

A Study on the Aesthetics of Illustrations in Third and Fourth Graders' Chinese Textbooks

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Abstract

Textbooks are one of the most important tools for learning. Illustrations in a textbook can have critical influence on students' understanding of the text and their interest in learning. However, studies on illustrations in a textbook in Taiwan are scarce. On this account, this study developed a list of aesthetic principles to examine illustrations. It aimed to explore and compare the types of representation of these illustrations and their corresponding principles of aesthetics in versions A and B of third and fourth graders' Chinese textbooks.

Keywords: Aesthetic Principles, Aesthetics of Illustrations in Chinese Textbooks, Content Analysis of Textbooks

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Introduction

Textbooks are one of the most important tools for learning. Illustrations in a textbook can have critical influence on students' understanding of the text and their interest in learning. However, studies on illustrations in a textbook in Taiwan are scarce. Only recently has Taiwan begun to pay close attention to the aesthetics of the design of textbooks. The emergence of "Aesthetic Cell: Recreation of Textbooks Program" in 2014 led us to believe that "a textbook is like a museum," with students inspired to develop a sense of aesthetics, thus becoming individuals who know how to think freely and embrace a greater perspective of space (The News Lens, 2018). On this account, this study developed a list of aesthetic principles to examine illustrations. It aimed to explore and compare the types of representation of these illustrations and their corresponding principles of aesthetics in versions A and B of third and fourth graders' Chinese textbooks.

Traditionally, an "illustration" refers to any image embedded within the space of an article; it helps to visualize the meaning that can be difficult for readers to understand fully. Today, an "illustration" has not only become a carrier that conveys message via visual signs, but also is expected to convey a broad array of concepts, from words to connotations, incidents, and commodities. Overall, illustrations can be very helpful in the following aspects: arousing students' interest and motivation, improving their understanding of the theme and text, helping them memorize key points, and developing their ability in mastering aesthetics and competencies. The present study presents five types of illustrations commonly seen in Taiwan's textbooks, using the previous literature and research results: character portrait illustrations, landscape illustrations, storyline illustrations, image explanatory illustrations, and decorative illustrations.

After exploring literature related to aesthetic principles, this study chose five of these principles that meet educational goals and are frequently discussed, for an analysis. They are proportion, contrast, proximity, harmony, and unity.

Table 1. An introduction to aesthetic principles

Aesthetic principles	Content
Proportion	The relationships between parts and the whole, or between parts and parts, which can be presented under the concept of “number”: golden proportion, module, and human organic proportion. This helps to control the atmosphere of space.
Contrast	Two contrastive elements are placed together to achieve a dynamic result. This can be divided into three levels: strong, medium, and slight, while attracting audiences’ attention.
Proximity	The correlated items are put in order by clusters, whereas a visual direction is established to emphasize the order of the work. Margins are inserted in the space to create a spacious feeling.
Harmony	It is also called “balance,” which refers to a state where two or more elements are harmoniously placed together using symmetrical or asymmetrical techniques to bring out a sense of calmness.
Unity	By incorporating related parts (parts and parts or parts and the whole), this method helps to produce a major tone from individual content, thus creating a sense of aesthetics for spectators.

Research Design

Based on the five aesthetic principles, this study analyzes and compares versions A and B of illustrations and format designs of third and fourth graders’ Chinese textbooks in the 2017 academic year; the structure of this paper is created via research purposes and questions.

This study adopts the content analysis method. Formulas are as follows:

Percent agreement (P):

$$\text{Percent agreement} = \frac{2M}{N1 + N2}$$

Reliability of rater (R):

$$\text{reliability of rater} = \frac{N \times (\text{average percent agreement})}{1 + [(N - 1) \times \text{average percent agreement}]}$$

M: the number of mutually agreed items

N1: the required agreed item of the first rater

N2: the required agreed item of the second rater

If there are more than two raters involved in the rating process, then “percent agreement” should be examined by pairs.

N: number of raters

Conclusion

Conclusions are as follows:

1. “Storyline illustrations” are more frequently found in both versions, whereas “character portrait illustrations” and “image explanatory illustrations” are less discovered in them.

“Storyline illustrations” specifically express the plot of the text. It is the highest type of illustration used in the two versions. Since the main function of textbook illustrations is to help learners to better understand the text, it can make the meaning of the text more specific and improve students’ understanding of the content. Therefore, this type of illustration is the most frequently used.

The less commonly used are “character portrait illustrations” and “image explanatory illustrations.” The former is an illustration that uses characters as the main body of the picture and pays special attention to the role of the characters in the text. The latter is a specific illustration of the content that students cannot easily understand via their imagination. In terms of “character portrait illustrations,” the content of elementary school textbooks and the topics are more diverse. Although there are biographies, they only account for a small number of lessons, and are placed in the rest of the learning stage based on the curriculum design of the publisher; they may be designed to complement the plot of the text in order to assist reading, instead of directly using characters as the main body of the picture. Therefore, from the perspective of the data of the research results, they only account for a small proportion. Regarding “image explanatory illustrations,” while the text cannot fully explain the concepts for learning, substantiating abstract concepts is one of the important functions of illustrations. However, since the content of the text chosen by the publisher for third and fourth graders is not too difficult to understand, such illustrations are rarely used in the text.

2. Proximity and harmony principles are often used, whereas the principle of unity is less often used.

The two versions use the following aesthetic principles more often: “proximity” and “harmony”; they account for 40% and 30%, respectively. The analysis categories of these two principles include: “the accuracy of the illustration content,” “the consistency in graphics and texts,” “proper locations of graphics and texts,” “the illustrations in the layout having a good visual trend arrangement,” “the illustrations not overlapping with the text,” “the color of the layout background not affecting reading,” and “the similarity of illustrations in color.” The functions of illustrations are mainly to assist understanding, promote learning, and trigger learning interest. Therefore, if illustrations can be solid, consistent with, and proximate to, the text, as well as visually fluid, easy to read, and providing readers with a sense of calmness, then they will enable learners to receive repeated messages and stimulate their learning to achieve better text learning results.

The less-used aesthetic principle is “unity”; both versions use it less than 10%. “Unity” can produce a major link between parts and parts, or between parts and the whole, so that the whole is in harmony, thus creating a sense of aesthetics for spectators.

However, as the lively and colorful layout can also attract readers' attention, the illustration design of the text can be drawn according to the needs of different contents, whereby the text presents different appearances.

3. The illustrations that “do not exceed more than one-half of the overall length” account for about 70% in both versions.

In the “proportion” principle, according to the Grades 1-9 Curriculum Guidelines of the Ministry of Education, the proportion of the text and graphics in the first stage of the textbook should be half, and the second and third stages can be increased or decreased according to the actual needs of the curriculum. Third and fourth graders' textbooks cannot exceed one-half of the text and graphics ratios; there are about 70% of the “proportional graphics” in versions A and B, indicating that the two versions have taken into account the provisions of the Ministry of Education when designing text illustrations, as well as the appropriateness of the text ratio.

4. The two versions use “space design to present a blank design” more often, and “contrast of illustration size to show the focus of the layout” relatively less often.

The two versions use “space design to present a blank design” more often, accounting for 60%, and “contrast of illustration size to show the focus of the layout” relatively less often, accounting for about 30% and 10%, respectively. White design can separate text and highlight the theme, increase readers' attention and reading fluency, as well as reduce the visual burden when reading. Therefore, the blank space design is the most common type in the layout space.

5. Both versions pay more attention to “the accuracy of the illustration content” and “the consistency in the graphics and the text.”

Both versions emphasize the “the accuracy of the illustration content” and “the consistency in the graphics and the text.” Pictures, photos, or other images related to teaching materials, size, color, and even the context of things, should be as close to their originals as possible. This will then give students the correct knowledge and ideas so that they can use the representative visual information to transform the conceptual images in the teaching content into physical representative forms and access them in long-term memory. In addition, if the graphics and the text are highly consistent, students can easily learn the message to be conveyed in the textbook and feel the atmosphere to be created.

6. Both versions pay more attention to “the illustrations not overlapping with the text” and “the color of the layout background not affecting reading,” but less to “the similarity of illustrations in color.”

“The illustrations not disrupting the reader experience,” “the illustrations not overlapping with the text,” and “the color of the layout background not affecting reading” account for the highest proportion in both versions, whereas “the similarity of illustrations in color” account for the lowest. The layout of illustrations should not disrupt the clarity and reader experience. In other words, the illustrations cannot overlap with the text. Moreover, when it comes to “the color of the layout background

not affecting reading,” the color of the background of a single page should not be blurred and interfere with the presentation of the text content; otherwise, it harms legibility. Lastly, while it is commonly believed that similar hues help to reduce visual fatigue and bring a sense of calmness to readers, more colorful illustrations help to accentuate the layers of the space of a text, and draw readers’ attention to said text.

7. The consistency in style accounts for 60% in both versions.

In the analysis category of the principle of unity, “unification of painting style” in versions A and B account for about 60%. Unity can make seemingly contradictory items form mutual coordination, and then reveal a common inevitable relationship, so that the whole is in harmony, thus creating a sense of aesthetics for spectators. However, the lively and colorful layout can also attract readers’ attention, so the illustration design of the text can be drawn according to the needs of different contents, whereby the text presents different looks.

Advice to publishers

1. The spacing between illustrations and related texts can be enhanced, and should be placed on the same page or next to the text.

According to the research results, about 80% of the illustrations conform to the principle of “proper locations of graphics and texts.” In order for readers to have good visual trends and clearly understand the content of the text, proper locations of pictures and texts are of considerable importance. The 20% of the non-conforming illustrations reduce the effectiveness of illustration-assisted learning because students cannot focus on a certain thing for a long time when a text is far from an illustration. Therefore, this study suggests that publishers pay more attention to this problem.

2. The fluency of reading can be improved; the layout of illustrations should not overlap with the text, and the color of the background should not interfere with reading.

According to the research results, about 90% of the illustrations conform to the principles of “the illustrations not overlapping with the text” and “the color of the layout background not affecting reading.” In order to enable readers to have good legibility and clarity when reading, the color of the background of a single page should not be blurred and interfere with the presentation of the text content. The illustrations should not overlap with the text content, either. The remaining 10% of the non-conforming illustrations are obscured by the illustrations, interfering with or overlapping with the darker background, making students unable to clearly identify them, which in turn affects the effectiveness of their learning. Thus, this study suggests that publishers pay more attention to this aspect in the future.

Suggestions for future studies

1. Compound illustrations can be added to the illustration types to make up for the lack of classification of illustration types in this study.

From the results of illustration type research, the proportion of “other illustrations” is relatively high, about 20%. To make the research more meticulous, the researchers believe that it is possible to add a “composite illustration” type of illustration. A “composite illustration” integrates some elements of character portrait, landscape, storyline, image explanatory and decorative illustrations, which are distinct from other illustrations, so as to prevent excessive “composite illustrations” from being classified as “other illustrations.” This can make up for the deficiencies of this study.

2. Other aesthetic principles can be added to research tool, and their analysis categories can be expanded.

This study uses the five aesthetic principles: proportion, contrast, proximity, harmony and unity as analysis categories. Since different aesthetic principles may produce different analysis results, and different researchers have different preferences for the use of aesthetic principles, other aesthetic principles can be included and analysis categories added to make the research results more diverse and comprehensive.

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