

Summary of the analysis of the current situation of image symbols in primary school Chinese textbook

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ABSTRACT

Since 1992, when Michel declared that the "image turn" has become another major event in the field of culture after the "linguistic turn," images have increasingly become mainstream symbols in the field of culture and education, and even this era has been dubbed the "era of reading pictures." In the stage of basic education, image symbols in multimedia, online courses, mobile phones and other media play an important role in knowledge representation and interest guidance. A review of foreign research is conducted to provide a theoretical basis for further research.

KEYWORDS

primary school Chinese; textbooks; image symbol

1 Background and origin of the topic

In recent years, the ugly image symbols in many versions of textbooks (such as illustrations such as dull eyes, bloated posture, indecent behavior, and lack of beauty) have once caused controversy. The problem of textbook image symbols has received increasing attention because it also subtly affects students' behavior and cognition. In particular, Chinese textbooks, including pictures, charts, bubble language illustrations and other image symbols, are important carriers of imaginative thinking and moral education, which are worthy of attention. Although the textbook reform is changing with each passing day, and the text content of the textbook is constantly innovating, the image symbols in it have not received due attention, and the illustrations have been repeatedly criticized. Therefore, this study will focus on the problem of image symbols in textbooks.

1.1 In the era of image reading, image symbols contain rich content

In 1994, the image semiotician Michelle announced the "image turn," and the post-humans entered the era of reading pictures. Education in the 21st century is no longer the rigid old-fashioned education in the past, and it is no longer the education that teachers can teach students well only by relying on text symbols. In early 2024, OpenAI Sora released its first version of image symbol generation software, which can even automatically convert static text symbols into dynamic image symbols, such as videos and movies. Its world-class shock made the author dare to propose that 2024 is the first year of 'image turn'. Image symbol is the superposition of text symbol and image symbol, which can also be divided into single frame image symbol. In the future, the education and teaching based on image symbols requires learners to mobilize the five senses and six senses, carry out multimodal learning, and enable students to participate in learning in a fuller

state. Just as multimedia such as PPT into the classroom is an irresistible trend, the impact of high technology will be profound and lasting, modern educators should adapt to the change of education, and can put forward their own views in this change.

The image is originally the most primitive expression of people, which is in line with the original habit and has strong persuasion.^[1] With the progress of the times, the world seems to become a big screen. In this era, children's learning and life are inseparable from images. Compared with their previous generation, children now have significantly different growth experiences, from the initial 'natural person' to 'image person'. Children begin to interact with various media at an early age.^[2] Children are born in the era of dense images, and they receive information from media such as short videos, games and so on in society as adults. Therefore, in this era, education should also be in line with the progress of the times, using pictures, music, tables and other ways to mobilize students' interest in learning.

1.2 In education and teaching, image symbols promote aesthetic thinking

Based on the important influence of image symbols on students, Li Zhengtao proposed that "educational video image analysis" will inevitably lead to "educational video image semiotics." Educational video image semiotics is a new interdisciplinary subject with comprehensive characteristics. It studies video images that occur in the educational field, looks at problems from a scientific and historical perspective, and tries to establish a new discipline.^[3] It can be seen that image symbol education is not only affecting education, but also gradually becoming a discipline. In Liu Xiaohu's view, image symbols also have an important and positive impact on Chinese education. The advent of "image world" promotes the occurrence of "image turn" in Chinese curriculum.^[4] The rise of "image world" and the emergence of "image turn" have a profound impact on the progress of education. Many scholars from the cognitive^[5] culture^[6] and technology^[7] These three aspects deeply explore the deep meaning of the transformation of educational images in the digital age. The purpose is to understand the core role of image symbols in thinking mode, visual expression and educational communication.^[8] This view emphasizes that in the digital age, the transformation direction of educational images should focus on cultivating visual literacy, in order to pursue the authenticity of images, enrich aesthetic experience, feel the beauty of images, and guide positive values, so as to establish the moral attributes of images.^[9]

1.3 In today's learning, there are some misunderstandings in the use of image symbols

According to the new requirements put forward by the "Compulsory Education Chinese Curriculum Standards (2022 Edition)", "with the progress of science and technology and the popularization of online media, people's learning methods and educational goals are constantly changing. Among them, in the curriculum standards of grade one to grade two, it is required to 'sort out what you see and hear in your life in a combination of pictures and texts', and in the curriculum objectives of grade three to grade four, it is required to 'try to use forms, images, audio and other media to present your own observation results'. The new curriculum standard requires students in grades five to six to organize activities and be able to use charts, pictures, photos, etc. to display learning results."^[10]

The new curriculum standards pay attention to the expansion of students' abilities, and promote the development of various abilities, not only to evaluate academic performance, but also to help students adapt to the new era. However, in the 2019 edition of the textbook, the use of charts in primary and secondary school Chinese textbooks is relatively small, and there is a lack of a good student aid system. Moreover, teachers ignore the image symbols in the actual teaching, which

1.4 Research on foreign pictorial symbols

Compared with domestic scholars, foreign scholars began to study the image symbols in textbooks and books earlier, and mostly used experimental research. The research results are more scientific, and have important results in the study of image symbol effect, graphic relationship and the value of image symbols in textbooks.

2 Research on the effect of image symbol

Many studies have shown that image symbols in textbooks have important value in attracting children 's interest and promoting children 's memory. Foreign scholars have proved through experiments that children like books or textbooks with image symbols. Image symbols can help children generate image images in their minds, which is easier to understand and remember for a long time.^[11]As one of the image symbols, the icon can be a clue to memory.^[12] The realistic image symbols with high relevance to the text can help children to improve their interest in learning and improve their utilization rate.^[13] Highlighted text in e-books can attract more visual attention from readers with poor reading ability.^[14] In addition to attracting readers ' interest and helping memory, image symbols can also express meaning as a key event to explain meaning, such as interactive contact, social distance and character attitude.^[15] Image symbols can also convey different meanings through colors and situations.

In a word, the research shows that heightened processed image symbols can help improve the learning effect and improve children 's interest in learning, which also shows from the side that students are more inclined to read text with image symbols. And for learners with poor learning ability, they can extract key information through image symbols to understand the content of text representation. At the same time, factors such as color will also affect students ' understanding of content. Therefore, in teaching, teachers should make rational use of image symbols. By explaining image symbols, it is easier for students to understand text knowledge and deepen their memory of knowledge.^[16]

However, some scholars believe that image symbols do not help learners, but to a certain extent, may distract learners ' attention and reduce learning difficulty, so that learners can reduce their interest in learning. When the pictures mainly convey the aesthetic meaning, these decorative pictures are relatively less effective in distraction, but they seem to stimulate learners ' more positive emotions, improve alertness and calm attitude, which does not increase students ' interest in the situation. On the contrary, it reduces the difficulty of students ' perception of learning materials.^[17] From the perspective of learning effectiveness, decorative painting has neither negative impact nor any benefit in the learning process. This study shows that image symbols do not produce useful help for learning, but reduce the difficulty of learning, which is not conducive to the development of students ' thinking.

Some scholars also believe that pictorial symbols may be detrimental to learners ' memory. The research of Sanchez (Sanchez, C.A, 2006) shows that when the correlation between text symbols and image symbols is small, image symbols will produce ' induction effect '.^[18]It can be seen that there must be a great correlation between text symbols and image symbols in order to help learners associate effectively, so as to pay more attention to the knowledge itself, rather than the fancy appearance, and then improve their learning ability. And in the landscape image symbol, textbook photography is not comprehensive, can not show the complexity of the real image symbol, and the students ' inner imagination and external image representation does not match.^[19] At the same time, if the image symbol does not meet the needs of the times, it is also not conducive to learners ' learning. Russian scholars have made an in-depth analysis of the historical turning point of Russian

publications as children 's education books in the 18th-19th century. It is found that children 's books in this period are characterized by their unique visual design, and their image symbols are more imitative than innovative. However, due to the changes of the times, these image symbols often have a certain symbolic ambiguity.^[20]

It can be seen that the image symbols that do not conform to the requirements of the times will cause students ' misunderstanding and even distortion of understanding, thus making teaching more complicated. Scholars are also controversial about this conclusion. The reasons may be as follows : first, the image symbols do not match the text symbols, which leads to the distortion of the text. Secondly, too exquisite decorative image symbols attract students ' attention, or even distract them, so decorative image symbols are not helpful for learning. Third, outdated image symbols are difficult to help students feel the same, but it is not conducive to their understanding of the content of the book.

Therefore, this study will focus on the following questions : First, whether the image symbols and text symbols in the middle of the primary school Chinese textbook are closely related. Secondly, what is the attitude of students and teachers towards the image symbols in textbooks. Third, whether the image symbols in textbooks are helpful to students ' learning.

3 Research on the relationship between image symbols and text symbols

According to the research on the effect of image symbols, image symbols that are more matched, closer and more in line with the needs of the times can help learners to learn in depth. In neuroscience research, it has been shown that image symbols focus on performance imitation, because they can vividly represent spatial relationships, but text symbols are more likely to represent functional relationships.^[21] From the perspective of image semiotics, image symbols have three levels of meaning, namely, representational meaning, representational meaning and symbolic meaning of image semiotics.^[22] Although images play a decisive role in children 's early cognitive development, cognitive development depends on written symbols.^[23] Some scholars have proved through experiments that in some cases, image symbols will have some interference with text symbols.^[24] It can be seen from the existing research that : First, image symbols and text symbols can express different meanings, in which text symbols can express semantic relations, while image symbols can better express spatial relations because they imitate objects. Second, human cognition is inseparable from the intertextual symbiosis of image symbols and text symbols. Third, in some cases, image symbols may interfere with learners ' understanding of text symbols.

4 Research on the characteristics of image symbols in textbooks

4.1 A comparative study of different versions of textbooks

Ronghuai (2023) conducted a comparative study of male and female images in Chinese textbooks and Egyptian textbooks. Based on the framework of sociosemiotics, he analyzed the implicit meanings related to gender representation conveyed by image symbols in Chinese and Egyptian science textbooks. The results show that there are gender differences in science textbooks in China and Egypt. Specifically, compared with men, women have fewer images in textbooks, and their roles are mainly caregivers. It is worth noting that, unlike Chinese women and common gender stereotypes, Egyptian women are more active and powerful than men.^[25] The findings of this study can help textbook writers better design textbook image symbols to reduce gender bias. Although foreign research has paid attention to the gender issue in image symbols, there are few domestic studies, especially the study of the demographic distribution represented by image symbols in

different versions of Chinese textbooks.

4.2 Research on the teaching strategy of image symbol

By concretizing the image symbols into small stories, it can effectively help students in the lower grades of primary schools to understand the content of the text and stimulate their enthusiasm for learning. In teaching, teachers help students learn knowledge by introducing readers into pictures, allowing readers to ask questions about confused images, and then seeking answers by cooperating with readers.^[26] Although children 's reading picture books is associated with improved language performance, the causal pathway of this relationship is still unclear.^[27] In fact, picture books also contain rare and complex sentence types, such as passive sentences and sentences containing relative clauses, which are far less than children 's directives. The language patterns and guiding discourse contained in these differences in picture books show that appropriate and rich image symbols in textbooks may improve the effect of language teaching. However, picture books and textbooks are very different after all, regardless of the number, size, proportion of image symbols, or logical structure, narrative function, etc., they are different, and what impact they have on teaching strategies needs further study.

4.3 Research on the teaching effect of using image symbols in teaching

Teachers use the methods of questioning images, judging values, drawing images and sharing images to effectively improve children 's writing level.^[28] Because image symbols and text symbols have intertextuality, complement each other, confirm and represent learning objects, incorrect, missing and incomplete text symbols can be regarded as the direct source of students ' misunderstanding.^[29] Similarly, students may intuitively explain implicit, selective and patterned representations that may not conform to scientific concepts, but incorrect and incomplete image symbols are generally not conducive to students ' learning and even mislead the wrong meaning. Therefore, textbook writers and teachers should be aware of the students ' learning difficulties caused by representation, and should pay attention to alternative representation.

In summary, foreign research on image symbols began earlier, believing that image symbols can help students stimulate interest in learning, because image symbols can help learners recall familiar life scenes. At the same time, the study shows that if the picture does not match the text, the learner 's attention will be distracted, confused or even misleading, which is not conducive to the learner 's memory of knowledge. In addition, foreign experimental studies are mostly senior (junior high school), and there are few studies on middle school students.

5 Research on the use of image symbols in textbooks

5.1 The use of image symbols in foreign students ' textbooks

In order to explore the important role of image symbols, foreign scholars have explored how students use image symbols in textbooks. For example, in online and offline classrooms, students are more interested in open textbooks with image symbols, and the utilization rate is also high.^[30] Textbooks with image symbols are easier to read and more convenient for students to quickly find the theme, which is more suitable for language beginners to be interested in reading.^[31] In other disciplines, the use of image symbols in textbooks also affects students ' learning efficiency and depth. The quality of image symbols in textbooks has a great relationship with students ' strategies of using textbooks. The study found that textbook image symbols not only play a significant role in

language learning, but also have a great impact on science and engineering education such as mathematics and physics.^[32] Adding image symbols to physics textbooks in the process of application will have many advantages, including : students can develop their own thinking ability by mining and discovering information by themselves ; actively carry out the teaching and learning process ; students dare to express their views ; critical in analyzing and identifying problems ; students can use their own knowledge to solve problems ; it is easier for students to understand the core concepts ; students ' learning will be more profound ; the memory of learning content is more reliable.^[33] However, the existing research has not fully identified and developed its shortcomings and deficiencies.

5.2 The use of image symbols in foreign teachers ' textbooks

The research on the image symbols of foreign teachers ' textbooks began earlier, and the research types are diverse and open.^[34] Lan Yanan (2023) believes that in teaching, teachers should make full use of image symbols and regard them as an important part of the teaching process.^[35] Researchers also have unique imaginations about the pictorial symbols in future textbooks. According to Nicol (2006), pictorial symbols in textbooks can help teachers control and manage learning, and capable teachers should adapt textbooks according to reasonable teaching judgments to overcome the shortcomings in the design or expression of pictorial symbols.^[36] With the development of modern educational technology and immersive learning, the development of new models of image symbols has become a new demand for textbook development. It has become a trend for teachers to use 5G means to participate in the development of textbooks with multimodal image symbols.^[37] Adding dynamic image symbol stimulation to textbooks or learning materials can improve the efficiency of teaching and learning through realistic visual symbols.^[38] With the change of science and technology, computer media will produce new types of mixed symbol textbooks (hypertext, interactive media, three-dimensional scientific visualization, dynamic simulation), which will promote the in-depth development of multiculturalism.^[39]

According to the literature, teachers tend to use multimodal image symbols in textbooks in a combination of online and offline. The academic community has prospected that in the future education, teachers should not only use the image symbols in textbooks, but also learn to design and make. However, few scholars have explored how to accurately use image symbols and how to participate in the design and production of textbook image symbols.

5.3 Domestic image symbol research

Study on image symbol effect

Many scholars believe that image symbols are more intuitive and more attractive to children 's attention. Through image symbols, tacit knowledge such as emotions and thinking can be displayed in a more intuitive and vivid form, and integrated into the Chinese classroom. Image symbols can more effectively help children master these ' unspeakable ' knowledge, understand the emotions expressed outside the text, and attract children 's associative interest. If the learning content integrates symbolic forms such as text, pictures, sounds and images, the way of presenting knowledge is more intuitive and vivid.^[40]

Through the review of relevant foreign literature, the following characteristics can be found :

First, foreign studies affirm the positive role of image symbols in attracting learners ' attention. Foreign scholars started earlier and used experimental methods to test the relationship between image symbols and children 's learning. There are also relevant literatures in China to verify the effect of image symbols on learners. Secondly, through the literature at home and abroad, it is

known that the objects of the existing research are mostly 7 and 8 grades (junior high school students), children (preschool children), and lower primary school children, and the research scope is relatively narrow. China 's research on images in textbooks mainly focuses on the study of pictures. The scope of image symbols involved is relatively narrow, while the broader areas of image symbols, such as tables, indicative pictures, bubble language, and mind maps, are not included in the scope of research. Therefore, it is very important to optimize and diversify the application strategies of image symbols in textbooks.

Thirdly, the research perspective is not sufficient, and there are few studies on the Chinese image symbols in the middle of the primary school from the perspective of semiotics. Semiotics has broad prospects and has a wide range of research space in the image symbols of the unified edition of primary school Chinese. Therefore, this study will supplement the lack of research on image symbols in primary school Chinese textbooks from the perspective of image semiotics.

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