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Primary Geography Education in China: Past, Current and Future

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Abstract

In China, geography education in primary schools (grades 1 to 6) has not been emphasized, although some scholars have done research in this area. In order to deepen the understanding of primary geography education in China, this paper examines its history, current situation, and future trends. The authors used the method of document analysis and review of associated literature, interviews, and a survey instrument to collect data from 55 primary schools. The data suggested that geography education is not significant in primary schooling, the quality of teachers is limited, and geography curriculum resources have not been fully developed.

Keywords: Primary geography education, survey study, geography curriculum, curriculum implementation, China

Introduction

Geography literacy (or geo-literacy) has been a slogan in geography education reforms (Wang, 2004) (Schell, 2014). It is important to have geo-literacy in order to make a 21st century society which makes more balanced and responsible decisions, and facilitates people's ability to live well in our interconnected world. Geo-literacy contributes to making well-reasoned decisions across our personal, workplace and civic lives (Edelson, 2014). Primary geography education shoulders the in-school responsibility to foster young children's geo-literacy.

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In China, since basic education (grades 1 to 12, approximately 6 to 17 years old) is mandated by the Ministry of Education (MoE), the differences between each province are minor. Basic education is divided into primary school education (grades 1 to 6, approximately 6 to 11 years old), middle school education (grades 7 to 9, approximately 12 to 14 years old), and high school education (grades 10 to 12, approximately 15 to 17 years old). Geography education exists in each phase of basic education in China. Geography is a separate subject in middle school and high school, and is part of Morality & Society (M&S) and Science in primary school grades 3 to 6. Research in geography education mainly focuses on the middle and high school levels, but some has been conducted at the primary school level. The authors located only 84 academic papers from 1950 to 2014 that included "primary geography" in their titles, using the Chinese National Knowledge Infrastructure, one of the biggest Chinese journal databases with a high academic influence. The authors classified these articles based on different aspects of geography education, as shown in Figure 1.

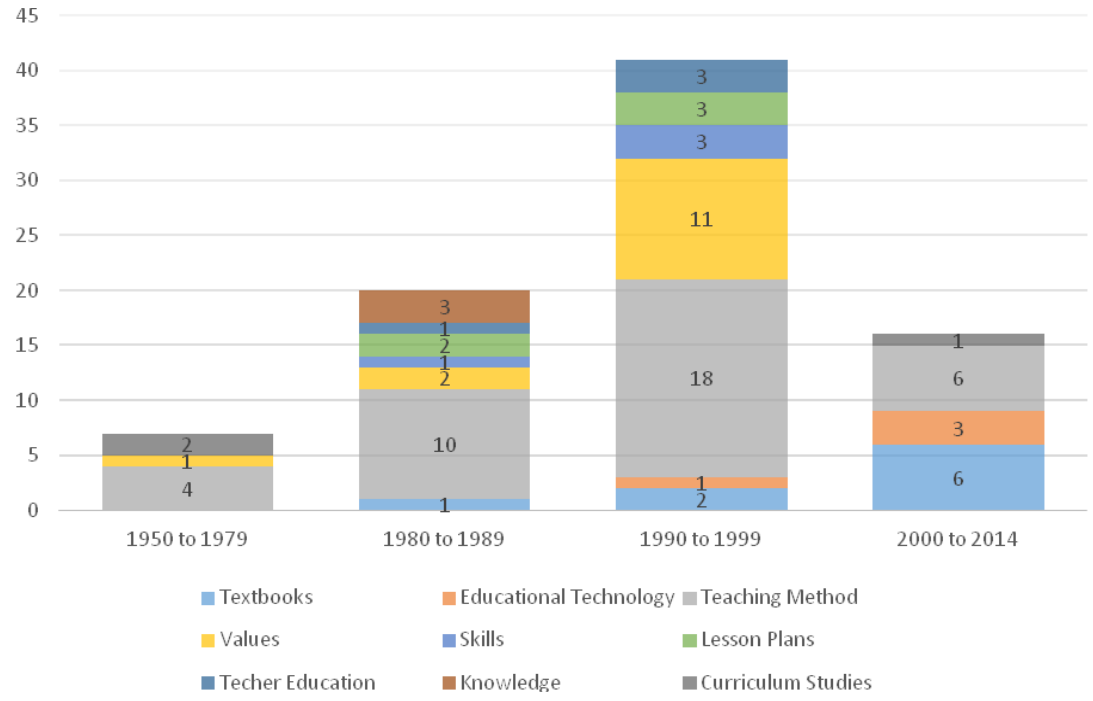

Figure 1.
1950 to 2014 Publishing Situation of the Articles about Primary Geography in China

Geography education is significant for young children. Geography provides a unique contribution to the study and understanding of the worlds of daily existence and global interdependence (Catling, 1999). Geography explores the relationship between the Earth and its peoples through the study of place, space and environment. People frequently encounter place when they are young children. This is the first and basic step for learning geography (Wiegand, 1993). Thus, it is valuable for geography educators to pay more attention to primary geography education.

In this paper, the authors researched the history, current and future trends of the primary geography curriculum by analyzing the national curriculum standards, for both M&S and Science subjects, and reviewing associated literature. The authors investigated curriculum implementation, teacher resources, and curriculum resource development in primary geography using a survey instrument.

A Brief History of Primary Geography in China

The history of primary geography education in China is as diverse as the social circumstances and has seen several difficult times with political movements. A western-style primary school geography curriculum appeared in China in the middle of the 19th century in a few church schools in coastal areas as compulsory courses. By the 1870s, China started to follow a more western style education system, and primary geography curricula were used in several private schools and state schools (Chen & Wu, 1988).

In 1902, the Qing Dynasty abolished the old examination system and tried to import western science and culture. In 1904, geography was added to the primary and middle school curriculum across China as a separate discipline. At that time primary school included grades 1 to 9. By 1909, geography was integrated with the Chinese curriculum from grades 1 to 5 (Chen, 1998). *Elementary Geography* (1901) and *Medium Geography* (1902) by Zhang Xiangwen were the earliest textbooks for primary geography schooling in China. The textbooks were produced in the style of travel notes with many geographical images and quizzes. Not only did he use Chinese traditional geographical knowledge, but he quoted also much western research about geography. By 1908, seven geography textbooks had been published for primary and middle schools by Zhang Xiangwen, including *Primary Chinese Geography*, *Primary World Geography*, and *Medium China geography* (Lin, 2014).

Between 1912 and 1921, primary geography was taught from grades 4 to 7. Chinese geography was taught in grades 5 and 6, and world geography was taught in grade 7. Geography textbooks at that time were compiled using the method of describing geographical objects. The theory of human-land relations had not yet appeared in these textbooks. Due to the direct translation from Western textbooks, some wrong arguments, such as the determinism of geographical environments and racism, can be found in these textbooks (Zhang & Yuan, 2013).

From 1922 to 1948, China was under the domination of the Nationalist Party. Then China started to follow the American educational system and the duration of schooling was changed to 6 years in primary education. The *1923 Primary and Middle School Curriculum Standards* specified that geography be taught as an integrated subject in Society from grades 1 to 4, and as a separate subject for grades 5 and 6 (Tian, 1995). Chinese geography was taught in grade 5 and world geography in grade 6. Geography accounted for 6 percent of the total class hours of all subjects in primary schooling. It was from then that the theory of human-land relations started to appear in geography textbooks (Chen & Wu, 1988).

In 1949, the People's Republic of China (PRC) was founded. Because the civil war had just finished, the society was recovering from chaos, including its education system.

United textbooks and curriculum standards were not yet in place. The geography curriculum was the same as before 1949 in primary schools (Wang, 2001).

Between 1952 and 1956, a new united curriculum outline was developed based on the Soviet Union's education system. The outline specified that Earth science and Chinese geography be taught in grade 5, and Chinese and world geography in grade 6. In 1954, the first PRC primary geography textbook was compiled by Chen Ershou. Chen Ershou abandoned the method of describing place names and products, and divided China into several natural regions (Wang, 2001).

The Great Leap Forward, a campaign led by Mao Zedong, begun in 1957 and ending in 1960, sought through rapid industrialization and collectivization, to make China ascend rapidly from an agrarian economy to a socialist society (Felton, 2004). An editorial, "Our Campaign Slogan: against Waste, for Thrift", published in the People's Daily on February 2, 1958, declared that "We are faced with the Great Leap Forward across China, no matter in industrial development, agricultural production, or art and education" (People Daily, 2003). A meeting for Illiteracy Eradication was held by Ministry of Education in late February, 1958. It advocated that all young person's illiteracy must be eliminated across China in five years. But the Illiteracy Eradication Campaign, in both primary and middle schools, was ineffective. During the Great Leap Forward, class hours of every discipline were decreased sharply in order to complete over-estimated teaching goal, thus the quality of basic education severely declined (Li, 2003). For primary geography, the total class hours decreased from 144 to 72, and geography was just taught in grade 5 for only 2 class hours per week (Chen, 1998).

After the Great Leap Forward, society returned to normal operation, as did geography education. In 1963, a new teaching plan for basic education was issued by the Ministry of Education (MoE). It specified that primary geography should be taught in grade 5 for 2 class hours per week, and some geography knowledge, which had been deleted during the Great Leap Forward, was added into middle schooling, such as physical geography and earth movement. In 1963, the People's Education Press issued geography textbooks for primary schooling and middle schooling according to the new primary and middle school geography curriculum outlines. But, the Cultural Revolution happened before geography textbooks for high schools were published (Chen, 1998).

The political turmoil of the Great Proletarian Cultural Revolution happened from 1966 until 1976. The social-political movement lead by Mao Zedong aimed to firm up his political position in the Communist Party of China (Zhou, 2005). Geography was canceled from primary schooling, as were many other subjects. The quality of education dropped sharply again (Chen & Wu, 1988).

The Proletarian Cultural Revolution came to an end after Mao Zedong died in September 1976. Society was returned to running normally, including education. All the schools started to reopen in 1977 and 1978. In 1977, the University Entrance Examinations (Gaokao) were restored. Basic education subjects generally returned to normal, but primary geography was canceled according the new curriculum outlines issued in 1978. In 1980, the People's Education Press published a set of new united

textbooks for basic (grades 1-12) schooling based on the new curriculum outlines (Wang, 2001); these did not include geography.

It was not until 1981 that the MoE specified primary geography should again be taught in grade 4 for 2 class hours per week. In the same year, the People's Education Press published geography textbooks for primary schooling, named *Geography Common-Sense* (Li, 2011).

In the 1990s, primary geography was integrated into social studies together with social knowledge and historical knowledge. Another curriculum transformation started in basic education across China until 2001. Geography was separately integrated into the subjects of M&S and Science. According to the new curriculum outline, geography curriculum is taught from grades 3 to 6, and there is no geography curriculum in grades 1 and 2.

Research Methods and Data Analysis

In this study, the authors chose three methods to examine the research history, current situation, and future trends of primary geography education in China. Table 1 shows the three methods and their corresponding research topics.

Table 1.
Research Methods and Topics

Research Methods	**Research questions**	
	Main questions	**Sub-questions**
Document Analysis	Primary geography curriculum	In which primary school grades do students learn geography? How is geography distributed within the primary school curriculum? What content is taught according to curriculum standards?
Survey Questionnaire	Current situation (including existing problems)	How is curriculum associated with geography implemented in primary schools? What is the educational background of the geography teachers in primary schools? How are geography curriculum resources developed? What problems does primary geography teaching have now?
Interview	Future Trends Supplementary questions about history and current situation	In interviewees' understanding: How will primary geography education develop in the future? What problems does primary geography have in schooling? What are the changes in primary geography education since they started studying geography?

Document Analysis

Document analysis of two national curriculum standards and a related literature review were used to clarify the history, curriculum, and future trends of primary geography. These documents are the national curriculum standards for primary schooling and are the outlines for implementing the curriculum and compiling textbooks:

1. *Morality & Society Standards (grades 3-6)* (Ministry of Education, 2011)
2. *Science Standards (Experimental Version) (grade 3-6)* (Ministry of Education, 2001)

Since primary geography is not taught in grades 1 and 2, there were no curriculum standards for document analysis. The two documents were chosen as the main analysis documents for three reasons. Firstly, curriculum standards are the most authoritative national documents for each subject at the basic education level. The primary schools of every province should follow the curriculum standards of every subject specified by the MoE. The textbooks of any subject should be compiled following the corresponding curriculum standards. Secondly, in China the primary geography content is separately integrated into both M&S and Science subjects in different proportions. Therefore the authors needed to analyze the two curriculum standards as authoritative documents. Finally, the Science Standards issued in 2001 is an experimental version, while the other two subjects issued in 2011 are the latest and final versions. There was no new Science Standards issued in 2011 because in 2001 the new curriculum reform for basic education started in China. During the curriculum reform, a series of new curriculum standards were drafted and tested through 10 years of instructional practice. In 2011 all of the experimental curriculum standards except the Science Standards were revised into the final version and issued in November. The final draft of the Science Standards is controversial because of big changes, and the final version had not been issued by 2015. Therefore the primary science schooling is still following the experimental version of the Science Standards issued in 2001. During data analysis the authors picked all the geographical content from the two integrated curriculum standards and summarized it into two tables in order to present the geography curriculum more clearly (See: Appendixes 1 and 2).

Questionnaire Survey

Questionnaire Design

The survey objectives and corresponding question are shown in Table 2. The questionnaire is included in Appendix 3.

Table 2.
Survey Objective and Corresponding Questions Number in Questionnaire

Survey Objectives	Questions	No.
The implementation of curriculum related to geography	The taught course(s) name(s)	1
	Regulated class hours	
	Actual class hours	2
	Degree of importance of these courses	3
Educational background of the geography teachers	Educational level of the geography teachers	4
	Geography teacher availability	5
	In-service training of geography teachers	6,7
Geographical curriculum resources development	School curriculum resources	8,9
	Community curriculum resources	10
	Society curriculum resources	11
Problems of primary geography teaching		12

Sample Selection

Eight provinces, including regions and municipalities, were randomly selected from potential selected areas across China to receive questionnaires. The potential selected areas did not include Shanghai, Zhejiang, Tibet, Qinghai, Inner Mongolia, and Xinjiang. At the beginning of the curriculum reform for grades 1 to 9 in 2001, the new curriculum plans were implemented in only 42 trial areas. The 4-year trial curriculum reforms turned out to be feasible. In February, 2005 the MoE specified that the curriculum reform plan for grades 1 to 9 should be implemented all across the nation and made a list of approved textbooks for the provincial ministries of education to choose for their province. Zhejiang and Shanghai are not required to follow national curriculum standards or use the textbooks supplied by the MoE. Zhejiang and Shanghai can both prescribe their own curriculum standards and compile their own textbooks meeting the specific needs of their cultures and rapidly growing economy (Department of Basic Education, 2005). Zhejiang and Shanghai were not selected for the sample because they need not follow the national curriculum standards.

Many schools in places such as Tibet (3.0 million), Xinjiang (21.8 million), Inner Mongolia (24.7 million) and Qinghai (5.6 million) use their own local languages. For example, the local language in Tibet and Qinghai is Tibetan, in Xinjiang is Uyghur, and in Inner Mongolia is Mongolian. Because of the different educational policies and language limitations, the authors removed these 4 provinces representing 55.1 million total population, less than 4% of China's 1.4 billion total population (National Bureau of Statistics of China, 2014) from the potential selected areas.

Since the potential selected areas must follow the national curriculum standards, the primary geography curriculum is similar in each area. In this study the authors randomly chose 8 provinces to distribute the 56 written questionnaires: Guangdong (104.3 million), Jiangxi (44.6 million), Heilongjiang (38.3), Gansu (25.6 million), Henan (94.0 million), Jiangsu (78.7 million), Anhui (59.5 million), and Guangxi (46.0 million). These provinces represent 491 million total population, approximately 35% of

China's total population. Then the researchers chose 7 primary schools within each of those provinces (See: Appendix 3).

Table 3.
Simple Selection in Pre-survey Tests and Regular Survey

Pre-survey tests		Regular survey
Test 1	5 teachers 1 PhD Candidate and 1 masters student	56 teachers from different schools
Test 2	5 teachers 2 masters students	

Data Collection

The researchers, through a primary school course manager familiar with geography teachers in the selected provinces, contacted a geography teacher at each of the 56 primary schools and requested that they chose a geography teacher on behalf of his/her school to complete the questionnaire (Table 3).

To improve the reliability, and to obtain different professional perspectives via the survey, the authors conducted two pre-survey tests with teachers and researchers as subjects before conducting the regular investigation. For the first test five teachers from the sample group and two geography education researchers (one PhD candidate and one master's student) were randomly chosen as subjects. For the second test another five teachers from the sample group and another two geography education researchers (two master's students) were chosen as subjects.

In the first test, the researchers gathered some suggestions from the participants. The suggestions mainly referred to ambiguous expressions and redundant questions. To make the questionnaire simpler and clearer, the redundant questions were removed and the original questionnaire wording was revised according to the seven participants' suggestions.

After revising the original questionnaire, a second test was conducted with another seven participants. To determine whether the original problems had been solved, and to obtain more comments about the questionnaire, the revised questionnaire was not distributed to the same test group. With the second test, no suggestions were received similar to the ones from the first test. Less than five suggestions were received, and most referred to minor problems, such as re-ordering the questions, and adding some biographical information (such as Q4). According to the suggestions from the second test group, we revised the questionnaire again to produce the final version (See: Appendix 4).

After completing the pre-survey testing of the questionnaire, 56 questionnaires were distributed to the sample group through both paper and online methods. For the online survey, a questionnaire survey platform called Sojump (www.sojump.com) was used. A Sojump username was created and the questions were copied to the platform. Only the netlink of the questionnaire was sent to the participants. If the participants requested a

paper survey instead, one was sent to them. Fifty-six total questionnaires, forty-four online and twelve paper, were completed and returned.

Data Analysis

While reviewing the completed questionnaires an invalid questionnaire was found from Anhui with incomplete answers and it was removed. There were 55 available questionnaires in the study.

Using the Sojump statistical function the results of all online data were able to be analyzed directly. But for the paper questionnaires, the data had first to be digitized. To get the final statistical result, Excel was used to combine the data from the paper questionnaires and the online questionnaires via Sojump. Excel was suitable because there was no complex analysis in this study requiring the use of factor analysis, regression or other techniques. Excel also provided the means to build required charts and diagrams.

Interview

To make the study more comprehensive and to identify deficiencies in the questionnaire survey, the authors decided to conduct interviews with participants in different fields and from different perspectives. Interviewees came from the fields of geography education research (a professor), primary schooling administration (a primary school principle), and teaching staff (a primary geography teacher). Detailed information about the interviewees is shown in the Table 4. The interview conversations were recorded using a voice recorder. The conversations were initiated, but not limited to, these questions:

1) How has primary geography education in China changed since you became engaged in the education field?
2) What do you think the problems are in the field of primary geography education or geography curriculum? How should they be dealt with?
3) What are the trends in primary geography education going forward?

Table 4.
Interviewees Background

Interviewee	Occupation	Work background
A	Retired professor	A retired professor in an Institute of Curriculum & Instruction, always focused on geography teaching, geography curriculum, and geography teacher education.
B	Principal	A former principal in a primary school in Guangdong.
C	Teacher	A teacher in a primary school in Guangdong.

Findings

Document Analysis Findings

Primary Geography Curriculum

The Outlines for Curriculum Transformation in Basic Education specify the curriculum of primary schooling and are mainly composed of integrated curriculum, such as

Morality & Life, M&S, Science, Arts, and Comprehensive Courses (Department of Basic Edcuation, 2001). The geography curriculum is integrated into M&S, and Science. M&S and Science are both taught from grades 3 to 6 (Department of Basic Education, 2001).

The Experimental Directives for Curriculum in Compulsory Education (Department of Basic Education, 2001) were issued by the MoE in 2001 and outline what each school should do; they also transfer some powers to schools. Appendix 5 outlines the national curriculum and the distribution of time to each subject based on the Directives. It shows that M&S and Science each take 7 to 9 percent of total class hours from grades 3 to 6. That is, every primary student in grades 3 to 6 should take no less than 2 class hours per week. The Directives also permit primary schools to do some small changes according to their actual individual circumstances.

The curriculum content of primary geography includes Chinese geography, world geography, human geography, physical geography, Earth & Universe. Chinese geography, world geography, and human geography are integrated into M&S. Physical geography and Earth & Universe are integrated into Science. The details of the content have been extracted from the two curriculum standards, and included into Appendices 1 and 2. The curriculum standards specify that curriculum content need not be restricted to a specific year. That is, the curriculum standards just specify the total curriculum content, they do not stipulate in which school year curriculum content must be taught. That is determined by primary schools or primary teachers. (Ministry of Education, 2001, 2011) The curriculum content related to geography, based on the two curriculum standards, is not limited to a specific school year.

The authors analyzed the geography curriculum content from the view of geographical knowledge and geographical skills. First, in terms of the range of primary geography knowledge, it covers the overall geography knowledge, including human, physical, Chinese, and world geography, plus the Earth and Universe. Compared to the middle school and high school geography curriculum standards (Ministry of Education, 2003, 2011), the authors found the framework of geography knowledge in primary school is basically the same. In terms of the depth of primary geography knowledge, some knowledge is a little difficult for young children to acquire. For example, some primary geography knowledge is even more difficult than middle school geography, such as “earth movement” in Science, involving the Earth’s rotation and revolution. It requires a higher ability of spatial thinking for young children to understand (Su, 2014). Interviewee A stated:

> *Some knowledge is a little difficult for young children, indeed. Sometimes, the difficulty exceeds the cognitive capacity of young children.*

He suggested that:

> *Geography knowledge taught should match the children’s cognitive capacity. Primary geography should be connected with middle and high school geography into a complete geography schooling system.*

Second, in terms of geography skills, since geography is distributed into M&S and Science subjects, geography skills are de-emphasized. In M&S and Science standards, the skills are taught separately in social studies and science. The skills are centered by social studies and science, rather than by geography. Part of the interview with Interviewee A dealt with this:

> Researcher: *Why are the frameworks of geographical skills so different between the two subjects, unlike middle school and high school geography subject?*
>
> Interviewee A: *I think, it is related to subject-center. For basic education in China, geography curriculum is still designed in subject-centered type. The curriculum designers will pay more attention to how to make the knowledge of a subject be learned more systemically, rather than meet the needs of students' development. Geography is a separated subject in middle and high school, but an integrated subject in primary school. In primary schooling, geography content in M&S is centered by social studies, including study skills, the same as in Science. However, for middle and high school geography, it is more centered by geography subject.*

Questionnaire and Interview Findings

Because primary geography is integrated into M&S and Science subjects, the teachers surveyed also teach other curriculum subjects at the same time. In China most primary school teachers teach several subjects besides geography. The group of investigated subjects has an average 15.5 years teaching experience. The samples chosen in this study reflect the general situation.

The Implementation of the Curriculum Related To Geography

Since primary geography is integrated into the M&S and Science subjects, the authors investigated the implementation of geography curriculum through them. Although the survey questions are not directly related to the geography curriculum or geography teaching, they do reflect the implementation of primary geography curriculum. Question 1 found that most primary schools teach both M&S and Science; quantitatively the average specified class hours of the two courses in these primary schools do not reach the lowest standards (2 class hours per week) as specified in the Experimental Directives for Curriculum in Compulsory Education (Department of Basic Education, 2001). The actual taught class hours are less than the regulated class hours in many primary schools, thus, qualitatively the curriculum related to geography has not been implemented effectively in primary schooling.

Most primary schools teach the geography curriculum from grades 3 to 6. According to the Experimental Directives for Curriculum in Compulsory Education, since M&S and Science are basic subjects, every primary school should teach them as compulsory subjects (Department of Basic Education, 2001). Question 1 shows 97.73% of primary schools teach M&S, and 90.91% teach Science. However, there are still a few primary schools which do not teach them. In order to clarify the reasons, the authors interviewed the teachers at those primary schools that did not teach either subject. The main reasons are lack of qualified teachers and lack of awareness of the importance of the two

subjects. An example of an interview dialogueis as follows:

Researcher: *Why doesn't your school teach Science?*
Teacher: *There is no teacher who is skilled to teach Science?*
Researcher: *Why can they not teach Science?*
Teacher: *Because most teachers were never trained about Science teaching during pre-service and in-service, they don't know how to teach it.*
Researcher: *But according to the Experimental Directives for Curriculum in Compulsory Education, Science is a required course in primary school. How can your primary school not teach this course?*
Teacher: *Indeed, according to the Experimental Directives for Curriculum in Compulsory Education, every primary school should teach this course. If we don't teach this course, who cares? Students' parents don't care, neither do school leaders, teachers, even students. It is just a minor, unlike Math or Chinese.*

The average regulated class hours of the two courses in these primary schools was below the minimum standards specified by the Experimental Directives for Curriculum in Compulsory Education (Department of Basic Education, 2001). They specify that the class hours of Science or M&S should be no less than 2 class hours per week. The survey found the average class hours per week of M&S were 1.7, and those of Science were 1.4. Both of them are below the minimum class hours specified. The primary schools with class hours of M&S and Science less than 2 class hours per week, made up 44.4% and 52.8% of the schools teaching the two subjects.

The curriculum related to geography is not implemented effectively in primary schooling. Question 2 found the proportion of primary schools in which the actual class hours of M&S and Science were less than the regulated class hours was 43.18% (combined A and B responses). The statistical results show "extremely less than" takes 6.82%, "somewhat less than" takes 36.36%, "almost equal to" takes 54.55%, and "somewhat more than" takes 2.27%. Additionally there are many irrelevant activities in the M&S and Science classes. Question 3 examined the situation of the different types of activities in M&S/Science classes. Figure 2 shows there are still other activities unrelated to M&S or Science classes in some schools. Interviewee C talked about this situation in primary school:

"The implementation of primary geography curriculum is not very optimistic. Although my school teaches students geography, the geography classes have to be replaced by Math or Chinese for several days before final exams. Because geography is not one of the examination subjects, it has to make a concession".

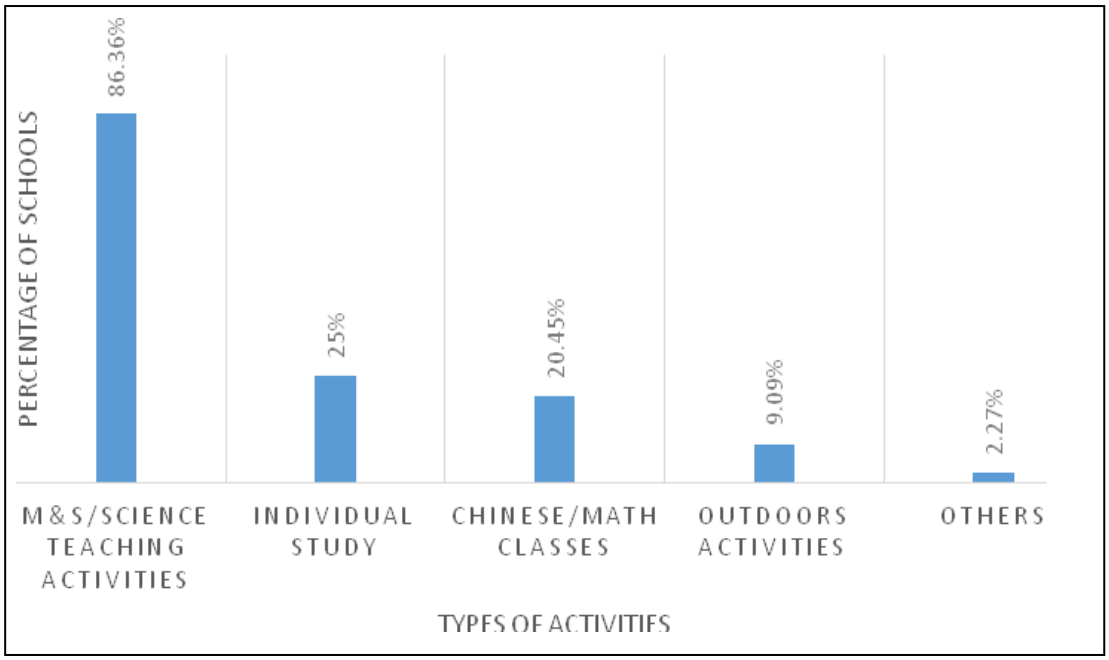

Figure 2.
The Occurrence of Activities within M&S/Science Class

Educational Background of the Geography Teachers

Educational Level of the Geography Teachers

Question 4 investigated the educational level of the geography teachers. The results show that primary geography teachers have a varying higher education background. Teachers who graduated from normal universities comprised 18.60% of all survey subjects. The teachers who graduated from medium normal colleges and higher normal colleges made up 58.14% and 23.26% of the subjects.

In China, the medium normal colleges are the lowest level colleges. They enroll some middle school graduates (grade 9) as pre-service teachers who do not receive any degree after graduation. The higher normal colleges enroll some high school graduates (grade 12) as pre-service teachers, and they do not receive any degree after graduation. The normal universities are the highest level, they enroll some excellent high school graduates and grant a bachelor degree after graduation. Overall, the education level of primary school teachers is below that of middle and high school teachers in China (Huang, 2002). Therefore, improving the educational level of primary geography teachers is helpful for geography schooling education.

Geography Teacher Availability

A lack of qualified geography teachers is a common problem in many primary schools. Question 12 showed that 47.7% of teachers thought the lack of teachers is the one of the most serious problems which stunts geography education development in their primary schools. Question 5 shows that only 9.09% of primary schools have a teacher who graduated from geography or another related major (such as environmental science,

geology, geographic information systems, etc.). That is, 90.91% of primary schools have no teacher with an educational background related to geography. There are 9.09% of primary schools that do not have a teacher with an educational background related to geography but intend to employ one in the future. This lack of teacher resources is a challenge of primary geography schooling.

The lack of pre-service teachers for primary geography schooling is considerable. The primary schooling major in normal colleges and universities emphasizes general education and is not divided into the sub-disciplines of schooling (Huang, 2002). During training, pre-service teachers pay more attention to Math and Language and tend to ignore primary geography and other minor subjects. When these pre-service teachers become in-service teachers, they teach not only Math and Language, but also other subjects such as M&S and Science. Thus, in practical teaching, they may be not good at teaching the other subjects, including geography. It is necessary to train pre-service teachers more in geography teaching and skills. About pre-service teacher training, Interviewee A said:

> *"Concerning teacher training, the gap between teacher training in higher education and the talent needed in primary school teaching is the main reason for a lack of suitable geography teachers".*

In-Service Training of Geography Teachers

In-service training is significant for improving the professional literacy of teachers. Training with geography content also contributes to improving the capacity of geography teaching. According to the Teachers Law of the People's Republic of China, teachers have the right to access continuing education or other types of training (The National People's Congress, 1993). The Regulation of Teacher Continuing Education for Secondary School also specifies that one cycle of teacher continuing education lasts five years. Based on the regulation, Table 5 summarizes the types of teacher regulated continuing education, training objects and training periods.

Table 5.
Teacher Continuing Education Category and Requirements (Ministry of Education, 1999)

Types of teacher continuing education		**Training Objects**	**Training Period**
non-degree teacher education	orientation training	new teachers	no less than 120 hours
	in-service training	all the in-service teachers	no less than 240 hours per 5 years
	excellence training	excellent teachers	no regulation
degree completion education		teachers without a degree	no regulation

Within these types of teacher continuing education, only in-service training is for all teachers in basic education. Other types of training are for special groups of teachers. That is, each in-service teacher should participate in in-service training. The survey (Question 7) shows that 56.82% of primary schools do not have organized in-service training, 4.55% organize regular in-service training, and 38.64% organize irregular in-

service training. In terms of the training content, 36.84% of primary schools organizing in-service training have training about geography teaching. As an important part of teacher continuing education, in-service training is neither organized effectively by primary schools and administrators of education, nor does it play a strong role in directing geography teaching.

Geographical Curriculum Resources Development

Full development of curriculum resources is helpful to enrich curriculum content and make it more open and generative. Curriculum resources are divided into school, community, and society curriculum resources (Ministry of Education, 2011). The authors investigated developing geographical curriculum resources using these three categories.

Question 8 and 9 investigated whether the schools had a geographical or astronomical laboratory, and whether local or school-based geography courses were parts of the school curriculum resources. The survey found that the situation of school curriculum resources is not so optimistic. There are 90.91% of primary schools without geographical or astronomical laboratories, and 86.36% without any local or school-based courses about geography. 22.73% of primary schools intend to build a geographical or astronomical laboratory, and only 4.55% intend to teach a local or school-based course about geography. Local or school-based courses taught by some primary schools aim to get students to understand the local geography environment. For example, a regional curriculum named *Red Soil* is taught by a primary school in Guangdong province because of the local special soil type.

Question 10 and 11 found that community and society curriculum resources are not fully developed in primary geography teaching. 45.78% of primary schools never used any community curriculum resources, such as field trips, and 59.00% never used any society curriculum resources, such as guest speakers.

Curriculum development based on the local environment could be helpful for children to become more creative (Nia, Southworth, & Campbell, 1992). Young children should learn from their community surroundings. “Geography connects to world events, problems, and decisions throughout their life” (National Council for Geographic Education, 2012). Thus, adequate curriculum development based on the familiar environment contributes to understanding and loving our communities, and acquiring basic life skills. Consequently, the geography curriculum resources should be developed around the school, community, and society. Interviewees B and C commented on this:

> Interviewee B: *Actually, we don’t have to intentionally infuse patriotic ideas into students. Can you imagine how patriotic he would be, if he doesn’t even understand his community and country? Through learning geography, young children can understand the environment around them, and even our country. Thus, geography is able to play a role in patriotic education.*
>
> Interviewee C: *In my understanding, geography is very significant or even more. Unlike other subjects, geography is closely related to daily life. Primary*

geography could foster in students some simple but practical skills useful in daily life, such as the sense of direction. Thus, geography curriculum should be developed more related to daily life.

Discussion

Results

Unlike other research on primary geography education, this paper comprehensively researched the situation of primary geography education from the view of geography curriculum, curriculum implementation, geography teachers, and curriculum resources development.

First, geography education in school starts a little late, beginning in grade 3. This is much later than in some developed countries such as the USA, Canada and the UK. The primary geography curriculum is taught based only on the geographical knowledge, and does not consider the future development demands of young children. Therefore some geography content is not very sound, and ignores the link with middle and high school levels of the geography curriculum.

Second, the actual taught hours for geography courses are much less than the regulated class hours. Data from Questions 2 and 3 suggests that the actual teaching hours are less than the regulated class hours as specified by the Experimental Directives for Curriculum in Compulsory Education. As Interviewee C said, "Since many teachers and schools do not realize the significance of geography, sometimes the class hours would be taken by other subjects' class."

Third, the quality of primary geography teachers needs to be improved. Generally speaking, primary geography teachers are at a low educational level, and they lack professional literacy to teach geography. No matter whether pre-service or in-service teacher education, training for geography teaching should be enhanced.

Finally, the geography curriculum resources are not fully developed and used, especially community and society resources, which brings about the relatively uniform content of geographical curriculum.

It is hoped that these results can provide suggestions and directions for the coming geography curriculum transformation.

Recommendations for the Future

For 21st century, K-12 education focuses on providing a global vision, the skills students need to become engaged in a knowledge-based society, and activating their interests (Premier's Technology Council, 2010). To reach this educational goal, geography education should contribute towards this, but not be limited to the three directions below.

First, primary geography education should be developed using a global perspective. In the past 30 years, China has been busy with the Transformation and Opening, and developing the domestic economy. Since China is developing very fast in both economy and education, China is interacting more and more frequently with other countries

around the world. Under globalization, Chinese people should better understand the world and be understood by the world. China also has a responsibility to culture in qualified citizens a global vision for the world. Therefore geography education has a major role in teaching young children how to understand the world and to open their minds, a unique educational function different from other subjects. As conductors of Chinese geography education, geography educators should also do research into the global vision. Geography educators should aim to interact with international geographical educators for the purpose of mutual benefit, by building a more cooperative relationship with international academic organizations.

Second, information technology should be integrated into primary geography education. In the 21st century, mastering some simple information technologies is the one of the basic qualities which students should have. Geography education can play a major role in improving information technology literacy. Since spatiality is one of characteristics of geography, some geography objectives, such as Earth movements and the Earth's surface changes, are suited to be simulated or shown by information technology, for instance through remote sensing images, digital maps and 3D landscapes (Yu, 2012). Some information technologies have been applied in researching geography, and they have even grown into separate subjects such as Geographic Information Systems, Global Positioning Systems, and Remote Sensing. Therefore, geography education has advantages in developing information technology literacy. Teachers should try to apply these technologies in geography teaching to help students understand some main and advanced geographical technology.

Third, as suggested by Interviewee A, the primary school geography curriculum and the direction of geography curriculum transformations should be based more on the needs of young children's development, rather than be solely subject-centered. The existing primary geography curriculum is very systematic and focused on knowledge acquisition, some of which is a little difficult for young children, rather than skills and application. As the three interviewees suggested, the difficulties young children have in learning geographical knowledge could be dealt with by teaching more practical knowledge which is useful in their daily lives.

Conclusion

This paper sought to deepen the understanding of the historical, current, and future trends of primary geography education in China, using the methods of document analysis, review of associated literature, and original data collection using interviews and a survey instrument. This study can be regarded as a mirror of recent primary geography schooling. The problems identified and described can draw more geography educators' attention to primary geography education, a field that is often ignored. The recommendations for better primary geography education can provide a reference for the coming basic education curriculum transformation. Internationally, this study can also serve to help geography education peers better understand primary geography in China, which is a prerequisite to exchange and cooperation.

In this study, there are three limitations. First, the research method has a limited sample selection. Since China is very large and has so many provinces, it is very

difficult to sample all the provinces across China without extensive resources. For example, Shanghai and Zhejiang are strong educational provinces but are not included in the survey due to their particular education systems which are completely different from the national one. Thus, it is necessary to narrow and specialize the research problems for further research, so that more precise and deeper problems can be identified. For a representative province (city) among developed areas, it is significant to do the research. Second, the basic education curriculum across China, in most disciplines, is subject to great fluctuation, and the next curriculum transformation is coming soon. Therefore, it is suggested that a similar study should be conducted after the new curriculum transformation begins to settle into a pattern in primary geography schooling. Third, there is no data available related to primary students' attitudes to geography. Since geography is in the compulsory curriculum in primary schooling, there is no problem determining enrollment rates. But it is necessary to survey the attitudes of primary students about the geographical content. Such data is vital to select geography curriculum content and rethink the problems for geography educators.

This study was undertaken chielfy to discover the situation and the nature and level of primary geography's problems. Following this study, it is more valuable to undertake research into ways to solve the problems. For primary geography education, future research, it is believed, should focus on what is valuable geography for young children. As Interviewee C said,

> "*Geography is pretty significant for young children, even more than other subjects, since they can acquire some very practical knowledge and skills related to our daily life through geography. But, much geography knowledge is a little boring, so that it cannot attract young children.*"

As geography education researchers, we have a responsibility to figure out what is useful geography in primary schooling from different perspectives. We divide future research into four sub-topics: from a psychological perspective, what cognitive level do the primary students have in this phrase and what geography knowledge are they interested in? From a geographical perspective, what roles can geography play in educating young children? From an educational perspective, what geographical literacy should young children have? From a sociological perspective, what geography knowledge and skills are most useful for daily life? We hope that progress can be made to resolve some of the specific and significant problems discovered in this study.

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Biographical statements

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Appendix 1.

The Geography Contents in Morality & Society (grades 3 to 6)

Geography in Morality & Society: Grades 3 to 6
● Be able to read the plan maps of your school, and briefly draw the school map and the line to school from home. ● Be able to read some small areas of plan maps, and recognize accurately legends, orientation, and scale on maps ● Learn about local natural environment, economic characteristics, and the relationship with our lives; learn about the local changes and development through actual cases; learn about characters who contribute to the changes. ● Learn about local ecological environment, and take part in some related activities for environmental protection, and raise environmental awareness. ● Learn about Chinese geographical location, territorial area, ocean-mainland border, and administrative districts. ● Know about and respect different ethnic cultures in China. ● Know about the natural differences among different area and their influences to yielding and life style. ● Know about some Chinese serious natural disasters and escape ways. ● Learn about the situation of industry and agriculture in China and their relationship with daily life. ● Know about traffic development in China, and the importance of traffic in daily life; pay attention to the traffic problems in cities and countries. ● Know about the location of main continents and oceans and be able to recognize them on a globe or map. ● Compare the custom, traditional festivals, apparel, architecture, and diet of different countries, and try to inquire the reasons to respect multi-cultures. ● Know about Chinese economic interdependence with other countries and its influences to life. ● Know about environmental degradation, rapidly increasing population, meager resources, and some measures.

Source: Ministry of Education, 2011.

Appendix 2.

The Geography Content in Science (grades 3 to 6)

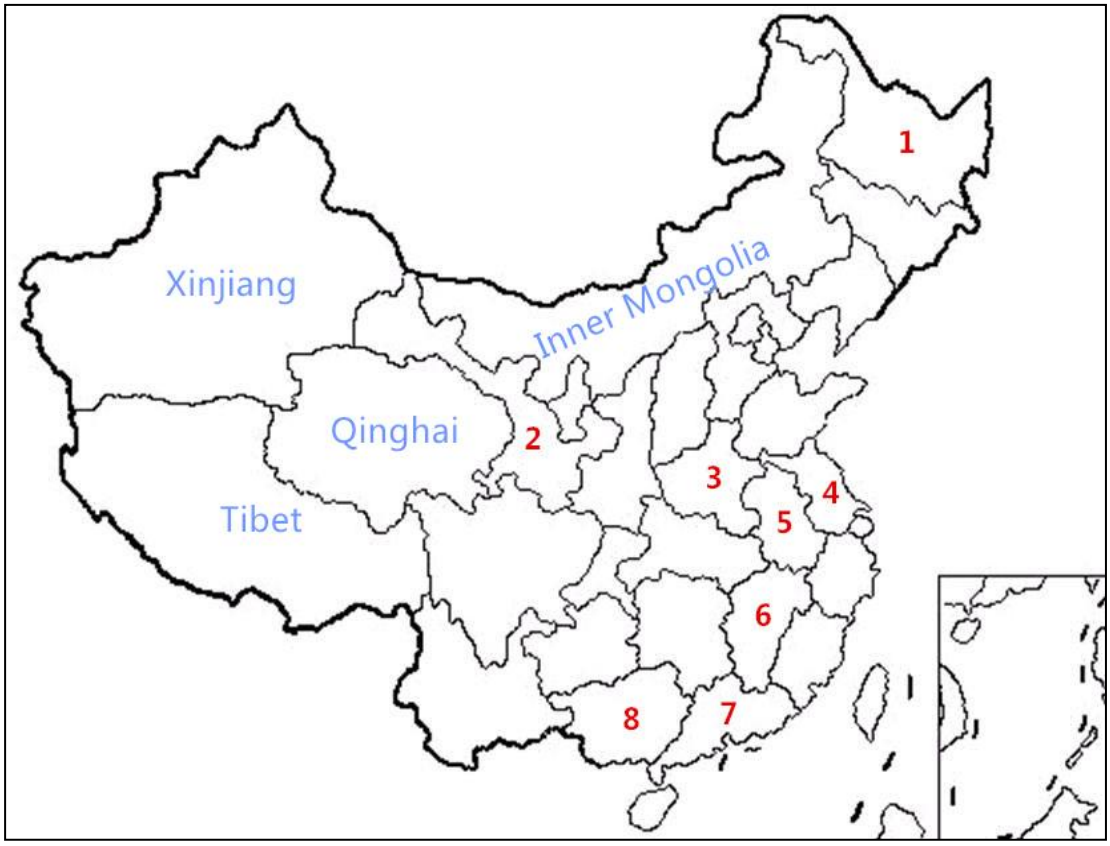
Geography in Science: Grades 3 to 6			
Earth and Universe	Overview and substance of Earth	Overview of Earth	Shape and size of Earth Distribution of oceans and land on the earth Hot magma inside of the Earth History of exploring the shape of the Earth The principal marks and function of globe and maps
		Rock, Sand, and Oil	Be able to classify rock according to different standards. Know about the names of common energy ores, metal ores, and their extract. Know about the composition of oil. Be able to sign an experiment to test the influence of different kind oil to plant growth. Be conscious of the relationship between human existence and land substance, and the importance of protecting land substance.
		Water	Know about the distribution of water in nature, the relationship between water and biology, and the consequences and causes of water pollution.
		Air	Be able to prove the existence of air through some experiment. Know about how the humankind makes use of air properties. Know about the significance of air to life.
	Earth movement and its influence	Weather changes	Know about some measurement of weather, such as temperature, wind direction, wind force, precipitation, cloud cover, etc. Be able to use a thermometer, wind vane, and rain gauge to collect data, and make a conclusion by analyzing data. Inquiry the cause of rain, snow, and wind. Be aware of the significance of measuring and recording long- term weather data. Be able to enjoy beautiful weather. Be able to give examples to illustrate weather changes influent animals' activities. Experience the influence of weather to humankind's work and life.
		Alternation of the day and night	Know about the rotation period of the Earth. Know about how the ancients suppose the cause of alternation of day and night, and Copernicus' contribution. Inquiry the influence of alternation of day and night to activities of living being.
		Changes of Earth`s surface	Know the Earth surface is changing continually. Know about the phenomenon of volcanic eruption and earthquake.

			Know about the influence of the nature power to shaping earth surface. Know about the influence of humankind's activities to shaping earth surface.
		Alternation of seasons	Understand the influence of the alternation of seasons to living beings. Know the alternation of seasons is related to the revolution of the earth.
	Celestial bodies	The sun and the moon	Know about the sun. Know how humankind make use of solar energy. Know about the significance of the sun to living beings. Know about the motion model of the sun. Know temperature and shadow is related to the motion of the sun. Be able to distinguish directions according to the sun. Know that the moon is a satellite of the earth, and how the moon move each day and each month. Acquire more knowledge about the moon in media.
		Solar system, galactic system, and astrospace	Know about the component of the solar system. Know the representative constellation of each season. Know the relationship among solar system, galactic system and the universe.
		Explore the history of the universe	Know about the history of humankind's exploring the Universe. Know about some principle technique of exploring the Universe. Be conscious of the contribution of humankind to exploring the universe. Pay attention to the updates in space technology in China.

Source: Ministry of Education, 2001.

Appendix 3.

Chinese Provinces Sampled for the Study



1	Heilongjiang	5	Anhui
2	Gansu	6	Jiangxi
3	Henan	7	Guangdong
4	Jiangsu	8	Guangxi

Appendix 4.

Investigation into Current Situation of Primary Geography Education in China

Biographical Information:

1. Which primary school are you working in?
2. How long have you been a teacher?
3. What subject(s) are you teaching now?
4. What subject(s) have you taught since you was a teacher?

Questions:

(Notice: *means you can choose no less than one answer.)

1. *Which subject(s) does your school teach?
   - A. Morality and Society, _____ class hour(s) per week
   - B. Science, _____ class hour(s) per week
   - C. Neither

2. The actual teaching hours of Morality and Society and Science are_____ the regulated class hours.
   - A. Extremely less than
   - B. Somewhat less than
   - C. Almost equal to
   - D. Somewhat more than

3. *In Morality & Society or Science classrooms, what activities are often organized?
   - A. Morality & Society or Science teaching activities
   - B. Individual study
   - C. Chinese or Math classes
   - D. Outdoor activities
   - E. Others _____

4. What is your highest academic qualification?
   - A. Graduated from medium normal colleges
   - B. Graduated from higher normal colleges
   - C. Graduated from normal universities

5. In your primary school, is there any Morality & Society or Science teacher who graduated from geography or related majors?
   - A. Yes. The number _____
   - B. None.
   - C. Not yet, but we plan to employ a geography or relative major pre-service teacher.

6. In your primary school, is there any in-service training?
   - A. Yes, it happens regularly. The training period is _____.
   - B. Yes, it happens irregularly and occasionally.
   - C. None.
   - D. Other situation: _____

7. In in-service training, are there any content about geography teaching?
   - A. Yes.
   - B. No.
   - C. I do not understand.

8. In your primary school, is there a geographical laboratory or astronomy laboratory?
   - A. Yes.
   - B. No. And we have no plan to build it.
   - C. Not yet. But we plan to build it.

9. Does your primary school teach any local course or school-based course about geography?
   - A. Yes. The course name is/are _____.
   - B. No.
   - C. We are planning, and the course name is _____.
   - D. We planned, but gave up. Because _____.

10. *To teach geography, where did you take your students to visit among the following places around your community?

A. Museum
B. Memorial hall
C. Cultural heritage
D. Natural landscape
E. None

11. *To teach geography, did you organize the following activities?
A. Asking for the help of geographers or community members
B. Encouraging students to find and resolve some geographical problems in social activities
C. Teaching geography by social media (such as network, TV productions, news report)
D. Teaching geography by experiencing or understanding traditional customs, legends, traditional festivals, cultural activities, and public service activities.
E. None

12. What do you think the problem is with the geography teaching in your primary school?

Appendix 5.

National Curriculum and Subject Time Distribution

<table>
<tr><td rowspan="2"></td><td colspan="6">Grade</td><td rowspan="2">Proportion of whole class hours</td></tr>
<tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr>
<tr><td rowspan="10">Subjects</td><td colspan="2">Morality and Life</td><td colspan="4">Morality and Society</td><td>7-9%</td></tr>
<tr><td>--</td><td>--</td><td colspan="4">Science</td><td>7-9%</td></tr>
<tr><td colspan="6">Mandarin</td><td>20-22%</td></tr>
<tr><td colspan="6">Math</td><td>13-15%</td></tr>
<tr><td>--</td><td>--</td><td colspan="4">Foreign Language</td><td>6-8%</td></tr>
<tr><td colspan="6">P.E.</td><td>10-11%</td></tr>
<tr><td colspan="6">Arts</td><td>9-11%</td></tr>
<tr><td>--</td><td>--</td><td colspan="4">Comprehensive Practice</td><td rowspan="2">16-20%</td></tr>
<tr><td colspan="6">Local and School-based Curriculum</td></tr>
<tr><td>Class hours per week</td><td>26</td><td>26</td><td>30</td><td>30</td><td>30</td><td>30</td><td>274</td></tr>
<tr><td>Class hours per school year</td><td>910</td><td>910</td><td>1050</td><td>1050</td><td>1050</td><td>1050</td><td>9522</td></tr>
</table>

Source: Department of Basic Education, 2001.

Note: (1) There are 35 weeks in every school year; (2) Comprehensive practice includes information technology education, inquiry-based learning, community service and social practice, and manual and technical education.