# The Development of Students' Map Reading Skills in Junior High School Geography Teaching

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**Abstract:**

*Maps are a necessary tool for geography learning. With the help of maps, not only can they reduce the difficulty of teaching and deepen students' knowledge and understanding of geography, but also improve the vividness and interest of geography learning. The ability to read maps is an important part of the comprehensive ability of geography. Describing the teaching content through maps not only helps students to grasp the knowledge points quickly, but also exercises students' map reading ability, grasps the methods and skills of map reading, and improves students' comprehensive geography literacy. At present, whether students have strong map reading ability in geography has become one of the criteria for judging whether they have geography practice. Therefore, it is worthwhile for teachers to consider how to develop students' map-reading skills and improve their core literacy in geography. Based on this, teaching strategies for the junior high school geography classroom under the development of map-literacy skills are discussed in the light of teaching experiences to promote students' development.*

**Keywords:**

*Junior high school geography; Map literacy; Strategy exploration*

## Introduction:

Developing map reading skills in the process of teaching geography in junior high school can help students to deeply understand what they are learning, and also improve their learning efficiency. And map reading ability is one of the necessary abilities for students to learn geography." Currently, most of the geography questions in the secondary school exams present key information through pictures, from which students are required to obtain clues to answer the questions. If students do not know how to read a map, it is difficult for them to obtain effective information and they will make mistakes in answering the questions. Therefore, in order to help students achieve good results in the HKCEE, teachers should focus on the development of students' map-reading skills in their regular classroom teaching and improve their overall geography literacy.

## I. The significance of developing students' map reading skills in geography teaching

### (1) Helps develop students' interest in learning

Geography learning cannot be separated from maps, which can be said to be a form of geographic language expression. Only by reading maps can we turn complexity into simplicity, help students understand complex geographical knowledge principles and geographical phenomena, promote the formation of spatial concepts, and enhance students' core geographic literacy. In addition, the use of maps helps to create situations, to enliven the classroom atmosphere, to attract students' attention and to activate their thinking, and to stimulate students' interest in learning. The subject of geography has high requirements for students' comprehensive skills, but because of their limited understanding, coupled with the wide coverage and span of geographic knowledge, it is difficult for students to understand complex points of geographic knowledge just by their own abilities. To address this situation, more use should be made of teaching props to simplify complex knowledge points with the help of globes and various maps to help students sort out the knowledge points and build a complete knowledge structure. This places a certain demand on students' map reading skills. Students need to understand the differences in geographical features of each region, as well as the three elements of a map and knowledge about latitude and longitude. Only with improved map reading skills can students quickly and accurately obtain the information they need from a map, reducing the difficulty of understanding knowledge and thus increasing their motivation for independent learning.

### (2) Helps to quickly locate geospatial locations

Geographical orientation is one of the key elements of teaching geography in junior high school. Students need to acquire knowledge about the human and natural environments of Chinese and world geography, and the basis of this is the ability to locate geospatial locations quickly and accurately. Without the

use of maps, it is difficult for students to pinpoint the location of geographic space by relying on spatial imagination alone, much less to clarify the relative position of geographical objects, the location of land and sea, and latitude and longitude. With the help of maps, students can visualise the differences between the geographical locations of different regions, helping them to quickly construct spatial maps in their minds and map out the spatial locations of regions to form a deep impression and improve their core geographical literacy. For example, regions are located at different latitudes and longitudes, so they receive different amounts of light, while climate and topography can also change depending on the difference in latitude and longitude and the location of land and sea. With the help of maps students will have a deeper knowledge and understanding of the relative position of geographic space and will be able to locate it quickly and accurately.

**(3) Helps develop students' imagination and creativity**

## 2. The ability to read maps is an important reflection of thinking skills.

In the process of map reading, students' thinking is active and their subjective initiative is brought into play, and students analyse and solve problems through their own efforts, which has a profound impact on the cultivation of imagination and creativity. Compared to text, maps describe knowledge points in a more graphic and vivid way, such as the characteristics of the terrain, the distribution of resources, the laws of latitude and longitude, and the size of the area of the region. The language of maps is more in line with the cognitive characteristics of students, and students can gain a huge boost in both their thinking skills and their ability to investigate problems. In order to give full play to the advantages and effects of maps, it is important to use maps scientifically to assist teaching, instruct students in map reading methods and techniques, improve their map reading skills and make geography learning easier and more efficient.Second, the current situation of map reading ability cultivation for students in junior high school geography teaching

**(1) The classroom teaching process is relatively boring**

At this stage, many junior high school geography teachers still adopt the indoctrination and passive teaching methods in the process of teaching, which leads to a relatively boring and tedious teaching process in the classroom, and students' enthusiasm and enthusiasm in learning in the classroom are always low, which also makes it difficult to help students gain a good learning experience. In geography teaching, map reading is one of the important learning contents, as this content itself is relatively boring, coupled with the methods and means adopted by teachers in the teaching process are relatively simple, which directly leads to a decline in students' interest in learning. In addition, some teachers do not attach too much importance to the combination of practical life with students in the actual teaching process, resulting in students usually feeling overwhelmed or confused in their studies, and will be resistant to learning geography courses, making it difficult to effectively grasp the correct geography map reading skills, ultimately leading to a decline in the quality of students learning geography courses.

**(2) Students' map reading skills and basic knowledge of geography are inadequate**

Students at junior secondary level have relatively little time and opportunities to encounter maps in their daily lives, so their map-reading skills are weak and they have difficulty in grasping the core of graphical content effectively when faced with relatively complex graphs in the geography curriculum. At the same time, due to their lack of spatial awareness, junior secondary students cannot actively relate their knowledge of geography in class to real life afterwards. For example, the junior secondary geography curriculum involves latitude and longitude lines and contours, which are artificially defined and cannot be analysed intuitively in real-life situations. Therefore, students need to have a good sense of space when learning this content, which also poses a challenge for them to learn. In addition, it has been proven through extensive practical teaching that the main reason for students' relatively weak geographical map-reading skills is that they do not have a solid foundation of geographical knowledge to effectively identify key information from graphs. Under such circumstances, even if the graphs presented to students are clear, students have difficulty in finding the important information in them, let alone knowing how to start solving problems.

## 3. Strategies for developing students' map-reading skills in junior high school geography teaching

**(1) Tracing the roots of the problem and delving into the classroom to map out the directional approach**

Charts and graphs cover all aspects of junior high school geography teaching and it contains a wealth of information, which is an important part of junior high school geography teaching and an important material that will be applied in daily life. However, at the present stage of junior secondary geography education and teaching, the problem of students' weak map-reading ability is commonly demonstrated. This is mainly manifested in the learning process, students can not examine the names of the icons, can not judge the role of the chart, can not apply the chart information flexibly, can not apply the information obtained to the actual; in the process of map reading, ignore the three elements of legend, scale and direction, in the case of the chart given direction, still use "north up, south down, left west, right east In the process of map reading, students ignore the three elements of legend, scale and direction, and still judge

the direction by the way of "north up, south down, left west, right east"; they lack knowledge of the basic contour map, and are unable to distinguish contour lines, isotherms and precipitation lines, and are unable to judge the topography by contour lines, let alone apply them; they have weak awareness of the comprehensive application of geography charts; worse still, they do not look at the map when doing problems. In general, students do not develop the habit of map reading at the very beginning of their geography studies and neglect to learn information about maps and charts, which in turn leads to a lack of map reading awareness and poor map reading skills. The main reason for this is that students have a blind spot in their perception of how to learn geography, believing that they can get high marks if they can memorise knowledge points, and thus form the habit of only paying attention to textual information, ignoring the rich information contained in diagrams and charts, which leads to the phenomenon of students not reading and analysing diagrams and answering questions blindly in the examination hall. This is not an isolated case or a phenomenon that exists only for those with weak geographical skills, but is common in everyday geographical learning. In recent years, it is easy to see that more and more questions involve the examination of map reading skills, and it can be said that "the one who gets the map gets the exam". The ability to retrieve information from charts and graphs is examined in the multiple-choice section, and in the analysis section, the application of charts and graphs is a major focus of the geography examination, combining charts and graphs with physical geography, and then examining the mastery of social geography, making the test questions flexible and varied, which can never be mastered by rote memorisation of knowledge. This also requires teachers to plan their teaching from a practical point of view.

**(2) Using diagrams to guide learning and enhance students' interest in learning about diagrams**

The enhancement of students' map-reading ability cannot be achieved without the leading role of teachers. Some teachers' junior high school geography teaching has not yet emerged from the traditional teaching mode, and the application of charts in education teaching is very limited. For example, in the explanation of the topography of Xinjiang, many teachers simply teach "three mountains sandwiched between two basins", but the specific how to sandwich and how to present in the map is not specifically developed, which leads to students only mechanically remember the "three mountains sandwiched between two basins" mnemonic, but can not identify on the map This results in students mechanically memorising the recipe for 'three hills and two basins', but not being able to identify them on the map. Therefore, in preparing lessons, teachers should carefully select typical diagrams. For example, in the teaching of Chinese and world geography, students can use their imagination to turn abstract maps into concrete images, such as the boots of Italy and the "several" of the Yellow River, which can effectively motivate students and speed up their memory. For example, when teaching geography related to urbanisation, students can use their own city as a basis to show the map they are familiar with, combining the knowledge related to factory distribution, river flow, city layout with the actual map. In the teaching process, increase the teaching of the chart, in the process of chart interpretation should pay attention to the layers, the students in order to guide, so that students in the exploration of the skills of map reading, gained the relevant knowledge of the image language, for the reading and analysis of the map ability to develop a solid foundation. Only with a rich language of geographical images can one quickly and accurately interpret valid information when reading and analysing maps, so as to find known conditions for problem solving. For example, in the teaching of lines of latitude and longitude, the knowledge points of lines of longitude and latitude are very easy to grasp, but students have difficulties in judging them in actual charts. In teaching, multimedia equipment can be borrowed to show images of the Earth's rotation and the cross-section of the globe, so that students can quickly recognise lines of longitude and latitude on charts, picturing the concepts and helping students to master the relevant image language, so that they can quickly respond when facing relevant test questions. At the end of the lesson, increase the use of the accompanying atlas and encourage students to practice and summarise more. Using the atlas as a basis, together with the teacher's collation and supplementation of relevant diagrams, together form a complete body of knowledge for junior school students. On the basis of the continuous improvement of this body of knowledge, teachers actively organise students' review and self-examination after lessons to stimulate their enthusiasm for learning and their ability to learn independently, and to show the way forward for their geographical studies. In thematic revision, teachers can also review the information on diagrams and charts covered in their usual teaching in a systematic way to alleviate students' fear of diagrams and charts in specific topics.

**(3) Transformation of illustrations to strengthen literacy skills**

Some students are often intimidated when they encounter the use of pictures to solve geography problems in general, and have difficulty in using the information given in the pictures to answer test questions. The reason for this is that students are unable to convert picture information into textual information. Therefore, teachers should focus on developing students' ability to translate pictures into text in geography classroom teaching, so as to strengthen students' ability to read maps. Take the second section on "Population" in Chapter 1 "China from the World" in the first book of Grade 8 as an example, when teaching this lesson, teachers should first lead students to look at the diagram of China's population growth in the book and ask them to

convert the diagram of China's population growth into textual information. "Before the founding of the People's Republic of China, the population grew slowly; after the founding of the People's Republic of China, the population grew rapidly due to social stability, economic development and improved health conditions." After demonstrating map reading for students, the teacher used the PPT to show students a statistical map of the results of the seventh national census of China and asked them to extract the corresponding textual information from the picture. Students were able to extract the relevant information easily after the teacher's demonstration: "The national population totalled 141.78 million, an increase of 72.06 million or 5.38% compared to 133.97 million in the sixth census in 2010, with an average annual growth rate of 0.53%, compared to the average annual growth rate of 0.57% from 2000 to 2010 This represents a decrease of 0.04 percentage points. The figures show that the country's population has continued to grow at a low rate for 10 years. The male population was 723.34 million, or 51.24%, while the female population was 688.44 million, or 48.76%. The sex ratio of the total population was 105.07, basically the same as in 2010, with a slight decrease. The sex ratio at birth was 111.3, a decrease of 6.8% compared to 2010. The gender structure of our population continues to improve." By showing students the results of the seventh population census in China, the teacher not only helps students consolidate what they have learnt in class, but also helps them understand today's hot topics and increase their sensitivity to social hotspots.

**(4) Learning to analyse the whole picture from the point of view**

The key to map reading is to analyse the map, find the knowledge information you need from the map, then summarise it, analyse and extract key information, summarise and summarise geographical laws and geographical features, and grasp the links between various geographical elements so as to understand the geographical significance of the map. For example, the distribution map can be linked to a statistical map. In the process of learning geography, students often need to obtain the data they need from various types of statistical maps. However, the information contained in statistical maps is limited and can help summarise features but not analyse the causes, so it is necessary to connect distribution maps and statistical maps to realise the conversion of spatial latitude and temporal latitude. For example, when studying Climate of the World, in order to distinguish the characteristics of various climates and to understand the specific distribution of various climates around the world, the World Climate Map and the Histogram of World Climate Types are deliberately linked to inspire students to look at the distribution of climates in terms of time, latitude and sea level. The 'World Climate Map' and the 'Histogram of World Climate Types' have been deliberately linked so that students can analyse the causes and distribution of climate in terms of time, latitude and the location of land and sea. With the help of information technology, all maps can be focused on the same spatial content, which helps to extend and expand thinking and gives students a more intuitive understanding of the relationship between climate and geography. This allows students' attention to be focused on the tool map and serves the purpose of divergent thinking and increased independence and flexibility of thought

## 4. Concluding remarks

To sum up, the teaching of geography at junior secondary level is extremely important for the cultivation of students' map-reading skills, which will not only affect the development of students' personal geography ability, but also the growth of their comprehensive literacy. The teaching of geography includes the drawing of maps and the understanding of graphical information. Teachers should arrange the teaching content scientifically and reasonably, design teaching programmes for students at different stages of learning, and help students to master effective map-reading skills. In addition, teachers can also help students deepen their memory of information such as the signs in the legend by taking the form of leading them to draw maps by hand, thus improving the quality of teaching, stimulating students' enthusiasm for learning geography course knowledge and strengthening the effectiveness of map-reading teaching.

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