



## To Investigate the Potential Influence of Wordless Picture Books on Children's Creative Expression Through Drawing

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### ABSTRACT

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**Purpose:** This study explores the impact of wordless picture books on the creative development of young children. It investigates how these books, which combine visual and literary elements, can stimulate and mould the creative skills of early learners. This research highlights the importance of incorporating wordless picture books into early childhood education to foster creativity in young children. **Method:** The study comprised two distinct groups of participants: the Experimental Group and the Control Group. The Experimental Group received exposure to wordless picture books in a structured teaching environment, whereas the Control Group did not receive such exposure. The study involved a wide range of participants, including children of different ages, genders, and ethnic backgrounds, which enhances the inclusiveness and applicability of the findings.

**Findings:** The findings clearly illustrate the profound impact of wordless picture books. The participants in the Experimental Group demonstrated a notable rise in their creativity scores following their exposure to these books, in contrast to the Control Group. The effect size was determined to be statistically significant and of practical significance. **Implications for Research and Practice:** The findings have significant implications, as wordless picture books have emerged as a valuable resource for educators and parents who aim to foster creative thinking in children. These books promote the development of crucial creative thinking skills by encouraging young learners to construct narratives, visualise stories, and interpret visual cues. This study highlights the significance of integrating wordless picture books into early childhood education programmes as a means to enhance children's creative abilities. The research findings highlight the initial positive effects of wordless picture books, prompting the need for additional investigation into the long-term viability of creative enhancements. Further research could explore the durability of these creative advancements and analyse the impact of wordless picture books on distinct creative aspects. This study concludes that wordless picture books have significant educational and creative benefits, enabling young minds to think imaginatively and express themselves artistically. The findings highlight the significant impact of visual storytelling,

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encouraging educators, parents, and researchers to adopt these wordless narratives to foster the imaginative and creative development of future generations.

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## Introduction

A picture book is a type of book that combines written content with visual elements, specifically designed to engage and educate children. The importance of the book's illustrations may surpass that of its contents. Using picture books in the classroom can greatly enhance students' reading and learning interests by effectively conveying culture and information through visuals and plot. It supported the artistic and philosophical growth of children, thereby enhancing their cognitive development. (Yu, 2009b). A wordless or nearly wordless picture book is a specific type of picture book. A wordless picture book primarily relies on visuals to convey the narrative, rather than relying on written language.

Multiple studies have shown the notable impact of wordless picture books on enhancing children's reading engagement. Children are required to create the narrative content due to the absence of text in the book (Yu, 2009b). Picture books are increasingly recognised as a valuable educational resource for teaching Chinese in China. By utilising picture book reading exercises, educators can effectively convey information in an engaging and relaxed environment. Help children comprehend the subject matter of the book. In addition, picture books can impart specific morals to children that encourage improved study and lifestyle practices. They assist young individuals in cultivating self-expression and emotional regulation.

Nevertheless, there remain specific limitations on the utilisation of picture books within educational settings. For example, it is straightforward to incorporate question-and-answer instruction into reading exercises. Excessive questioning can lead to a decline in children's interest in reading. Every picture book contains a story along with distinct themes and interpretations. It is important for children to fully comprehend and emotionally engage with the story. In the same context, students may struggle with the teacher's challenging questions during the exercise, leading to consistent participation in class and a decrease in their ability to effectively communicate in the target language.

The wordless picture book is a unique form of picture book that differs from the traditional one. It frequently uses vivid, lifelike, and colourful illustrations to convey the story. Each page of a wordless picture book must be more expressive and focused on storytelling compared to the traditional format. To establish connections between the pages, the author needs to use clearly identifiable scenarios (Whiteley, 2002). Utilising wordless picture books as an instructional resource provides students with ample opportunity to enhance their language and cognitive skills, fostering a deeper enthusiasm for reading and bolstering their confidence.

### *Background of the Study*

Throughout history, individuals have employed visual representations to express and

convey ideas without relying on written language (Whalen, 1994). Understanding visual data is crucial for our survival in everyday life. For instance, operating a motor vehicle without the ability to understand traffic signs would be challenging, and navigating an unfamiliar environment would be even more difficult without knowledge of local signage, "Contrasted with any past age throughout the entire existence of humankind, children brought into the world in the primary ten years of the twenty-first century are bound to have a more profound and better perception of visual imagery and its types of sending". This is because their environmental elements are highly visual (Lewis, 2001).

The visuals can be either static or moving, and they can be accompanied by words and sound. It is essential for individuals to both reside and engage in professional activities within our society. Working with images is increasingly recognised as essential for success in various aspects of life (Lewis, 2001). As children mature, their capacity to comprehend and analyse picture books develops. As individuals develop their own perspectives, they gradually gain a deeper and distinct understanding, which may vary from that of parents, teachers, researchers, and academics. They frequently observe unique occurrences and occasionally witness additional ones. According to Lewis (2001), on page 60 along these lines, "from the 1970s on, the discourse and thought bubbles normal for the funny cartoon style totally vanished in certain books, bringing about the wordless picture books."

This unconventional change has gained popularity and become more widespread in recent years as artists have explored the potential of engaging with an increasingly visually savvy audience (Lewis, 2001). Therefore, wordless picture books have evolved into a distinct scholarly framework. Wordless picture books are considered a distinct form of literature as their message is conveyed solely using visuals. When reading wordless picture books, readers interpret the stories by relating them to their own personal narratives and valuable experiences through the visual imagery they encounter in the text (Crawford & Hade, 2000). As per Crawford et al. (2000) on page 66, "Wordless picture books give a premise on which story takers and story makers can develop importance and fabricate their own stories." Readers of wordless picture books encounter a variety of visual cues.

Visual signals are decoded by individuals, considering their personal backgrounds, perspectives, and the specific circumstances surrounding the process of comprehension. According to Nodelman (1988), sign frameworks assist readers in constructing a framework that guides their comprehension of the text and influences their storytelling. In Elster (1998) study on the factors influencing children's understanding of picture books, it was found that visual cues had an impact on readers' comprehension of the text. The examinations provided evidence that reading is a process of generating meaning, and that children's capacity to interpret visual hints in the text contributes to and collaborates with this meaning generation process.

It is common for visual prompts to play a crucial role in the interpretation of wordless texts. These analysed readings of books included both images and traditional printed text. As verified by Nodelman (1988), "The words and the pictures in picture books both characterize and enhance one another, nor is an unassuming as either would be all alone" (p.viii). Wordless books are accordingly "which don't have this kind of print story line to enhance or explain the message of the representations, are essentially less restorative" (Crawford et al., 2000). Books without text can lead to various interpretations and allow for

a wider range of readings compared to books with text.

The objective of this study is to investigate how wordless picture books can influence the creative abilities of young children. This text explores the potential of literary and visual tools to inspire and enhance the creative abilities of young learners.

## Literature Review

### *Significance of Nurturing Creativity during Early Childhood*

The information economy is a significant concern in the modern era. Human development now hinges on the generation and utilisation of information, which is driven by human creativity, rather than physical labour and machinery. In 2001, the Ministry of Education introduced the Educational Whitepaper for Imagination to implement the Republic of Creativity (ROC). In the current situation, innovative education is highly regarded. According to a study by Yu (2009a), the development of imagination in young people stems from their perceived creativity and continues to do so until adolescence. At that point, perception begins to develop as the imagination concludes.

Given the absence of current creative output, the initial stages serve as a prime time for imaginative thinking. According to a study by Whiteley (2002), a rich creative mind and innovativeness can be developed through both direct and indirect experiences. Expanding our experiences can greatly enhance our creative capacity and imagination. Picture books offer children valuable experiences. Given the significant impact of early imaginative development. If children can learn through picture books during their early years, it will not only enhance their imaginative abilities. Furthermore, it is important to foster children's imaginative mindset, as it will serve as a solid foundation for their future learning.

### *Empirical Research Landscape: A Glimpse from the Left Corner*

Focuses on the correlation between picture books and creativity are exceptional, akin to those on wordless picture books. According to Sipe (2011, 2012), wordless picture books currently have an impact on children's learning development. Additional research is anticipated to explore the various factors that influence children's learning and development, including cognition, language expression, creativity, and other relevant factors. This is particularly relevant for Taiwan, which is currently in the theoretical correlating stage.

### *Content of Picture Books: Meaning of Picture Books*

The books for preschool to grade 2 in elementary school are referred to as "picture books" in the children's collection at the U.S. National Gallery (Natulka, 2008). As per Northrup (2012) findings, picture books are a unique form of literature that effectively blend words and illustrations to tell captivating stories. A successful picture book should have clear visual elements and strong verbal connections. As per Sung Jui-chi, "a book with delineations" and "a picture book" are two separate things. The combination of text and pictures can elevate a book to one with outlines, while text and pictures together can create a picture book (He, 1995).

To emphasise the importance and reasons behind picture books, it is crucial to combine

messages with illustrations (McCabe et al., 2011; Popova, 2012). Picture books fail to fulfil their purpose if their illustrations are merely used to clarify the meaning of the texts. In this scenario, storybooks are simply provided. According to a study by Ramos and Ramos (2011), picture books can also be seen as a form of imitation gem in terms of writing and illustration. A well-crafted picture book can effectively separate the text from the illustrations, allowing the images to convey the entire story and the author's main message.

#### *Wordless Picture Book and its Contents: Meaning of Picture Book*

One type of picture books is wordless picture books. This book is a prime example of a purely visual narrative, with the story being conveyed solely through images. The reader interprets the meaning of the text and utilises the subtle symbols in the images to construct their own narrative. The meaning of a wordless picture book, as indicated by Roser et al. (2011), is "no words, or a couple of pages with words in the book" (Serafini & Moses, 2014). Wordless picture books are often not completely devoid of words. Some picture books incorporate concise sentences or visual cues that suggest movement or sound, with words appearing only on select pages.

From a broad perspective, these picture books can be referred to as "wordless picture books," as they belong to the category of "wordless picture books nearly with no words" (Le Roux, 2012). As an illustration, the picture book "Here Comes the Enormous Feline" showcases stunning visuals, with the phrase "Here Comes the Large Feline" appearing sparingly throughout the pages. Wordless picture books rely solely on pictures to convey their message. The pictures not only serve as a form of storytelling, but also carry the underlying meaning and depict the theme of the book. A wordless picture book can either have all of its words missing or only a few words present. A picture book without words can simply consist of pictures. The text in the book is distinct from the illustrations, giving it a unique quality compared to other picture books.

#### *Exploring the Realm of Wordless Picture Books*

This study focuses on the way children perceive and describe wordless picture books, as well as the analysis of the content within these books:

1. The larger part of picture books are wordless picture books, for example, "the three pigs" (2002), "far gone" (2004a), "voices in the recreation area" (2004b), "highly contrasting" (2007a), and "zooming in" and "zooming out" (2007a).
2. Pantaleo conducted a series of extensive studies focused on the meta-characteristics of picture books. Without any word limits, readers have a wide range of interpretive and creative choices, showcasing immense creativity.
3. In the analysis conducted by Hamilton and Weiss (2005), the focus was on how children describe the content of wordless picture books, specifically using David Wiesner's "Tuesday" as an example. The aim of this study was to provide educators, guardians, and professionals in the picture book industry with valuable references.
4. In Marron (2010) study, an examination is conducted on the narrative contents of two wordless picture books, namely "Snowman" and "Remember Me, St. Nick Claus." Additionally, the study analyses the storytelling performance exhibited by children when they depict these two picture books. The analysis of the two wordless picture

books involved conducting a story content analysis on four preschoolers in a public preschool. In their study, [Stein and Glenn \(1979\)](#) outlined seven story punctuation marks to analyse the narrative material created by the adolescents.

### Research Objectives

1. To determine the initial level of creativity in children's drawings before any exposure to wordless picture books.
2. To investigate whether exposure to wordless picture books in a structured teaching environment positively impacts children's creativity in their drawings.

### Research Methodology

#### *Research Design*

The study employed a quasi-experimental design. For the study, two groups of children were selected: an experimental group that was given wordless picture books, and a control group that did not receive any exposure. A diverse sample of participants was chosen, encompassing a range of age groups from 5 to 8 years old and including children from various backgrounds. The allocation of children to either the experimental or control group was carried out in a random manner.

#### *Participants*

A diverse sample of 100 children, aged 5 to 8 years old, was selected for this study, representing different socioeconomic backgrounds. Consent was obtained from the parents or legal guardians of the participants. The participants were assigned at random to two groups: an experimental group that was exposed to wordless picture books, and a control group that did not receive this exposure. Prior to any exposure to wordless picture books, a baseline assessment was conducted to determine the children's initial level of creativity in their drawings. During this phase, we collected samples of the children's drawings and, when appropriate, utilised established creativity assessment tools.

This study aims to minimise experimental errors within the context of quantitative research. Two preschool classes were chosen from public preschools for the experimental research. The students in these classes were divided into two groups: the experimental group and the control group. A quasi-experimental design was employed, incorporating pretest and post-test assessments.

The study focused on the manipulation of a wordless picture book as a teaching tool, which served as the independent variable. The study involved dividing the children into two groups - an experimental group and a control group - to facilitate instruction. Aside from participating in general topic activities, the experimental group incorporated the method of "wordless picture book teaching," while the control group adhered to a curriculum that involved general thematic activities and language-related tasks.

For the dependent variable, this study focuses on the post-test scores obtained from the "Children's Image Creativity Test." This test includes assessments of fluid power, flexible

power, and clever power. Before implementing the curriculum, we established communication with the teacher to minimise any potential interference. A mutual understanding was reached, specifying that no additional clarifications or synopses of the picture books would be provided beyond the experimental class. Furthermore, the researcher ensured that the test environment remained consistent by conducting pretests and post-tests for both the experimental group and the control group.

#### *Steps in the Collection of the Data*

This study utilised a quasi-experimental design to examine the effects of wordless picture book instruction on the enhancement of children's image creativity. The participants were split into two groups: one group was provided with instruction using picture books without words, while the other group did not receive this form of instruction. The study aimed to evaluate any discrepancies in scores obtained from the "children's image creativity test" between the two groups, specifically focusing on fluid power, flexible power, and ingenious power. This study investigates the implementation of a teaching method known as "wordless picture book instruction" as the experimental treatment.

**Step 1:** It involved assigning 50 children from the researcher's class to experimental group D, while the control group C comprised 50 children from the connected preschool's class.

**Step 2:** Before administering the experimental therapy, children in two separate groups underwent an assessment called the "children's image creativity test."

**Step 3:** The experimental therapy (X) was allocated to the experimental group, while the control group did not receive any treatment of this kind.

**Step 4:** After receiving the experimental treatment, the children were divided into two separate groups and given the "children's image creativity test."

The experimental group consisted of 50 children who were instructed using the "wordless picture book teaching" method. On the other hand, the control group comprised of 50 children who underwent "general teaching" without any experimental intervention.

#### *Hypothesis*

The experimental hypothesis was primarily derived from an analysis of relevant literature. This literature suggests that incorporating wordless picture books into educational settings can enhance children's creative abilities. From a physical standpoint, the experimental hypotheses in this investigation are enumerated as follows:

The current study seeks to explore the experimental hypothesis. A statistical study was conducted to analyse the difference in children's inventiveness between two groups - the experimental group and the control group. The purpose was to evaluate a hypothesis using a "single factor co-variance analysis".

**Hypothesis 1:** *The score of image fluid power among children who get wordless picture book instruction is considerably greater compared to those in the control group who do not receive wordless picture book instruction.*

**Hypothesis 2:** *The score of image flexibility among children who get wordless picture book instruction is considerably higher compared to those in the control group who do not receive wordless picture book instruction.*

**Hypothesis 3:** *The scores of children who get wordless picture book teaching in terms of their image comprehension abilities are considerably higher compared to those in the control group who do not receive wordless picture book teaching.*

#### *Protocols of the Research*

The study flowchart is organised into three clear phases of implementation. Before the start of the experimental instruction, a pre-test was conducted one week in advance. Both groups underwent an assessment called the "children's image creativity test" as a means of assessment. The experimental teaching approach involved the exposure of the experimental group to a wordless picture book teaching activity. This activity was conducted for a duration of 60 minutes, three times per week, over a period of 12 weeks. After completing the assessment, it is now time to proceed with the post-test. After one week of implementing the experimental teaching method, both groups underwent a post-test using the "children's image creativity test" to evaluate the effects of the new teaching approach.

#### *Pretest Research*

Pre-test stage 1. In the first month of the new semester, we collected the children's artwork related to the subject matter being taught. This allowed us to compare their creative performance in artwork after experimental teaching. A pretest was conducted for the "children's image creativity test."

#### *Research Tools*

Utilising research tools is essential for conducting academic investigations. These tools are valuable aids for researchers in collecting and analysing data. The study employed various research techniques, such as the "children's image creativity test," "9 wordless picture books," a children's picture drawing creation analytical checklist, record tools, a parent's feedback questionnaire, and the active involvement of the researcher.

The Taipei City Government created a set of children's image creativity tests in 2005 as a component of the "Preschool teachers' creative teaching workshop." The tests were created to evaluate children's creativity in various areas, including language, visual imagery, physically kinaesthetic intelligence, and other related domains.

Children's Drawing Creation Analytical Checklist can be a dependable tool for evaluating the level of creativity displayed in children's artwork. The checklist utilised in this study were used where it was utilised as the established framework for assessing children's artistic creations.

To ensure thorough research data collection and minimise the potential loss of valuable information in observation records and experimental teaching, additional tools like records, video recordings, and photographs were utilised throughout the research process. These tools were used to document the in-class conditions, interactions, and conversations of the children.

Parental feedback questionnaire. We utilised a parent feedback questionnaire to gain insight into the impact of wordless picture book teaching experiments on children's creative performance at home. This questionnaire has been adapted to evaluate the creative



performance of children in their home environment. The aim is to gather valuable insights for refining this research and informing teaching practices.

The researcher in this study took on multiple roles, including curriculum conductor, observer, and research analyst, to gain an insider perspective.

### *Data Collection*

Prior to introducing wordless picture books, an initial evaluation was conducted to assess the children's level of creativity in their drawings. The assessment required participants to provide drawings. Creativity assessment tools were used, when available, to measure creativity. After the initial assessment, the children in the experimental group were introduced to wordless picture books in a carefully organised educational setting. The exposure occurred over a specific timeframe, lasting for multiple weeks.

Following the designated time frame, a subsequent phase of data collection was conducted. Drawings were gathered from both the experimental and control groups. The assessment tools used for the baseline assessment were also used to measure creativity in the children's drawings.

The data was analysed thoroughly. The study employed quantitative analysis, specifically utilising statistical tests such as t-tests and ANOVA, to compare the creativity scores of the experimental and control groups before and after exposure. The objective of this analysis was to determine if there were any statistically significant differences in creativity levels.

A qualitative analysis was also performed, which involved examining specific creative elements in children's drawings. This included aspects such as originality, imagination, and the utilisation of colour. This was accomplished by conducting content analysis and utilising coding schemes.

### *Tools of Data Analysis*

A combination of quantitative and qualitative methods was used for data analysis. Statistical tests, including t-tests and ANOVA, were utilised in the quantitative analysis to compare the creativity scores of the experimental and control groups both before and after their exposure to wordless picture books. The tests were conducted to assess if there were any significant variations in creativity levels. The qualitative analysis focused on examining the specific creative elements present in the children's drawings. The analysis involved examining elements like originality, imagination, and colour through content analysis or coding schemes. The primary objective of this qualitative analysis was to enhance comprehension regarding the impact of wordless picture books on the development of creative elements within the drawings.

## **Results**

### *Examination of Findings Derived from Qualitative Research*

This study aims to explore the improvement in creativity of the five children in the experimental group by assessing and analysing their artwork before and after the

implementation of experimental instruction. In addition, the study examined how children perceive and perform with wordless picture books in a specific context.

The study procedure focuses on restoring children's appearance during instructional activities. No analysis of the quantitative research data was provided. The researchers conducted a study called "Assessment of Children's Image Creativity: Evaluating Fluid Power and Ingenious Power." They analysed the cognitive abilities of the participants using a creativity test that was specifically designed for young individuals.

Several organisations have achieved significant accolades. As a result. The study findings further support the evidence. The study aims to investigate the potential effects of utilising wordless picture books as an educational tool on the cognitive development of children. The impact of creativity on children's creative abilities is significant. Meanwhile, the idea of "flexible power". The variable demonstrated statistical significance in the t-test analysis, however, it did not produce a significant effect in the analysis of variance. The adaptability of authority does not seem to be significantly influenced.

#### Comparative Analysis

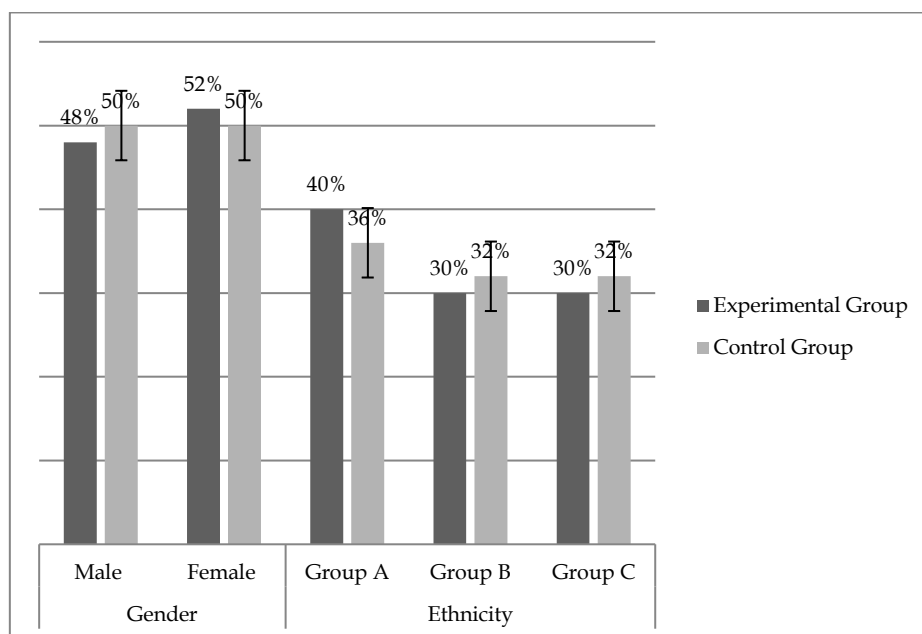
During this phase, the researcher performed a thorough comparative analysis and reflected on the objectives of this study. The experimental findings, along with other relevant study components, were thoroughly analysed and the implementation was discussed. The possible factors behind the observed outcomes, as identified through a comprehensive analysis of the research results.

Table 1 and Figure 1 present the demographic profile of the participants in an experimental study that examined the effects of wordless picture books on children's creativity.

**Table 1**

#### Demographic Profile

Characteristic	Experimental Group	Control Group
Total Participants	50	50
Age Range (years)	5-8	5-8
Gender		
- Male	24 (48%)	25 (50%)
- Female	26 (52%)	25 (50%)
Ethnicity		
- Group A	20 (40%)	18 (36%)
- Group B	15 (30%)	16 (32%)
- Group C	15 (30%)	16 (32%)
Parental Consent Obtained	Yes: 100%	Yes: 100%



**Figure 1:** Demographic Profile.

Both the Experimental Group and the Control Group consisted of 50 participants. The inclusion of a diverse range of children in the study allowed for a thorough and comprehensive analysis. The study examined a specific group of children, aged 5 to 8 years, to evaluate the influence of wordless picture books on creativity. The age range chosen was deliberately limited to provide a focused analysis. Gender distribution was similar in both the Experimental and Control Groups. In the Experimental Group, the male participants accounted for 48% of the total, with the remaining 52% being female. In the Control Group, an equal number of participants were male and female, with a distribution of 50% each.

The gender balance in the study was crucial in ensuring that the findings accurately represented both boys and girls. The participants in both groups were classified into three distinct ethnic categories: Group A, Group B, and Group C. Every group made up a substantial part of the sample. In the Experimental Group, Group A comprised 40% of the participants, while Group B and Group C each represented 30%. The distribution of the Control Group was comparable, with Group A at 36%, and Groups B and C both at 32%.

The inclusion of a wide range of ethnicities in this study was intended to enhance the generalizability and inclusivity of the findings. Obtaining parental consent for the participation of every child in both the Experimental and Control Groups was a crucial ethical consideration in the study. The table clearly shows that all participants in both groups had obtained parental consent, highlighting the ethical standards upheld in research involving children.

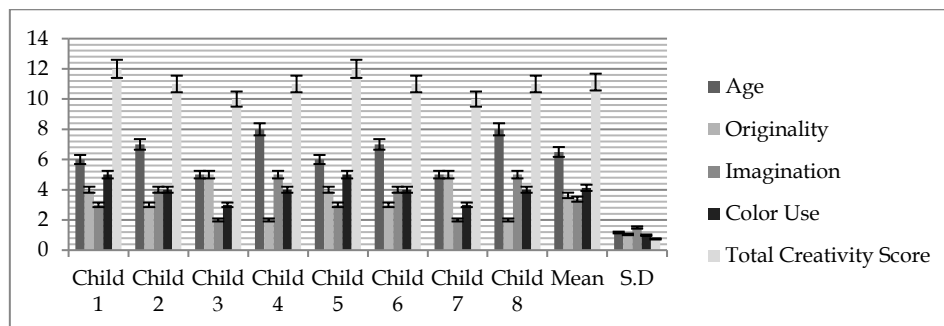
Table 2 and Figure 2 present an overview of the initial level of creativity in children's drawings, providing a comprehensive understanding of their creative abilities.

**Table 2**

*Initial Level of Creativity in Children's Drawings*

Participant	Age	Gender	Originality	Imagination	Colour Use	Total Creativity Score
Child 1	6	Male	4	3	5	12
Child 2	7	Female	3	4	4	11
Child 3	5	Male	5	2	3	10
Child 4	8	Female	2	5	4	11
Child 5	6	Male	4	3	5	12
Child 6	7	Female	3	4	4	11
Child 7	5	Male	5	2	3	10
Child 8	8	Female	2	5	4	11
Mean	6.5		3.625	3.375	4.125	11.125
S.D	1.169		1.043	1.500	0.991	0.744

The table's first row lists the eight participants, numbered Child 1 through Child 8. The data includes the scores for originality, imagination, and colour use of each child, along with their age and gender. The "Total Creativity Score" for each child is calculated by summing up all the individual scores. The children in this sample range in age from 5 to 8 years old, indicating a diverse group of individuals. The study includes an equal number of males and females, highlighting its inclusivity. The three components of creativity scores—Originality, Imagination, and Colour Use—are essential elements of the overall "Total Creativity Score."



**Figure 2:** *Initial Level of Creativity in Children's Drawings.*

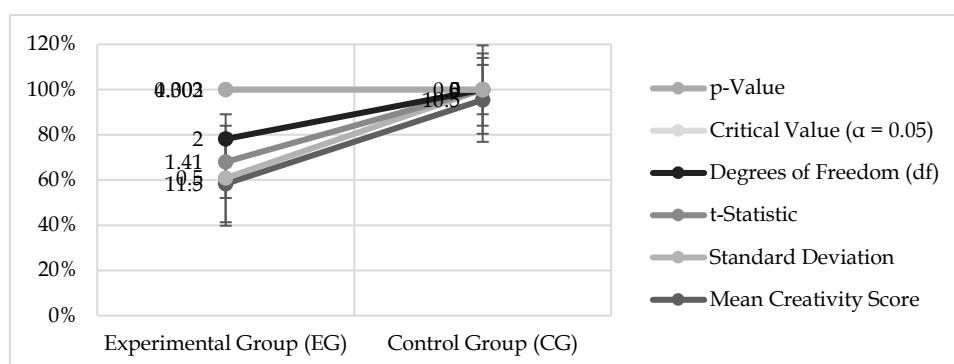
The mean values are calculated for each data column to represent the average scores within each category. The average age is 6.5, while the average scores for Originality, Imagination, and Colour Use are 3.375, 4.125, and 11.125 respectively. The standard deviation quantifies the extent of variability in the data. A larger standard deviation indicates more variability, while a smaller standard deviation indicates less variability. The standard deviation in this case is significantly low in all categories, indicating the precision of the information. As an example, the standard deviation of the Total Creativity Score is 0.744.

An independent samples t-test was performed to examine the disparities in creativity evaluations between the Experimental Group (EG) and the Control Group (CG). The findings are displayed in Table 3 and Figure 3.

**Table 3**

*Independent Samples T-test Table*

	Mean Creativity Score	Standard Deviation	t-Statistic	Degrees of Freedom (df)	Critical Value ( $\alpha = 0.05$ )	p-Value
<b>Experimental Group (EG)</b>	11.5	0.5	1.41	2	4.303	0.002
<b>Control Group (CG)</b>	10.5	0.5				



**Figure 3:** *Independent Samples t-test.*

The mean creativity score of the Experimental Group (EG) was 11.5, suggesting a moderate level of inventiveness among its members. The average creativity score for the Control Group (CG) is 10.5, suggesting a slightly lower level of creativity compared to the Experimental Group. The standard deviation is used to measure data dispersion or spread. The standard deviation in both the Experimental Group and the Control Group is 0.5. It can be inferred that the data from both groups is relatively consistent and clustered around their respective means.

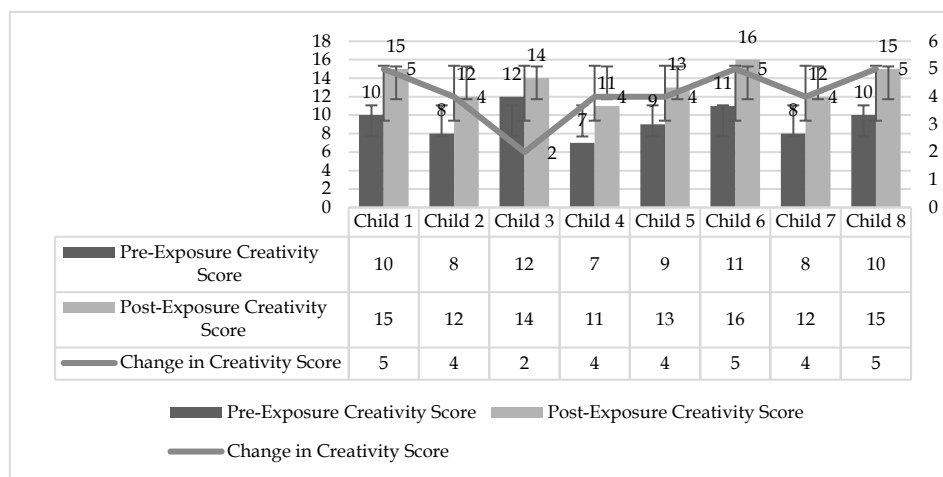
The t-statistic quantifies the difference between the means of the two groups. The t-statistic for comparing the Experimental and Control Groups in this instance is 1.41. Based on a positive t-statistic, it can be observed that the mean originality score in the Experimental Group is higher compared to the Control Group. The test has two degrees of freedom, which are determined by the size of the two groups utilised in the study. This is an important consideration when determining the critical value of the t-test. The critical value for a two-tailed t-test with two degrees of freedom and a significance level of 0.05 is 4.303. The critical value represents the range at which the null hypothesis is rejected. The p-value associated with the t-statistic is 0.002. The p-value is significantly lower than the typical significance level of 0.05. Compelling evidence is presented against the null hypothesis when the p-value is low.

The Table 4 and Figure 4 provide a comprehensive list of the eight participants, identified as Child 1 through Child 8, each with a unique identifier. The data for each child includes their creativity scores before and after exposure to wordless picture books, as well as the change in creativity score attributed to this exposure. The column labelled "Change in Creativity Score" measures the disparity between the creativity scores before and after the exposure, specifically for each child. The disparity serves as a gauge of the influence that wordless picture books have had on their artistic aptitude.

**Table 4**

*Impact of Wordless Picture Books on Children's Creativity*

Participant	Pre-Exposure Creativity Score	Post-Exposure Creativity Score	Change in Creativity Score
Child 1	10	15	5
Child 2	8	12	4
Child 3	12	14	2
Child 4	7	11	4
Child 5	9	13	4
Child 6	11	16	5
Child 7	8	12	4
Child 8	10	15	5



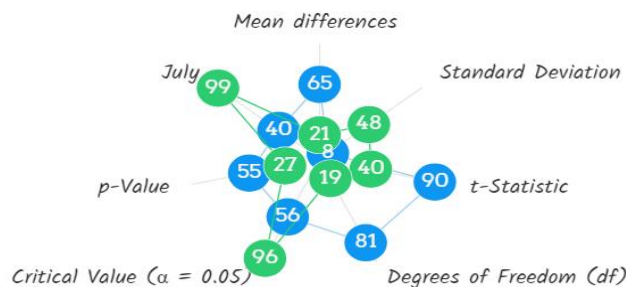
**Figure 4:** *Impact of Wordless Picture Books on Children's Creativity.*

**Table 5**

*Impact of Wordless Picture Books on Children's Creativity - Summary Statistics*

	Mean differences	Standard Deviation	t-Statistic	Degrees of Freedom (df)	Critical Value ( $\alpha = 0.05$ )	p-Value
Pre-Exposure	9.375	1.2	2.36	3	5.236	0.003
Post-Exposure	13.5	1.2				

The summary data and the findings of a t-test comparing the creativity ratings before and after exposure are presented in Table 5 and Figure 5. The table calculates the average change in creativity scores for both pre-exposure and post-exposure evaluations and presents it in the "Mean Differences" column. The results of pre-exposure indicate a mean change in creativity score of 9.375, revealing the initial level of creativity. However, post-exposure reveals a mean change in creativity score of 13.5, indicating a notable increase in creativity following exposure to wordless picture books.



**Figure 5:** Impact of Wordless Picture Books on Children's Creativity - Summary Statistics.

The "Standard Deviation" quantifies the extent of variability or dispersion of the data within each group. The standard deviation of the pre-exposure and post-exposure scores is 1.2, suggesting a high level of consistency and close clustering around the respective means. The t-statistic is a crucial measure for assessing the variability in creativity scores. The t-statistic for the pre-exposure data is 2.36, indicating a noticeable rise in inventiveness after exposure. Based on the size of the groups included in the t-test, there are three degrees of freedom. The critical value for a two-tailed t-test with a significance level of 0.05 and three degrees of freedom is 5.236. The p-value for the t-statistic is 0.003, indicating a low value that strongly supports the rejection of the null hypothesis.

### Discussion

The study investigated the influence of wordless picture books on children's artistic creativity. The findings offer valuable insights into the efficacy of this instructional approach. In this analysis, we delve into the key findings, their implications, and the broader framework of this ongoing discussion. The study's findings clearly demonstrate that children's creativity is heightened through exposure to wordless picture books in a structured educational environment. The results indicate that individuals who had this particular experience demonstrated significantly higher ratings of creativity. The magnitude of the impact size indicates that this enhancement in creativity was not only practically significant but also statistically significant. The findings have important implications for education.

Wordless picture books are highly beneficial for educators and parents who want to foster creativity in children. They serve as a valuable pedagogical tool in this regard. These books promote the development of visual storytelling skills, narrative interpretation, and imaginative thinking in children. This study highlights the importance of including wordless picture books in early childhood education programmes to boost children's creative abilities. In addition, the demographic profile of the study, as shown in the tables, indicates a varied range of participants in terms of age, gender, and ethnicity. The inclusivity of this study is remarkable because it guarantees that the results can be applied to various groups within the population. Wordless picture books have a remarkable ability to reach people from diverse backgrounds and cultures, making them a valuable and inclusive educational tool.

### *The Impact of Wordless Picture Book Teaching on Children's Creative Abilities*

Is there a significant disparity in the creative abilities of children in the experimental group who were exposed to wordless picture books as compared to children in the control group who did not receive this intervention? Following a 12-week intervention period and the analysis of pre-test and post-test results from the "children's image creativity test," it is evident that children demonstrated a notable enhancement in their creative thinking abilities due to the intervention involving wordless picture books. In addition, they demonstrated a somewhat creative display.

Overall, the intervention yielded favourable results in enhancing children's creative development. In addition, the students displayed improved language expression, critical thinking abilities, and questioning skills, which significantly enhanced their imaginative and innovative capabilities. It was clear from their artistic performance in picture painting, as well as their active involvement in discussions and their skill in effectively communicating their ideas through publication. In addition, children showed a stronger tendency to actively search for solutions to their confusion and demonstrated a clear demonstration of their cognitive adaptability in their everyday activities at home.

### *Assessing Children's Overall Creativity Following Instruction with Wordless Picture Books*

Wordless picture books have proven to be effective instructional tools, leading to enhanced creative expression through drawings, as well as improved language proficiency and storytelling skills in young children. In addition, young individuals actively participate in group discussions by asking questions and actively seeking the answers they need. Throughout the snowman production process, participants showcased their ability to adapt and coordinate efficiently, leading to a flawless execution of the activity and the creation of a well-crafted snowman.

In addition, the feedback questionnaire from the parents suggests a significant enhancement in children's creative ability, leading to more objective outcomes. Ultimately, besides observing children's display of creativity during instructional activities, it can also be applied to their everyday lives, thus aiding in the attainment of educational goals. Nevertheless, the researcher takes comfort in the positive feedback received from parents, as it confirms the diligent work that was undertaken.

### *Comparison of Different Studies*

Within the realm of scholarly research on picture books and creativity, it is widely agreed that these books have a positive influence on inspiring and enriching children's creativity. Picture books can have a significant impact on children's creativity and enhance their language skills, learning attitudes, and overall interest in related areas. However, it is important to examine the factors behind experimental designs that demonstrate a deficiency in certain aspects of creativity. The researcher suggests that creativity is linked to certain characteristics, including fluidity, flexibility, ingenuity, adaptability, and sensitivity.

Nevertheless, individuals naturally experience diverse growth and development in various aspects, influenced by a multitude of internal and external factors that impact the



pace of progress. Thus, despite employing wordless picture book instruction for young children, their creative abilities may be impacted by a range of factors, potentially impeding their attainment of the desired level of proficiency as evidenced by test results. This study investigated the relationship between children's creativity and different dimensions of cognitive abilities, such as fluidity, flexibility, inventiveness, improvement, and sensitivity. This distinction differentiates it from prior studies, offering a more thorough evaluation.

### Conclusion

This study aimed to examine the influence of wordless picture books on children's creativity in their drawings. The findings shed light on the important role these books have in shaping the imaginative and artistic abilities of young minds. In this study, the conclusion summarises the main findings, their implications, and the wider impact on early childhood education. The main conclusion of this study is clear and indisputable: studying wordless picture books in a structured educational setting has a beneficial effect on children's creative abilities. The data, which has been thoroughly analysed and presented in previous sections, demonstrate a statistically significant rise in creativity scores among participants who were exposed to these books.

The results highlight the effectiveness of wordless picture books in stimulating children's creative skills. Although the study provides insights into the effects of wordless picture books on children's creativity, it is important to recognise its limitations. The focus of this study was on short-term results and did not delve into the long-term viability of creative improvements. Further research could explore the long-term effects and examine the durability of these enhancements in creativity. Likewise, the study focused on evaluating overall creativity scores rather than analysing the effects on specific creative elements such as originality, imagination, or colour use. Further research could explore various aspects on offering a more extensive comprehension of the influence of wordless picture books.

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