



# Explore Education for Sustainability in the Field Trip for Ecology Students

— A Case Study of NENU × EDUHK × CQU 2019 Joint—U Ecological Studies in Jilin Province

This case study take the whole field trip as a case, to analyze its design and outcome in EIS style.

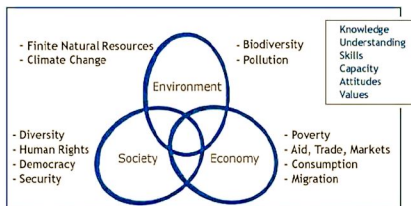
## INTRODUCTION

### Objectives

- Identify EIS theories and teaching methods in the field class and the blind/blank spot in the case trip in EIS perspective.
- Evaluate teachers' and students' experience and barriers in the whole ecological studies.
- Formulate recommendations and suggestions for EIS teachers and NENU's organizers to improve their design of field study in the future.

### Definition of the Education for sustainability(Efs)

Sustainability, as defined by the Brundtland Commission, means to "*meet the resource needs of the present without compromising the ability of future generations to meet their own needs. The goal of education for sustainability is to transform the environmental perspectives of the learners from viewing the environment as a commodity to a community, from consumer to conserver, from short-term reactor to long-term evaluator.*" (WECD, 1987, p.43)



Education for sustainability and some key considerations

### Importance

According to UNESCO's Education for Sustainable Development: Learning Objectives (UNESCO, 2017), Life on Land is addressed as SDG 15, including "*protect, restore and promote sustainable use of terrestrial ecosystems, sustainability manage forests, combat desertification, and halt and reserve land degradation and halt biodiversity loss*", which has a strong correlation about our field trip.

### Methodology

We used an interpretive research approach because we were seeking to understand the design and practice of this trip. We selected 7 students from 3 schools as interviewees. Online semi-structured interviews in WeChat were held during Sept 10 – Sept 20.

### Interview Questions

- How do you feel about this field study in Jilin Province?
- What did you learn during the whole study? What impressed you most?
- What are the current environment problems of the field?
- What is the change of your attitude (from negative to positive) toward ecology after this field trip?
- What kind of skills have you acquired through our field study?
- Is there anything you can learn in the field study but cannot learn in the indoor class? Please make an example.
- Is there any room for improvement in the process of our field study?

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### THE PATH OF FIELD STUDY

### Objectives of the ecological study (design)

Attitudes(A)

Cultivate the sense of social responsibility of students

Strengthen their love of nature

Enhance their willingness of protecting the ecological environment

Skills(S)

Cultivate students' critical-thinking, problem-solving, communication skills, endurance of hardship, cooperation skills and enquiry-based learning

Knowledge(K)

Practice common field survey methods of General Ecology, Phytoecology, and Animal Ecology.

### Main route

DAY1 Briefing session

DAY2-3 Xianghai Wetland

DAY4 Songnen Grassland

DAY6-7 Longwan National Nature Reserve

DAY 8 Research Station of Changbai Mountain Forestsystems Chinese Academy of Sciences

DAY9 National Museum of Changbai Mountain; Bulu ō r i o m o (天女浴躬池)

DAY10 Tianchi volcano; Changbai waterfall; Underground forest



A diagram of field route

### DATA ANALYSIS

Through the online interview, we found that students got obvious educational outcomes in this field study. Clearly, they got increased knowledge. They gain much knowledge in the vertical zonality of Changbai Mountain, the name of plants, the role of fall-down woods in the forest, etc. Everyone may not have mastered all the knowledge points, but they must have gained something in ecology.

Some of students considered about socio-economy development in conservation area. If there are existed residents in the core area, how we can care about their daily life when all business activities are banned? If we want to protect forests well, it needs more people's participation rather than relying on fundings from the government.

According to the interview, we can markedly found students' attitude changes, as student A shows,

*"I realized that human is the actor of nature protection, and the starting point of the actor is such a pure social attribute that will affect the ultimate relationship between man and nature...also I felt I love nature more when I was so close to the forest."* Also other students have their own attitude and thinking of environmental protection and reserve management.

This fieldwork really improved a lot of practical skills, like student B emphasized,

*"I have learned how to do the sample survey, and I have improved my teamwork ability with my classmates. In addition, I learned how to communicate with students from different backgrounds."* It shows that he's communication skills and survey skills are improved.



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### DATA ANALYSIS

(Continued)

Another students told us, “*Thanks to this field trip for helping me overcome my fear of insects.*” Education in the nature surroundings help us connect to other creatures deeper, even some insects that people believe very gross.

However, some students said that they did not know how well they mastered the knowledge and skills. The deadline for the report and other tasks was too tight, so they did not have time to summarize and record patiently. If possible, student C think more group presentations and tests could be organized during the trip.

This can be seen as formative evaluation to measure every process.

In all, all interviewees learned a lot of things that I could not learn in the indoor class. Moreover, they could exchange ideas with teachers and students from different backgrounds, which keeps their brain stay fresh.

### CONCLUSION & RECOMMENDATION

#### Conclusion

—Field practice is an indispensable part of ecological learning and an important teaching method of EIS.

—In addition to basically reaching the learning objectives, this field study also played an important role in cross-cultural and cross-university communication.

—The most profound acquisition of knowledge is in Changbai Mountain. Almost all interviewees believed their teamwork skills are improved, which means that grouping was successful. Students’ attitude changing was different in individual.

—Due to the lack of formative assessment, it is difficult to grasp the difficult points in the learning process.

#### Recommendation

NENU can invite former students as teaching assistants to increase the teacher-student ratio, so that teacher assistants can help to do some formative assessments and then make more comprehensive control and guidance on learning.

Before the beginning of the field study, students in 3 schools can preview the context in group, with teachers’ assignment. For example, listing questions about the handbook.

### The limitation of this research

In our self-reflection, this research has several limitations. Primarily, the selection of interviewees, was based on our own friendship in the field trip, which means it could not on behalf of all students in three schools. Then the numbers of involved students are limited due to the time constraint. Also we do not have time to make connections between their description and my observations in the trip to find evidence to support what interviewees’ said. And the research did not include other students who do not join this field trip as a control group.

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