows:

1.8.1 Through literature reading and inquiry, many scholars have done a lot of research and discussion on children's picture books and their emotional education so far. A lot of literature focuses on the research of the necessity of children's picture books and emotional education, but few literature expounds the mode of emotional education for children for picture books.

1.8.2 Now picture book form presents diversified characteristics of development, after the digital picture books, about digital picture books for children's

emotional education exactly what education value, digital picture books for the benefits of emotional education, digital picture books and traditional paper picture books in children's emotional education, whether there are differences, etc., is still less.

1.8.3 This study, on the basis of previous research, took the form of experimental questionnaire, observation and conversation, from more than 200. Among the mother group, 60 families who met the standard were selected to provide the level of emotional education and young children. After reading picture books, conduct a questionnaire to understand the emotional education before and after children. In reading. When reading children's picture books, we should extensively collect and summarize meaningful and valuable materials and phenomena, and adopt educational reality The inspection method studies the importance of picture book reading and its relationship with children's emotional development. In addition, through. This study can let preschool teachers and parents learn to look at children's picture book reading in a new position, and actively participate in it, so as to fully grasp the psychological characteristics of children when reading, understand the children's inner true Real demand. It must be emphasized that picture book reading not only has the role of inducing sleep, but should not equate simple skills with knowledge education and literacy education, but should pay more attention to its emotional educational value.

1.8.4 By studying the importance of picture book reading for children's emotional education, this study can increase people's understanding of children's inner world and reading psychology, so as to awaken people to understand and respect children's behavior of choosing the type of reading of picture books independently. The key reason why children like to read picture books lies in children's concentration, children's preferences and their emotional and spiritual needs. This is an opportunity and experience of parent-child communication. Teachers and parents should appropriately overcome the idea of reading for the purpose of education, actively change the way of reading picture books to read picture books, and try their best to choose their favorite excellent picture books that can cultivate their sentiment for children.

CHAPTER 2

REVIEW OF THE LITERATURE

This chapter focuses on previous studies related to the following areas related to this study. The literature relevant to the study will be reviewed in this chapter, digital picture books, emotional education. As a result, this chapter is divided into the following sections:

2.1 Picture books

2.2 Emotional education

2.3 The Theory of Parent-Child Attachment

2.4 Theory of family upbringing

2.5 Theoretical basis for the effective role of picture books on young children's emotional education

2.6 Relevant research

2.1 Picture books

2.1.1 Picture books is a kind of book with a little text, its English name is "Picture Books", picture books are different from other ordinary picture books, picture books usually have independent painters, pictures have personal style, that is, the scene, can be drawn alone, with the function of "picture language. Picture books were originally evolved from illustrated books, which are relatively casual and independent. They are different from traditional Chinese comic books or Japanese and American comics. The content and format of picture books can play more space, which can break the style of traditional plane books. Picture books can also be divided into children's picture books and adult picture books. There is no obvious limit between the two, mainly depending on the content of the text. Children's picture books appear relatively earlier.

2.1.2 Traditional paper picture books are a kind of book mode that combines pictures and text. Pictures and words are interdependent and survive, with a certain continuity and narrative, is the best reading book for children's knowledge enlightenment. Traditional picture books are the most direct and common cognitive

activities of the general public, which is widely used in children's enlightenment and the entertainment of adult story mapping. The traditional picture books in this paper mostly refer to the picture books that still take the integration of pictures and text as the traditional picture books in the multimedia information age.

2.1.3 Digital picture books are also known as multimedia picture books. It is the extension and expansion of paper picture books in the new media era. It is a new media digital publication based on paper picture books, makes full use of digital information technology, and presents the pictures and words of paper picture books in the form of sound, animation and game interaction.

Picture book reading is a powerful means of exposing children to complex language. According to Logan et al. (2019), even minor changes in reading frequency result in substantial differences in language input. Moreover, the vocabulary in books tends to be more sophisticated than that used in everyday speech (Montag, et al., 2015). Hence, picture book reading is an effective method of stimulating language and literacy development (Dickinson and Morse, 2019), and can be successfully used with young dual language learners (DLLs), that is children who learn a second language (L2) while still being in the process of first language (L1) acquisition (Fitton et al., 2018).

To succeed academically, young DLLs need to become proficient in the language of school instruction (August and Shanahan, 2006). However, many are exposed to their L2 predominantly in a kindergarten setting, while speaking only their native language at home. Although developing and maintaining L1 has multiple advantages, many of which go beyond the domain of language and literacy (Baker and Wright, 2017), in this study, we explored how children's knowledge of L1 may be employed to support L2 learning.

We investigated whether reading picture books at home, in the child's L1, before rereading them in L2 kindergarten is more helpful than reading in L2 at home or in kindergarten only. Presenting books in L1 before reading them in L2, a practice recommended in the early childhood teacher education literature (Høigård, 2013; Gillanders, et al., 2014), is assumed to support story comprehension in DLLs at early stages of L2 acquisition and, consequently, it may facilitate L2 word learning. Yet there is little evidence to confirm the effectiveness of this approach. Focusing on three- and

four-year-old Polish-speaking children learning Norwegian as their second language, we compared reading digital picture books in L1 and L2 at home, combined with reading in L2 in kindergarten. Our main aim was to test the effects of reading in Polish at home on Norwegian vocabulary learning and story comprehension, as compared to reading only in Norwegian.

Reading digital picture books in first language to promote story Comprehension and second language vocabulary learning.

Picture book stories are told through verbal narration and illustrations (Nikolajeva and Scott, 2006), which in the digital format are occasionally enhanced with multimedia features, such as animations and sounds. Children construct meaning from all these information resources (Sipe, 2008; Christ, et al., 2019), making use of their narrative as well as linguistic skills, particularly vocabulary knowledge (Sénéchal, et al., 2006; Babayiğit, 2014). When DLLs are just starting to learn L2, they might benefit from listening to the verbal narration of the stories in their L1 beforehand. Repeatedly hearing and understanding the story in L1 may result in greater contextual support for inferring meanings of L2 words and phrases when the same book is later read in L2.

The linguistic interdependence hypothesis (Cummins, 1981, 2000) assumes that L1 and L2 acquisition is mutually dependent due to an underlying proficiency shared by both languages. Thus, the development of conceptual knowledge-the understanding of ideas and meanings attributed to words-in L1, facilitates its subsequent development in L2. This means that concepts acquired in L1 are not relearned in L2, but rather linked to new lexical labels. Therefore, presenting DLLs with words and concepts during book-reading in L1 might help them learn new words when rereading the book in L2 since the children would be connecting new lexical labels to familiar concepts. The contextual support created by understanding the story first read in L1 may also facilitate L2 vocabulary learning (Hammer et al., 2014).

According to the revised hierarchical model (Kroll and Stewart, 1994), L1-dominant bilinguals have weaker links between concepts and L2 words, which means that they rely on L1 mediation to access the concepts. However, as they become more proficient in L2, learners can retrieve conceptual information directly from the L2

lexicon. Yet this shift does not occur until learners have practiced L2 for at least two years. Cummins (1981b) also discussed the two-year mark, suggesting that it takes children approximately this long to achieve basic proficiency in L2. We expected, therefore, that children at early stages of L2 acquisition would be more likely to benefit from encountering books in L1 before reading them in their L2.

Only few published studies have evaluated the effect of reading picture books in L1 before rereading them in L2, with mixed results. Roberts (2008) examined how the language used when reading at home-L1 or L2-affected Hmong- and Spanish-speaking four-year-old children's receptive vocabulary in English. In one experiment, home reading in L1 was more effective than reading only in English, though these findings were not replicated in a subsequent experiment.

In a more recent study from Norway, Grøver, et al. (2020) conducted a shared reading intervention with a large group of four- and five-year-old DLLs speaking a variety of first languages. One component of the intervention involved sharing a few titles-mostly wordless picture books-in families' preferred language at home, in addition to reading them in Norwegian in kindergarten. However, the effects of this procedure on L2 vocabulary were not statistically significant ($p = 0.087$).

Advantages of Reading Digital Picture Books in Second Language at Home
This study compared reading in L1 and L2 with reading in L2 only, either exclusively in kindergarten or in combination with L2 reading at home. Well-designed digital picture books for young children are effective for enhancing children's vocabulary and story comprehension, even outperforming print books (Furenes, et al., 2021). Thanks to built-in language options of audio narration, digital picture books also allow DLLs to access stories in their L2 at home, even when parents who wish to read in that language are reluctant to do so, for example due to their own limited proficiency (Luo, et al., 2020). According to Gunnerud, et al. (2018), young DLLs whose families communicate predominantly in their L1 have lower comprehension skills in Norwegian than children exposed at home to Norwegian as well as another language. Thus, digital picture books may provide this group with additional, high-quality exposure to their L2 outside of kindergarten.

Over the last two decades, Norway has witnessed a large influx of Polish migrant workers, many of whom have settled there permanently with their families. Polish immigrants, who are currently the largest immigrant group in Norway (Steinkellner and Gulbrandsen, 2021), typically have strong ties with their home country, tend to speak Polish at home and own children's books mainly in their native language (Rydland and Grøver, 2020). Thus, DLLs of Polish origin may benefit from having home access to digital picture books in Norwegian. At the same time, we anticipated that parents and children in this study might use Polish while sharing books in Norwegian, thus reducing the difference between reading in L1 and L2. Research on bilingual approaches to vocabulary instruction, such as bridging, which involves providing word definitions in L1 embedded in L2 book reading, shows that this may have positive effects on L2 word learning (Lugo-Neris, et al., 2010; Leacox and Jackson, 2014; Méndez et al., 2015; Wood, et al., 2018). Therefore, verbal exchanges in L1 combined with audio narration in L2 may, in fact, support L2 vocabulary learning.

Moreover, allowing DLLs to interact with a digital picture book in their L2 with an adult at home before reading it in a group setting might be more beneficial than having them read these books exclusively in kindergarten. The digital picture book format may elicit physical responses, such as pointing or tapping the touch screen, which may draw the children's attention away from the narration and the teacher's discussion of the story shared in a group (Hoel and Tønnessen, 2019; Hoel and Jernes, 2020). As a result, having the opportunity to read the book in L2 at home might give DLLs an advantage compared to reading the story only in kindergarten with other children.

In the current study, we tested whether 1) reading digital picture books in L1 at home and in L2 in kindergarten benefits DLLs' story comprehension and L2 book-specific vocabulary learning, compared to reading in L2 only. However, the parent-child interaction in L1 while reading the stories in L2 might make reading in L1 and L2 at home more alike. We also tested whether 2) reading digital picture books in L2 at home benefits story comprehension and L2 book-specific vocabulary, compared to when books are only read in kindergarten.

We recruited participants from eight kindergartens (12 classrooms) with a high number of Polish-speaking children, located in an urban municipality in Western Norway. We focused on typically developing DLLs aged 33-51 months who had attended kindergarten for at least 12 months. Once the kindergarten administration and teachers agreed to participate and identified eligible children, consent forms were distributed to parents of 21 DLLs, and the parents of 18 children returned them signed.

National kindergarten closure due to the COVID-19 pandemic affected both the number of participants and the age at which they were evaluated. Three of the originally recruited children did not return to kindergarten when it reopened, while one refused to participate in testing. The age of the 14 children (6 girls, 8 boys) included in the study ranged from 42 to 54 months ($M = 48.7$, $SD = 4.3$). The participants had attended kindergarten for 16 to 40 months ($M = 29$, $SD = 8.1$), 6 to 9 h a day ($M = 7.3$, $SD = 0.8$). Background information about the participants was collected in a short, structured interview, conducted in Polish by the first author in person or, in two cases, online. Based on parental responses in the interview, all 14 children used Polish as the main language of communication with both parents at home. One participant communicated with one of the parents in English in addition to Polish. The children's use of Norwegian at home was limited, as was their exposure to Norwegian outside of kindergarten. Most of the children were additionally exposed to Polish through contacts with family and friends in Norway and Poland, other children or staff in kindergarten, as well as Polish media. Maternal education varied, but seven mothers had completed secondary education, and four held a university degree.

In the study, we used a within-subjects experimental design. Before the intervention, we tested the children's knowledge of book-specific vocabulary in Norwegian, which was tested again after the intervention, together with story comprehension. Each child participated in all three conditions:

- 1) two readings of a digital picture book in Polish at home followed by two readings of the same book in Norwegian in kindergarten,
- 2) two readings of a digital picture book in Norwegian at home followed by two readings of the same book in Norwegian in kindergarten,
- 3) four readings of a digital picture book in Norwegian only in kindergarten.

The within-subject design entails a book change from one condition to the other. We combined the three conditions with three different books to ensure that condition and book were not confounded. Table 1 summarizes the six possible combinations of book and condition. We randomly assigned these six combinations to the 14 participants. As we failed to make the number of participants a multiple of six, we did not use each book as often in each condition. Four combinations in figure 2.1 contained two children each, while two combinations involved three children. As a result of this imbalance, book A was read more often in Norwegian at home.

The Norwegian Centre for Research Data, a government-owned ethical supervisory agency in Norway, approved the study. The children's teachers and parents received information about the study aims and their right to withdraw at any time without providing a reason. The consent forms distributed to the parents were written in Polish and Norwegian. The children also received oral information about the study and participated voluntarily.

A series of three commercially available digital picture books were used in the study: (A) Unni og Gunni reiser [Unni and Gunni travel], (B) Unni og Gunni malar [Unni and Gunni paint] and (C) Unni og Gunni gjer det fint [Unni og Gunni make it nice] (Folkestad, 2014a, b,c). In agreement with the author and publisher, the books were professionally translated from Norwegian to Polish and an audio recording of the Polish narration was added to each story. The books in Polish and Norwegian looked identical and had the same functionalities, such as 42–45 hotspots with animations and sound effects concealed in the illustrations. All three books include the same characters, have a similar length (131, 122, and 145 words, respectively, in their Norwegian versions), and share the same narrative structure. The books are therefore comparable with one another.

Furthermore, the stories are humorous, use repetition, and follow a simple storyline, which makes them suitable for children aged three to four (Christensen, 2010). The plot of the narratives is centred around a problem and its solution. For example, in Unni og Gunni gjer det fint, the two penguin-like characters realise that their house is empty and decide to furnish and decorate it. Moreover, the stories are partly told through illustrations that include elements not mentioned in the verbal text,

such as scarves and eggs in *Unni og Gunni gjer det fint* (see Figure 2.1), which adds some complexity to the narratives.

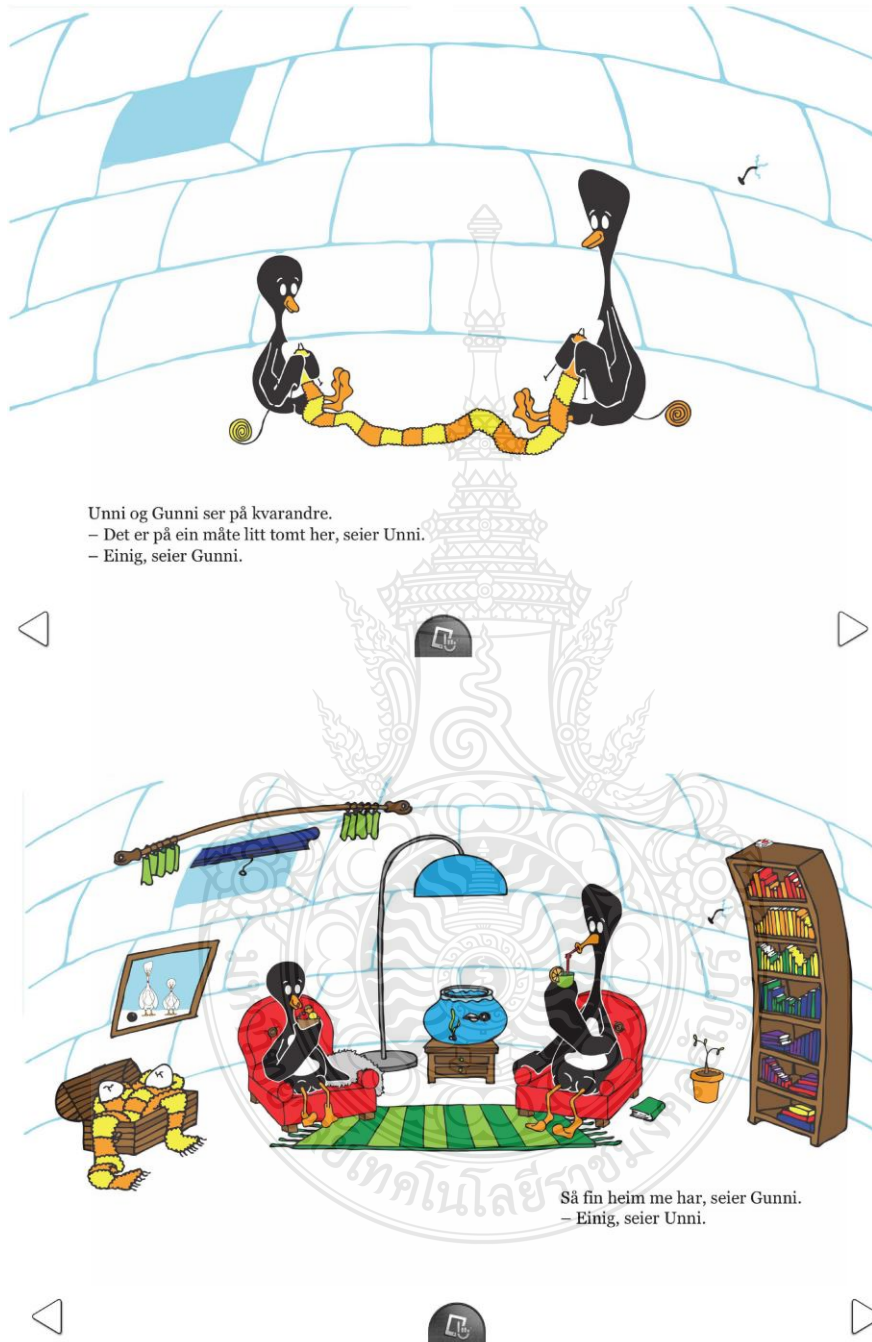


Figure 2.1 The first and last screen in *Unni og Gunni gjer det fint* (2014).

Reproduced with permission from Anna R. Folkestad and Det Norske Samlaget. The text reads: First screen: Unni and Gunni are looking at each other. "It is in a way a bit empty here", Unni says. "Right", Gunni says. Last screen: "We have such a nice home", Gunni says. "Right", Unni says.

The participating children's parents received an iPad with access to two books, one in Polish and one in Norwegian. None of the families had prior experience with digital picture books. We instructed the parents to share both stories twice with their child as if they were print books but with audio narration turned on, both when the book language was Polish and Norwegian (Dore, et al., 2018). The caregivers received text messages reminding them of the scheduled readings. They were also asked to record the last reading of each book using a voice recorder. Except for one parent who did not agree to record home readings, all caregivers recorded their reading sessions.

Similarly, teachers of the participating children received an iPad with all three digital picture books in Norwegian. They shared the stories with small groups, including the participant(s), according to a reading schedule. We instructed the teachers to use the audio narration and engage the group in a dialogue about the stories. Since only three out of 12 teachers had prior experience with digital picture books, all teachers were encouraged to practice with other books on the iPad, over one to two weeks preceding the scheduled readings. Due to the COVID-19 pandemic, four children participated in readings carried out by other staff members, instructed by the teacher.

The two books shared at home were read over four days immediately preceding their reading in kindergarten, alternating between the book in Polish and Norwegian. The order of reading in kindergarten was the same for all participants, meaning that it was counterbalanced across conditions. Reading in kindergarten took place over six to seven consecutive working days, with one or two readings per day. Each book was shared four times in total. An example of a reading schedule for home and kindergarten is presented in Figure 2.2.

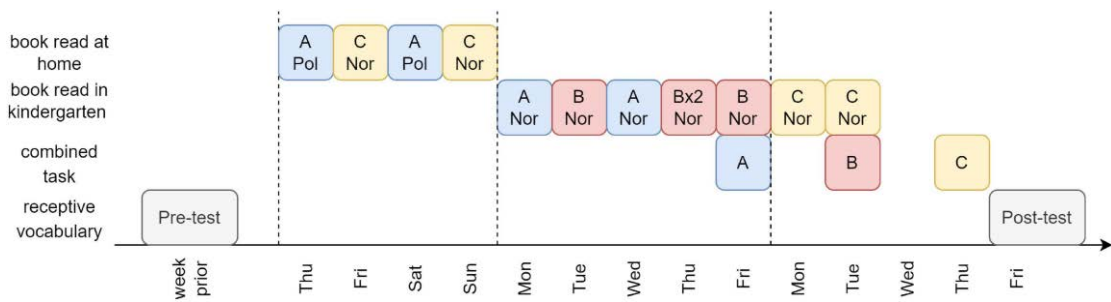


Figure 2.2 Example of a book-reading and testing schedule. “Combined task” refers to the combined story comprehension and expressive vocabulary task.

2.2 Emotional education

Emotional education is a kind of education that integrates emotion and cognition, but there are significant differences in cognitive education and emotional education in educational mechanism, educational methods, educational objectives and educational process. The former is to impart knowledge to produce skills, aiming to promote the development of intelligence, the latter is to cultivate children's positive emotions as the main purpose, and adapt to it, children's emotional education refers to the educator according to the age characteristics of children to create the corresponding.

There are many things that make a great teacher, not just the fact they know a lot about their subject and have got their classroom management down to an art. It can also be because they are able to teach students to manage their emotions, understand themselves better, take care of their own well-being, and bring out their full potential. Many studies in the psychology of learning are very clear on the fact that feeling pleasant emotions while learning something will help to achieve much more meaningful and lasting learning over time. The problem arises when we don't know how to identify our own emotions, understand why we feel them, or know the best way to express them. And if we lack this knowledge, it can lead to frustration and misunderstandings. If it happens to us in adulthood, imagine at younger ages when we're still getting to know the world around us and learning every day on the fly! That's why it's important to offer students emotional education as early as we can. But what is emotional education, what are its objectives, and how can we give it the space it deserves in our classrooms? Stay with us a little longer and we'll tell you all about it.

Emotional education consists of teaching children to identify, understand, and manage their own emotions and feelings. This allows them to express themselves effectively, set positive goals, and develop empathy, which is necessary to be able to recognize and understand the feelings and emotions of others. Through this process, emotional intelligence is fostered. Emotional education in the classroom has a big impact on students' behavior, but it also influences their learning and development as individuals. And not only that! Social-emotional education also helps teachers to better understand their students, as they can offer more motivating activities that awaken pleasant emotions in their students.

Sounds like all positives, doesn't it? Well, that's because it is! Teaching socioemotional education has tons of benefits. Now let's look at some of the most relevant ones. 7 reasons to integrate emotional education into your classes. You know that when you're a teacher, every day is a new adventure and as soon as you walk through the school door you're greeted with something different. There will be days when your students behave well and everything flows smoothly (tip of the day: make the most of these days and enjoy them to the fullest!). And other times the opposite will happen you won't know what's going on, but it will seem as though a dark cloud has fallen over the school that day. The good news is that you can teach your class the keys and skills they need to learn to manage their emotions and develop their emotional intelligence. And the earlier you start, the better. From an early age, students are ready to learn to understand their own emotions and empathize with those of others. And when students learn these skills, wonderful things like this can happen:

- 1) They become more aware of their personality and their place in the world.
- 2) They increase in confidence and self-esteem by recognizing their strengths and needs.
- 3) They develop a growth and improvement mentality.
- 4) Their motivation to learn new things also increases.
- 5) They develop better relationships with the rest of the class and school.
- 6) They participate more actively in class and their academic performance improves.

7) They grow their capacity for responsible decision making and reflective thinking.

8) Today is a great day to start working on these skills in your classes, don't you think? Well, let's see how you can do it.

We touched on some of the advantages and benefits of teaching emotional skills; did you think we were going to leave you hanging without telling you how you can strengthen them in your classes? No way! We've prepared a few ideas and activities to inspire you so that you can start applying emotional education in the classroom right away.

And since with Genaille's templates most of the work is done for you, it couldn't be easier. So here they come. Let students reflect and make their own decisions Great, you've found a topic that you know inspires or motivates your class, and now it's time to make the most of it in the classroom. Now is when the good stuff starts! But before we continue, it is important to clarify one thing: for students to be truly involved in their social-emotional learning, it is not enough to do just any activity and wait for the magic to happen. Make sure you give them the opportunity to do something they love: express themselves freely and feel like an active part of the group. How do we achieve this? Through team activities and dynamics in which they have to discuss various emotions or scenarios. Especially if you're just starting to apply emotional education in your classes: they can identify and discover different emotions on their own. How about creating a dictionary of emotions? You can select several images with people or characters expressing different emotions and organize the images based on the type of emotion.

This dictionary can become a reference material or resource to turn to whenever you deal with emotions. In addition, it will give rise to all kinds of reflections throughout the year: how we manifest each emotion, what thoughts it provokes in us, how it makes us feel, what we can do when we feel it, or the best way to express it or detect it in others. (Ruth Martin, 2021)

2.3 The Theory of Parent-Child Attachment

Psychologists have shown that attachment is the earliest emotional connection between infants and their parents, which plays a key role in the initial cultivation of children's emotions.⁴⁰ Among them, the sense of attachment belongs to the emotional basis of "individual security", "sense of belonging" and "sense of trust". Emotion such as "compassion", "self-control" and "responsibility" in the emotional education content all need to take attachment as the initial source. Therefore, we need to pay attention to the cultivation of children's attachment sense, so that this emotion can build a warm parent-child connection and a good interpersonal relationship when in a critical period of development, so as to establish a foundation for the development of subsequent emotions. As the original reading book for infants and children, picture books as a picture book is actually a good time between children and children. In the process of reading together, parent-child can have rich emotional communication, which is conducive to the development of parent-child attachment sense and the cultivation of emotional education. Children's emotional education is the cooperation of family, teachers and society. For early childhood education, families account for the largest proportion, because most of the children are spent at home from birth to now.

2.4 Theory of family upbringing

Chen Heqin, a famous educator in China, pointed out: From birth to 7 is an important period in my life. Language habits, skills, thoughts, attitudes and emotions all lay a foundation at this stage, and a good foundation is conducive to the construction of a sound personality. This stage is spent in the family, so family education is particularly important. Good family education is conducive to the basic norms of conduct of social life, good ideological and moral character and independent ability cultivation, has a great positive role in promoting the formation and development of children's personality. Therefore, the structure of the family, the family living environment and the relationship between the family members, the concept of parenting will all affect the development of children's personality.

German educator Froebel believes: "The education of early childhood is crucial, and whether the quality of this period will directly affect children's life. If children are

damaged in this period, he has to make greater efforts to overcome the obstacles brought to him.

British Education Garlock also said: "Improper education of children at a young age means throwing poison into the source of their spring and injecting the seeds of evil into the children".

The development of early childhood education first starts with the family, where, through the parents, it has obtained the initial life experience, the social knowledge and the code of conduct. The family is the earliest executor and basic executor of socialization. When parents transfer the code of behavior, social concept and value system to their children, they gradually constitute the content and development goals of children's socialization. Since the 1940s, most psychological researchers have studied the child socialization impact of different parenting methods from the parent-child level, and these results all show a close correlation with each other.

A good family upbringing has great significance to their children's mental health and society. The success of education has a great contribution to both the family and the society, it can make the family function more stable and sound, so that the social culture can be inherited and social standardization. For their children themselves, good upbringing makes them grow up healthily in personality, moral character and behavior, laying a solid foundation for their lifelong physical and mental health, happy life and even career success. On the contrary, if there are huge problems in the upbringing of children, then it has a great impact on both the family and the society, and it can even lead to the disintegration of the family and threaten the social stability. Therefore, parents should adopt a reasonable way of family upbringing, which will help to promote children to achieve good social development. In this way of education, the most important thing is not the improvement of intelligence, the acquisition of skills, but the development of emotional education.

2.5 Characteristics of preschool child development and the theory of emotional development

The development of preschool children not only has an inevitable direction, but also has an inevitable order and situation.¹ From simple to complex. At first, psychological activities are relatively simple, just reflex activities, but because of the

continuous development of children, psychological activities will become more complex. Before the age of one and a half, children do not have the imagination, let alone the unique human thinking. However, due to the birth and development of children's psychological process, children's psychological activities always follow the development law from simple to complex. Whether it is emotional attitude or cognitive activity, its development needs to gradually develop from the initial chaos to the clear differentiation. For example, at the beginning, children's emotions were only both unhappy and happy. After that, it is gradually divided into jealousy, love, fear, pain and other emotions.2. From concrete to abstract. At the beginning, children's psychological activities are more detailed, and with the development of time, it becomes more and more generalized. At first, it is the sensory process, and then it develops into thinking through the generalized disguised form and perception. It can be seen from this that human thought has to go through a process from very concrete to slightly abstract to produce very representative abstract logical thinking.3. From passive to active. Child psychology is initially unintentional, and reflex instinctive activity finally transforms into purposeful and directional activity. In fact, children's psychological activities will form a greater impact on physiological factors.

2.5 Theoretical basis for the effective role of picture books on young children's emotional education

2.5.1 Wake up the educational theory

"Wake up education" is a way of fully awakening the values, creativity, mind and sense of life by awakening the sleeping self-consciousness buried in the depths of human life. Wake-up education, which contributes to the construction of personal life, was first proposed by Jaspers.

Jaspers pointed out that the object of education is the human soul and human spirit, and education is a process to promote their comprehensive development through ways that affect people's body and mind. Education has an important way to awaken people's spirit and cultivate their emotions. Its fundamental purpose is to awaken the individual sense's value and life by stimulating people's emotion, rather than being limited to imparting knowledge. According to Jaspers, the charm of education is

mainly reflected in cultivating personality, cultivating people's sentiment and shaping the soul.

Picture book is a kind of picture with beautiful words, bright colors and imaginative imagination. It is the best reading book for children. The main function of reading picture books is the process of children's emotional understanding and discovery. Through reading picture books, it will not only form a strong shock to the hearts of young readers, but also have an impact on children's spiritual life and heart. They pay more attention to people's spiritual development, life development and the quality and optimization of personality.

2.5.2 Read the treatment theory

The word reading therapy (Bibliotherapy) comes from Greek and is a combination of "therapy" and "book". Reading treatment refers to the practice of purposeful, targeted and planned reading based on the guidance of psychologists, so as to assist in the treatment of emotional and emotional diseases.

After studying it, Liu Ting found that reading is a way that can effectively promote children's psychological development. On the one hand, through reading, it can effectively solve the social development problem of children, and promote the normal development of children. On the other hand, it can be conducive to children's emotional catharsis, adjust the development of emotions, and is conducive to the implementation of emotional education.⁴⁵ In addition, reading can also help children to build good interpersonal relationships and enhance their adaptability to the environment. In addition, reading also plays a great role in promoting the education of some special children.

Ben jamin Rush (Ben jamin Rush), the world's first real reading doctor, appealed in 1810 to psychiatric hospitals to provide patients with their physical and mental health. Let the patient to reduce the stress when reading books, and let the patient's pathological mood state can improve.

Guo Cheng and Li Gujing (2006) summarized the psychological course of readers in the existing theory, and finally found that they roughly need to go through the following six development stages to read the following treatment process chart:

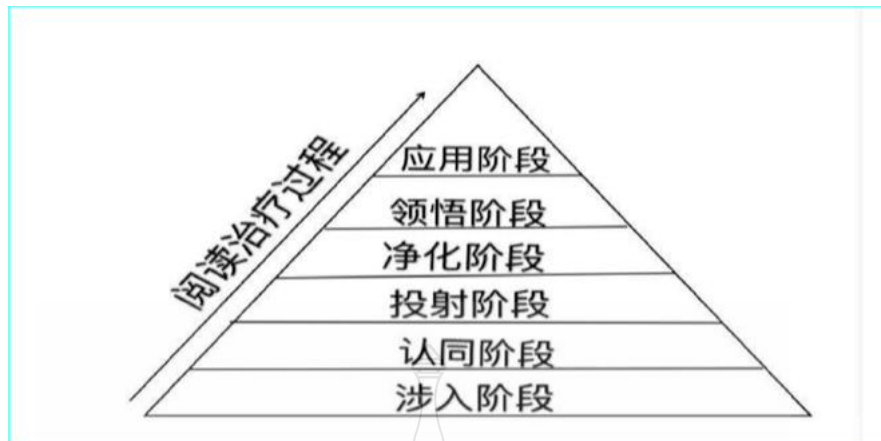


Figure 2.3 Read the treatment process chart

2.6 Relevant research

Dani Kachorsky (2021) to research topic picture books in the digital age. The design, publication, and features of contemporary narrative picture books have been impacted by the digital revolution and the emerging popularity of digital reading devices. Considering both the affordances and the limitations of digital picture book apps can help readers, teachers, parents, and other educators make better decisions about the value and use of such apps for different purposes.

Adriana G. Bus. (2021) conduct research topic toward digital picture books for a new generation of emergent readers. The study tests the efficacy of a new sort of digital picture book. It includes camera movements to guide children's visual attention through the pictures and the possibility to control page-turning and the pace at which the camera moves through pictures. There were 56 participants (Mage = 60.34 months, SD = 6.24) randomly assigned to three conditions: still images, camera movements (no control over pace), and camera movements (control over pace). For the 50% of children least proficient in language skills, sparingly adding well-chosen camera movements to the illustrations helps children understand the story. In addition, the camera movements' effect can be enhanced by enabling control over the pace at which new information appears. Particularly the 50% low-language proficiency children benefited from camera movements and spending more time processing information.

William H., and others (2014) To conduct research topic picture books and the digital world: educators making informed choices. The book publishing industry in general and picture book materials for children in particular have undergone rapid and profound changes in recent years with the developments in the digital realm. As a result, teachers, school librarians, and literacy researchers have been largely left to their own devices to figure out basic questions related to e-picture books such as what works, what doesn't, what's good, and so what? This article discusses two fundamental issues related to these materials and young children's interactions with them: 1) Print or Digital-which version of a story should teachers use in particular instances and 2) Quality of Features of Digital Picture Books-evaluation and selection factors that should be considered in assessing digital picture books for use in the classroom.

Hui Zhang (2020) conduct research topic Technical supports and emotional design in digital picture books for children: a review. In recent years, the digital picture book has been an increasingly important reading and writing medium for children. Research on the effects of digital picture books on learning has produced mixed results. As a potential tool, some researchers found that such books could foster and scaffold for developing emergent literacy in the early childhood education. However, some still have the skeptical attitude toward integrating the technology in picture books. This survey reviews techniques and emotional design that have been applied in picture books. We also compared and discussed different types of picture books.

Tunkiel, Katarzyna A. (2022). Conduct research in topic digital picture books for young dual language learners: effects of reading in the second language. Reading picture books in the first language (L1) before rereading them in the second language (L2) is assumed to be beneficial for young dual language learners (DLLs). This pilot study examined how sharing digital picture books in L1 or L2 at home before reading them in L2 in kindergarten affected L2 book-specific vocabulary learning and story comprehension. Participants were 14 three- and four-year-old children who spoke Polish at home and learned Norwegian as their second language. Even when DLLs were less advanced in L2, reading first in L1 was not advantageous for L2 vocabulary learning. Characteristics of caregiver-child interactions during the reading of digital picture books in L2 may explain why home reading in L2 was more beneficial than reading in L1 for less proficient young L2 learners.

CHAPTER 3

RESEARCH METHODOLOGY

This study used a quantitative and qualitative approach to answer research questions and guide researchers to collect and analyze data. This chapter is structured as follows:

- 3.1 Study design
- 3.2 Data evaluation
- 3.3 Research Instrument
- 3.4 Instrument Development and Evaluation
- 3.5 Data and statistical analysis

3.1 Study design

The study design was according to the following structures:

3.1.1 picture book

This study draws on the selection criteria of six children's picture books mentioned by Conner and Gillesple (1975): 1) story content is in an understandable category, that is, to understand children's cognitive ability; 2) rigorous story structure; 3) strong eye-catching pictures; 4) interesting story content, the story situation with the protagonist and real life; 5) story content is funny and diverse, so the mood improves; 6) Draw the story in the language of clear Yi Xiao, based on picture books, and adhere to the five dimensions of early childhood emotional education proposed by Chen Guomei. Comprehensive two factors, this study selected suitable for 3-4 children reading and emotional education picture books a total of more than 30, after the difference between the traditional picture books and digital picture books, and mother group decided, according to the actual situation of each picture book and digital picture books, the situation of this study finally decided to leave 16 emotional education picture books, five dimensions of emotional education research.

3.1.2 questionnaire

There are two questionnaires used in this experiment, one is the emotional education level of children before the experiment, and the other is the

experiment-based emotional education questionnaire of picture books. The first questionnaire (preschool emotional education level questionnaire) is compiled according to the Chen back preschool children development and education evaluation manual from the parents questionnaire of five dimensions of questions, and for each question, set scores set five dimensions, each dimension from 5 to 1 points, take the way of score statistics to determine the level of emotional education level. The second questionnaire (based on picture books emotional education questionnaire) is based on picture books of emotional education questionnaire, its reference to the Ministry of education released 3-6 children learning development guide and 3-4 children's physical and mental development law as requirements, refer to Chen Guomei's preschool development and education evaluation manual, Chen Meimei emotional development teacher assessment scale and Lu Fang preschool children emotional regulation strategy questionnaire for questionnaire design also set five dimensions, each dimension from up to 5 points to 1 points.

3.2 Data evaluation

1) Machine game automatic data collection experiment is designed for a set of pre-post test. 2) The measurement, statistics and accumulation are, pre-test and post-test. The questionnaire for satisfactory data is the mean and standard definition, and t is the dependent sample test. 3) The statistics and accumulation data after the experiment, calculate the mean value (\bar{x}) and (σ^2), and compare the offline arrangement of the experimental model for the students to learn by themselves. The researcher will accumulate some data as follows. 4) Request for cooperation with the 23 school networks. Analysis of course goals to plan reading skills for learning disabilities; behavioral goals and student analysis. 5) Process learning The automatic reading of the Internet of Things skills are divided into the following three steps: learning objectives, creative thinking, building knowledge, pre-test, score, post-test, evaluation of student satisfaction, pre-test and post-test.

3.3 Research Instrument

3.3.1 Conclusion analysis of the experimental data

Through the experiment, the data analysis software SPSS19.0 analysis was used to conclude that young children's emotional education level at the same age group is basically no different. After using picture books for emotional education experiment, it was found that the experimental group had obvious advantages in curiosity and compassion compared with the control group. That is to say, curiosity and compassion have obvious advantages in using digital picture books for emotional education.

3.3.2 Case study and outcome analysis

Two special cases of two families, because attention is no longer focused on a child, suddenly mother's love is shared half, the child was neglected, emotional also changed a lot, blindly disruptive behavior and attention type crying, coupled with this age of children are prone to emotional problems. Many times, you can't control your emotions very well. Therefore, it is often difficult to breed more serious rebellion and mischief, and the lack of emotion will inevitably be reflected in many aspects of life. Therefore, at this time, it is very necessary for parents to perceive and self-wake up and to use picture books as the carrier to conduct emotional education. Picture books are an effective way for emotional education, and they are the carrier of parent-child activities and emotional education.

3.4 Instrument Development and Evaluation

Picture book reading: a picture book reading of "emotion, emotional expression and control ability"

Phase objectives:

- 1) can listen to / watch picture books carefully, and should keep them happy and focused as much as possible, and be fully integrated into the story.
- 2) can effectively identify the emotions depicted in picture books, such as sadness, while stimulating a personal emotional experience.
- 3) can understand what is expressed in picture books, actively communicate with parents, and describe similar personal experiences.

4) can reasonably understand and manage their own emotions. Under the guidance of parents, they can learn to try to express their emotions and release them.

Picture book reading 2: "Curiosity" picture book reading

Phase objectives:

5) can listen to / watch picture books carefully, try to be focused and happy in the process, and actively participate into the story.

6) is able to be attracted to or ask questions by the plot and things of interest in the picture book.

7) will express his understanding of picture books and communicate with parents about the story content in picture books.

8) curiosity about the content itself and the things around it is caused by picture books.

Picture book reading 3: "compassionate" picture book reading

Phase objectives:

9) can listen to / watch picture books carefully, try to focus as possible in the process, and actively enter the story to understand the ups and downs of story content and plot.

10) can be attracted to the touching plot in the picture book, thus causing compassion.

11) will express his feelings about picture books and communicate with parents about the story content in picture books.

12) is triggered by picture books to associate and sympathize with the things around them, has a good understanding of sympathy psychology, and guides the behavior of sympathy.

Picture Book Reading 4: Picture Book reading with "sense of responsibility"

Phase objectives:

13) can listen to or read picture books carefully, try to focus in the process, and actively enter the story to understand the ups and downs of the story content and plot.

14) can be attracted to the touching plot in the picture book, thus causing compassion.

15) will express his feelings about picture books and communicate with parents about the story content in picture books.

16) is triggered by picture books to associate and sympathize with the things around them, has a good understanding of sympathy psychology, and guides the behavior of sympathy.

Picture Book Reading 5: Picture Book reading with "collective sense"

Phase objectives:

17) can listen to or read picture books carefully, try to focus in the process, and actively enter the story to understand the ups and downs of the story content and plot.

18) can be attracted to the touching plot in the picture book, thus causing compassion.

19) will express his feelings about picture books and communicate with parents about the story content in picture books.

The association and empathy of the things around them, caused by picture books, has a good understanding of compassion psychology, and guides the occurrence of sympathetic behavior.

3.4.1 The statistics for evaluation instrument

Opinion questionnaire for the experts concerning the development of digital learning space. The questionnaires are constructed as follows scrutinize the components and processes of digital learning space approach and create open-ended questionnaires for the experts to elicit comments on IOC (Index of Item Objective Congruence). The researcher will improve the questionnaires which are selected and suggested by three experts in the field of educational technology or information technology. Index of Item Objective Congruence (IOC) has the scoring criteria as follows:

+1	means	Congruent
0	means	Questionable
-1	means	Incongruent

The items that have scores lower than 0.5 were revised. On the other hand, the items that have scores higher than or equal to 0.5 were reversed.

3.4.2 Create a questionnaire which consists of rating scale with 5 levels according to Likert Scale. Each level has the following meanings:

- 5 means Strongly agree
- 4 means Agree
- 3 means Neutral
- 2 means Disagree
- 1 means Strongly disagree

The criteria for translating values as follows:

Average	Level of opinion
4.51 – 5.00	Very good
3.51 – 4.50	Good
2.51 – 3.50	Average
1.51 – 2.50	Bad
1.00 – 1.50	Very bad

3.4.3 Present the questionnaires to the experts in the field of content, educational technology, measurement and evaluation areas for any suggestion for improvement.

3.4.4 Analyze the level of experts' opinion on digital learning space process by applying mean (\bar{X}) and standard deviation (S.D.).

3.4.5 Satisfaction questionnaire for undergraduate students who have learnt from follows scrutinize the components consists of the following procedures:

3.4.5.1 Study the principles of generating the satisfaction questionnaires from the documents and textbooks.

3.4.5.2 Bring the satisfaction questionnaire to the experts to check for the consistency and suitability.

3.4.5.3 The procedure of conducting the satisfaction questionnaire is a rating scale with 5 levels according to the criteria of the Likert Scale. 28 questions will be set by each level of satisfaction as the following points:

- 5 means Strongly Agree
- 4 means Agree
- 3 means Neutral
- 2 means Disagree
- 1 means Strongly Disagree

The criteria for translating values as follows:

Average	Level of opinion
4.51 – 5.00	Very good
3.51 – 4.50	Good
2.51 – 3.50	Average
1.51 – 2.50	Bad
1.00 – 1.50	Very bad

3.4.5.4 The satisfaction questionnaire is already to perform the experiment with the actual sample of 30 students.

3.5 Data and statistical analysis

3.5.1 The researcher conducted the data analysis as the following procedures find the satisfaction of students in digital learning space by using the rating scale with 5 levels according to the criteria of the Likert Scale.

3.5.2 The basic statistics in data analysis are:

3.5.2.1 The formula for calculating the arithmetic mean (\bar{X}) is:

$$\bar{X} = \frac{\sum X}{N}$$

Whereas \bar{X} = Average or Arithmetic Mean

$\sum X$ = Sum of all score result

N = Number of students

3.5.2.2 The formula for calculating the standard derivation (S.D.) is:

$$S.D. = \sqrt{\frac{\sum(x - \bar{x})^2}{N}}$$

Whereas S.D. = Standard derivation

N = Number of students

\bar{X} = Mean value

X = Student's score

3.5.2.3 The formula for calculating the percentage is:

$$P = \frac{f}{N} \times 100$$

Whereas P = Percentage

f = Frequency

N = Total frequency

3.5.3 The statistics used to determine the quality of instruments are:

3.5.3.1 Index of Item Objectives Congruence (IOC) is used to find the content validity of the achievement test:

$$IOC = \frac{\sum R}{N}$$

Whereas IOC = Index of correspondence between the test and the objective

$\sum R$ = Sum of individual expert's value

R = Expert's rating

N = Number of experts

3.5.3.2 The formula for calculating the difficulty index of the achievement test is:

$$p = \frac{R_H + R_L}{N_H + N_L}$$

Whereas p = Level of difficulty

R_H = Number of correct responses in the high group

R_L = Numbers of correct responses in the low group

N_H = Total number of students in the high group

N_L = Total number of students in the low group

3.5.3.3 The formula for calculating the item discrimination of the achievement test is:

$$r = \frac{R_H - R_L}{N_H \text{ or } N_L}$$

Whereas r = Discrimination index

R_H = Number of correct responses in the high group

R_L = Number of correct responses in the low group

N_H = Total number of students in the high group

N_L = Total number of students in the low group

3.5.3.4 The formula for calculating the reliability of the achievement test is:

$$r_{tt} = \frac{k}{k-1} \left[1 - \frac{\sum pq}{S^2} \right]$$

Whereas r_{tt} = Reliability index

k = Number of test items

p = The proportion of the correct answer

q = The proportion of the incorrect answer

S^2 = The variation of the entire test

3.5.3.5 The formula for calculating the variability of the achievement test is:

$$S^2 = \frac{n \sum fx^2 - (\sum fx^2)^2}{n(n-1)}$$

Whereas S^2 = Variance

n = Number of students

x = Achievement test score

f = Data of frequency

3.5.4 The statistics used to verify hypothesis are:

3.5.4.1 The formula for analyzing the differences in the achievement scores of pre-test and post-test by using the Dependent t-test is:

$$t = \frac{\sum D}{\sqrt{\frac{n \sum D^2 - (\sum D)^2}{n-1}}}$$

Whereas $\sum D$ = Sum of variance score of achievement test

$\sum D^2$ = Sum of different squares of achievement

test scores

$(\sum D)^2$ = Sum of variance score of the square test

n = Number of students

D = Difference between pre-test and post-test

scores

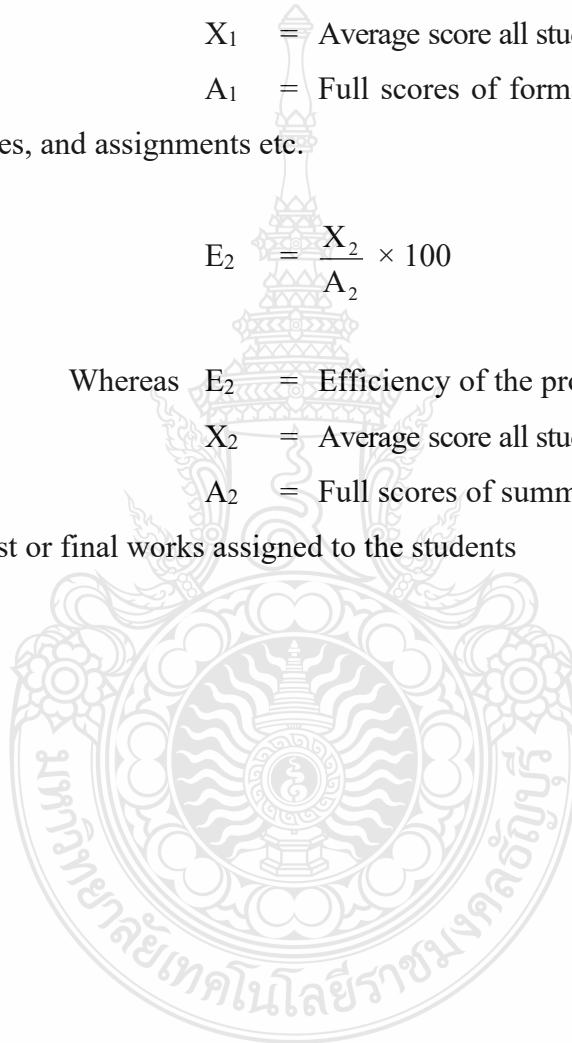
3.5.4.2 The formula for calculating the efficiency values of $E_1/E_2 = 80/80$ are as follows:

$$E_1 = \frac{X_1}{A_1} \times 100$$

Whereas E_1 = Efficiency of the process
 X_1 = Average score all students earned from the test
 A_1 = Full scores of formative evaluation such as scores from activities, and assignments etc.

$$E_2 = \frac{X_2}{A_2} \times 100$$

Whereas E_2 = Efficiency of the product
 X_2 = Average score all students earned from the test
 A_2 = Full scores of summative evaluation such as scores from post-test or final works assigned to the students



CHAPTER 4

RESEARCH RESULT

This chapter reports the descriptive analysis of the responses from the experts and students about development of digital picture books. Fully investigate and analyze the current situation of emotional student t in a primary school. Satisfaction questionnaire for vocational students who have learnt from digital picture book. The findings are presented as follows:

- 4.1 Analysis results
- 4.2 Descriptive statistical summaries from survey
- 4.3 Analysis of expert results
- 4.4 Descriptive summaries from expert opinion

4.1 Analysis results

Table 4.1 Evaluation of effectiveness of the digital picture books

Items	n	\bar{x}	Percentage	S.D.	E1/E2
Learning test process	60	82.83	82.83	3.51	82.83
Post-test score	30	24.46	81.53	2.43	81.53

The average mean score of ongoing score was 82.83, and the mean score of post-test was 81.53, which indicated a substantial improvement upon the digital picture books. The result relevant that the value of efficiency of E_1/E_2 as 82.83/81.53. To summarize, this digital picture books is developed according to the standard criteria 80/80 defined.

4.2 Descriptive statistical summaries from survey

A digital picture books provides the students and teachers with virtual interactive sessions, access to adaptive and collaborative learning, performance-based assessments, and developing students' abilities and performance. In the period of development of the digital picture books concept, in order to implement the conceptual

framework of the model, a survey was conducted. This includes the concepts and needs of learning informed by students and professors. Compared with traditional paper picture books and digital picture books, what are the emotional advantages of children who use digital picture books. The results of the data analysis from survey are as follows:

Table 4.2 The results of the data analysis survey from traditional paper picture books

Items	Evaluation list	\bar{X}	(S.D.)	Result
1.1	Quality paper is required	3.41	0.59	more
1.2	Motivation by colorful cover	3.38	0.62	most
1.3	Content brings from several story	3.50	0.50	more
1.4	Easy to use for children	3.50	0.55	more
1.5	High quality of printed paper	3.63	0.51	more
1.6	Weight of book is not too heavy	3.53	0.51	more
1.7	Alphabets is easy to be reading	3.59	0.56	most
2.1	Picture is suitable for aging learners	3.35	0.46	more
2.2	It can be used for individual learning	3.33	0.55	more
2.3	Insert an activity for group learning	3.48	0.59	most
2.4	History of China should be included	3.47	0.49	more
2.5	Healthy of children should be included	3.70	0.45	more
2.6	Emotional assessment all pages	3.43	0.53	more
2.7	Variety of accessories to choose	3.53	0.57	most
2.8	Provide stationary for learners	3.35	0.45	more
2.9	Comfortable experience for students Textbook is	3.63	0.59	most
3.1	enough for all students	3.65	0.51	most
3.2	Join activity with teacher all times	3.60	0.45	more
3.3	Improving creative thinking	3.80	0.54	most
3.4	Effectively blending of technology Enabling	3.65	0.50	more
3.5	teachers to express their views Enabling teachers	3.75	0.60	most
4.1	to access multimedia	3.65	0.51	most
4.2	Evaluation includes a lesson	3.60	0.49	more
4.3	Interactive lesson with fun game	3.60	0.49	more
4.4	Making learning an enjoyable	3.50	0.47	more

From table 4.2 A motivation by colorful cover is found resulting in most ($\bar{X} = 3.38$, S.D. = 0.62). Insert an activity for group learning is most ($\bar{X} = 3.48$, S.D. = 0.59). while effectively blending of technology is more ($\bar{X} = 3.65$, S.D. = 0.50).

Table 4.3 The results of the data analysis survey from digital picture books

Items	Evaluation list	\bar{X}	(S.D.)	Result
1.1	Stable internet connections	3.40	0.55	more
1.2	Fully resource learning	3.65	0.61	most
1.3	Provide devices for learners	3.32	0.45	more
1.4	Needs a facility in classroom	3.50	0.55	more
1.5	High quality of device technology	3.53	0.51	more
1.6	Emotional of learners is inserted	3.55	0.61	most
1.7	Online anywhere anytime (Ubiquitous)	3.60	0.62	most
2.1	Virtual classrooms integrate with onsite	3.32	0.41	more
2.2	Need central web server 24 hours	3.30	0.50	more
2.3	Having interactive and live teaching Assign	3.52	0.60	most
2.4	homework in platform	3.50	0.49	more
2.5	Application easy to use	3.60	0.41	more
2.6	Designing a module of digital picture book	3.40	0.50	more
2.7	Variety of accessories to choose	3.50	0.50	more
2.8	Cloud web server is large capacity	3.45	0.52	most
2.9	Comfortable experience for students	3.63	0.59	most
3.1	Online and offline learning provided	3.50	0.45	more
3.2	Chat with teacher anytime	3.50	0.47	more
3.3	Improving creative thinking	3.60	0.50	more
3.4	Effectively blending of technology Enabling	3.45	0.52	more
3.5	teachers to express their views Enabling	3.55	0.50	more
4.1	teachers to access multimedia	3.65	0.60	most
4.2	Evaluation includes a lesson	3.42	0.50	more
4.3	Interactive lesson with gamification	3.40	0.47	more
4.4	Making learning an enjoyable	3.55	0.45	more

From table 4.3 Emotional of learners is inserted found resulting in most ($\bar{X} = 3.55$, S.D. = 0.61). A cloud web server is large capacity is most ($\bar{X} = 3.45$, S.D. = 0.52). while Online and offline learning provided is more ($\bar{X} = 3.50$, S.D.=0.45).

4.3 Analysis of expert results

The procedure of conducting an expert evaluation is a rating scale with 5 levels according to the criteria of the Likert Scale. 28 questions will be set by each level of satisfaction as the following points. Results of evaluation of digital picture books by three experts show on a table 4

Table 4.4 Result of evaluation of digital picture books by three experts in media

Evaluation Item	\bar{X}	S.D.	Result Interpretation
1. Contents			
1.1 The learning contents are suitable with the learning time defined.	4.43	.50	Agree
1.2 The learning topics and contents are interesting	4.56	.50	Strongly agree
1.3 The demonstrated contents cover the learning objectives of each chapter.	4.40	.49	Agree
1.4 The learning contents are appropriate for the students' grade level	4.50	.50	Agree
1.5 The learning contents are clearly explained and enough for understanding.	4.46	.50	Agree
1.6 Question items in the unit exercises are relevant to the content	4.46	.50	Agree
1.7 The contents of 3 chapters are appropriate for learning with intelligent classroom	4.60	.49	Strongly agree
1.8 The unit exercises are sufficient for checking understanding.	4.33	.54	Agree
1.9 The question items in the unit exercises are clearly stated and easy to understand.	4.63	.49	Strongly agree

Table 4.4 Result of evaluation of digital picture books by three experts in media (Cont.)

Evaluation Item	\bar{x}	S.D.	Result Interpretation
2. Screen Design			
2.1 Layout of each page is established approximately for Learning.	4.46	.50	Agree
2.2 Choices of typeface and size facilities ease of use.	4.63	.49	Strongly agree
2.3 A loud and clear sound is provided.	4.63	.49	Strongly agree
2.4 Interaction and timely feedback are provided appropriately.	4.50	.50	Agree
2.5 Choices of color is appropriate.	4.56	.50	Strongly agree
2.6 Screen design is attractive to students.	4.63	.49	Strongly agree
2.7 Lesson navigation and buttons are appropriately established and relevant to these intelligent classroom.	4.40	.49	Agree
3. Digital learning space usage			
3.1 Digital picture books is easy to use.	4.80	.40	Strongly agree
3.2 The interactive function between users and instructional contents is effective.	4.20	.55	Agree
3.3 Learners can control and use this digital picture books on their own.	4.70	.46	Strongly agree
3.4 Users' manual clearly describes how to use digital picture books	4.53	.57	Strongly agree
3.5 This intelligent classroom is fun and interesting.	4.50	.50	Agree
3.6 Specific time for learning with digital picture books is appropriate.	4.40	.49	Agree
3.7 If it is possible, you would like to learn other subjects with digital picture books instruction.	4.60	.49	Strongly agree
4. Evaluation			
4.1 Pre-test and Post-test offer students the understanding on the contents appropriately.	4.73	.44	Strongly agree
4.2 The question items are clear.	4.56	.50	Strongly agree

Table 4.4 Result of evaluation of digital picture books by three experts in media (Cont.)

Evaluation Item	\bar{x}	S.D.	Result Interpretation
4.3 The tests are made with the objectives and media.	4.53	.57	Strongly agree
4.4 The difficulty of the test appropriate for students.	4.33	.54	Agree
4.5 The score between pre-test and post-test is clear.	4.66	.47	Strongly agree
Total	4.22	.17	Agree

Based on table 4.4 the mean score ranged between 4.20 and 4.80, which was between average to high levels, "The highest mean score (4.80) was the item The digital picture books is easy to use" The lowest mean score (4.20) was the item "The interactive function between users and instructional contents is effective" The average mean score overall of this dimension was 4.22, which showed that students had very good satisfaction with submit to digital picture books.

4.4 Descriptive summaries from expert opinion

The summarize conceptual framework by suggestion and evaluation from experts. Opinion are as follows the table.

Table 4.5 Conceptual framework summarize from expert opinion

1 st Expert	A digital picture books consists of activities, content, colorful, online between teachers and students under assessment system. Students can attend by appointment and teachers assign some homework.
2 nd Expert	Parent provide a wireless internet at home for access anytime. Teacher provide device in case study onsite. Both of learning style under students center requirement. All thing focus on fun with children in class.
3 rd Expert	All devices should be low-cost price such as tablet, smartphone, PC in order to storage a learning resource full range advantage. Furthermore, should provide wi-fi at school for students access while onsite study.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

In the study of the efficiency of digital picture books to enhance emotional students, there are three major objectives 1) The role of picture books in helping children to establish healthy emotional and emotional patterns. 2) Compare the impact of paper picture books and digital picture books on childhood emotional education, and 3) Assess the advantages of digital picture books for the development of children's emotional education. The independent variable is the distribution of traditional paper picture books to 30 children in the control group. Digital picture books were distributed to 30 children from the experimental group to conduct picture book reading experiments. The research tools include 1) design of children's emotional development assessment scale, 2) collection and analysis of questionnaires, and 3) experimental research on emotional education with picture books as the carrier. Data were analyzed using the mean, standard deviation, and t-test. The conclusion, discussion and suggestion of the research are as follows:

- 5.1 Discussion
- 5.2 Conclusion
- 5.3 Recommendation
- 5.4 Suggestion for Further Study

5.1 Discussion

In this paper we present a study through which we intended to understand children's preference towards book formats, in particular digital or paper ones. To accomplish this, we created an original story (Ritinha) illustrated by two children. The traditional book format was composed by static images and text. The digital format had animated images, hyperlinks to navigate to different parts of the story and static text complemented by an audio narrative. We conducted a field study with 105 children in order to observe in which format children would prefer to read a book: if in paper or in digital format. The method used to accomplish this task was direct observation. (Vanessa Cesário, 2016)

When you first start in the children publishing industry, whatever your role is, the abundance of information can be overwhelming. Kids' books illustration and book writing can be a difficult task if you don't understand the different types of children's books. As a writer or an illustrator, you want to sound as professional as possible, especially when looking for a publisher. Knowing the answer to the question "What genre is your book?" is crucial in this business. In this article, we will explain the different types of kids' books and how to identify them. We will classify them according to the reader' age, starting with the youngest group. The youngest of this family are Board Books. Board Books, also called infant, toddler or baby books are destined for children aged 0 to 3. Their entire design, starting from illustrations, text and colour palette, all the way to their size and the type of paper used are meant to attract the attention of infant readers and to resist tear, dirt, food or chewing. Specifically, Board Books are made of thick paperboard with a glossy finish. They are small in size, typically 6×6 inches to fit small hands and they usually have a square shape, with die-cut rounded corners. Topics vary, but they mostly teach early learning concepts like colours, numbers, the alphabet, animals or other simple early life concepts. The plot should be very simple with basic vocabulary. Lengthwise, they stand around 12 pages and under 300 words. As Board books are for pre-emergent readers with a very short attention span, the book's illustration is more important than the text. Therefore, when considering this type of children's book, illustration pricing and quality is the number one aspect to focus on. As some Board Books are even wordless, the priority is to create bright colourful pages to keep very young readers engaged. Board Books may use additional features to ensure engagement from toddlers like: lift-the flaps, "touch and feel", finger tabs, pop-ups, or books that make sounds. Even the shape of the book can be altered to create interest; thus, books can be in the shape of its main subject (shape of a fruit, of a letter, of a house etc.)

Picture books are for emergent readers and early readers, with a slightly higher attention span and the ability to sit still for longer. Generally, this means readers between 4 and 8 years old. They are called Picture books because, much like the previous type, illustrations are extremely important. Although text is longer than in Board Books, between 400 to 900 words, the proper illustrations are indispensable and

without them the text would be incomplete. It's safe to say that the text and the book's illustrations play an equal role. The common practice is for every page of a picture book to be illustrated, using varied media techniques, from water colour, acrylic and colour pencils to photography and digital illustration. When it comes to size, the only compulsory requirement is that the number of pages be a multiple of 8. The standard length is 32 pages, but publishers may accept 6, 24, 32, 40, or 48 pages. Why a multiple of 8? That is because of the technical aspect of book printing: in the case of picture books, 2 pages are actually printed on a single, large sheet of paper which is later folded and bound to create the pages of the book as we know them.

Another interesting technical aspect of picture books is that they can come in 3 different shapes: vertical books with a size of 8×10 inches, square books of 8×8 inches or horizontal books sized 10×8 inches. Topic wise, picture books deal with a wide range of subjects. However, the main character is usually a child or an animal that the emergent reader can identify with, only rarely using adult characters. There are different types of picture books, such as rhyming, rebus, multicultural, wordless, concept, or picture storybooks. The latter is usually confusing, so we will explain it next.

Picture Storybooks as well, so it is up to you to understand what they mean. If they are referring to a children's book longer than 900 words, they mean a Picture Storybook. This is basically just a longer kind of picture book; normally a picture book over 900 words become a picture story book. They are a level higher than picture books not just in length, but also in the level of the vocabulary used and the complexity of the plot. They are addressed to the higher spectrum of the age group 3 to 8 and they don't rely on illustrations as much. Storybook illustrations here are typically seen every other page, while text can occupy the largest part (or the whole) of a page. Illustrations are reduced in this case as their role is no longer of an integral part of the story, but rather as a means of holding the reader's attention. Your manuscript can go up to 2000 words or 9 pages, but definitely not beyond. In this case of this particular children's book, more is not necessarily better. Also called "easy-to-read" books, they target young kids who are just starting to read on their own, aged 6 to 8. The structure is still simple and the story is mainly told through dialogue and actions, with very little description. Expect

simple grammar from this type of kids illustration books on topics the young readers can identify with, such as sports, school life, friends, family, pets and so on. Easy readers books are meant to be a passage point from kids books to more adult books, like chapter books. Thus, they are a bit longer in words and pages. We are talking about a maximum of 3500 words and anywhere between 32 to 64 pages. Similar to Picture Storybooks, illustrations are not crucial anymore, they are present every other page as a way of holding the child's interest. Publishers will be particularly interested in this kind of books as they are often used in educational institutions, having different reading levels.

With chapter books we reach the independent reading stage, meaning children between the ages of 7 and 10. As they enter this stage, being able to read longer and more complex texts makes the young readers feel grown up. Although paragraphs stay short (2 to 4 lines), chapters have more complicated plot, advanced vocabulary and complex sentences. As the length increases (4000 to 12,000 words), chapters often end in suspense to keep the reader engaged. Illustrations are optional and when they do exist, they are scarce and designed in black and white. Pay attention to some other specific formatting details regarding Chapter Books like large print size, chapters as short as 2-3 pages and the possibility of writing a series (chapter books are often written as series).

The next category of children's books are Middle Grade Novels. These are also regarded as pre-teen novels (targeted ages are 8-12 yo) and they stretch between 25,000 to 40,000 words. The length of these books may vary a lot more than the previous ones however, depending on publisher and genre. They cover a wide range of genres such as speculative fiction and fantasy, historical fiction, science fiction or non-fiction. Chapters are longer than chapter books, plots are more complex and themes can be quite sophisticated. We will now encounter sub plots, secondary characters and normally no illustrations. When they do carry illustrations, they are called "Illustrated books". Series novels are popular, where each follow up book uses roughly the same characters as the previous ones.

Young Adults Novels are the last type of children's books, from an age perspective. These novels address teens aged 12 and higher. Topics are similar to

Middle Grade Novels, but word count is longer (40,000 to 70,000 or sometimes even 120,000 for historical sci-fi novels). The main characteristic of YA Novels is that the main characters and most secondary characters are typically teenagers that the reader can identify with or aspire to. Mingled with the main topic before mentioned (speculative fiction and fantasy, historical fiction, science fiction, non-fiction) we always find a theme that addresses teen issues such as dating and sexuality, mental health, self-discovery or darker themes like substance abuse, bullying or violence.

Unless you are already an established author, it might be difficult to find a publisher interested in short stories. If you are truly set on writing short stories, they should all be on the same vocabulary/ grammar level and be targeting a certain age group by being at the same reading level. Common topics throughout the entire anthology/ collection are also not unusual.

5.2 Conclusion

At a most basic level, picture books help kids understand that words convey meaning connecting the pictures in the book with the words on the page. Kids will check pictures on the page for background knowledge or contextual clues for vocabulary development. They even use the images to learn the names of new objects. Relate with research of William H. Teale (2014) The book publishing industry in general and picture book materials for children in particular have undergone rapid and profound changes in recent years with the developments in the digital realm. As a result, teachers, school librarians, and literacy researchers have been largely left to their own devices to figure out basic questions related to e-picture books such as what works, what doesn't, what's good, and so what? This article discusses two fundamental issues related to these materials and young children's interactions with them: 1) Print or Digital which version of a story should teachers use in particular instances and 2) Quality of Features of Digital Picture Books evaluation and selection factors that should be considered in assessing digital picture books for use in the classroom.

Picture books bring tremendous benefits to kids who are in the early stages of developing their reading skills. Illustrations shown alongside text offer invaluable tools to help kids build understanding, fluency, vocabulary and other foundational literacy

skills. The imagery in a picture book brings the pages to life, serving as a visual roadmap for the story. Here are five important benefits picture books bring to children who are learning to read.

1) Build language skills

As kids begin to speak and build sentences, they learn to recognize sounds and patterns within spoken language. This is known as phonological awareness and serves as the foundation for learning to read. The rhythmic cadence of many picture books helps kids develop and practice phonological awareness. Kids may start by repeating passages of their favorite picture books, then go on to make up their own similar rhymes or stories.

Dr. Seuss' *ABC: An Amazing Alphabet Book!* is a picture book that helps build phonological awareness while practicing letter sounds. "Big A little a, what begins with A? Aunt Annie's Alligator. A...a...A." At a most basic level, picture books help kids understand that words convey meaning-connecting the pictures in the book with the words on the page. Kids will check pictures on the page for background knowledge or contextual clues for vocabulary development. They even use the images to learn the names of new objects. You can ask a child, "Can you show me where the alligator is on this page?" or "What letter does the word alligator start with?"

2) Identify sequence

By organizing the sequence of events in a story, kids can practice their ability to comprehend what they read. Mastering this skill starts with identifying beginning, middle, and end, and summarizing key events that take place (in order) throughout the story. Visual aids and illustrations remind the reader what happened throughout the story and support their ability to confidently retell the key events. As kids hone their sequencing skills, let them look at the pictures to remind them what happened in the story. If they guess, and guess incorrectly, then use it as an opportunity to re-read the passage. This offers a chance to do an additional check for understanding.

Furthermore, books filled with pictures encourage kids to make predictions and inferences about what's going to happen next. They can pair the words with the expressions and setting shown in the pictures to make an informed guess about what comes next in the story. In *Miss Nelson is Missing!*, readers can infer that

Ms. Viola Swamp is Miss Nelson in a costume. Clues in the book, such as the coincidental timing of Miss Nelson's disappearance and the appearance of Ms. Swamp help lead to this inference.

As you read a book with a child, you are both likely making inferences throughout. The key to helping kids realize when they are making an inference is to talk through the inferences out loud throughout the book. Take breaks to ask questions: "How does Miss Nelson feel when kids misbehave in class?", "Why do you think Ms. Viola Swamp was outside of Miss Nelson's house? ", "What do you think happened to Miss Nelson?".

3) Improve comprehension

There's a lot to learn on the road to becoming a skilled reader. Along with sequencing and summarizing, there are many other essential skills kids must master in order to comprehend the text they read. Some of those skills include; sentence construction, problem solving, comparing and contrasting, drawing conclusions, inferring, and more. Books rich with illustrations and photos offer many benefits to help enhance reading comprehension. Here are just a few of those benefits. Pictures provide visual clues to help us discover more about the narrative. Pictures show expressions, unwritten details, setting, and context that help us compare and contrast. These details allow us to analyze more complex details of character development. Illustrations can provide important background knowledge and offer contextual cues based on what's happening in the story. This helps us "read between the lines" to find meaning that may not be explicitly stated in the text.

4) Spark a love of reading

The illustrations of a picture book can be enchanting, fun, and inspiring. They can tell a story of their own. Many of us remember picture books as the books that made us first fall in love with reading. One key ingredient of picture books that we shouldn't discount is the benefit of pictures in sparking joy and creating a fun and engaging reading experience for kids. Picture books do a better job of holding the attention of kids learning to read than books without pictures. And reading picture books with kids on a regular basis (ideally daily) can help them self-monitor their behavior until they can sit through a whole story and focus on the events. When kids

enjoy particular books or stories, they may ask to read the same book again and again. This is a good sign that this book sparks interest and intrigue for a young reader. Let kids choose the stories they love, read them often, and offer options to explore new books as well.

5) Boost social-emotional learning

The subject matter in picture books can introduce social cues and cultural differences that encourage social-emotional development. Books that model social behaviors help hone social language skills and reinforce positive behavior. In the book *The Name Jar*, a young Korean girl living in America is teased about her name, Unhei. A passage from the book reads, "She was relieved that the kids on the bus had gone to other rooms, but her face still felt red". Marked by this bullying, she decides to search for a different name. Throughout the story her classmates and family show gentle kindness, support, and encouragement for Unhei until she is ready to introduce herself and her culture, as Unhei, to the rest of her classmates. *The Name Jar* offers a chance for kids to practice empathy for Unhei and observe the outcome of kind, encouraging behavior compared to the negative effects of bullying. Picture books also explore difficult subjects like fear, grief, taking risks, building friendships, self-control, and so much more. These books offer outlets for kids to explore challenging subjects in a format that's approachable to them. The illustrations in a book can help kids relate to the characters and setting portrayed. Picture books featuring protagonists of different identities, races, cultures, and abilities allow kids to relate to the texts where they see their own image reflected back. Furthermore, own voices books written from the perspective of an author who shares a certain identity can provide an experience that's profoundly relatable to kids' differing experiences. For example, *Grace for President*, allows young girls of color see themselves as future leaders in positions of power. (Sarah Balcazar, 2019)

5.3 Recommendation

In this research, researcher have suggested that the results of the study should be applied as follows:

5.3.1 The development of digital picture books should be conducted step-by-step based on best practice in this field, since it would enable the researcher to achieve the objectives of constructing digital picture books which result in higher efficiency and a more successful implementation.

5.3.2 Chinese and English reading comprehension is a subject which has been studied in several aspects of research and found to be successfully taught using the digital picture book so that the technique shall be further studied for the learning and teaching other subjects.

5.3.3 Regarding students' different learning styles, they should be offered the opportunity to decide whether they wish to work on their own or in small groups when utilizing the digital picture book. This would prosper cooperative learning skills and peer correction.

5.4 Suggestion for Further Study

Based on the summary and discussion of the study, the researcher has several suggestions for further study as follows:

5.4.1 Technique of digital picture books including animation sound should be added to develop the motion graphic in order to make it more interesting and attractive to students.

5.4.2 Other instructional strategies in which students are interested should be developed through the use of digital picture books.

5.4.3 Should be post on a social media in China, to added more channel of communication between students and teachers.

5.4.4 There should a further study on applying the digital picture book using other teaching methodologies such edutainment, project based learning, critical thinking learning skill.

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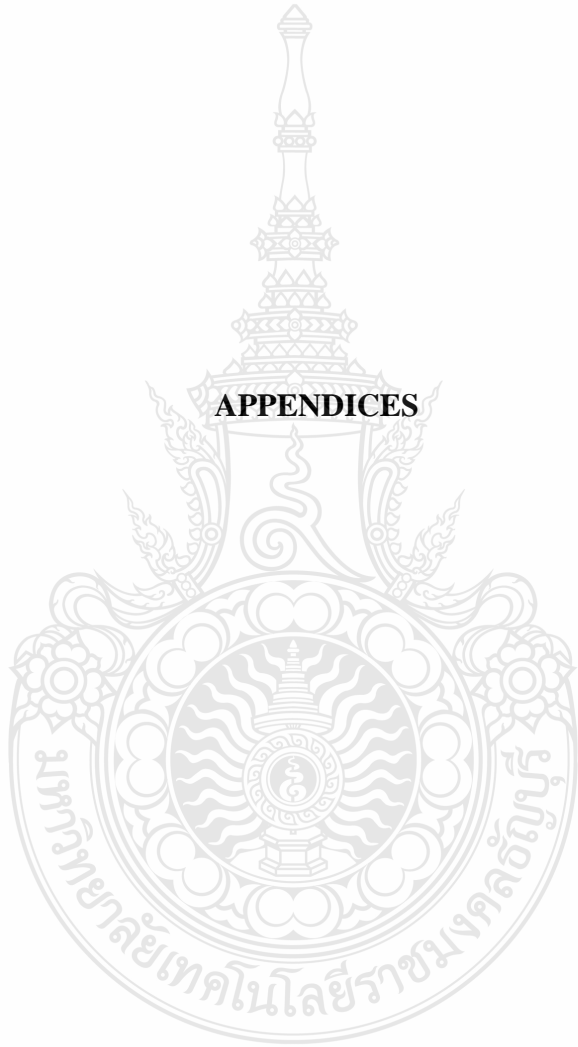
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APPENDICES





Appendix A

- **List of experts reviewing research instruments**
- **Invitation Letter to experts to examine research instruments**

List of experts who reviewed research instruments

Content Specialists

1. Associate Professor Yin Yuxin
College of teacher education, Zhejiang Normal University
2. Ms. Xia Mei
Lecturer Department of preschool and special education,
Hefei Preschool Normal College
3. Ms. Yuan Chao
Teacher, Lihe branch of shishugang Township
Central kindergarten in Feixi County, China

Media Specialists

1. Asst. Prof. Dr. Nattakorn Papan
Faculty of Education, Chandrakasem Rajabhat University
2. Asst. Prof. Direk Akkahard
Faculty of Education, Bansomdejchaopraya Rajabhat University
3. Dr. Kittisak Paen-Ngam
Nakhonnayok Primary Educational Service Area Office
University Vice Chancellor

Assessment Specialists

1. Associate Professor Chen Lin
Preschool education major, School of education, Hefei University
2. Associate Professor Che Xuelian
Preschool education major, School of education, Hefei University
3. Professor Yu Hua
Preschool education major, School of education, Hefei University



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Office of the Dean, Faculty of Technical Education
Rajamangala University of Technology Thanyaburi
Klong Luang, Pathum Thani 12110 Thailand
Tel:+66-2-549-4710 Fax:+66-2-577-5049

9 June, 2022

Dear Associate Professor Yin Yuxin.
College of teacher education, Zhejiang Normal University

Subject: Respectfully Requesting for letter of Invitation of Experts for M.Ed.Thesis

I am writing to request your assistance as an honorary external research reviewer in evaluating the research instruments of Ms.Rushan Hu, Master of Education Program in Technology and Learning Innovation Rajamangala University of Technology Thanyaburi, who has been working on the thesis titled “The Effectiveness of Digital Picture Books on Children's Emotional Education”. under the supervision of Assistant Professor Dr. Tiamyod Pasawano. In this regard, I would like to request your valuable time to evaluate the research instruments as I strongly believe that your expertise will be of great value in improving the research instruments.

If you have any questions or need further information, please feel free to contact Ms.Rushan Hu, on the e-mail: rushan_h@mail.mutt.ac.th

Yours sincerely,

(Assistant Professor Arnon Niyomphol)
Dean of Faculty of Technical Education



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Office of the Dean, Faculty of Technical Education
Rajamangala University of Technology Thanyaburi
Klong Luang, Pathum Thani 12110 Thailand
Tel:+66-2-549-4710 Fax:+66-2-577-5049

9 June, 2022

Dear Ms. Xia Mei
Lecturer Department of preschool and special education, Hefei Preschool Normal College

Subject: Respectfully Requesting for letter of Invitation of Experts for M.Ed.Thesis

I am writing to request your assistance as an honorary external research reviewer in evaluating the research instruments of Ms.Rushan Hu, Master of Education Program in Technology and Learning Innovation Rajamangala University of Technology Thanyaburi, who has been working on the thesis titled “The Effectiveness of Digital Picture Books on Children's Emotional Education”. under the supervision of Assistant Professor Dr. Tiamyod Pasawano. In this regard, I would like to request your valuable time to evaluate the research instruments as I strongly believe that your expertise will be of great value in improving the research instruments.

If you have any questions or need further information, please feel free to contact Ms.Rushan Hu, on the e-mail: rushan_h@mail.rmutt.ac.th

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'Arnon Niyomphol'.

(Assistant Professor Arnon Niyomphol)
Dean of Faculty of Technical Education



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Office of the Dean, Faculty of Technical Education
Rajamangala University of Technology Thanyaburi
Klong Luang, Pathum Thani 12110 Thailand
Tel:+66-2-549-4710 Fax:+66-2-577-5049

9 June, 2022

Dear Ms.Yuan Chao
Teacher, Lihe branch of shishugang Township Central kindergarten in Feixi County, China

Subject: Respectfully Requesting for letter of Invitation of Experts for M.Ed.Thesis

I am writing to request your assistance as an honorary external research reviewer in evaluating the research instruments of Ms.Rushan Hu, Master of Education Program in Technology and Learning Innovation Rajamangala University of Technology Thanyaburi, who has been working on the thesis titled “The Effectiveness of Digital Picture Books on Children's Emotional Education”. under the supervision of Assistant Professor Dr. Tiamyod Pasawano. In this regard, I would like to request your valuable time to evaluate the research instruments as I strongly believe that your expertise will be of great value in improving the research instruments.

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Yours sincerely,

(Assistant Professor Arnon Niyomphol)
Dean of Faculty of Technical Education

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Office of the Dean, Faculty of Technical Education
Rajamangala University of Technology Thanyaburi
Klong Luang, Pathum Thani 12110 Thailand
Tel:+66-2-549-4710 Fax:+66-2-577-5049

9 June, 2022

Dear Asst.Prof.Dr.Nattakorn Papan

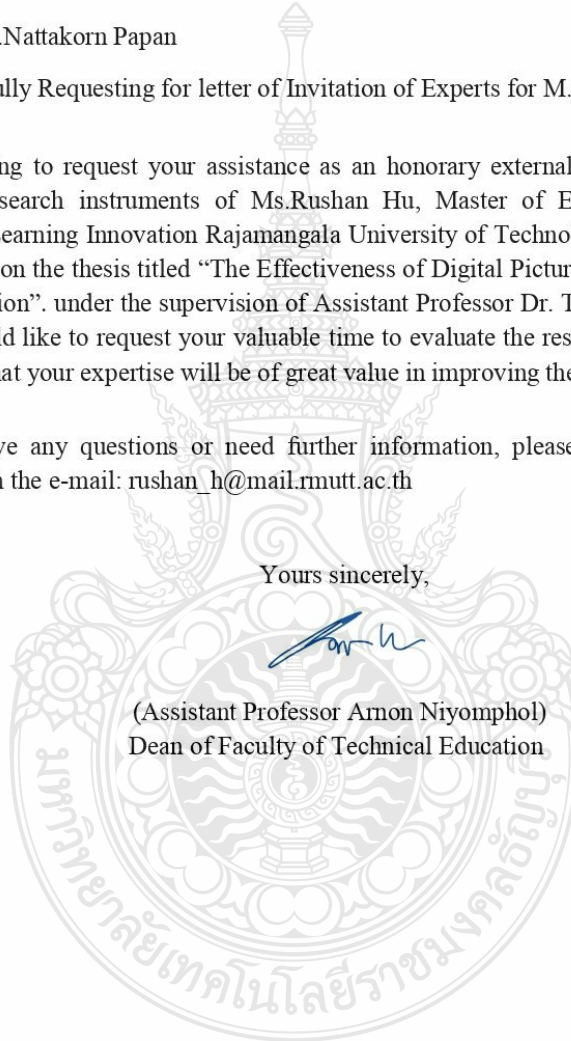
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Yours sincerely,

(Assistant Professor Arnon Niyomphol)
Dean of Faculty of Technical Education





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Office of the Dean, Faculty of Technical Education
Rajamangala University of Technology Thanyaburi
Klong Luang, Pathum Thani 12110 Thailand
Tel:+66-2-549-4710 Fax:+66-2-577-5049

9 June, 2022

Dear Asst.Prof.Direk Akkahard

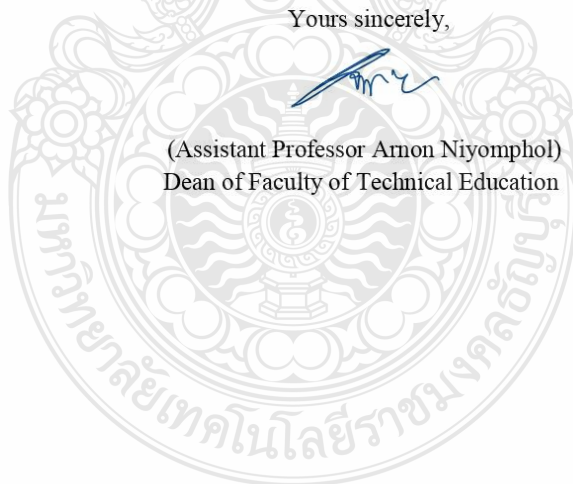
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If you have any questions or need further information, please feel free to contact Ms.Rushan Hu, on the e-mail: rushan_h@mail.rmutt.ac.th

Yours sincerely,

(Assistant Professor Aron Niyomphol)
Dean of Faculty of Technical Education





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Office of the Dean, Faculty of Technical Education
Rajamangala University of Technology Thanyaburi
Klong Luang, Pathum Thani 12110 Thailand
Tel:+66-2-549-4710 Fax:+66-2-577-5049

9 June, 2022

Dear Dr.Kittisak Paen-Ngam

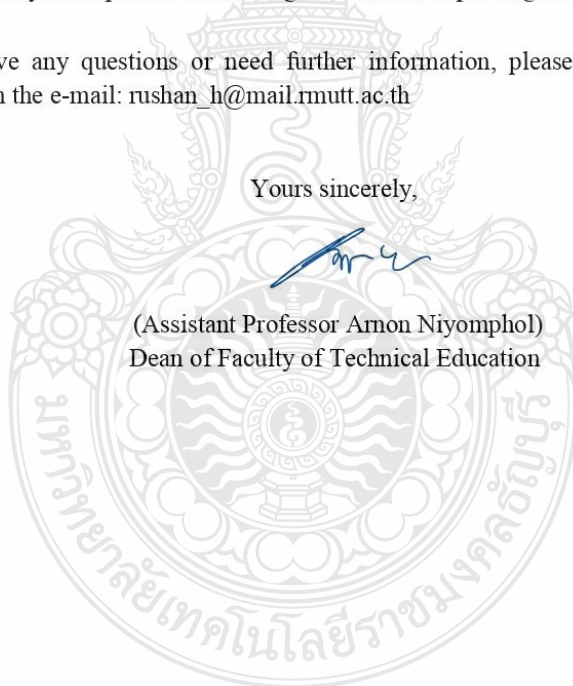
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If you have any questions or need further information, please feel free to contact Ms.Rushan Hu, on the e-mail: rushan_h@mail.rmutt.ac.th

Yours sincerely,

(Assistant Professor Arnon Niyomphol)
Dean of Faculty of Technical Education



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Office of the Dean, Faculty of Technical Education
Rajamangala University of Technology Thanyaburi
Klong Luang, Pathum Thani 12110 Thailand
Tel:+66-2-549-4710 Fax:+66-2-577-5049

9 June, 2022

Dear Associate Professor Chen Lin
Preschool education major, School of education, Hefei University

Subject: Respectfully Requesting for letter of Invitation of Experts for M.Ed.Thesis

I am writing to request your assistance as an honorary external research reviewer in evaluating the research instruments of Ms Rushan Hu, Master of Education Program in Technology and Learning Innovation Rajamangala University of Technology Thanyaburi, who has been working on the thesis titled “The Effectiveness of Digital Picture Books on Children's Emotional Education”. under the supervision of Assistant Professor Dr. Tiamyod Pasawano. In this regard, I would like to request your valuable time to evaluate the research instruments as I strongly believe that your expertise will be of great value in improving the research instruments.

If you have any questions or need further information, please feel free to contact Ms.Rushan Hu, on the e-mail: rushan_h@mail.mutt.ac.th

Yours sincerely,

(Assistant Professor Arnon Niyomphol)
Dean of Faculty of Technical Education

MHESI 0584.7/2022



Office of the Dean, Faculty of Technical Education
Rajamangala University of Technology Thanyaburi
Klong Luang, Pathum Thani 12110 Thailand
Tel:+66-2-549-4710 Fax:+66-2-577-5049

9 June, 2022

Dear Associate Professor Che Xuelian
Preschool education major, School of education, Hefei University

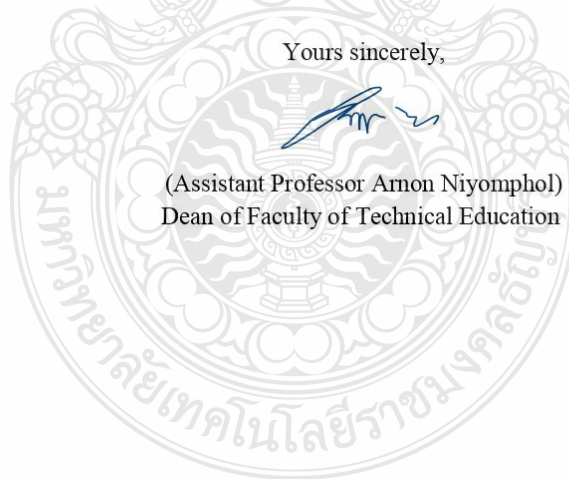
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Yours sincerely,

(Assistant Professor Arnon Niyomphol)
Dean of Faculty of Technical Education





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Office of the Dean, Faculty of Technical Education
Rajamangala University of Technology Thanyaburi
Klong Luang, Pathum Thani 12110 Thailand
Tel:+66-2-549-4710 Fax:+66-2-577-5049

9 June, 2022

Dear Professor Yu Hua
Preschool education major, School of education, Hefei University

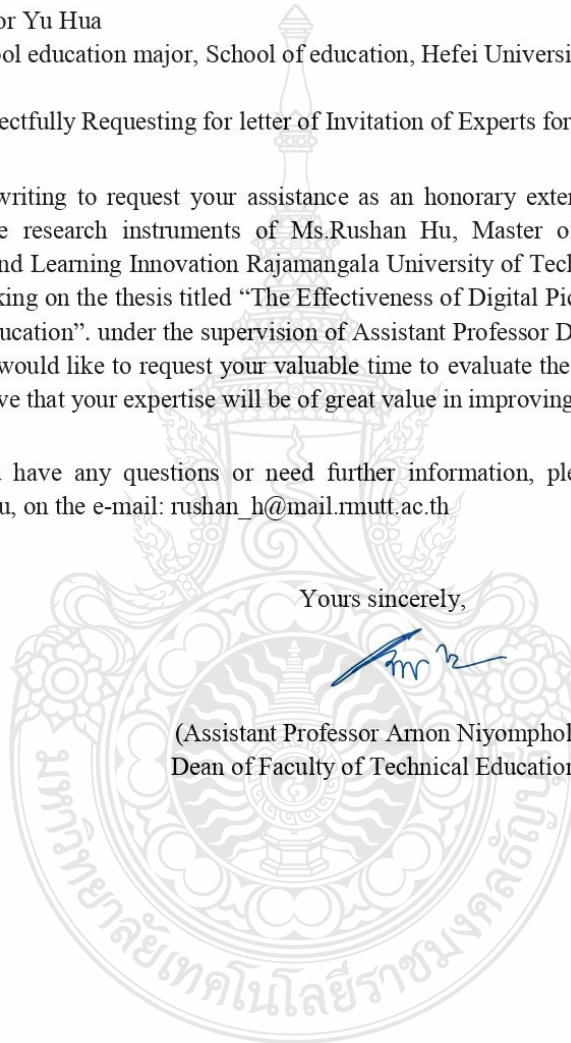
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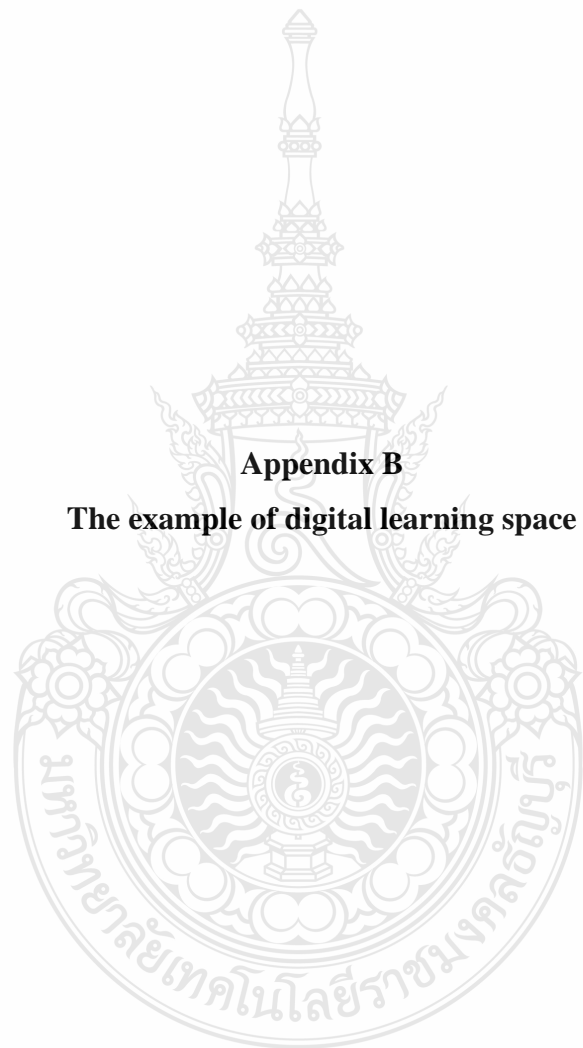
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If you have any questions or need further information, please feel free to contact Ms.Rushan Hu, on the e-mail: rushan_h@mail.rmutt.ac.th

Yours sincerely,

(Assistant Professor Amon Niyomphol)
Dean of Faculty of Technical Education





Appendix B

The example of digital learning space

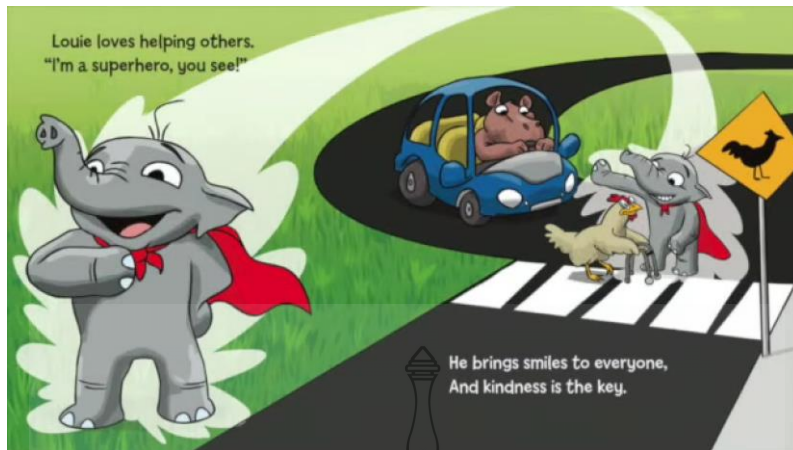


Figure appB.1 digital picture book beginning the conversation scene

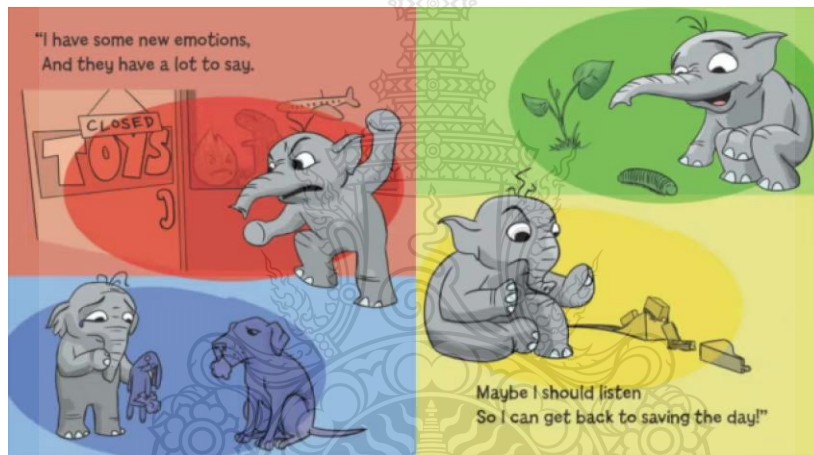


Figure appB.2 story drama on progressive

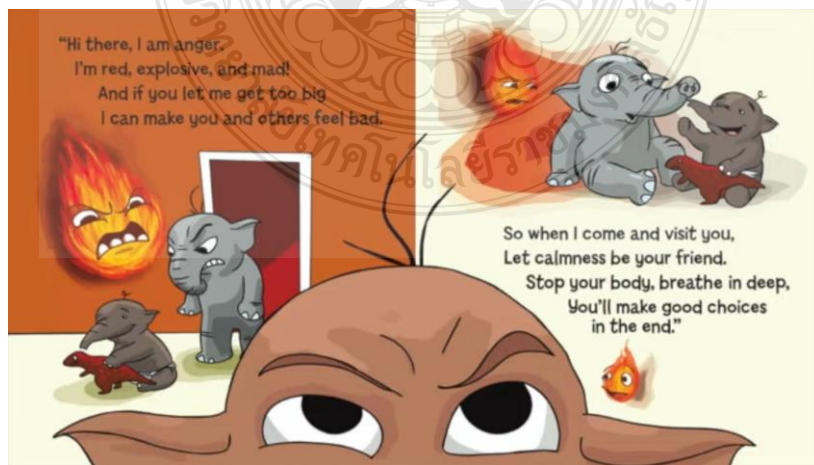


Figure appB.3 lesson from drama is emotional insert to the scene



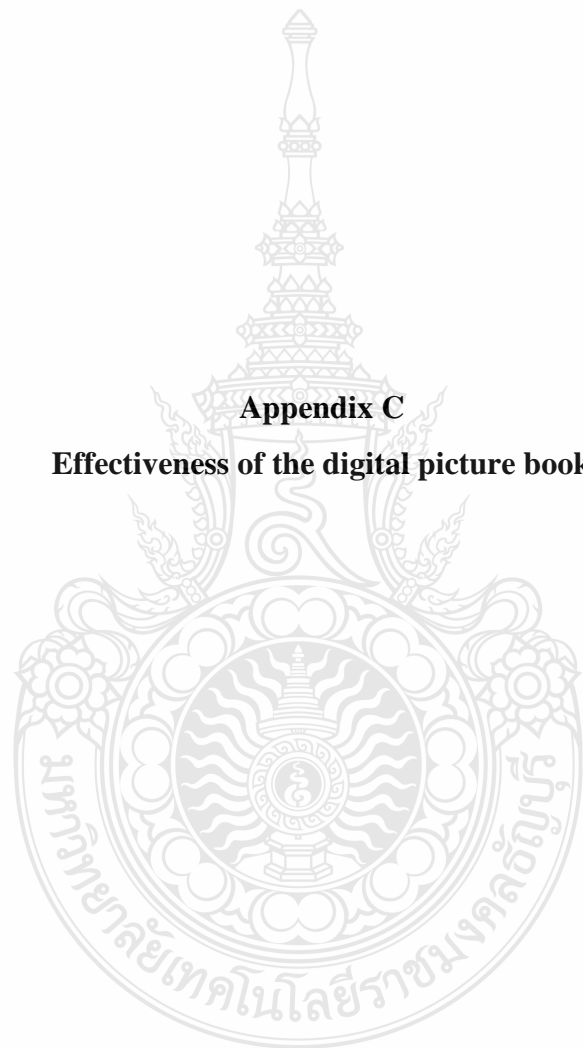
Figure appB.4 picture book is emphasized on a colorful on page



Figure appB.5 many birds are colorful to motivation the children



Figure appB.6 the summarize of story is mention about emotional



Appendix C

Effectiveness of the digital picture book

Effectiveness of the digital picture book

Student No.	Percentage of Process Efficiency (E ₁)	Percentage of Product Efficiency (E ₂)
1	78.00	76.00
2	89.00	80.00
3	85.00	86.00
4	80.00	70.00
5	86.00	83.00
6	82.00	80.00
7	75.00	83.00
8	83.00	66.00
9	90.00	63.00
10	87.00	83.00
11	85.00	90.00
12	87.00	83.00
13	82.00	80.00
14	84.00	86.00
15	82.00	80.00
16	80.00	83.00
17	78.00	73.00
18	86.00	86.00
19	86.00	90.00
20	82.00	93.00
21	82.00	60.00
22	80.00	80.00
23	80.00	93.00
24	84.00	86.00
25	83.00	80.00
26	76.00	83.00

Effectiveness of the digital picture book (cont.)

Student No.	Percentage of Process Efficiency (E₁)	Percentage of Product Efficiency (E₂)
27	83.00	83.00
28	83.00	86.00
29	83.00	90.00
30	84.00	83.00
Mean Score (Percentage)	(E₁) 82.83	(E₂) 81.53



Biography

Name - Surname	Ms. Rushan Hu
Date of Birth	December 14, 1988
Address	Shuimuyuan Community, Shushan District, Hefei, China
Education	Bachelor's Degree in Preschool Education of Hefei University
Experience Work	Teacher of Liuhe Kindergarten, Yandian Town, Feixi Head of Lihe Kindergarten, Shishugang Township, Feixi County, Anhui Province, China County, Anhui Province, China (2017 – 2022)
Telephone Number	+8613739257979
Email Address	rushan_h@mail.rmutt.ac.th

