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AN ANALYSIS OF OUTDOORS EDUCATION IN SENIOR MIDDLE SCHOOLS IN BEIJING

Jie ZHENG

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CENTRAL EUROPEAN UNIVERSITY

ABSTRACT OF THESIS submitted by: Jie ZHENG for the degree of Master of Science and entitled: An Analysis of Outdoor Education in Senior Middle School in Beijing

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Outdoor education is a new and emerging field in Chinese literature, and there is no investigation for the characteristics of outdoor education in Beijing. This thesis aims to explore the characteristics of outdoor education in Beijing and analyse its current situation and possibilities for future development.

The thesis starts by reviewing the importance of outdoor education and dividing it into four types, among which the overlapping area of environmental education, experiential education and outdoor education represents out of classroom, student centred environmental education is the main focus. The thesis then proceeds to research this area through a detailed SWOT analysis and concludes by making recommendations of how to improve the performance of this type of activities in Beijing.

Senior middle schools in Xicheng District were chosen to be the sample due to their high quality education and open attitudes to innovative education practice. Students, teachers, parents, schools, local authorities, companies, NGOs and senior researchers were investigated by questionnaires, interviews and archival study to understand their perceptions and concerns.

The SWOT analysis revealed that, generally supportive attitudes from students, teachers, parents, local authorities, NGOs and researchers, lessons from other education practice, and the devotion from NGOs are the main strengths, while the lack of comprehensive understanding, practical support, professional outdoor educators, motivations and few current experiences are the main weaknesses. National education reform, international support and promotion from different initiatives are summarised as the main opportunities, whereas safety concerns and fear of bad effects on exam results are the main threats for outdoor education. Accordingly, the recommendations are given to corresponding sectors to improve its further performance in the future.

Keywords: Outdoor education, Beijing, Senior middle school

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List of abbreviations

BEEA	Beijing Education Examinations Authority
BMEC	Beijing Municipal Education Commission
DfES	Department for Education and Skills
EPD	Environment Population Development
ESD	Education for sustainable development
FSC	Field Studies Council
NFER	National Foundation for Educational Research
NGOs	Non-Governmental Organisations
OfSTED	The Office for Standards in Education, Children's Services and Skills
SWOT	Strength, Weakness, Opportunities, and Threats
UNESCO	United Nations Educational, Scientific and Cultural Organization

Chapter 1 INTRODUCTION

Outdoor education, as a specialised field in education science, its philosophy, value, impact, and good practices has been investigated in many countries over a long period. However, corresponding research in China is rare. This thesis aims to redress that balance. It involved firstly, conducting a pilot study to find out the characteristics of current outdoor activities in Chinese Senior Middle Schools, and secondly, conducting a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis of the current situation based on field survey and archival research.

1.1 Introduction to Outdoor Education

1.1.1 Concept of outdoor education

Outdoor education is a broad and complex concept made more complicated by the fact that the definition has changed from time to time. Among the definitions, the most recognized one is "education in, about and for the outdoors" (Donaldson and Donaldson, 1958). It has also been described as "a concept and practice with a range of different foci, outcomes and locations". (Rickinson et al., 2004).

"The foci of outdoor learning can include:

- learning about nature, as in outdoor ecological field study,
- learning about society, as in community-based gardening initiatives
- learning about nature-society interactions, as in visits to outdoor nature centres
- *learning about oneself, as in therapeutic adventure education*

- learning about others, as in small-group fieldwork
- *learning new skills, as in outdoor adventures activities.*

The intended outcomes, meanwhile, can include:

- knowledge and understanding of ,for example, geographical process or food growing techniques
- attitudes towards, for example, the future or peers /family
- values and feelings about, for example, the environment or oneself
- skills such as orienteering or communication
- behaviours such as group interactions or personal coping strategies
- personal development, such as self-confidence or personal effectiveness.

The location of outdoor learning can encompass:

- school ground or gardens
- wilderness areas
- urban spaces
- rural or city farms
- parks and gardens
- *field study/ nature centres* " (Rickinson et al., 2004).

1.1.2 Terminology Clarification

As the definitions above demonstrate – outdoor education is a wide topic. Add to

environmental education and student centred learning and the situation becomes more

complex. To better understand the concept of outdoor education, to be clear about the focus of

this thesis, definitions and clarifications are essential:

- "Outdoor education is a direct antecedent of environmental education but can include other subject matter than learning about the environment."
- "Experiential education often employs outdoor settings but can take place anywhere individuals learn by doing."
- "Environmental education can take place outdoor using experiential approaches or indoors using a standard textbook". (Adkins et al., 2002)

Figure 1shows the relationship between environmental education, outdoor education and experiential education.



Figure 1 Relationship between environmental, experiential and outdoor education

In the 1990s, the concept of Education for Sustainable Development (ESD) appeared in the educational research field, and until now, the definition for ESD is still developing and no common agreement has been reached. There are also different opinions about the relationship

between environmental education and ESD in different countries. In this thesis, the conception of United Nations Educational, Scientific and Cultural Organisation (UNESCO) and the Ministry of Education in China is adopted to define the terms and relationships. Nature education, which mainly refers to academic subjects, such as ecology and geography, "has been described ... as the foundation discipline of environmental education, ... are a necessary - but not sufficient – prerequisite to understanding sustainability". (UNESCO 1998)



Figure 2 Relations between nature education, environmental education and ESD

"It is clear that the roots of education for sustainable development are firmly planted in environmental education." "While environmental education is not the only discipline with a strong role to play in the reorienting process, it is an important ally." "Lessons learned from environmental education provide valuable insight for developing the broader notion of education for sustainable development." In other words, ESD involves more social disciplines than environmental education, it stands in a more holistic position and it requires more transdisciplinary actions. (UNESCO 1998) Based on the justifications above, ESD also requires outdoor education, in the sense that educational activities outdoors can be an effective way to achieve ESD requirements and deliver better practices.

1.2 Why is an analysis of outdoor education is needed in China?

1.2.1 Why do outdoor education at all?

One of the main reasons to justify doing out of classroom learning is that there are some things young people need to learn that can only be learnt out of the classroom, and there are some thing that are better learnt out of the classroom, in terms of knowledge/understand, skills and values. Here in this literature review part, the benefits for students from outdoor education are classified into cognitive, affective, social impacts and behavioural impacts. Although outdoor education might not be the best and most direct way to realise each benefit, the strength of outdoor education can be reflected through the combination.

In spite of all the positive statements, outdoor education does not automatically achieve the learning benefits, and not all outdoor learning activities are worthwhile. Common misunderstandings and the key elements for successful outdoor learning are summarised in the next part to clarify what is good outdoor education.

1.2.1.1 Outdoor Education May Enhance Cognitive Learning

There is a lot of evidence from around the world that out of classroom learning enhances cognitive learning. Nundy (1999) found that for students in the upper primary range (9 to 11 years old), "residential fieldwork is capable not only of generating positive cognitive and

affective learning amongst students, but that this may be enhanced significantly compared to that achievable within a classroom environment."

His conclusion is consistent with the research by the California State Education and Environment Roundtable, which found that secondary students from 11 Californian schools undertaking outdoor environmental learning scored higher in 72% of the academic assessments, compared with students from traditional schools.(Lieberman et al., 2000)

The students in grade 3 and 6 in Canada attending schools with green grounds performed better in province-wide standardized tests than those students who did not (Simone, 2004).

Another report, commissioned by the Education Development Centre in Boston (EDC, 2000), stated that high-quality school grounds led to greater opportunities for recreation and physical education, increased social development and better academic learning.

Further more, according to around another 20 papers, the same relationship between school grounds work and academic record are positively enhanced to different degree. (Rickinson et al., 2004)

1.2.1.2 Outdoor Education May Change Students' Perception

Some evidence shows that outdoor education may contribute to the change of students' perception. For high school students, there is "greater pride in and ownership of learning, positive effects of working as equals with new adult role models, creation of a lasting sense of place (Raffan, 2000).

Another researcher stated that the children's confidence grew greatly as they realised the strategies they used to solve problems and increase their enquiry skills in the school ground learning experience (Reid, 2002).

1.2.1.3 Outdoor Education Can Benefit Participants in Social Skill Development

Most researchers agree that field studies can improve students' social skills. Residential fieldwork can improve social skills of primary school children (Milton, 1995) and teamwork skills for 10th and 11th grade pupils (Cunniff and McMillen, 1996). Field studies can also positively influence pupils' co-operation skills, leadership qualities, perseverance, reliability, initiative and motivation (Nundy, 1999) and increase self-confidence, self-esteem and teamwork skills(Murray, 2003).

It is commonly claimed that there is huge potential for outdoor adventure activities to benefit participants in social and interpersonal skill development (Cooper, 1994), which is also demonstrated in a meta-analysis carried out by Hattie (Hattie et al., 1997), that demonstrated a marked increase of interpersonal skills as a consequence of the adventure programs and clearly suggests that adventure programs affect the social skills of participants in positive ways.

Reported impacts of school grounds projects include the development of social skills and strong links between the school and the wider community. For pre-school-age students, outdoor play is the "foundation of nursery provision concerning physical development, imaginative play, linguistic and social development, explorations of the natural world" (Bilton, 1993), and for primary school children, it provides opportunities for young people to

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socialise with each other and facilitate positive interpersonal relations (Moore and Wong, 1997).

Another dimension is often the improved connection between schools and their communities. Maximising school grounds for learning can lead to a reduction in anti-social behaviour, better links with community and an increased pride in the school. Further more, it can lead to an increase in community satisfaction, stronger social capital networking, improvements in community health, better and more active involvement by parents, improvements in the natural environment and possible financial earnings and savings (Raffan, 2000).

1.2.1.4 Outdoor Education May Improve Students' Behaviour

There is a lot of research concluded that outdoor education may improve students' behaviour. According to Bogner, (1998), 'students could be provided with additional tools to make responsible environmental decisions by means of a combination of first-hand experience, participatory interaction, adequate preparation, and subsequent reinforcement." In addition, a hands-on approach does "offer valuable insights for environmental educators whose goals include incorporating ethnic diversity and engaging youth in research leading to community action."(Doyle and Krasny, 2003)

Evidence suggests that outdoor adventure education can improve physical fitness and promote positive behaviours (Rickinson et al., 2004). Most researchers agree that school ground projects can lead to improvement to students' health (Rickinson et al., 2004), and there are more specific behavioural effects on students such as calming effects, reduced vandalism and littering and a deeper staff-student relationship (Skamp and Bergman, 2001).

Regarding school gardens, a survey of over 80% of 200 international respondents with the experience of school gardens, concluded that they gave an increased the sense of environmental stewardship amongst the school community (EDC, 2000).

1.2.1.5 What Is Good Outdoor Education

Although outdoor education has been proved to be beneficial, it is only true when the education activity is successful. "Experiential educators sometimes pat themselves on the back for just getting students into natural areas, but getting them there just to use nature as a backdrop is not enough" (Simpson, 1999). "Environmental educators should move away from the linear model in which nature experiences necessarily transform attitudes", and the attention should be raised that an experience in nature does not automatically "contribute to environmental awareness, commitment, and action" (Russell, 1999). "What they learn both in the classroom and in the field only serves to strengthen their views and perhaps heighten their sense of action paralysis". (Uzzell et al., 1995) In other words, programmes outdoors do not equate to environmental education experiences unless they capitalise on the uniqueness of the environment and are properly organised.

Therefore, outdoor education can improve students' skills from each aspect to different degree, only if several essential requirements can be met for good practices. Just as stated: "Substantial evidence exists to indicate that fieldwork, properly conceived, adequately planned, well-taught and effectively followed up, offers learners opportunities to develop their knowledge and skills in ways that add value to their everyday experiences in the classroom." (Dillon et al., 2006)

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In conclusion, when outdoor education is "properly conceived, adequately planned, welltaught and effectively followed up", it may enhance students' positive cognitive learning, change their perceptions and improve their social skills and physical behaviour. All together, this well demonstrates the necessity and importance of outdoor education.

1.2.2 Why research on outdoor education is needed in China?

Research papers cited in previous section have all been produced in western countries. In contrast with the variety of the research topics and the depth of the analysis in the literature, corresponding research in China is very sparse and rare. It remains to be a blank spot in research field in China.

Using "outdoor education" as the key word to search in Chinese academic papers database (VIP and CNKI, the biggest Chinese Academic databases), only 6 papers can be found. And all of them are based on documentary analysis and no first-hand data was collected. In fact, four of them are introductions or analysis of outdoor education in foreign countries with the following titles:

- Development of outdoor education in foreign countries and its enlightenment (Yan, 2008)
- Curriculum research on outdoor education in American higher education (Peng, 2007)
- New Zealand Environmental education policy review (Zhai, 2006)
- The characteristic of German environmental education in primary and secondary schools (Liu, 2001)

Another 2 papers, both by the same author, did focus on the situation in China and but discussed a specific aspect - the strategy and the benefit of building field environmental

education centres.

- The discussion about building field environmental education centres (Wu, 2001)
- The function of field environmental education centres and the development strategy (Wu, 2000)

In all of these papers, there is no clear definition for outdoor education in Chinese context. It was either considered to be the environmental education outdoors, or to be an innovative experiential education practice, but not to be an independent education field.

This thesis therefore aims to fill in this research gap by getting the general characteristics of outdoor education with first hand data and conducting a SWOT analysis to further improve its development in China.



1.3 The Objectives and the Structure of the Thesis

Figure 3 The main target field of this thesis

As illustrated in Figure 3, the green shaded area is the range of outdoor education, and the overlapping area of outdoor education, environmental education and experiential education represents out of classroom, student-centred environmental education (marked with "A" in Figure 3). As a high quality and innovative education type, this is the main targeting field in this thesis, and the SWOT analysis is mainly focused on the practices of this type. The situation of student-centred learning outdoors, but without an environment focus (marked with "B" in Figure 3) and environmental education outdoors but not student centred (marked with "C" in Figure 3) were also surveyed because successful practice in these two can potentially provide support. The basic composition of the rest outdoor education activities (marked with "D" in Figure 3) was enquired through the survey, but not in-depth due to its wide range.

In this thesis, senior middle school students (15-18 years old) were chosen to be the target group, since they are easy to contact and willing to express their opinions and concerns. Also they have had various previous experiences, they can assess the quality of outdoor activities better than young children, and they are in greater demand of the high quality "A" area activities than younger students, partly due to the high pressure from the university entrance exams.

The research methods employed are both first hand investigation and the use of secondary data. To define the current environment for outdoor education, questionnaires were designed for both teachers and students to discover their understanding and attitudes towards outdoor education, their current experience of learning outside the classroom and their views of the

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opportunities and barriers to further development. University researchers and governmental education officers were also interviewed to reveal their understanding and their concerns. Since NGOs and companies also contribute in this field, for instance, as activity organisers, they were also involved into the interview list. In addition, all related governmental guidelines; strategies, textbooks and conference paper collections were also studied, and some secondary data from pervious research were also cited.

Chapter 2 explains the background information of Chinese education system and the characteristics of Xicheng District. The methodology used to conduct the questionnaires and interviews are explained in Chapter 3, and Chapter 4 lists the findings from the questionnaires, interviews, and archival research and conducts analysis sector by sector. In conclusion, Chapter 5 summarises the SWOT analysis and makes recommendations for corresponding stakeholders.

Chapter 2 BACKGROUND DESCRIPTION

Chinese education system and recent basic education reforms are described with the purpose of providing a context for the research. And in the second section, the characteristics of Xicheng District are demonstrated to prove its position as the best-case example in Beijing.

2.1.1 General information of Chinese education system

In China, the education system is divided into several stages. For children from 6 to 12 years old, they go to primary school; and from 12 to 15, they go to junior middle school. This nine-year education is compulsory. At the end of the last semester at age 15, a provincial wide examination is held to select the best students to go to beacon senior middle schools, and the others will go the ordinary senior middle schools, vocational schools or no school at all. Senior middle school students are aged 15 to 18, and after that, another national wide examination is held to select students into different universities or somewhere else, according to their marks and their vocation. The examination is the most important event for students and parents, and it is also the most crucial concrete judgemental standard for schools' reputation.

As illustrated in Figure 4, the grey areas indicate the nine-year compulsory education, and the after that most students will go to senior middle schools. Figure 4 is just a simplified diagram and does not present the real proportion.



Figure 4 Illustration of the Chinese Education System

2.1.2 Recent basic education reforms

Since 1949 when the new China was founded, eight basic education reforms have taken place Real change started with the seventh reform in 1988. This started to challenge the national centralised textbook management system by allowing the appearance of optional classes and practice classes, and encouraging provincial effort in compiling local textbooks according to the national syllabus. It broke the old model that every pupil should use exactly the same textbooks and the supplementary materials all over China. Comparing with the pervious six reforms, the 7th reform is "a great step towards a more flexible education system." (AEIO, 2004)

However, it was just a start. The 8th reform, started in 2001, was devoted to extending the achievements and to further improve the diversity and flexibility of the current education system. There are three significant changes should be specially highlighted in this reform.

2.1.2.1 The system of three administrative levels of Curriculum Management

This is an extension of the 7th Reform, which involved the provincial administrative level into the curriculum management. Schools, as the main body to deliver the teaching activities, have finally been given the right to choose appropriate teaching materials and are encouraged to compile their own courses and textbooks. However, in general, only beacon schools have attempted to implement that right, up until now.

In addition to the compulsory courses, other courses and projects with the aim to teach students about the local culture and society, or to reinforce and to supplement the compulsory courses are also strongly encouraged. This allows more flexible schedules for schools, and enables more out of classroom learning opportunities.

2.1.2.2 Comprehensive Practice courses

The comprehensive practice course is a new field prescribed in the reform of fundamental education courses, and it is appointed to be a compulsory class from primary to high school. The main content includes information technology education, inquiry learning, community service and social practice, and labour-technology education.

According to the requirement from the Ministry of Education, from the third grade in primary school to ninth grade in middle school, every year, there should be 140 class hours for comprehensive practice courses; and for high school, in the first two years, there should be 108 class hours every year and for first semester of the third year, it should be 54 class hours. During the three years, students should finish 3 research projects, which equals to 15 credits.

This new requirement triggered to extensive discussions all over the country. How to fulfil the class hours with high quality education practice became the top topic both in schools' practice and in research field. It allows and encourages all kinds of education practices, including outdoor education, to emerge to fill the blank.

2.1.2.3 Environmental Education

In February 2003, the Ministry of Education published the draft version of *The Guidelines of Environmental Education for Primary and Middle School Students*, according to which, for the first time, environment education became compulsory. It was a great breakthrough in education and it also gave scope for more environmental education outdoors.

As announced in the new published environmental education guideline outline, 12 class hours for first grade in primary school to ninth grade in middle school are required and 8 class hours per year for high schools. Every school can adjust the plan according to local conditions. Up until now, the main themes for EE are: Environment and Ecology, Environment and Culture, Environment and Technology, Sustainable Production and Consumption, and Green life.

Although it just appeared as a compulsory class recently, a lot of good experiences have been collected, as the history of environmental education in China is already more than 30 years. Since 1973, when the first National Conference on Environmental Protection was held, environmental education appeared on the education scene. Environment related content appeared in classroom teaching occasionally, since the public started to realise the importance of environment. In the period from 1983 to 1992, elective courses about energy, environmental protection and ecology emerged in some places, such as Changtu and

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Chaozhou. To expand the successful practice, in 1987, the revised national curriculum guideline emphasised that primary and middle schools should introduce environmental education through the classroom teaching activities, and extra-curricular activities or lectures, if conditions permit. The 1992 revision of the national curriculum guidelines clarified the knowledge level and the teaching aims for environmental education in related subjects. Several conferences were hosted in Beijing to award individuals and organisations, for contributing the most in environmental education. At the same time, international cooperation between NGOs and governments on environmental education was also promoted and it made push in a more comprehensive and more practical direction, where the establishment of Green Schools in 1996 is an excellent example.

2.2 Description of Xicheng District

Beijing is a super metropolitan city with the population around 15 million (15.38 million in 2005) (Chinanews, 2007), which comprises 18 administrative sub-division units, of which, 16 are districts and 2 are counties. The education resource is not evenly distributed and the education quality is also not the same all over Beijing. Xicheng District was chosen to be the sample area for the survey, with a population of 707,000 this is 8% of the inner city of Beijing while the area size is only 2%, as showed in Figure 5.



Figure 5 The municipal division of Beijing and the location of Xicheng District

There are several reasons to choose Xicheng District as the sample survey area. First, most importantly, this research requires a best-case example, where has intelligent open-minded students and best education resources to eliminate the negative disturbance, such as poor acquaintance of recent education reforms. Xicheng district is famous for being a pioneer in implementing new education theory and practices. Take ESD as an example. In 1994, based on the wide spread of environmental education practices, "Education for Sustainable Development" (ESD) was for the first time introduced into the education system in primary and middle school in the whole district. Since 1998, UNESCO established the project of Education for Environment, Population and Sustainable Development (EPD) in the District;

Xicheng District again was the first in terms of implementing active participation in researching and designing local courses. Ever since the new round of education revolution started, its integration with current curriculum again became one of the new research topics in this district, far ahead other places. Not surprisingly, the quality of education is also regarded to be the best in Beijing, as well as in China.

A second major reason for selecting the area is due to practical opportunities of conducting research there. Generally, conducting questionnaires in senior middle schools in Beijing is not an easy task to do for a variety of practical and political reasons. However, because Beijing Normal University (the leading university in teacher's training and education science in China) is located within this district, schools here are relatively more open to education researches and the students are more active and mature in terms of expressing their concerns and opinions regarding educational problems.

Questionnaires for students and inspects for teachers were all conducted in senior middle schools in Xicheng District. When investigating other stakeholders, such as senior researchers, companies and NGOs, since their research or work are not area-specified; the boundary of the investigation was extended into the whole city.

Chapter 3 METHODOLOGY

Beijing, as the capital of culture and education in China, was naturally chosen to be a pioneer in all previous basic education reforms, especially after 1990s. With the encouragement from recent education reforms and influence from all types of educational initiatives, the increased diversity of educational practices promotes greater flexibility in Beijing's education system, and enhances its leading role in the current education reform.

To learn about the situation of outdoor education for senior middle school students in Beijing, questionnaires, interviews and archival research were conducted to find out the characteristics of their current outdoor experience, and different stakeholders' attitudes.

The questionnaires were analysed quantitatively to represent the general situation, while interviews result were studied in a qualitative way, and quotes are cited to illustrate people's opinions. When conducting documentary analysis, all related available academic papers; governmental guidelines and conference collections were studied to abstract the valuable and relevant points to support the thesis assertion.

3.1 Questionnaires for Students

In Xicheng District 2007, there were 7176 students graduating from junior middle school and the total number of admissions was 5997, including 3014 for beacon senior middle school and 2983 for ordinary senior middle school, plus another 800 for vocational senior middle school (BEEA, 2007). The school size varies and out of the total 48 senior middle schools in this district, only 8 are beacon ones, where the number of students almost equals to the sum of all others (BMEC, 2005). Vocational senior middle schools were excluded from this research because their curricula are very different, plus the total number of students is relatively small and contacts with their schools are fairly difficult.

Due to the limited time of the survey and the challenges of cooperating with external questionnaires, it was decided to questionnaire one beacon school, Railway No.2 Middle School; and one ordinary school, No.159 Middle School. The Xicheng Education Research Institute assisted with the distribution of the questionnaires to get the students' feedback.

The questionnaire was designed in four parts: frequency and components of current outdoor learning practice, previous outdoor event experience, students' attitudes towards a described outdoor education example, and their understanding of parents' and schools' standpoint.

Because the term of outdoor learning or outdoor education is fairly new in current Chinese education system, most students and teachers understandably feel confused about its boundary. Thus in the questionnaire, the range of outdoor education was extended from its original definition by literature in western society, to include all educational activities outdoors, such as the two-week compulsory military training course and facilities visits; and activities with an outdoor part, such as an sample collecting for laboratory experiments.

This wide range of data was collected first, and in the following sections, each type of activity was categorised according to the definition by western literature. Those activities, which take place outdoors but do not belong to academically recognised outdoor education, were isolated in later chapters to make the result comparable with its counterparts in western countries, for

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example, military service and museum visits are not generally considered as outdoor learning in western literature. In the second step analysis, all the isolated outdoor education activities were also categorised into the 4 groups described in introduction, according to their subjects and teaching approaches.

In the first part of the questionnaire, information on the frequency and content of outdoor learning in the last 12 months was requested with the purpose of finding out the composition of current outdoor activities. The results were collected separately for school organised and parents accompanied events. The components in the questionnaire were catalogued into three groups, including academic projects, travels and facility visits. For academic projects, whether it was on campus or off-campus was also established.

Academic projects cover the activities related with curriculum requirements, or extracurriculum activities, such as optional research assignments, biology club activities or any field species identification organised by some NGOs. The term also covers some activities with an outdoor part in the comprehensive practice course. Travel includes class trips parents accompanied holiday journeys and adventurous events. In most cases, the purpose of travel is not to increase knowledge level, but to relax or to enrich life experience. Facility visits mean museum tours, heritage site visits, and industrial site tours, such as a wastewater treatment facility tour.

In the next section, students were asked to recall their best previous outdoor experience and various questions were designed to explore the characteristics of the events and their attitudes. Levels of agreement were requested for the following statements:

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- It was fun
- I learnt a lot of new things
- I learnt more outdoor than we could have done in class
- I was not worried about losing time in other lessons
- I felt safe during the fieldwork
- I enjoyed the group work when we are outside
- We discussed some environmental issues during the fieldwork

Students were asked to categories their opinions into 4 levels: agree, basically agree, basically disagree and disagree. In the analysis process, each level was counted separately.

The third section was about an imaginary one-day river quality survey example. After the brief description of a possible experience, the levels of agreement for some similar statements towards this particular event were examined, to both confirm the information obtained from the previous section and also to make sure students were able to give their opinions towards outdoor learning in case they did not have similar previous experience.

The last part of the questionnaire asked whether they would like to join similar events and how they expected their parents or school to react on this type of activities, whether they would be supportive or not and why. Due to the difficulties of sending questionnaires to parents, this survey had to rely on students accurately representing the viewpoint of their parents and schools.

3.2 Interviews and Questionnaires for Teachers

Questionnaires and interviews were conducted to understand teachers' standpoints, and indirectly, the orientation of school. Thirteen teachers in Xicheng District were randomly chosen and contacted by email with the help of Xicheng Education Research Institute, and they completed the open-ended questionnaires with greater details. Another two group interviews with teachers are also organised separately, one group including 3 young teachers and the other group containing 2 experienced teachers randomly chosen from one leading teachers' conference of Xicheng District. Although 18 teachers is not a large sample size, it is considered adequate for the purpose of this research

Questions for teachers were open-ended, with the purpose to explore their understandings of outdoor education and their perception of opportunities and barriers. They included

- their interpretation of the importance of outdoor education in their subjects;
- outcomes of outdoor education, especially in cognitive level;
- what is the motivation for schools to improve their practical projects with students;
- do they think the proportion of outdoor education will increase in short term;
- how do they assess the performance of external organisations' education projects;
- what are the main barriers;
- do they think outdoor activities will effect the course schedules and disturb the routine in school;
- And what are their recommendations for current situation.

3.3 Interviews with other Stakeholders

Other stakeholders, including local authorities, companies, NGOs, and researchers, were also considered to get a complete picture of the current situation of outdoor education. Corresponding investigation was conducted, either through formal interviews, or with informal communications.

In Xicheng district, local authorities are responsible to convey documents from upper authorities, to improve communication between local schools and teachers, to conduct education research and to promote different initiatives and projects. Xicheng Education Research Institute is the main body for researching and promoting, while the Education Committee of Xicheng District is in charge of administration work. Therefore, Xicheng Education Research Institute was chosen to be the representative of local authority and its ESD officer and director of the biology-teaching group were interviewed.

Companies and NGOs are frequently the suppliers or the potential suppliers of outdoor education programmes to schools, so they were interviewed. Their conception of SWOT for outdoor education is of great importance. Since outdoor education is currently not very popular and very few organisations have specific outdoor activities, the scope was extended. Suppliers of general environmental education and experiential education programmes were included in the interview list since they are closely related with outdoor education, and a great possibility exists for them to integrate outdoor education with their programmes.

Beijing Normal University, the leading university in teachers' training and education science in China, is also located within Xicheng District. University researchers are part of the main
force to push national education reforms and they have great influence on policy making. Their opinions of the SWOT of outdoor education are very important in terms of completing the characteristics of outdoor education and predicting the future policies.

Interviews were held with the representatives from each type of stakeholders to understand their different perceptions, their understanding of the current situation, and their other concerns. Here is a list of those consulted formally:

- ESD officer in Xicheng Education Research Institute;
- One employee in Zhongzhongcong Science Education Company;
- Head of Beijing Brooks Education Centre, a NGO devoted to improve rural education, environmental education and citizenship education, and is preparing to build the first residential field centre in Beijing.
- Deputy Director of Teaching Affairs Office of Beijing Normal University, who also majors in biology education
- Director of Academic Service Centre of Beijing Normal University, who is also a leader of Beijing Birdwatch Society, a NGO to improve nature education and promote people's passion towards nature
- One academician in Chinese Academy of Science, who majors in field ornithology and is active in education related conferences.

And the questions interviewee were asked include

- their understanding of the concept of outdoor education, and the current situation
- their interpretation of the importance of outdoor education for students;
- their evaluation of the outcomes of outdoor education;

- what are the existing positive conditions supporting its future development
- is there any motivation for your organisation or from your perspective to improve outdoor education, if yes, what is it?
- do they think the proportion of outdoor education will increase in short term; if yes, why? (In terms of policy change? Or push from market and profit?)
- what are the main concerns and barriers;
- what are their recommendations for the current situation.
- after explaining the Field Studies Council (FSC) model in UK (Field studies centres established by this NGO, taught by national qualified special trained outdoor educators, guided under the national outdoor curriculum and closely related with national curriculum)- would this work in China in your opinion? And what are your comments?

3.4 Archival Research

Beside the first hand data collection, secondary data from previous research were also used. A wide range of documents and online materials were examined during the field research process. Relevant and valuable information was abstracted and listed in the chapter of findings. It supplements the findings of the first hand data, and completes the characteristics of outdoor education in Beijing.

The boundary of archival research is determined by whether it is related with any type of the education practice mentioned in the introduction part, including environmental education, ESD, outdoor education and experiential education. Within the boundary, all related government papers, research papers searched through academic databases, conference paper

collections and online materials published by educational institutes or authorities are all collected and examined with the greatest effort. Examples includes national guidelines for the recent educational reform, draft guideline for environmental education, documents promoting ESD practice and summarising ESD achievement, paper collections for international forum of promoting ESD in Beijing.

Chapter 4 FINDINGS AND ANALYSIS

The research was conducted sector by sector, so the finding in this chapter will be set out following the same structure. The results from the questionnaires, the interviews or the archival research will be presented together to clarify the situation of each sector. In the last section, some additional important archival research result is presented for the use of further analysis in the next chapter

4.1 Students

As described in the methodology, one beacon school, Railway No.2 Senior Middle School, and one ordinary school, No.159 Middle school were chosen for the questionnaire survey. , 240 questionnaires in total were received from both schools, and 217 of them (90%) of them were completed correctly. The total number of admissions was 5997 in 2007 in Xicheng District, so the estimated number of total senior middle students is 18000. Using Sample Size Calculator (CRS, n.d.), when confidence level is 95%, the confidence interval is 7%.

In Railway No.2 Senior Middle School, two random classes in the first Grade were required to complete the questionnaires. 73 were received and 67 of them (92%) were completed correctly. According to the admission scheme in 2008, Railway No. 2 Senior Middle School is going to recruit 418 students (BEEA 2008a). Since there were no big admission changes in the past several years, the estimated total number of students in the school is 1250. With confidence level of 95%, the confidence interval is 12%.

In No.159 Senior Middle School, four random classes in the first Grade were required to

complete the questionnaires. 167 were received and 150 of them (90%) were completed correctly. In agreement with the admission scheme in 2008, No.159 Senior Middle School is going to register 229 new students (BEEA 2008b). As no big changes took place in the past, the estimated student number in the school is 690, thus, the confidence interval is 7%. In all cases, the confidence intervals are in a reasonable range, so the results from the questionnaires can reasonably be assumed to apply to senior middles schools in Xicheng District.

4.1.1 Frequency and Components of Current Outdoor Experiences

The numbers of outdoor activities undertaken in the last 12 months in the four categories of activity were recorded in the questionnaires, and the average number of the activities taken per person per year was calculated and shown in Table 1 for school organised ones and in Table 2 for parents arranged ones.

Table I Frequency of unferent outdoor activities of gamsed by school in fast 12 mon	Table	e 1 Freq	uency of	different	outdoor	activities	organised	by s	school	in last	12	mon
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	Frequency of each type of outdoor activities organised by schools							
School name	Projects in school	Projects outside school	Class trip	Facility visits	Others	Sum		
Railway No.2	0.76	0.28	0.55	0.45	0.09	2.13		
No.159	0.60	0.37	0.78	0.92	0.15	2.83		
Average	0.68	0.33	0.67	0.68	0.12	2.48		



Figure 6 Different outdoor activities organised by school in the last 12 month

Table 1 shows the results from both schools and the composition pattern of the ones organised by school are illustrated in **Figure 6**, while the ones by parents are in **Figure 7**. Since the total student number in beacon senior middle school and ordinary senior middle school are almost equal (BEEA, 2007), the average of the results from both schools are considered to be the result representing the whole district. In **Figure 6**, the composition pattern of outdoor activities organised by school is illustrated and it is clear that projects occupies 30% to 50% of all outdoor activities, while class trip and facility visits take 50% to 70%.

The figures in **Table 1** show that School No.159 generally has more outdoor activities than Railway No. 2 School. Only projects in school are less than Railway No.2, which can be partly explained by the fact that Railway No.2 is a beacon school, where generally has more projects opportunities, as it has a bigger campus and better facilities and equipment. Projects outside school, class trips and facility visits in No.159 School are much higher correspondingly by 30%, 40% and even 100%. The possible reason could be just as one interviewed teacher said, "beacon schools generally try to achieve better exam results to maintain the school's reputation by avoiding any unnecessary activities and promoting continuous studies". Most of activities mentioned in "others" are school sports meetings and other sports competitions such as volleyball.

Table 2 Frequency of different outdoor activities organised by parents in last 12 months

	Frequency of each type of outdoor activities organised by parents							
School name	Projects	Travel	Facility visits	Others	Sum			
Railway No.2	0.12	0.72	0.55	0.04	1.43			
No.159	0.23	1.15	0.80	0.11	2.29			
Average	0.17	0.93	0.68	0.08	1.86			



Figure 7 Outdoor Activities organised by parents in the last 12 month

Table 2 and **Figure 7** present the situation of outdoor activities organised by parents in both schools. The difference between the frequencies in both schools is obvious. Each type of outdoor activities in No.159 School is 45% to 90% more frequently organised by parents compared to Railway No.2 School. It can be partly explained by that "parents in Railway No.2 School generally would prefer to enhance their children's study and marks by sending them to supplementary studying classes or academic Olympic competition training courses, with the expectation of sending them to the best universities in China, rather than letting them join more travel and disturb the continuous study process and generating relief feelings", as said by one interviewed teacher.

Compared with the school-organised activities, the outdoor events by parents have very different composition patterns. Travel occupies half and the facilities visit shares most of the other half. Projects are only small proportion and they usually refer to some outside academic activities, such as species identification or bird watching, or some social practices, such as a short film editing with the theme of saving water with the purpose of competing for a certain reward.

However, according the generally definition by western researchers, military training courses, museums and other indoor facilities and holiday travel do not really belong to the range of outdoor education (Rickinson et al., 2004). Applying this definition most of the reduction of parent organised activities and around two thirds of school organised activities are not really strictly outdoor learning. When it is considered that the projects either in school or off-campus might not be in an environment related subject, the outdoors, student-centred environmental education activities are actually very few among current education activities.

4.1.2 Attitude towards Outdoor Learning

Although people assume there are general enthusiasm and passion towards outdoor learning from the curious and energetic children, their attitudes have never been surveyed in China before. In this part of the questionnaire, students were required to recall and describe their favourite outdoor experience in the past, and based on this experience, the attitude questions followed. Because of the possibility that they have never before been involved in an activity that belongs to out of classroom, student-centred environmental education, a one-day river quality fieldwork example was described and the attitudes towards the particular case were also questioned.

4.1.2.1 Description of their favourite outdoor experiences

More than 60% of respondents from both schools stated that their favourite outdoor events took place when they were in senior middle school and it was less than one day. Around 50% respondents expressed that it was organised by schools, while family members were the organisers for another 20%.



Figure 8 The distribution of the themes of students' favourite outdoor experience

Summarising the questionnaires, the main themes of the favourite activities were classified into three catalogues: environment related, high tech shows and other social activities, as shown in **Figure 8**. Facility visits and courses were spread into different catalogues according to their subjects. For example, botany garden visit and plants identification course are in the environment related category with other nature education, while the military training course for senior middle school students and other famous museums tour belong to the social activities. High tech shows mainly refer to the exhibitions of modern science and technologies.

50% to 60% respondents replied that the theme of their favourite activity belongs to social range and only for around 20% of respondents was it related with environment.

4.1.2.2 Attitude results based on their favourite events

When conducting the attitude tests, the following statements were enquired to mark one level of agreement, choosing from "agree", "basically agree", "basically disagree" and "disagree".

- a. It was fun
- b. I learnt a lot of new things
- c. I learned more out of doors than we could have done in class
- d. I was not worried about losing time in other lessons
- e. I enjoyed the group work when we are outside.
- f. I felt safe during the fieldwork
- **Railway No.2 Senior Middle School** 100% 90% 80% Disagree 70% Basically disagree 60% 50% Basically agree 40% 30% Agree 20% 10% 0% d f а b С е g
- g. We discussed some environmental issues during the fieldwork

Figure 9 Attitude results based on their favourite events in Railway No.2 School



Figure 10 Attitude results based on their favourite events in No.159 School



Figure 11 Average attitude results based on their favourite events

Through the attitude questionnaires, students showed their great passion towards outdoor

learning experiences. All statements get more than 70% positive responses when adding "agree" and "basically agree" together, and more than 30% responses just for "agree".

The differences between two schools are not that great, and it is mainly in the distinction between "agree" and "basically agree". Railway No. 2 school generally had higher rate of "agree" than No. 159 School, especially for the statement that "it was fun", where 70% respondents voted for "agree" and only "40%" in No.159 School.

Surprisingly in both schools, the positive agreements on the statement that "we discussed some environmental issues during the fieldwork" are higher than 70%. It is a very high rate considering only around 20% of the activities are actually environment related, as shows in **Figure 8**.

Summarising the results from the attitude questions, basically 70% - 80% of the students think that the event was fun and they learnt a lot of new things, and more than they could have done in class. They were not worried about losing time in other lessons, partly because half of the activities took place in summer vacations before they entered senior middle schools and they felt safe during the fieldwork. They enjoyed the group work, if there was any, and they discussed some environmental issues during the fieldwork, even though in many cases the theme of the activity is not environment related.

4.1.2.3 Attitude results based on the described example

In this part of the attitude test, a brief description of a one-day river quality fieldwork was given as an example of an outdoor experiential and environmental education. The levels of agreement for the following statements are enquired to get their attitudes towards this particular case.

- a. It sounds fun
- b. I should be able to learn a lot of new things through this fieldwork
- c. It looks safe
- d. I can learn more about water quality doing the work outside than I can in a classroom
- e. This way of learning helps with other skills as well such as working in groups
- f. It is a waste of time for my other study
- g. I can learn the knowledge in classroom instead
- h. I would be worried about not doing enough work to pass my exams







Figure 13 Attitude results based on the described example in No.159 School



Figure 14 Average attitude results based on the described example

The statements were separated into two groups, Group one includes statements 'a' to 'e' and

Group two includes statements 'f' to 'h'. Comparing the two groups, some of the statements were asking about the same issue in different ways, for instance statement d in Group one "I can learn more about water quality doing the work outside than I can in a classroom" and statement g in Group two "I can learn the knowledge in classroom instead". The questionnaire was designed in this way to make sure the responses were valid, and two groups of statements were mixed in a random order on the real field questionnaire.

The patterns of the results from both schools are very similar. Around 70% respondents voted for agreement on different levels for statements in Group one and 65% voted for different levels of disagreement for statements in Group two.

Among all the statements in Group one, "it looks safe" gained the least votes for "agree", which is 24%, and 47% for "basically agree". Although still more than 70% voted for positive agreement, comparing with other concerns, safety issue is the biggest concern through this survey, and it may partly because the described example is a river quality survey and it requires standing in the river during the investigation process. Two illustration photos attached with the description might enhance the fear of working in the field. As one student wrote, they were worried about the pollutant and chemicals in water, and also feared the possibility of felling down in the stream.

Students in Railway No.2 School again showed their stronger feelings than their counterparts in No.159 School by generally giving 10% more on different levels of agreement for statements in Group one, however, the difference for statements in Group two are not as obvious.

Particularly for the statement that "it sounds fun", students in Railway No.2 School voted 20% more on "agree" level. For the statement that "I should be able to learn a lot of new thing through this fieldwork", students in Railway No.2 School voted 96% for "agree" plus "disagree" whilst 84% for No.159 School. Besides their passion and enthusiasm, some of them still have their concerns. In Railway No.2 School, 25% stated that they agree the statement that "I would be worried about not doing enough work to pass my exams ", and another 10% voted for "basically agree", while the rate in No.159 was 17% and 19% respectively.

To sum up, around 70% respondents basically considered the described example as fun and safe. They think they can learn a lot of new things through fieldwork, and can learn more than they could in classroom. Other skills can be enhanced, such as working in groups, and it is not a waste of time for other studies. However, around 35% would be worried about not spending enough time on preparing exams, and 30% think it is not very safe. Generally, students in Railway No.2 School expressed slightly stronger passion for the opportunity of outdoor learning experience, and slightly bigger concerns about its negative influence on their exam results.

When asked whether they would like to join similar fieldwork in the future, 81% students in Railway No.2 School and 74% in No.159 School voted for "yes", while 7% and 11% respectively voted for "no", and 12% and 15% did not give answers for this question.

The typical reasons are listed as follows, and the rank indicates the frequency the statement

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was repeated.

Reasons for "yes":

- 1. I can enhance my study in classroom, and learn new things about the field
- 2. It can improve my quality comprehensively
- 3. It is interesting and fun
- 4. It can enhance friendship and improve group-working skills
- 5. I want to do some practice work;
- 6. I can temperately escape from the study and exam stress

Typical statements for "no":

- 1. It will take too much time and effect my other studies
- 2. It is boring
- 3. I am not interested in science stuff and experiments.

Reasons for not answering this question includes:

- 1. It does not matter to me
- 2. Anyway it is not decided by me

4.2 Teachers

18 teachers in Xicheng District were chosen as the sample, and they were contacted either through interviews or by emails with questionnaires attached. They were from 5 beacon schools and 10 ordinary schools in Xicheng District, and were teachers of various subjects, including Chinese, Biology, Politics, IT, Geography, Comprehensive practice, and Psychology. Nine of them have been teaching for more than 10 years and 6 of them for less than 5 years.

Interviews and questionnaires for teachers produced very productive results, and the main findings are summarised below with necessary supplementing explanations and quotes from their original statements.

4.2.1 Understand of outdoor education

The teachers all agreed that outdoor education is very important for the subject they are teaching and that a proper load of outdoor learning practice would have a positive cognitive impact on their knowledge level, as well as improve their comprehensive quality. Especially the importance was emphasised by the geography and biology teachers. However, they also said that the preconditions for successful outdoor learning are that the events must be well designed and successfully organised, supporting western research evidence.

Some companies and NGOs are active in developing hands-on science education and environmental education, and usually they have connections with certain teachers and schools. However, when asked to give an assessment for these education activities and practice from the companies and NGOs, 67% teachers said they did not know much, 22% commented that they were just activities either "seeking profit" or "public reputation", and they showed a "lack of real education capacity, experience of class organisation and understanding of requirements from national curriculum". Another 11% thought they did "a good job in terms of changing self-perceptions, improving team work ability and extending knowledge in certain field, such as high technology application field."

4.2.2 Concerns about outdoor education

When asked about the barriers for outdoor education, the following list of concerns is summarised ranking from the biggest to the least important, and the percentage in parenthesis means the proportions in each case.

- 1. Health and safety- (67%)
- 2. Influence on school schedules and lack of time -(56%)
- 3. Exam stress -(33%)
- 4. People's conventional perception for education -(28%)
- 5. No research and special teacher training programme -(28%)
- 6. Fund resource- (22%)
- 7. No support and attention from the school leaders -(17%)
- 8. No good practices can be learnt from and lack of experience -(17%)
- 9. Too many students and it is hard to manage, -(11%)
- 10. Little connection with curriculum -(6%)
- 11. No proper location- (6%)
- 12. Inconvenient transportation- (6%)

The main concern is still safety, because the responsibility for students' health and safety is a big burden for both school and teachers. Some schools even do not allow students to play football in campus to avoid taking any risk, and outdoor practice involves great possibilities of risk and danger, which schools and teachers tends to avoid.

The followings are the worries about effecting pre-designed schedules, and concerns about

the lack of time left for outdoor activities. One teacher stated that, "the burden from the compulsory courses is too heavy for the students already... For students who were not born geniuses and still want to improve their exam results greatly, they have five classes in the morning since 7:30 to 12:10, 4 classes in the afternoon from 1:30 to 5:05 on weekdays, and extra tutoring class for Saturday. Plus, they have their own homework, and own studying plan. There is no time left to add outdoor education practices". Half of interviewed teachers think outdoor practice may take extra time and effort to change the present schedules and will cause extra trouble, however, the other half think that is not a very serious problem.

28% teachers pointed out that the key barriers for outdoor education were that "most people still hold the conventional perception of education, which is putting too much attention on exam marks, but not on students' quality development. National exams and current curriculum also enhanced the convention, and made an illusion that only mark matters and all educational activities are just for higher marks."

Big concerns also exist in the difficulties of organising outdoor activities, in terms of finding proper location, few previous examples that can be learnt from, and the management of large number of students, especially for young teachers. Besides, financial support and encouragement from the school are also considered to be very important. Great similarity appeared when comparing the result with the situation stated in western literature. The following points are the barriers for outdoor education summarised from western literature.

• Fear and concern about young people's health and safety

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This is the most frequently cited challenge to out of classroom learning, and arose from a number of well-published accidents involving school children.

Teacher's confidence and expertise in teaching and learning outdoors

In an OFSTED (The Office for Standards in Education, Children's Services and Skills in UK) survey of Outdoor and Adventurous Activities in 33 English schools, teacher's experience was defined as a key factor affecting the quality of activities (Clay, 1999). In addition, the prospects for addressing the needs of teachers in this area are not encouraging (Simmons, 1998, BEEA, 2007). Researchers in Chicago found that "the teachers did not believe that they were particularly well trained to teach in natural areas and they seemed to believe that their classes were too large to manage and that they lacked the necessary background to teach in such places".(Simmons, 1998)

The requirements of school curricula and timetables

Secondary school teachers believe that, "the National Curriculum neither prescribes nor provides sufficient flexibility to permit the use of school grounds for teaching", and the single lesson period is insufficient for outdoor work. They are unwilling to taking children for longer out of lessons for fear of "incurring the wrath of their peers for taking students out of their class and generating relief lessons"(Clay, 1999, Titman, 1999).

• Shortage of time, resource and support

A survey of 65 secondary school in south of England considers that the top two obstacles to outdoor education are a lack of time and a lack of money (Harris, 1999, Fisher, 2001). For students aged 11-16 years, structured scientific fieldwork may now be rare and for 16-18 years, it has become regarded as a luxury and is limited to minimum required by the

examination scheme and to the extent students can fund these activities themselves (Fisher, 2001).

Based on the above analysis, the common concern and barriers hampered outdoor education either in China or in western society includes fear of safety and health accidents, teachers' lack of confidence and experience, no requirement or encouragement from national curriculum and school schedules, and short of time, resource and support. In addition, teachers in China emphasised that the conventional perception of "education for marks" should be broken as the first step towards the development of outdoor education.

4.2.3 Essential elements for further development of outdoor education

The following part is a list of the essential elements for improving outdoor learning practice summarised from the investigation with teachers and the ranking is also from the biggest to least important, with the proportion in parenthesis:

- 1. Encouragement or guideline from national government (83%)
- 2. Cautious safety regulations (78%)
- 3. The need for professional outdoor educator training programme (72%)
- 4. Support from schools (50%)
- 5. The quality and design of outdoor activities (39%)
- 6. Fund resource (17%)
- 7. Establishment of special site for outdoor education (6%)
- 8. Support from parents (6%)

Policy change and encouragement from the national government are considered to be the most effective and essential element to ensure the future development of outdoor education, followed by safety related issues. Cautious regulation and professional training for emergency treatment are essential, and this concern also enhances the needs for the training of professional outdoor educators. As one teacher said, "professional outdoor teachers are the necessary to ensure the outdoor activities implemented smoothly and safely." In addition, the support from school is also very important in terms of adjustment in schedules and encouragement for teachers to attempt innovative practices.

Besides, the quality and design of outdoor activities is also considered to be very important, as "outdoor education is not an independent subject, and it should be combined with school teaching tightly" and "good examples and bad examples of outdoor learning activities are needed to be learnt from" to achieve the teaching aims of outdoor education.

Overall, theoretically, outdoor practice is generally recognised as essential, however, in real situations, school teachers are not encouraged, or self-motivated to improve the design and quality of the practice, and none of them actually had sufficient outdoor teaching experience. Some teachers, especially young teachers, state that they are willing to be involved into such experimental activities, despite that they are not very confident with their capacities with designing and organising.

4.3 Parents

Due to the difficulties of large-scale quantitative survey for parents, the students' understanding of their parents' attitudes were asked in the questionnaires, and it was also

asked in the communication with the teachers.

From teachers' understanding, they think most of the parents are supportive of out of outdoor education, as long as the activities are not just to earn money from students and the activities are well organised and preferably integrated with school studies. However, some parents are more exam-marks focused and will give school much pressure by complaining that these events costly and distractive. This can lead to the intensive relations between teachers and schools.

Due to the difficulties of large-scale quantitative survey for parents, the students' understanding of their parents' attitudes also were asked in the questionnaires, together with their understanding of their schools' standpoints. The results are showed in **Table 3**.

Table 3 Students' understanding of parents' attitudes

	Parents' attitude							
	Very supportive	Supportive	Not supportive	No answer				
Railway No.2 School	40%	40%	9%	11%				
No.159 School	43%	33%	8%	16%				

Around 80% students think their parents are supportive, and the following statements are abstracted from the reasons they wrote, with the rank indicating the frequency the statement was repeated.

Reasons for "very supportive" and "supportive":

- 1. They want me to get more opportunity to improve my comprehensive quality
- 2. They are open-minded and would like me to attempt different learning experience

- 3. They think I can get practice and can improve my skills, such communication and team-working skills and being more independent
- 4. They always respect my choice

Typical statements for "not supportive":

- 1. It wastes too much time and will effect my results
- 2. It is not related with curriculum
- 3. It is not very safe.
- 4. It costs money

Reasons for not answering this question includes:

- 1. I do not know
- 2. It depends on my recent exam marks, if it is good, then "supportive"
- 3. It depends whether it is organised by school, if it is, then "supportive"

4.4 Schools

There are great difficulties in getting in contact with school leaders, so the students' understanding of their schools' attitudes were asked in the questionnaires, and teachers' perception was also collected.

When asked about the motivations for schools to implement relevant projects and activities, the teachers regarded it as not only "fulfilling the requirement from national guidelines, especially from the new basic education reform", but also attempting to "improve teaching quality", "achieve better reputation" and "establish the schools' characteristics". However, their expectations about the amount of fieldwork practice in future were not so positive. Only 22% hold optimistic opinions that the proportion of outdoor education will increase, while the others think the schools should develop more outdoor education but they probably would not in practice, for various reasons, such as "there are many issues to consider, including funding, safety, etc. and it depends on the school leaders' will and capacity"; "the pressure from the national exams".

Generally students consider that school encourage outdoor education. The result from students is showed in **Table 3**, and the following statements are abstracted from the reasons they gave, with the rank indicating the frequency the statement was repeated.

Table 4 Students' understanding of schools' attitude

	Schools' attitude						
	Very supportive	Supportive	Not supportive	No answer			
Railway No.2 School	24%	40%	25%	11%			
No.159 School	28%	37%	20%	15%			

Reasons for "very supportive" and "supportive":

- 1. It may enhance our knowledge and improve our skills and comprehensive quality
- 2. It can improve our understanding of the society
- 3. It can improve our relationship with classmates and teachers

Reasons for "not supportive":

- 1. They do not want to take responsibilities for any risk of accidents
- 2. It may affect our studying results.

- 3. It takes too much time
- 4. It costs money
- 5. We may go wild and hard to control outdoors

And reasons for not answering mainly are "I do not know". Among all the statement for "not supportive", the proportion of the top one about safety concerns is around 80%, and one student points, "They even cancelled our spring outing".

4.5 Local Authorities

ESD officer Ms Liang in Xicheng Education Research Institute and director of the biologyteaching group was interviewed. The following statements are from her interview record, and all documents she mentioned were studied afterwards.

The main tasks of Xicheng Education Research Institute is to lead research projects, improve schools understanding and performance towards requirements from new national education reform and also to promote the implementation of ESD, whilst at the same time improving communication by both building internet-based platform and organising regular meetings for teachers in different subjects in Xicheng.

When asked about perceptions in outdoor education, she stated that she believes in the importance of outdoor education and she held positive attitudes towards outdoor educations development in the future. Through the new round of the educational revolution, encouragement for various education activities clearly reveals a positive approach towards outdoor education. However, when asked about the future development of outdoor education

from the perspective of national policies, she said she believed, "in the near future, it was unlikely that we shall see any special direct promotion to improve outdoor education".

In her opinion, building teaching capacity and improving communication and cooperation between different subjects within schools and with other organisations were essential before any progress could happen. Safety and health issues and the financial limitations would be among the top concerns, but they should not be treated as serious barriers or obstacles. Establishing field centres with special trained outdoor teachers should be the most practical way to get over all the obstacles and improve outdoor education efficiently and effectively. In long term, the interaction between field centres and schools could encourage improvement for both.

She also pointed out that "outdoor education as an independent subject can not achieve any huge future development in current circumstances". It should integrate with other educational practices, preferably tightly connected with the national curriculum, and especially with the new added courses, such as comprehensive practice courses. In addition, outdoor activities may also combine with ESD practices in Xicheng District.

All in all, she concluded that outdoor education, as "one essential method to improve teaching quality, and more effort should be put in both theoretically and operationally, to supplement the current education revolution. However, there is still a long way to go."

Regarding the current situation and the recent policies, there are three main directions defined by the Institute to improve the education quality in the next few years (Tian, 2007), which

created opportunities for the development of outdoor education.

The first direction is, in the core subjects, such as geography, biology, chemistry, ethic and society, etc, the concept of sustainable development should be penetrated into the everyday classroom teaching activities through experiencing, experimenting and cooperating teaching methods;

Secondly, the Institute should encourage communication and cooperation between different subjects, and design series of education activities on particular themes. Hopefully these education seminars will increase the students' ability to solve problems comprehensively and promote the teachers' professional progress. For example, "water" is very often used as one of the themes. Some laboratory based experiment on water quality, a small science innovation project to save water, a history review and current situation analyse or an essay about how to make improvement, are generally the main recommended forms.

Thirdly, teachers should combine the local culture, history and other characteristics of the social economy in this region, in order to improve current comprehensive practice and teaching materials in selective classes, as well as to create more regional courses and school courses.

These three directions emphasised the future tendency of basic education in Xicheng District is to improve cross-curriculum development and use more teaching approaches, which creates a great opportunity for out of classroom, student-centred environment education activities.

4.6 Companies

In western societies, many companies are frequently involved in providing outdoor education, such as PGL in UK. However, no known companies are just specialising in environmental education in Beijing. So companies supplying experiential education activities were contacted to explore the potential of developing out of classroom student-centred activities.

Miss Li from Zhongzhongcong Science Education Company was interviewed in depth, and another two employees from other similar companies were also contacted for briefer conversation. They believe that commercial science education practices in Beijing are still in the beginning stage. Great challenges and barriers both exist.

According to the interviewees, there are three companies in the field and they mainly supply scientific experiential education practices for children in kindergartens and primary schools, and very rarely for senior middle schools. They sell hands-on activities, which are usually integrated in the school slot for comprehensive practice, or other extracurricular activities. They focus on delivering scientific knowledge by hands-on experiments or games, and generally they do not involve activities outdoors.

When asked the possibility of extending their activities outdoors, several challenges were raised by Ms Li.

First, there are too many students are in one class and the management of them outdoors would be very difficult. "Usually in one class, there are more than 30 or even 60 students with at most three teachers". The ratio of teachers and students are very low and it is very hard to

implement exploring research projects. The limitation is also due to financial reasons. Companies cannot afford more teachers or smaller classes.

Secondly, there are no guidelines to regulate the content of the activities. For young children below 8 years old, since there is generally no exam pressure, companies can create their activities without referring to any national guidelines or requirements. When extending to high schools, the need to integrate the activities with school curriculum will be greatly increased and it would be hard to meet the requirements.

Thirdly, there is no feedback system to guarantee the quality of the activities. Currently, there are no monitoring and assessment for the activities. There is no requirement and they are not doing self-evaluation as well. Schools usually just cooperate with companies for their selective class or extracurricular activities, which they generally do not put too much effort into. There is no third organisation implement monitoring and evaluation work for both schools and companies. Although companies often adjust their activities from time to time, there is no strong force from the system to motivate them to improve the quality of the activities, especially with the financial limitation.

Although for certain age groups and in certain specific fields, these companies have some very good experience, this system is not able to extend to organise outdoor activities for senior middle school students, at least not within the current conditions.

Outward-bound training, winter and summer camping are very popular outdoor activities in Beijing. Therefore, archival research was accomplished to obtain a general outline for the

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current situation.

In outward-bound training field, senior middle school students are not their main target age group for various reasons, such as general low consumption ability, lack of self-control and independent behaviour. The aim of outward-bound is to improve people's physical condition, will and team working ability but it is not related with knowledge teaching, therefore it dose not belong to the main focus of this research.

Winter and summer camping activities in Beijing are no longer literately the camping sport. In more cases, it refers to extra learning activities in a wide range of activities, for instance, experiencing rural life, American life, supplementary English training, and science museums and park trips. However, summarising the most of the online materials, and even advertisement, English camping activities almost occupies half of the market, and nature study related camping activities are just less than 5%.

Although there might be great possibilities, even existing good examples, of extending camping activities to student-centred environmental education area. Although building field centres might be a potential market for companies, there is no in-depth analysis in this field due to the lack of relevant existing research and difficulties in investigations.

4.7 NGOs

NGOs in Beijing are very active in environmental education and experiential education field, so the investigation was focused on the existing outdoor environmental education activities and student-centred outdoor education activities, and the potential of developing the combined ones.

4.7.1 Experiential education NGOs

Hanbo is a leading NGO in experiential education field. The leader is the former viceminister in the Ministry of Education, and the organisation is well funded and with strong support from government. The aim of the NGO is to implement "learning by doing" in kindergarten and primary schools. Currently, in Xicheng District, there is no middle school involved in their projects, and there are only rare projects related with outdoor events.

Although Hanbo is not specialised in outdoor education, its model of development can be adopted when developing outdoor student-centred environmental education activities. There are two strengths highlighted on how to effectively improving projects' performance in China.

First, Hanbo has a wide network and a successful educator-training programme. In China, it has a wide connection with 8 normal universities (Normal University in China means university responsible for education research and teacher's training) and several educational institutes, such as Research Centre for Learning Science in Southeast University. Outside China, it has a close connection with French Academy of Science, and International Council for Science. Every year there are regular visits and communication with French Ministry of Education, and teachers training experts will come to help conduct specific training program for teachers to implement the idea of "learning by doing".

Secondly, it has developed a network of implementing practices in various locations at the

same time. A website was built as the platform tool, and frequent communication between each location greatly improved the overall performance.

4.7.2 Environmental education NGOs

Environment NGOs in Beijing are very active and most of them have environmental education or ESD as a separate programme or project. Two NGOs, Beijing Birdwatch Society and Beijing Brooks Education Centre were chosen for interview, and discussion supported by archival research.

Currently, their projects involve some outdoor environmental education activities, and even in some cases the activities are also student-centred. However, the proportion of activities in these areas is quite low. For example, in one recent project called "Protect the Beijing swift", students from 12 primary and middle schools were involved, and the main activities are listed as follows. Not all activities were implemented in every school and only one or several of them were chosen according to time allowance and other conditions.

- Attend a lecture about the identification of different species of swifts and their main biological characteristics
- Play a game imitating the migration of swifts
- Recall the description of swifts in ancient poems and articles
- Write an essay about swifts
- Make of drawing of the swifts in your mind
- Observe the behaviour of swifts on your own time and write or draw them down

This is a typical environmental education activity organised by environmental NGOs in

Beijing. It should really be called a campaign, because it does not involve serious continuous learning activities. In addition, it does not involve too many outdoor activities, especially offcampus, with the concern of taking risks of accidents. This type of activity is unlikely to develop into long-term constant education activities, and more likely to remain in the form of campaigns and continue changing its theme to abstract students' attention and adapting according to the development of the society.

Beijing Brooks Education Centre has great experience in environmental education, rural education and citizenship education, in terms of compiling textbooks and delivering education practices in various sites in China, but they do not have experience on regular outdoor educational practices now. Recently they got contact with Field Studies Council (FSC) in UK and are in the process of preparing the establishment of first field centre in China.

To effectively improve outdoor education, the head of the organisation Ms Hao said, "establishing several field centres is the only way", with the same reasons as Dr. Hindson in Environment Education Department of FSC pointed out, that building field centres "was the first step to encourage more outdoor learning in many countries as it covers most of the weaknesses and concerns. The locations are safe and the teachers well qualified and can be really focused on curriculum. It was only later in the education development in the UK that teachers began to do fieldwork themselves".

When asked about her opinion about the general safety concerns, she believed that "we should have a careful and completed system to protect students' health and safety, but the fear should not hamper us improving good education practices at all".

In conclusion, the best way to improve outdoor education comprehensively is to build field centres, and the conditions of establishment in China is getting mature. With the commitment from environmental NGOs, practices from experiential NGOs, and good management skills plus existing networks, promising development of outdoor education can be realised by NGOs in short future.

4.8 Researchers

When asked about the attitudes towards outdoor education, academic researchers expressed were very positive and considered it as "a good attempt to reduce student's studying burden and to raise their general interest in nature".

Mr. Zheng, is an academician in Chinese Academy of Science, and he majors in the field ornithology and is also active in biological education and basic education field. He expressed his concern about the future of field ecology. "In conventional outdoor subjects, such as biology and geography, the lack of interest and passion in new generations makes academicians very concerned. Generally, the opportunities for the natural bonding between children and nature are disturbed by all kinds of new technologies and new ideologies of the society."

"Species identification and general fieldwork are facing a stage where fewer people are interested in and fewer students are willing or able to spend long time on the knowledge accumulating and field practice."
"Due to the result-focused education system and the competition of publishing more papers or conducting more projects both in middle schools and in universities, more and more attention is paid to more advanced technologies and fast-yield fields, for instance, cell studies in biology field. They have attracted too much attention from people and schools, so that the conventional biology is under threat."

When asked about future educational policy, all 3 interviewees agreed that "although in the short term, there will little promotion of outdoor education, but the encouragement of the diversity of education practices and comprehensive interdisciplinary practices may indirectly promote outdoor education in certain level."

4.9 Additional Archival studies

4.9.1 Previous research on teachers' capacity of environmental education

During the interviews with Xicheng Education Research Institute, valuable previous research on teachers' capacity of environmental education was found and the main findings are summarised (Lin, 2001). Because of the natural bond between environmental education and outdoor education, and the fact that good environment education requires outdoor activities, the results of this research can be used to supplement the findings for outdoor education.

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Since 1998, the project "Environment, population and sustainable development", jointly organised by UNESCO, Xicheng government, Xicheng education committee, and Beijing Academy of Educational Sciences chose 30 primary and middle schools in the Xicheng District to investigate the route and methods to understand and promote the role of environmental education and ESD in inspiring the society to move towards the path of sustainable development.

In 2001, 531 teachers in 12 middle schools and 16 primary schools were sampled to examine their environmental education capacity. According to the result, 86% of teachers hold a positive attitude towards environmental education, and 94% recognise the importance of the environmental education. However, only 16% had a correct and comprehensive understanding of the concept of environmental education. The perceptions of the majority are partial and narrow, and especially for most teachers, environmental education somehow equates to nature conservation. The ignorance of other complex perspectives of environmental education leads to lower quality of environmental education and hardly any consideration of sustainable development.

The survey also covered the teaching skills needed for environmental education. The results are not optimistic. Only 30% teachers are considered to have the ability to analyse contents related to environmental education in the national curriculum and national guidelines, 18% are regarded as being able to collect relevant materials, and only 22% can put environmental education plans into practice. When asked about cooperating with teachers of other subjects, only 8% shows the ability, with 9 % showing that they can work with other organisations and only 9.97% teachers are able to assess and evaluate environment educations practices.

To some extent the results are depressing, and Ms Liang, the ESD officer does not think there has been a huge improvement since the time of the research. Building teaching capacity is very crucial for further development, in both environmental education and outdoor education

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to fulfil the requirement from the new round of the educational revolution. The main reasons from the report are summarised into the following points.

Firstly, teachers' participation in environmental education is not sufficient. Although Xicheng District has long history in environmental education practice, the main forms in the past are in extracurricular clubs and selective classes, so the combination of environmental education with the compulsory subjects is very loose and practices and experiences are very rare.

Secondly, the lack of clear task requirements or guidelines for teachers, linked with the pressure of high expectation in exams, results in environmental education and outdoor education not being a priority for teachers. Generally they do not pay enough attention to make the practice formal and systematic. In contrast, environment education penetrated into their routine teaching is generally random and arbitrary.

The third important reason is that there is no clear framework to coordinate the practices from different subjects and from different teachers, so the cooperation and communication becomes a very significant barrier.

In addition, the lack of relevant training opportunities is also a realistic reason to explain the poor practice. Only around 10% teachers have had the chances to take some training course, either full time or part time, and most other teacher do not clear understand the objective, principles and methods for environment education.

Last but not least, current training cannot solve all practical problems. In most of the training

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courses, the emphasis is given to environmental knowledge and problems, but not the ability of implementing environmental education in class, so even after training, teachers still find it difficult to combine their own subjects with environmental education and find the cutting point to effectively put it into practice.

This research studied the existing challenges on teachers' capacities building and highlighted the fact that teachers generally held positive altitude towards environmental education, but they did not have comprehensive understanding of its concept, sufficient skills to analyse relevant materials and effectively implement and evaluate environmental education practices. These challenges also applies for outdoor environmental educations. Therefore, relying on schoolteachers to make a breakthrough on outdoor education seems to be a long and nonpractical way to go. Whereas establishment of field centres with specialised outdoor teachers is the only practical and operational way to go.

4.9.2 Learning Outside the Classroom MANIFESTO

In 2006, the Department for Education and Skills (DfES) in UK proposed *Manifesto for Education Outside the Classroom* to brings together good practice from around the country (DfES, 2006). This main content of this Manifesto is cited as follows:

We believe that every young person should experience the world beyond the classroom as an essential part of learning and personal development, whatever their age, ability or circumstances.

What is our vision for young people about?

Learning outside the classroom is about raising achievement through an organised, powerful approach to learning in which direct experience is of prime importance. This is not only about what we learn but importantly how and where we learn.

It is clear that to be successful and meaningful, better provision needs to be made for learning through experience in the world outside the classroom.

How does this fit with key education priorities?

Learning outside the classroom provides a powerful route to the 'Every Child Matters' outcomes, in particular enjoying and achieving, staying safe and being healthy. Much learning outside the classroom will take place as part of programmes that support personalised learning and complement the strategy for young people set out in 'Youth Matters'.

Some commonly used places are:

• The school grounds

These areas are a rich multi-faceted, learning resource on the doorstep. They offer excellent opportunities for both formal and informal learning and play. School buildings can also provide a useful resource for learning about energy use and waste for example.

• The local environment

The locality around school harbours a wealth of opportunities within walking distance. Learners can develop the skills to explore their local environment. This can enrich all areas of the curriculum, for example through land and streetscapes, sites of special scientific interest, heritage sites, places of worship, theatres, live music events and involvement through citizenship activities like local volunteering projects.

• Places further afield

As young people mature, they are able to gain confidence in and appreciate more distant and challenging environments. For example, through visits to urban and rural places that contrast with their own environment: outdoor, field study and environmental centres; theatre workshops and places of worship; farms and gardens; museums and galleries; and places that reflect the world of commerce and technology. These can be planned into all aspects of the curriculum and, by taking learners out of their normal environment, stimulate curiosity and imagination.

• Residential places

Staying away for a few days or more is a powerful way of developing key life skills, building confidence, self esteem, communication and team working. For instance, through staying at field study, outdoor and adventure centres; involvement in cultural and arts festivals; taking part in expeditions, summer camps and sports events, and through cultural, language and fieldwork visits abroad.

Who should be involved?

A recent public consultation has highlighted the value of learning outside the classroom. This Manifesto can involve everyone who sees the benefits to young people. That means Government, headteachers, governors, teachers and support staff, parents, local authorities, community and voluntary organisations, curriculum subject bodies, businesses and all those agencies that provide external support to schools. By working together, we can help all young people to benefit, especially those whose circumstances make it more difficult for them to participate.

What is the purpose of our vision for learning outside the classroom?

Our shared vision is open for anyone to sign up to – schools, early years settings, youth groups, clubs, local authorities and children's services, parents, and young people, and all those that support them.

Its purpose is to:

- Act as a statement of common intent that will make better use of our individual and collective resources.
- Encourage more widespread use of educational opportunities outside the classroom.
- Inspire schools and those organisations that support learning outside the classroom to provide high quality experiences for all young people.
- Set out a shared agenda for future activity, which recognises that real progress will depend on the co-operation and collaboration of all signatories.
- Make it easier for more organisations and individuals to see how they can best contribute.
- Inform the development of government policy.
- Call on others in the public, private, voluntary and community sectors to work in partnership with us to deliver our aims.

What actions will we, as signatories, take?

- 1. We will provide all young people with a wide range of experiences outside the classroom, including extended school activities and one or more residential visits.
- 2. We will make a strong case for learning outside the classroom, so there is widespread appreciation of the unique contribution these experiences make to young people's lives.
- 3. We will offer learning experiences of agreed high quality.
- 4. We will improve training and professional development opportunities for schools and the wider workforce.
- 5. We will better enable schools, local authorities and other key organisations to manage visits safely and efficiently.
- 6. We will provide easy access to information, knowledge, expertise, guidance and resources.
- 7. We will identify ways of engaging parents, carers and the wider community in learning outside the classroom.

Comparing with UK, China is still in the beginning process of implementing "Every Child Matters", and there are not so many sparse agencies or organisations committed in outdoor education field. Even though, this manifesto supplies a great model for outdoor education development for China in terms of involving wide range of resources and organisations, and it should be adopted in future policies to construct a coherent strategy to effectively and systematically improve the situation of outdoor education in China.

Chapter 5 CONCLUSIONS

5.1 The profile of outdoor education

Outdoor education was divided into four areas, as shown in Figure 3, and the current situation for each area was discussed in previous chapters and are summarised as follows:



The main target field of this thesis (Figure 3)

Activities in "A" area are currently very rare, and beside schools, very few companies and NGOs are able to conduct high quality "A" activities.

Activities in "B" area are occasionally organised by experiential education companies or NGOs, but mostly by schools. There are barriers for companies and NGOs to extend their activities range and develop "A" activities, and the biggest one is the concern and fear about health and safety.

Activities in "C" area are occasionally organised by environmental NGOs and mostly by

schools, and the proportion of actual outdoor education is very small. However, some NGOs have already started to commit themselves to build field centres to further improve the current situation.

Activities in "D" are mostly organised by companies and schools, among the wide range of activities, winter and summer camping has the potential to develop high quality "A" activities. However, due to the difficulties in field survey, no in-depth analysis has been done.

5.2 The SWOT analysis result

The current profile of outdoor education in Beijing is summarised in the form of SWOT analysis, as showed in Table 5.

Table 5 The SWOT analysis result

	Positive	Negative		
	Strength	Weakness		
Internal	 General supportive attitude Lessons from environmental educations and experiential education Commitment by NGOs 	 Lack of comprehensive understanding Lack of practical support Lack of proper educators Lack of motivation No current experience 		
	Opportunities	Threats		
External	 National education reform International support Promotion from different initiatives 	Safety concernsFear of bad effects on exams		

5.3 Recommendations

5.3.1 Recommendations for Policy

The Ministry of Education should learn the model supplied by *Manifesto for Education Outside the Classroom* (DfES, 2006) and establish a coherent strategy suitable for the context of Chinese education.

The Ministry of Education should specify the demands of outdoor education in national curriculum and implement regular effective assessment to encourage practical experience to happen.

The Ministry of Education and local authorities should raise general awareness and understanding, especially for school staff, about the range and benefits of outdoor education activities and encourage the development of any outdoor practices, especially outdoor student-centred environmental education.

The Ministry of Education and local authorities should seek to develop schoolteachers' confidence and capacities to work with students in outdoor contexts, and improve their knowledge and understand of environment related issues.

The Ministry of Education, The Ministry of Environmental Protection, local authorities and other agencies should aim to establish field centres, which can provide safe and wellequipped laces to demonstrate out of classroom environmental education, and also invest on training professional outdoor educators to effectively and practically to improve the performance of outdoor education in short future. School governors, headteachers and teachers should improve the emphasis on outdoor education until it is embedded into the routine activities and experiences of the school.

Government ministries and funders should allocate more financial support and research fund to encourage researchers to investigate in outdoor education field, and support organisations willing to contribute in this field.

Health organisations should provide essential help in risk assessment, emergency treatment and first aid training programmes for all outdoor education programmes.

5.3.2 Recommendations for Practice

Environment NGOs should convert some parts of their routine campaign activities and commit themselves into constant well-designed student-centred environmental education in the context of outdoors.

General attention should be raised on international effort of implementing effective outdoor education, and wide connection should be established with experts and organisations in western countries, such as FSC in UK. Their history of outdoor education development and good education practices can greatly shorten the exploring time and improve the performance in short run, also they can provide essential training programme for professional outdoor educators, and experiences and skills on field centres' management.

Beijing Brooks Education Institute, which has already started to commit them in outdoor education and in the process of establishing the first field centre in Beijing, should take this opportunity, design high-quality outdoor education practices and use its existing network with schools to implement them interactively with schoolteachers. When obtained certain achievement, it should function as an umbrella organisation and help other NGOs' performance to extend the outdoor education activities in large scales swiftly. In terms of the new established connection with FSC in UK, it should take a good use of international resources and support, especially in terms of educators' capacity training.

Evaluations work should also be more adopted to monitor the quality of practices and activities and form a positive feedback cycle.

5.3.3 Recommendations for Research

Research on outdoor education's outcomes, evaluation standards and other perspectives should be paid great attention to. Commitment in research from university researchers and schoolteachers are both greatly required for future development, since outdoor education is currently still a blank spot in research field in China.

Specialised institutes, organisations promoting the theories and practices of outdoor education in China should be established, and specialised journals about outdoor education should be published regularly. Once the communication platform is established, the development of outdoor education will step into a next stage.

APPENDIX 1 QUESTIONNAIRE FOR STUDENTS

1. In the past 12 months, how many times have you participated in the following activities as

part of your schoolwork? (Click in the circle and put the frequency on the line)

- Doing academic work, related to a subject, in the school grounds
- Doing academic work, related to a subject, away from the school
- ✤ ___Class trip
- ✤ _____Visiting a museum or other facility
- ✤ ___Others _____

2. In the past 12 months, how many times have you participated in the following activities,

taken by your parents or other adults outside school time?

- Doing academic work, related to a subject
- ✤ ___Travel
- ✤ _____Visiting a museum or other facility
- ✤ ___Others _____

3. Select ONE of the outdoor learning activities impressed you the most in the past, and give answers to the questions below.

- (a) When was that? And how long was that?
- (b) Did school organize it? If not, who did?
- (c) What is that about?

Describe what you did - say where you went and what activities you did.

(d) How do you evaluate the fieldwork – mark the statements accordingly.

1	2	3	4
Agree	Basically agree	Basically disagree	Disagree

- ✤ ____ It was fun
- ✤ _____ I learnt a lot of new things
- ✤ _____ I learned more out of doors than we could have done in class
- ✤ _____ I was not worried about losing time in other lessons
- ✤ ____ I felt safe during the fieldwork
- ◆ _____ I enjoyed the group work when we are outside.
- ◆ _____ We discussed some environmental issues during the fieldwork

Is there anything else you want to tell me!

4. If you have not done any of this work - then read the descriptions below and answer the questions.



Pictures above were taken from an outdoor learning activity. It is a one-day fieldwork about

water quality survey, and students are divided into 3 groups, each with 3-4 people. First you choose three sample sites along the river, and then each group take one site. On each site, the clearness of the water should be judged through visual perception, then water moving rate and water temperature should be measured, sample water should be collected carefully and at the last, samples of invertebrate should be collected using nets. Later in laboratory, each group should analyse the water sample separately. As homework, a report is required based on all collected data.

How do you like this fieldwork – mark the statements accordingly.

1	2	3	4	
Agree	Basically agree	Basically disagree	Disagree	

- ✤ ____ It sounds fun
- I should be able to learn a lot of new things through this fieldwork
- ✤ ____ It is a waste of time for my other study
- ✤ ____ It looks safe
- ♦ _____ I can learn the knowledge in class room instead
- I can learn more about water quality doing the work outside than I can in a classroom
- ◆ ____ This way of learning helps with other skills as well such as working in groups
- I would be worried about not doing enough work to pass my exams

Do you like to have this opportunity in future?

Yes____ No____ Why?

If there are such opportunities, do you think your parents will be supportive?

Very supportive____ not supportive____

Why? _____

If there are such opportunities, do you think your school will be supportive?

Very supportive____ not supportive____

Why? _____

Is there anything else you want to tell me?

APPENDIX 2 QUESTIONNAIRE FOR TEACHERS

School Name:	Teaching Subje	ct		
How many years you have b	been teaching?	5	5-10	10+
Which grade are you teaching	ng?			

In this questionnaire, outdoor education includes outdoor extra-curricular research project (such as school ground based project about energy saving and emission reduction, and field plant identification), visiting tours (museums, factories and other facilities), and relaxing travels (spring outing).

- 1. Do you think outdoor education is very important to your subject? Please briefly talk about your interpretation and understanding.
- 2. Do you think a proper portion of outdoor education can improve students' cognitive level, and their comprehensive quality?
- 3. Up until now, there is no specified requirement for outdoor education. Even though, many schools still actively attempt to improve their practical projects with students? What do you think is the motivation for schools?
- 4. Do you think the proportion of outdoor education organised by schools will increase in the future, according to the current tendency of the education reforms?

- 5. Besides schools, some companies and NGOs are also implementing outdoor education, how much do you know about their activities? And what is your assessment for their programme? (For example, you can assess them in terms of the relation with national curriculum, the quality of the teaching, the continuity of the activities)\
- 6. Do you think outdoor education can cause discord with school learning schedules, and it is one barrier hampering the development of outdoor education?
- 7. Beside the reason above, what else do you think are the barriers?
- 8. What effort and changed are needed urgently to improve the future development of outdoor education? Could you give a rank according to the importance? (For example: Regulations on safety? Training for Professional outdoor educators? Changes from national policy? Support from schools?)

Thank you for your answers and help.

APPENDIX 3 INTERVIEW PROTOCOL

Common questions:

- 1. What is your understanding of outdoor education?
- 2. What is your opinion about current outdoor education in Beijing?
- 3. How relevant the outdoor education is with current education curriculum now?
- 4. In your understanding, what are the main outcomes of outdoor education?
- 5. How important is out of classroom activity compared with other needs of education?
- 6. What current policies or initiatives might be related and improve outdoor education? (New national curriculum reform? ESD? Draft guideline for EE?)
- 7. What needs to be in place before further development in outdoor education? Could you give a rank according to the importance?
- 8. Do they think the proportion of outdoor education will increase in short term; if yes, why? (In terms of policy change? Or push from market and profit?)
- 9. What are you recommendations for further improvement?
- 10. Explain the Field Studies Council (FSC) model in UK (Field studies centres established by this NGO, taught by national qualified special trained outdoor educators, guided under the national outdoor curriculum and closely related with national curriculum)- would this work in China in your opinion? And what are your comments?

Additional questions for NGOs and companies:

- 1. Generally what are the aims and main activities in your organisation?
- 2. Were there any outdoor education program targeting high school students? If any,

3. If outdoor education is in your future plan? Why? Please say more about it.

Additional questions for authorities and researchers:

Is it likely to be some new policies for improving outdoor education in near future?

Thank you for your answers and help.

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