

# Image System Analysis and Teaching Syllabus of the Second Compulsory Volume of the New Geography Textbook for Senior High School Published by Hunan Education Press

Lianfang Zhang\*

Henggang Middle School, Hengyang 421001, Hunan Province, China

\*Corresponding author: Lianfang Zhang, 2826062452@qq.com

**Copyright:** © 2022 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

**Abstract:** The second volume of Hunan Education Press's required new geography textbook for senior high school contains a big number of photos, a high density, a wide range of image kinds, and a considerable improvement in image quality, according to a longitudinal comparison. We should pay greater attention to the educational usefulness of geographic pictures in the classroom, employ geographic images to make learning easier, and select standard geographic images for teaching.

**Keywords:** Hunan Education Press; New geography textbooks for senior high school; Compulsory Book II; Image system; Analysis and teaching implications

**Online publication:** January 21, 2022

## 1. Introduction

Geography textbooks include surface system and deep system. The surface system includes three subsystems: text, image and homework. Using images to show geographical things and phenomena is one of the characteristics of geography. The compulsory geography Volume II of senior high school textbooks (new textbook) and the compulsory geography II of senior high school geography curriculum standard experimental textbook (old textbook) compiled by Hunan Education Press are compulsory textbooks focusing on human geography. The new textbook is the product of inheriting, increasing, reducing, innovating and developing the old textbooks. This article conducts a continuous analysis of the image systems of the new textbook and the old textbook. To determine the features of the image system in the second compulsory volume of Hunan Education Press's new geography textbook for senior high school, and to obtain the knowledge of geography teaching.

## 2. Large number of images and high density

The number of images refers to the total number of all images in the textbook. After calculating the number of textbook images, the ratio of the total number of textbook images to the total number of textbook faces can be calculated, that is, the image density of the textbook. Count the number and density of images of the new textbook and the old textbook, and get **Table 1**.

The old textbook has 140 images, the new textbook has 231 images, the new textbook has 91 more images than the old textbook, and the number of images is larger. The number of images per page of the old textbook is about 1.21 images, and the number of images per page of the new textbook is 1.65 images.

The new textbook has an average of 0.44 more images per page than the old textbook, and the image density is higher.

**Table 1.** Comparison of the number and density of old and new textbook images

<b>Textbook</b>	<b>Old textbook</b>	<b>New textbook</b>
Total number of textbook images	140	231
Total number of textbooks	116	140
Number of images per page	1.21	1.65

### 3. There are great differences in image types

Geographic images can be divided into five types: maps, schematic diagrams, landscape maps, statistical charts, cartoons and comics. The image types of new and old teaching materials are counted, and **Table 2** is obtained.

**Table 2.** Comparison of image types between new and old textbooks

<b>Type</b>	<b>Map</b>	<b>Landscape map</b>	<b>Schematic diagram</b>	<b>Statistic chart</b>	<b>Cartoons and comics</b>
Old textbook	15	68	33	23	1
Percentage of total images	10.7%	48.6%	23.6%	16.4%	0.7%
New textbook	61	70	32	30	38
Percentage of total images	26.4%	30.3%	13.9%	13.0%	16.5%

### 4. Maps and cartoons and comics have been significantly increased

Map is the second language of geography and a necessary tool in geography teaching. Map is both intuitive and abstract, which is helpful for students to understand and remember complex geographic information and has important intellectual value. It can be seen from **Table 2** that there are 15 maps in the old textbook, 61 maps in the new textbook, and 46 more maps in the new textbook, and the proportion of the maps in the new textbook in the total number of geographical images has also increased by 15.7%. Cartoon and comic is a cartoon character with a short monologue and dialogue to express their consideration of geographic things and phenomena, or satirical cartoons to illustrate a geographical point of view, cartoon and comic make previously boring geographic problems or ideas become lively and interesting, students like and welcome, promoting students' heads, It is helpful to promote students' views on geographical things and phenomena and has obvious dual values of I and II. The original hunting graphic in the development of man-land interaction idea in section 2 of Unit 4 <sup>[1]</sup> is the sole cartoon and cartoon in the old textbook. There are 38 cartoons and comics in the new textbook, a large increase in cartoon character monologues or dialogues to present geographic information, and the proportion of cartoons and comics in the new textbook to the total number of geographic images has also increased by 15.8%.

### 5. Reduction in the proportion of schematic and statistical charts

Schematic diagram represents the basic geographical concepts, geographical principles and geographical laws with simple and popular text and diagram symbols and structures. Making static knowledge dynamic is helpful to clarify the logical relationship of geographical knowledge, highlight the key points, and reduce the difficulty of students' learning. It has important intellectual value. There are 32 schematic diagrams in the new textbook, which is 1 less than 33 in the old textbook, and the proportion of schematic diagrams in the total number of geographical images has decreased by 9.7%. Statistical charts represent complex and abstract data contents with simple and intuitive charts, which is conducive to students' understanding and memory of geographical knowledge, develop students' quantitative analysis ability and promote the

development of students' comprehensive thinking. There are 30 statistical charts in the new textbook, an increase of 7 compared with 23 in the old textbook, but the proportion of statistical charts in the total number of images in the new textbook decreased by 3.4%.

## **6. Landscape images still have the largest proportion**

Clear, true and vivid landscape pictures are of great significance for students to perceive geographical objects and phenomena that are not easy to see. It can arouse students' interest in learning, mobilize students' enthusiasm, attract students' attention, promote the formation of students' geographic representations, broaden students' horizons, feel the scientific and artistic beauty of geographic things and phenomena, deepen geographic impressions, and promote understanding and memory of geography Information, cultivate the ability of observation and analysis, promote the creativity of students, and has a significant effect of aesthetic education and intellectual education. Compared with the old textbooks, the proportion of landscape maps in the new textbooks in the total number of geographic images has dropped by 18.3%. However, landscape maps are still the largest geographic image type in the new textbook, with 70 images, accounting for the largest proportion of the total number of geographic images in the new textbook, accounting for 30.3%.

## **7. The image quality is greatly improved**

### **7.1. The title, scale and legend of the image shall be supplemented and improved**

Some geographical images in the old textbooks lack image names, and the new textbooks supplement and improve image names. For example, there is a landscape map in the introduction part of each chapter of the new and old textbooks. The geographical images of the old teaching materials do not have image names, while the geographical images of the new teaching materials have image names, which are "the crowd on the Roman street in Chapter 1, luten city in Germany (part) in Chapter 2, Guizhou Danzhai ecological tea garden in Chapter 3, Chongqing Yuzhong half Island in Chapter 4 and Guizhou Huangguoshu waterfall in Chapter 5." Another example is the schematic diagram showing the types of environmental problems. The old teaching materials are distributed on page 87 without image names. The new textbook is distributed on page 110 and has the image name, that is, the type of environmental problems in Figure 5-1. It shows the schematic diagram of the classification method of environmental problems. The old teaching materials are distributed on page 87 without image name, and the new teaching materials are distributed on page 111 with image name, that is, Figure 5-2 schematic diagram of the classification method of environmental problems. Compared with the old textbooks, the scale of the new textbooks is more perfect. For example, in this group of maps showing land use, the old teaching materials are distributed on page 30, that is, Figure 2-4 land use of large, medium and small cities, with no scale. The new textbook is distributed on page 28, which shows the schematic diagram of urban and rural land use, with a scale. Obviously, the legend of the new textbook is also more perfect. For example, compared with figure 3-22 on page 65 of the old textbook and figure 3-9 on page 61 of the new textbook, the old textbook has no legend, and the new textbook has supplemented the legend.

### **7.2. Image information is more contemporary and scientific**

Compared with the old textbooks, the image information of the new textbooks is more contemporary and scientific. For example, the image displaying international population migration is distributed on page 13 of the new textbook, with the title "schematic diagram of international population migration after World War II," while the title of the old textbook is "schematic diagram of the flow route of population migration in the modern world." The term "modern" is a wide and ambiguous one. "After WWII," for example, is quite specific and clear, indicating that the geographic information conveyed and referred to by geographic

imagery is more scientific. For another example, Figure 4-3 “distribution of cities with more than 3 million population and main traffic lines in China’s municipal districts in 2016” on page 85 of the new textbook and figure 3-31 “distribution of cities with more than 2 million population and main traffic lines in China” on page 76 of the old textbook. These two images are maps showing the distribution of cities and main traffic lines. The new textbook specifies the year and is up to date with the times. Simultaneously, it has grown from a city with a population of more than 2 million to now more than 3 million people.

### **7.3. The color of the image lines is brighter and more beautiful**

Compared with the old textbook, the image lines of the new textbook are brighter and more beautiful. For example, compared to Figure 3-9 “The Distribution of Major Rice Producing Areas in the World” on page 61 of the new textbook and Figure 3-22 “The Main Rice Producing Areas in the World” on page 65 of the old textbook, the mainland yellow of the new textbook is obviously brighter, and use the green legend to replace the black dot legend to show that the main rice producing areas are brisker. When comparing the development table of the idea of natural resources on page 19 of the new textbook to the evolution table of the concept of natural resources on page 11 of the old textbook, the old textbook’s three social phases all use green as the background color, and the textbook hunts. Use yellow as the backdrop color for gathering social and industrial society circumstances, and pink for agricultural society conditions, to create a difference between the fundamental conditions of different social stages, and brighter and more attractive lines and colors to offer pupils a visual impact. Reduce study weariness and improve students’ perceptions of geography education.

## **8. Teaching enlightenment**

### **8.1. Attach full importance to the educational value of geographical images**

At present, there is a trend of knowledge graphical reform in geography textbooks around the world. In the content requirements of Geography Curriculum Standards for Ordinary Senior High Schools (2017 Edition), it is also clarified that students need to use images to obtain and express geographic information. Under such trend and requirements, the new textbooks have a large number of images and a large density of images, which reflects that the new textbooks fully attach importance to the educational value of geographical images. Geographic image can make the book knowledge is much more interesting and legibility and visual image of geographic image geography learning can stimulate students’ interest, arouse the enthusiasm of learning, and attract students’ attention, promote the students’ geographical representation form, presentation and transfer of geographic information, guides the student to develop the space and time thinking and comprehensive thinking, cognitive development of students’ area, promote students form correct geographical concept. Geographic images not only have important intellectual value, but also contain rich moral and aesthetic value. For example, on page 104 of the new textbook, a cartoon says, “we should not only resolutely safeguard China’s maritime rights and interests, but also pay attention to building a harmonious international maritime environment.” Another cartoon said, “safeguarding legitimate maritime rights is an important function of modern national defense <sup>[2]</sup>.” The short dialogue of cartoon characters can not only attract students’ attention, promote students’ understanding of marine rights and interests and modern national defense, but also improve students’ ideological consciousness of loving the ocean and the motherland, which has rich moral value. Therefore, in the use of new teaching materials and geography teaching, we should pay full attention to the educational value of geographical images.

### **8.2. Use geographic images to reduce the difficulty of learning**

Relatively speaking, text is an abstract symbol, and an image is an image symbol. The large number of images in the new textbooks and the high image density make the textbooks weaker and more visual and

intuitive, thereby reducing the difficulty for students to learn geographic knowledge. In the teaching of teachers and the learning of students, the use of maps can help students understand and remember complex and abstract geographic information. The use of cartoons and comics can stimulate students' interest in learning geography, enlighten students' thinking, increase learning attraction, and reduce learning rejection. The use of schematic diagrams and statistical diagrams can clarify the logical relationship of geographic knowledge points, highlight key points, reduce the difficulty of understanding, and help students remember geographic knowledge. The use of landscape maps can mobilize students' learning enthusiasm, promote the formation of students' geographic representation, and form the basis of students' rational cognition. For example, in the teaching of the new textbook "Chapter 4, Section 3 Ocean Rights and my country's Ocean Development Strategy," some students in the central and western regions may not have seen the ocean. They would start by presenting some ocean landscape maps and maps from China to boost the learning appeal. Minimize learning reluctance, motivate students' learning excitement, assist students in changing their perceptions of the ocean from perceptual to rational, reduce learning difficulty, and establish the groundwork for students to understand about ocean rights and my country's ocean development strategy. As a result, it is necessary to select appropriate geographic images for auxiliary teaching based on the characteristics of geographic knowledge and specific academic conditions, as well as the effectiveness of various geographic images, when using new textbooks and geographic teaching, and to guide students in selecting, reading, and using maps. Reduce the complexity of learning through mapping, analysing, and solving geographic challenges.

### **8.3. Select standard geographic images for teaching**

The quality of the new textbook's geographical illustrations has vastly increased. Geographic images' title, scale, and legend have been supplemented and improved, making the geographic information presented and pointed out by geographic images more specific and clearer, and making geographic images more rigorous and scientific, which is conducive to students' self-help map selection, reading, and use, and assisting students in learning, analysis, and resolution of Geographic problems. Geographic picture information is more scientific and up to date, and the line color of the geographic image is brighter and more appealing. Clear and smooth lines, as well as bright and saturated colors, can draw students' attention, provide visual delight, and encourage them to study more effectively. Therefore, whether teachers choose teaching maps or guide students to choose maps, they must choose standard geographic images with relatively complete map names, scales and legends, more contemporary and scientific image information, brighter and beautiful line colors, so as to ensure the educational value of geographic images. Otherwise, it will cause errors or biased geographic perception to students.

### **Disclosure statement**

The author declares no conflict of interest.

### **References**

- [1] Zhu X, Liu X, 2004, Experimental Textbook of Geography Curriculum Standard for Senior High School Geography II. Hunan Education Press, Changsha, 6.
- [2] Zhu X, Liu X, 2019, Ordinary High School Textbook · Geography Compulsory Volume II. Hunan Education Press, Changsha, 7.

#### **Publisher's note**

Inno Science Press remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.