

Exploiting Research-based learning Resources Under the new Geography Curriculum in China

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Abstract

Since the beginning of the 21st century, Chinese basic education has undergone a big transformation. The new curriculum places much emphasis on research-based learning. There are two main ways of implementing research-based learning in the geography curriculum: One is a learning style that runs through the classroom learning; the other is to design and exploit geographical research resources which are mainly about geographical issues or project plans to conduct the study on issues or projects in geography course. These resources are specially designed in accordance with the requirements of the geography curriculum. Leading students to master and apply this new style needs (1) course aims relying on geography, (2) abundant resources that can be used in classroom teaching or encourage the students to develop independent study and (3) exploitation of geography curriculum resources. Based on the above suggestions, this paper proposes an exploitation strategy of the curriculum resources for research-based learning.

Key words: Research-based learning, inquiry study, types of curriculum resources, exploitation strategy

Introduction

The new curriculum system in China makes a great breakthrough and innovates in the following respects: function, structure, content, implementation, evaluation, administration and so on. More and more teachers put it into practice and carry out a series of attempts to develop self-directed, cooperative and research-based learning. For a long time, many schools have adopted a closed-in management style under the pressure of college entrance examinations. And the purpose of schools was to put the students in an isolated environment where they devote themselves to learning, gaining exam success, and preparing for college. Apparently, this education style contributed to the students' intellectual development in the first place, all teaching and other activities have been provided for exams. In this style, students spent most of their time in schools and had little contact with the outside world. But this education style isolates the students from society and sets a certain distance between students' development and society's development. Even under the new curriculum, the 'sequelae' of this education style has still restrained the implementation of the development of new teaching methods. Taking into account these conditions of education in China, to bring a new approach for education is necessary (Xiaojian, 2006). It is clear that research-based learning supports an effective platform for students to carry out self-dependent learning and research with creativity and exploiting curriculum resources for research-based learning becomes more important than ever.

The types of curriculum resources in research-based learning under the new geography curriculum

From functional aspects, curriculum resources for research-based learning of geography should combine geography curriculum and educational technology to help produce research-based learning. Geography curriculum resources are a vital prerequisite to conducting geography research-based learning. There are some distinctive geographical types of resources used in geography learning activities, including teaching appliances, rock and mineral specimens, geographical substances, globes, geographical models etc. There are many external resources which also help students to conduct research-based learning, for instance the science and technology museum, meteorological stations, geography garden, geography field practice base etc.

Research-based learning with the backing of supporting resources points mainly to resources which help in creating research-based learning activities. These also include computer network technologies and necessary equipment, experimental apparatus and relevant software. Research-based learning also requires a number of public places where students can conduct group study activities and examine geographical issues or geographical research topics or incidents. Web media resources are another very valuable requirement and of course a certain amount of funding might be needed to help conduct research-based learning (Liangfang, 1996). Curriculum resources need to be provided with the aim of stimulating teachers and students to promote the study of geographical issues, guiding the students to independently investigate and deal with them. According to their spatial extent, curriculum resources can be divided into 3 kinds:

- 1. Curriculum resources inside school:** It includes laboratory, library and various teaching facilities and practice bases;
- 2. Curriculum resources outside school:** It includes a wide range of social resources and abundant natural resources such as public library, museum, exhibition hall, science and technology museum, factory, rural area, army, scientific research institutes and so on;
- 3. Information-based curriculum resources:** Intramural information resources and network course resources based on modern information technology. This type of resource could also be classified into the above two types (inside school-outside school).

Exploitation of research-based learning curriculum resources under the new geography curriculum

Construction of geography curriculum resources at a library in school based on the new curriculum

The construction of geography curriculum resources at library in school refers to 3 aspects:

1. Establishment of a material resource library for geography research-based learning
2. Creating a resource records library
3. Human Organization Resources library.

1. Establishment of material resource library for research-based learning in geography course
The establishment of a material resource library is mainly regarded to the establishment of subject resource library for research-based geography learning. It involves background information resources of various topics for research-based geography learning (development and utilisation of energy, national project construction, urban agriculture, regional disaster, regional land use etc), technical methods and guidance materials needed in conducting research-based geography learning and geography issues that could be employed in study and students' model works generated in research-based geography learning and so on.

An "Information package" is a usual and effective way to construct and manage material curriculum resources. The "Information package" usually takes certain topics or subjects as a unit which is used to manage classified resources (such as collections of curriculum resources about volcanoes and earthquakes), which can be assembled as a form of "Information package" and can be easily replenished and updated in time. Relatively mature curriculum resources (such as guidance materials for research-based geography learning, subject resources library, collection of students' essays and research-based geography curriculum on certain topics) can be further developed on the basis that the "Information package" progresses to a certain extent.

The works in an "information package" are conducive to building and improving the management mechanisms which could enrich and update relevant curriculum resources. The information package form of curriculum resources management is well suited to curriculum resources such as overhead transparency, slides, wall map, teaching aids, learning aids, Picture, literal material etc.

2. Creating a resources records library of geography research-based learning

Generally there are 4 forms of geography backing curriculum resources. The first form is resources that don't require geography teachers to build and manage them; this includes examples such as field practical bases, campus, community etc. The second is large teaching instruments and devices and school facilities that are managed by the school management, such as the library, laboratories and electronic classroom, multi-media classroom, observatory, computer lab and so on. The third is discipline-specific resources such as the geography class, maps, globes, physical aids and development of integrated laboratory for conducting geography experiments and geography research activities. The second and third will be mainly established and managed by geography teachers. The fourth is free resources from which teachers usually get access to information, such as media resources, human resources and so forth. So the construction of the backing curriculum resources should consist of 2 aspects: the development of equipment in school and construction of curriculum resources for teachers and students. And the constructions of discipline-specific resources for teachers and students and free curriculum resources of state are of more importance.

The construction of discipline-specific resources and free curriculum resources from the state is mainly a process about how to make use of the discipline-specific resources efficiently and gain information for research-based learning from the free resources available. So the focus of construction and management is not the resource itself, but how to extract information from it and make an effective use of it (EEDME, 2001). Because there are a large number of free resources and they are wide ranging and rapidly changing, the focus of construction is to improve the use of them and the management mechanisms set up to ensure a better classification system for convenient searching. On the foundation of the investigation of current curriculum resources, schools or geography teachers are requested to set up files (including: name, quantity, source, time, capability (purpose), applicability) for per kind of resources even per one so to manage them by categories.

3. Human resources for research-based learning under new curriculum

Geography is a comprehensive discipline. The research-based learning activities will involve knowledge experiences from other disciplines, such as physical knowledge in geotropic bias and atmospheric movement, historical and religious knowledge in population and city and in the shaping of culture landscape. So the professional development of other teachers in school is an important guarantee for research-based learning (EEDMEG, 2001). The exploitation of research-based learning curriculum resources under the new geography curriculum should

include an overall development of teacher resources in school, such as establishing instructor mission for research-based geography learning, employ teachers from related disciplines to work as instructors, building a mechanism by which instructors and students can effectively communicate be connected.

The main form of students' activities besides classroom teaching activities is the the formation of a student association. The ways to take advantage of students' association to carry out research-based geography learning is very important to the exploitation of curriculum resources under new geography curriculum. Generally teachers should have an instructor role in the development of geographical associations or in the activities of students' group, such as an environmental protection group and meteorological observatories (Xiaojian, 2006). Associations and groups of all levels are important aspects needed to help develop research-based geography learning. They can spur students to develop research-based geography learning, such as the editing of school newspapers, wall newspapers and window posters as well as working on a radio station, TV station, campus network, popular science lecture series launched by students etc.

Establishing thematic and integrated geographical field practice base

A good annotation for geography research-based learning is that *study is life* or *life is study*. There are abundant resources outside school for research-based learning under the new geography curriculum. Social-cultural resources such as libraries and museums can provide extensive time or space resources for students undertaking research-based learning. But the issue is how to make effective use of these resources and how to establish efficient connections between the school library and the science and technology museum is vital to the exploitation of geography research-based learning in school. Considering the local library as an example; for one thing, it tends to possess the richest and latest information resources, for another, it has the richest human resources (including schools' setting up contact with more experts and scholars). The establishment and exploitation of the investigative resource of geography could consider establishing the connection between school and library so that resources could be shared. Network connections can be established between libraries and the school to provide students with convenient and active use of these resources. At the same time, library professionals should be invited to introduce common sense in information retrieval and to cultivate students' basic skills in accessing information. In other words schools and libraries need to be united to develop websites for example on geography research-based learning (EEDMEG, 2001).

Sufficient use of a science and technology museum can widen the students' scientific horizons and intensify the students' intuition and understanding of geography curriculum. It can serve as powerful support to formal classroom teaching. The science and technology museum can display earth science knowledge (such as crustal movement, rock and mineral species) vividly to a large audience via the means of modern information and media technology, and at the same time it provides an information resource for students' research-based learning. Establishing an effective connection between school and science and technology museum and exploiting science and technology museum as a practice and observation base to conduct geography thematic teaching activities should be a basic method to help develop curriculum resources outside school (Yongjun, 2002).

China is a country with a deep accumulation of history and culture and possesses a rich historical background and resources. Various museums across the country are important components of the historical and cultural treasure-house and of great value to develop curriculum resources. Development, on the one hand, should strengthen the connection

between school and museum; on the other hand, it should combine the museum with related curricula (such as history and society) in school or to spread museum resources for example which could be stored on CD.

Implementing sharing of research-based geography curriculum resources among schools

The power of one school is limited. But if schools in the same area were to share their curriculum resources then there would be many more resources available for geography research-based learning. For instance, an education bureau based on a province or city can bring together curriculum resources by constructing a regional website. Then different counties can share these resources. This allows a focus on implementing the mutual sharing of resources. Different schools in similar areas could also cooperate with one another and make the sharing of research-based geography curriculum resources among schools possible.

Conclusion

Increasingly teachers put the application of research-based learning into practice in geography courses in China. In this way an effective platform for students is provided to carry out self-dependent learning and undertake research with their own creativity.

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