

**THE DEVELOPMENT, PILOT-TEST, EVALUATION, AND
RECOMMENDATIONS FOR AN ONLINE COURSE TITLED
ENVIRONMENTAL STUDIES OF CHINA**

By

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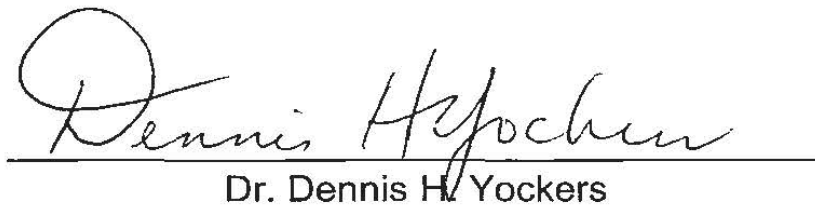
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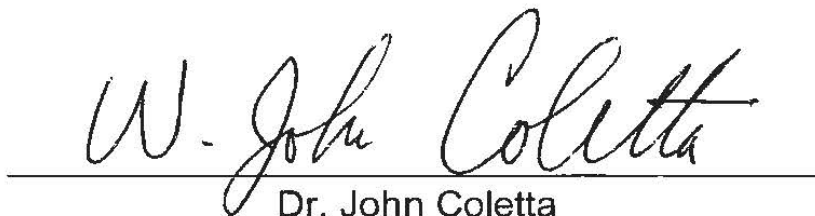
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ABSTRACT

A China Study Program was planned in 2007 by the Global Environmental Teachings Program (GET) for educators who have interest in learning about China and its environment through an overseas study course. To help the program participants prepare for the travel course and strengthen their learning, a one-credit online course on China was developed and offered. The goal of this study was to develop, pilot-test, evaluate, and revise a graduate online course that assists educators in understanding the cultural, educational, and political situations that affect the natural environment in China. Action research methodology was used in this study.

The online course, *NRES 679: Environmental Studies of China*, was developed between February 2006 and January 2007. The content of this course consisted of four units: *Unit One: General Introduction, Unit Two: Biodiversity and Conservation, Unit Three: Major Environmental Issues, and Unit Four: Society and Efforts. NRES 679: Environmental Studies of China* used both course webpage and **Desire2Learn** platforms for the offering. The course was piloted from January 17th, 2007 to February 18th, 2007. The researcher was also the instructor of the pilot. Fourteen students completed the course by February 18th, 2007. Evaluation of the piloted course included formative assessments and one post-assessment. Results of the evaluation indicated that the participants valued the course and improved their literacy relative to China and its environmental issues. The course also helped teachers traveling to China in the summer of 2007 prepare for their trip.

Based on the evaluation results, the study included revision recommendations for the next course offering. A few additional recommendations were made to the GET program, College of Natural Resources, and Continuing Education at UWSP. This study has implications to future offerings of this online course through UWSP.

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CHAPTER ONE

INTRODUCTION

I. Significance of the Problem

II. Statement of the Problem

III. Statement of Subproblems

IV. Limitations

V. Definitions of Terms

VI. Assumptions

VII. Abbreviations

I. Significance of the Problem

Teachers enrolled in the Extended Masters Program in Environmental Education indicated that they would like to have overseas course options in a survey conducted by the Wisconsin Center for Environmental Education 2002. The Global Environmental Teachings Program (GET) was established in response to this demand. GET is building a deeper understanding of the world's diverse biosphere through cultural, educational, and international teacher exchanges. China, with its rich historical cultures and biodiversity, is one of the countries GET is working with and helping educators learn more about.

A China Study Program was planned by GET for educators who have interest in learning about China and its environment. To help the program participants prepare for the travel course and strengthen their in-place learning, developing and offering an online course on the

subject of China was compulsory. This course is also valuable to accommodate broad users interested in learning about China for those who are not able to travel there in the near future.

II. Statement of the Problem

The goal of this study was to develop, pilot-test, evaluate, and revise an online course that assists Wisconsin educators in understanding the cultural, educational, and political situations that affect the sustainability of the natural environment in China. The online course was a one-credit graduate course, titled *Environmental Studies of China*.

III. Statement of Subproblems

The first subproblem was to develop an online course about the environmental sustainability in China.

The second subproblem was to pilot-test the course with the teachers registered in the GET 2007 China Study Program.

The third subproblem was to evaluate the impacts and effectiveness of the course.

The fourth subproblem was to make recommendations on revising the course for future offerings.

IV. Limitations

1. This study was limited to the evaluation of this online course.
2. The mutual impacts between the online course and the travel course will not be assessed in this research.

3. The participants of this online course were not from a random selection, but accepted as “first-come-first-service.”

V. Definitions of Terms

Environmental Sustainability: Environmental sustainability refers to maintaining the environment as it relates to meeting the current generation’s needs without limiting the ability of future generations to meet their needs.

Hybrid Program: Hybrid Program uses a combination of an online course and a travel face-to-face course as the delivery methods to provide information to learners.

Natural Environment : Natural Environment refers to the surroundings in which human beings operate, including air, water, land, natural resources, flora, fauna, and their interrelations. (Medicinenet.com, 2005)

Online Course: Online course is a course accessible through the internet.

Travel Course: Travel course is a course that stimulates the learning process through traveling to non-local places.

VI. Assumptions

1. Understanding environmental issues of China helps Wisconsin teachers enhance their global views on the environment and sustainability.
2. Global understanding and overseas experiences enhance sustainability education.
3. Pilot-testing teachers will be representative of all the teachers taking the online courses in the future.

VII. Abbreviations

CNR: College of Natural Resources

D2L: Desire2Learn

EE: Environmental Education

EFS: Education for Sustainable Development, or Education for Sustainability

ESC: Environmental Studies of China

GET: The Global Environmental Teachings Program

GOLD: Global Online Long Distance Education Program

IRB: Institutional Review Board

UWSP: University of Wisconsin-Stevens Point

WCEE: Wisconsin Center for Environmental Education

CHAPTER TWO

REVIEW OF THE RELATED LITERATURE

The literature review will describe the following sections:

- I. Introduction to the Review of the Related Literature**
- II. A Brief Introduction to the Global Environmental Teachings Program**
- III. Education for Sustainable Development, International Education and Multicultural Education**
- IV. A Brief Introduction on Environmental Issues of China**
- V. An Overview of Online Courses**
- VI. Action Research Approach**
- VII. Evaluation Methods**

I. Introduction to the Review of the Related Literature

The Global Environmental Teachings Program at University of Wisconsin-Stevens Point planned to operate a Teacher Study Program in China in the summer of 2007. As a preparation for the hybrid program, an online course related to the environmental sustainability of China was planned.

The goal of this study was to develop, pilot-test, evaluate, and revise an online course that assists Wisconsin educators in understanding the cultural, educational, and political situations that affect the sustainability of the natural environment in China. The online course, NRES 679, was a one-credit graduate course, titled *Environmental Studies of China*.

This chapter reviews the GET program and related activities, basic concepts of three education areas related to this study, general status of the environment of China, considerations for an online course, evaluation methods, and action research approach.

II. Introduction to the Global Environmental Teachings Program

In 2002, the WCEE conducted a survey of over 200 teachers who are either enrolled in, or have completed the Extended Masters Program in Environmental Education to determine how to improve the graduate program. A significant number of teachers indicated they would like to have an overseas course option (Ermer, 2006). The result of this survey initiated the Global Environmental Teachings Program.

The Global Environmental Teachings Program (GET) is a non-profit program dedicated to the advancement of global environmental literacy and located in the College of Natural Resources at the University of Wisconsin-Stevens Point. GET is a collaboration between the Wisconsin Center for Environmental Education (WCEE) and the Global Environmental Management Program (GEM). The goals of GET are accomplished through innovative educational programs using a combination of computer technology and travel courses to elevate awareness and knowledge about environmental education among diverse populations. GET brings the world to the classroom by helping educators and students address questions such as: How do some teachers in China teach about the environment? What do educators in South Africa do to address water issues with their students? This program takes the classroom beyond state and national boundaries to the global arena.

Mission

The mission of the Global Environmental Teachings (GET) Program is to advance environmental and conservation education worldwide by providing programs for students and educators.

Goals

Through international partnerships, networks, courses, and exchanges, GET accomplishes three main goals that promote the sustainability of the world's natural resources.

- ◆ To build a deeper understanding concerning the world's diverse biosphere through cultural, educational, and international exchanges
- ◆ To provide participants with professional development opportunities
- ◆ To create leaders by helping participants develop the knowledge and skills necessary to work towards the protection and sustainability of the world's biosphere(GET, 2005)

GET Hybrid Programs

This hybrid program uses a combination of an online course and a travel course as the delivery methods to provide information to learners. For example, in 2004 and 2005, GET offered the course NRES 679 titled *Natural History, Resources, and Culture of Island Ecosystems: Puerto Rico* (<http://www.uwsp.edu/natres/nres679pr/>). This course was offered as a preparation for a travel experience to Puerto Rico.

GET Programs Cycling

From 2004 to 2005, the GET program has had the opportunity to collaborate with the InterAmerican University of Puerto Rico-Bayamon Campus, a nonprofit organization

promoting the sustainability of natural resource; the Department of Education: Puerto Rico; and the Reverence of Life and Beauty, Inc. (REVIBE). In June 2004, eleven Wisconsin educators and eight teachers from Puerto Rico traveled through the diverse landscapes of Puerto Rico for two weeks. They participated in environmental education workshops, field experiences, mangrove forest exploration, visited the beautiful Karst region, and more (Ermer, 2006). In the summer of 2005 ten more Wisconsin educators participated in the same exchange with another group of teachers from Puerto Rico. In July 2005, the Wisconsin and Puerto Rican teachers from the 2004 experience reunited in Wisconsin. This group spent two weeks studying Wisconsin's natural environment and environmental education programs. A third exchange program in Puerto Rico was offered June 2006. A South Africa exchange was organized by GET in June 2006. Future programs include a China exchange program in 2007, and an additional Puerto Rico exchange in 2008.

III. Education for Sustainable Development, International Education, and Multicultural Education

As Susan Ermer (the director of GET) stated in her master's thesis, "developing and implementing an overseas environmental education experience for teachers will connect participants to global environmental issues, expose them to diverse cultures and customs, and provide an experience to explore diverse ecosystems (Ermer, 2006)." The Environmental Studies of China course would incorporate three educational domains: education for sustainable development, international education, and multicultural education. Understanding these three domains will help to determine the needs, goals, and instructional objectives of the

course.

a. Education for Sustainable Development

The Decade of Education for Sustainable Development was officially launched on March 1st 2005 (UNESCO, 2005). The idea is for the principles of sustainable development to be firmly anchored in national education systems worldwide by 2014 (Loick, 2005). Before this launching, there were numerous documents that declared the needs for sustainable education. The United Nations Conference on Environment and Development in Rio De Janeiro in 1992 issued the document *Agenda 21*. The *Agenda 21* concerns education and sustainability in Chapter 36, “Promoting Education, Public Awareness, and Training.” The World Summit on Sustainable Development, Johannesburg, August, 2002 confirmed the commitments to continue to work for sustainable development (IUCN, 2002).

Definition

There are many concepts related to “sustainability education.” The United Nations Educational, Scientific and Cultural Organization (UNESCO) stated that education for sustainable development **is about learning to:**

- respect, value and preserve the achievements of the past;
- appreciate the wonders and the peoples of the Earth;
- live in a world where all people have sufficient food for a healthy and productive life;
- assess, care for and restore the state of our Planet;
- create and enjoy a better, safer, more just world;
- be caring citizens who exercise their rights and responsibilities locally, nationally

and globally (UNESCO, 2007).

Some organizations suggest that sustainability education is not a concept to master, but a construction developed to address the issues of our time (LSP, 2000). The Tahoe Center for a Sustainable Future lists the major components of sustainability education:

A focus...on the complex relationship between ecological system, economic structures, and community dynamics.

A Process...community and project-based, that supports student investigation and participation.

An approach...integration of new and existing curriculum.

A method...of discussion and dialogue to address diverse interests.

The use...of appropriate technology to develop relevant projects.

b. Multicultural Education

A multicultural education provides an understanding and knowledge of a certain number of cultures (Shaw, 1988). Research suggests that teachers need to use multicultural education to promote such highly valued outcomes as human development, education equality, academic excellent, and democratic citizenship (Gay, 2004). Domestic diversity and unprecedented immigration have created a vibrant mixture of cultural, ethnic, linguistic, and experiential plurality. The new immigrants to the United States, people coming from Asia, the Middle East, Latin America, Eastern Europe, and Africa, differ greatly from earlier immigrants who came primarily from western and northern Europe. These unfamiliar groups, cultures, traditions, and languages can produce anxieties, hostilities, prejudices, and racist behaviors among those

who do not understand the newcomers or who perceive them as threats to their safety and security (Gay, 2004). But as James Banks stated in his book *Multiethnic Education: Practices and Promises* in 1977, when individuals are able to participate in a variety of ethnic cultures they are more able to benefit from the total human experience (Banks, 1977).

James Banks identified the following goals for multiethnic education:

- ◆ to help individuals gain greater self-understanding by viewing themselves from the perspectives of other cultures,
- ◆ to provide students with cultural and ethnic alternatives,
- ◆ to provide all students with the skills, attitudes, and knowledge they need to function within their ethnic culture, the mainstream culture, and within and across other ethnic cultures, and
- ◆ to reduce the pain and discrimination which members of some ethnic and racial groups experience because of their unique racial, physical, and cultural characteristics. (Banks, 1977)

c. International/Global Education

There are a few different definitions of international education. Merryfield defined international education as education that develops knowledge, skills, cultural pluralism, interconnectedness, and international economic competition (Merryfield, 1995). In the Wisconsin Department of Public Instruction's *Planning Curriculum in International Education*, international education was defined as "teaching about the lives and the natural and social contexts of people living in other countries and cultures and actively promotes

immersion experiences in other culture” (Uranek, 2002).

Many studies show rising concerns about global environmental issues (Uranek, 2002). In the Wisconsin Department of Public Instruction’s *Planning Curriculum in International Education*, Uranek summarizes 19 reasons why international education is essential for American Students as follows:

- ◆ International education awakens students’ awareness of the world.
- ◆ International education fosters creativity, critical thinking, and problem-solving skills.
- ◆ International education gives students opportunities to explore the world.
- ◆ International education develops communication skills through world languages.
- ◆ International education teaches students how to respond peacefully to conflict.
- ◆ International education involves students in solutions to environmental problems.
- ◆ International education instills an early sense of human rights.
- ◆ International education combats student disinterest and apathy.
- ◆ International education encourages attention to world news.
- ◆ International education models how to live respectfully in a diverse nation.
- ◆ International education builds bridges between schools and communities.
- ◆ International education prepares students for higher education.
- ◆ International education ensures students’ success in the twenty-first-century job market.
- ◆ International education attracts visibility and funding for schools.
- ◆ International education reforms America’s public and private schools.

- ◆ International education dispels misconceptions about U.S. foreign policy and foreign aid.
- ◆ International education nurtures global competency in future elected officials.
- ◆ International education contributes to national security and economic success.
- ◆ International education promotes citizenship education.

Haakenson suggests: “Teachers preparation with an emphasis on teaching for a global perspective is becoming a vital and effective means to the advancement of global/international education (1994).”

In the Wisconsin DPI’s *Planning Curriculum in International Education* (Uranek, 2002), an overview is offered to explain the goals of international education and how to integrate it (Figure 2.1).

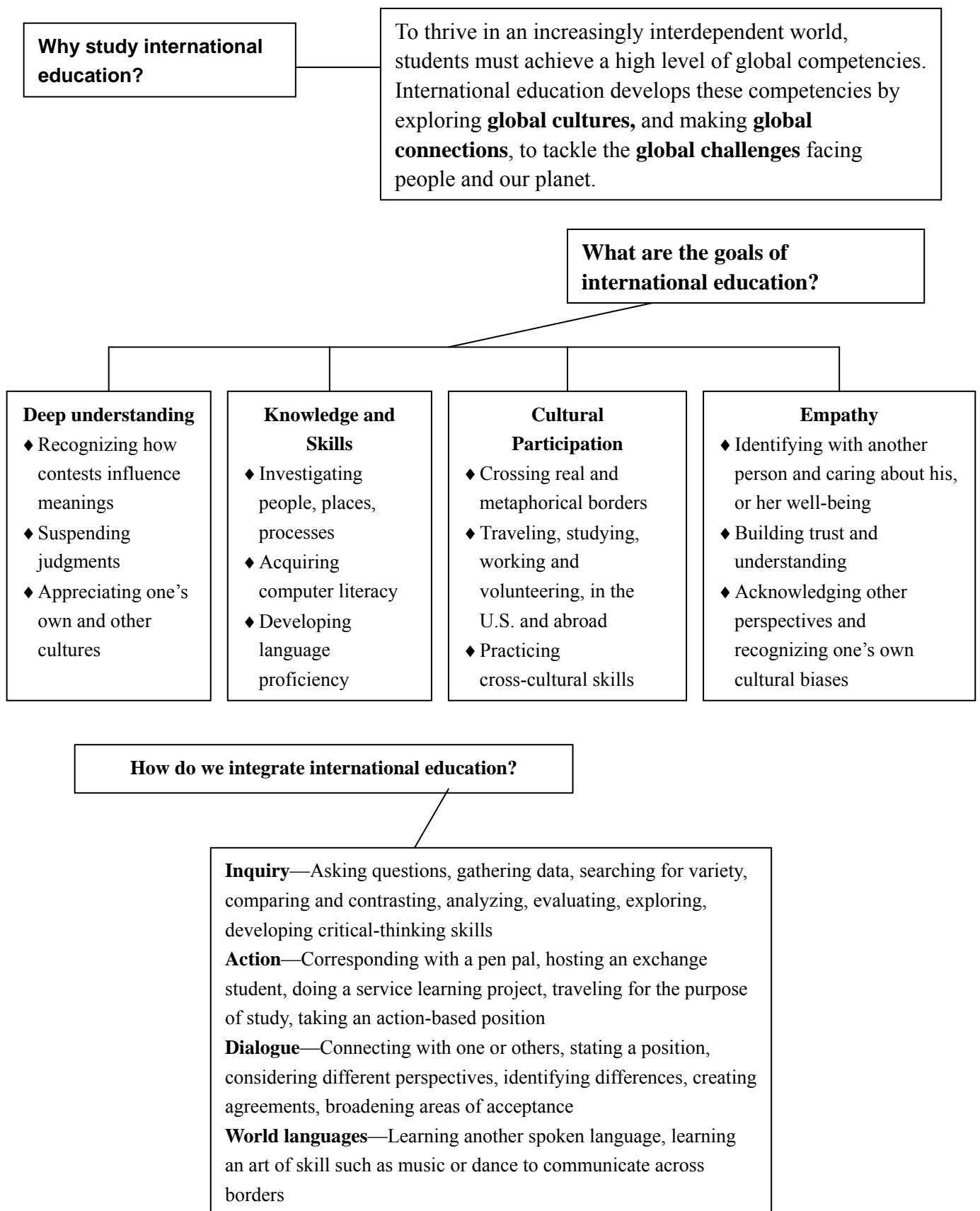


Figure 2.1 International Education Overview (Uraneck, 2002, P24)

d. The Relationship between the Three Domains

After reviewed related literatures, the researcher found that the three domains, education for sustainable development, international education, and multicultural education, are related to each other. The relationship between three educational domains includes following points:

- ◆ Ethnic, morals, culture, social justice and equity are inseparable in achieving sustainability. (Rest, 2002)
- ◆ Sustainability education should help the learners to understand the global forces that affect human lives. (Goldman, 1999)
- ◆ Education... was now also seen as a means for cultural renewal facing global problems. (Rest, 2002)
- ◆ International learning offers alternative ways of world-making. (Wheeler, and et. 2005)

IV. A Brief Introduction on Environmental Issues of China

Main Environmental Issues of China

China's large territory and population guarantee environmental impacts on the rest of the world. China faces greater environmental challenges than other major countries. China's environmental problems can be summarized under five categories: air, land, fresh water, oceans and biodiversity (Liu and Diamond 2005). This part of the literature review provides a brief introduction to each of these categories.

a) Air

China's air quality is generally low (Liu and Diamond, 2005). Air quality in many Chinese cities falls well below international standards (SEI, 2002). World Development Indicators shows that 16 of the world's 20 top air-polluted cities are in China (World Bank, 2001).

b) Land

Accompanying its rapid economic growth, China today suffers from severe land degradation, the extent of which has few parallels in the rest of the world. Erosion, desertification, salinisation, and pollution further reduce the usability of land resources that are already conspicuously scarce in relation to China's large population (SEI, 2002).

c) Fresh Water

Water shortages and water pollution are considered the two main water-related constraints to China's sustainable development. China is relatively poor in water resources. Water resources per capita in China are comparatively low -- less than one-third the world average. Northern China, however, has only one-fifth the per capita water resources of southern China. Water quality is largely impacted by pollutant discharges. Most of China's bodies of water are becoming increasingly contaminated by discharges from industrial and municipal wastewater; agricultural runoffs of chemical fertilizers, pesticides, and animal manure; and leaching of solid waste. (World Bank, 1997)

d) Oceans

China has a sea area of 3 million km² and has jurisdiction over the vast continental shelves and exclusive economic zones up to 200 nautical miles off its coasts. Almost all coastal areas

are polluted, mainly by pollutants from the land, plus oil spills and other marine activities (World Bank, 2001).

e) Biodiversity

China's flora and fauna are among the richest of the world; yet biodiversity is under severe pressure from population growth and economic development. Biodiversity in China is seriously threatened by human activities including deforestation, over-exploitation of animal and plant resources, pollution, and introduction of invasive species. More than one-tenth, or more than 500 species, of higher plants are endangered (Biodiversity Committee/ CAS, 1992)

V. An Overview of Online Courses

The Trends of Online Courses at the College of Natural Resources, UWSP

Bobbi Zbleski (Kubish) developed the first online course, NRES 358/558, offered through the Wisconsin Center for Environmental Education (WCEE) and the College of Natural Resources (CNR) on biodiversity and conservation biology in 2000 (Zbleski, 2001). Seven years later, there are twenty online courses offered by the CNR/WCEE in cooperation with UWSP-Continuing Education.

Advantages and Disadvantages of Online Courses

Many researchers discussed the advantages of online courses in their studies. The advantages of teaching online course include (Zbleski 2001, Thorton 1999, Vachris 1999):

- A. Potential to attract a wider, more diverse audience;
- B. Convenience for students;
- C. Increased interaction with students;

- D. Instructors are able to disseminate materials more quickly and upgrade easily
- E. People are not responding to physical features, gender, charisma, or whatever – they are responding to ideas.

There are also disadvantages to online pedagogy. The disadvantages include (Vachris 1999, Zbleski 2001):

- A. Increased instructor workload;
- B. More hours put into course preparation and design;
- C. Greater need for continuous E-mail discussion and assignments to gauge students understanding;
- D. Greater potential for cheating.

The Consideration for Development, Implementation, and Evaluation

Zbleski (2001) pointed out that the development of an online course is a complex process that often requires more thought and development than a traditional classroom course. It is advised that before developing online courses some questions need to be considered (McGreal 1997):

1. Which computer system are you using for the server?
2. What kind of software will you be using for the server? For development? For students?
3. What degree of security is required? Who can access how much? What controls are needed?
4. How innovative do you want to be?
5. How much does the instructor wish to control the development of the course?
6. How much can be spent to develop the course?
7. How much control will students have?
8. How much preparation time do you have before the course starts?
9. Who is your target audience and what are their needs?

The GET's Online Course Model

The online course “Natural History, Resources, and Culture of Island Ecosystems: Puerto Rico” was first offered by GET April 19 to May 14, 2004. Evaluation of this course found it convenient and effective to offer information and prepare participants for their travel in Puerto Rico (Ermer, 2006). Ermer (2006) also suggested that to develop similar online courses for future teacher abroad courses related to other areas of the world.

The course was created in Microsoft FrontPage. It was delivered through Desire2Learn (D2L).

The course design was organized in four, one-week units (Ermer, 2006).

VI. Action Research Approach

This study used the action research approach to problem solving. This section reviews the related literatures of the action research approach.

Action research is a systematic process of solving problems and making improvements (Tomal, 2003). The term “action research” was first coined by the social psychologist Kurt Lewin (see Kemmis, 1980, Elliott, 1991). Elliott represented Lewin’s model of “spiral of cycles” as shown in Figure 2.2 (Elliott, 1991).

In this model, action research starts from identifying an initial idea. The “initial idea” refers to a state of affairs or situation one wishes to change or improve on. Reconnaissance includes fact finding and analysis, which generates some hypotheses (Elliott, 1991).

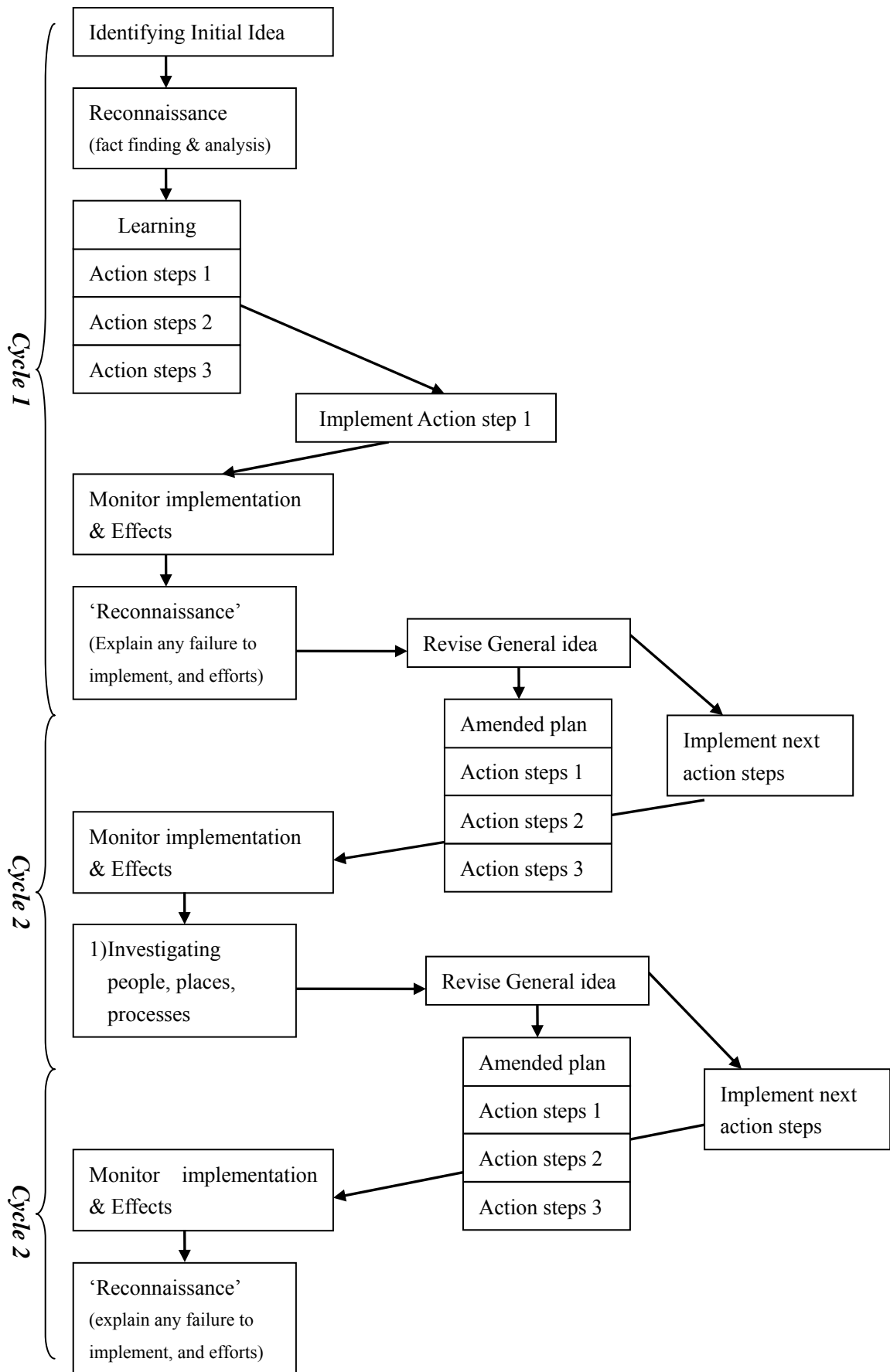


Figure 2.2 Elliott's Revision of Lewin's Model of Action Research

VII. Evaluation Methods

a) The Role of Evaluation in Program Planning and Implementation

Evaluation is the means of determining program effectiveness and efficiency (Engleson and Yockers, 1994). In the *Guide to Curriculum Planning in Environmental Education*, Engleson and Yockers indicated that evaluation should be a continuous activity in assessment and evaluation of an EE program planning and implementation process. Figure 2.3, the Role of Evaluation in Program and Planning and Implementation, was adapted by Engleson and Yockers from “Assessment in EE” by Tom Marcinkowski (Engleson and Yockers, 1994).

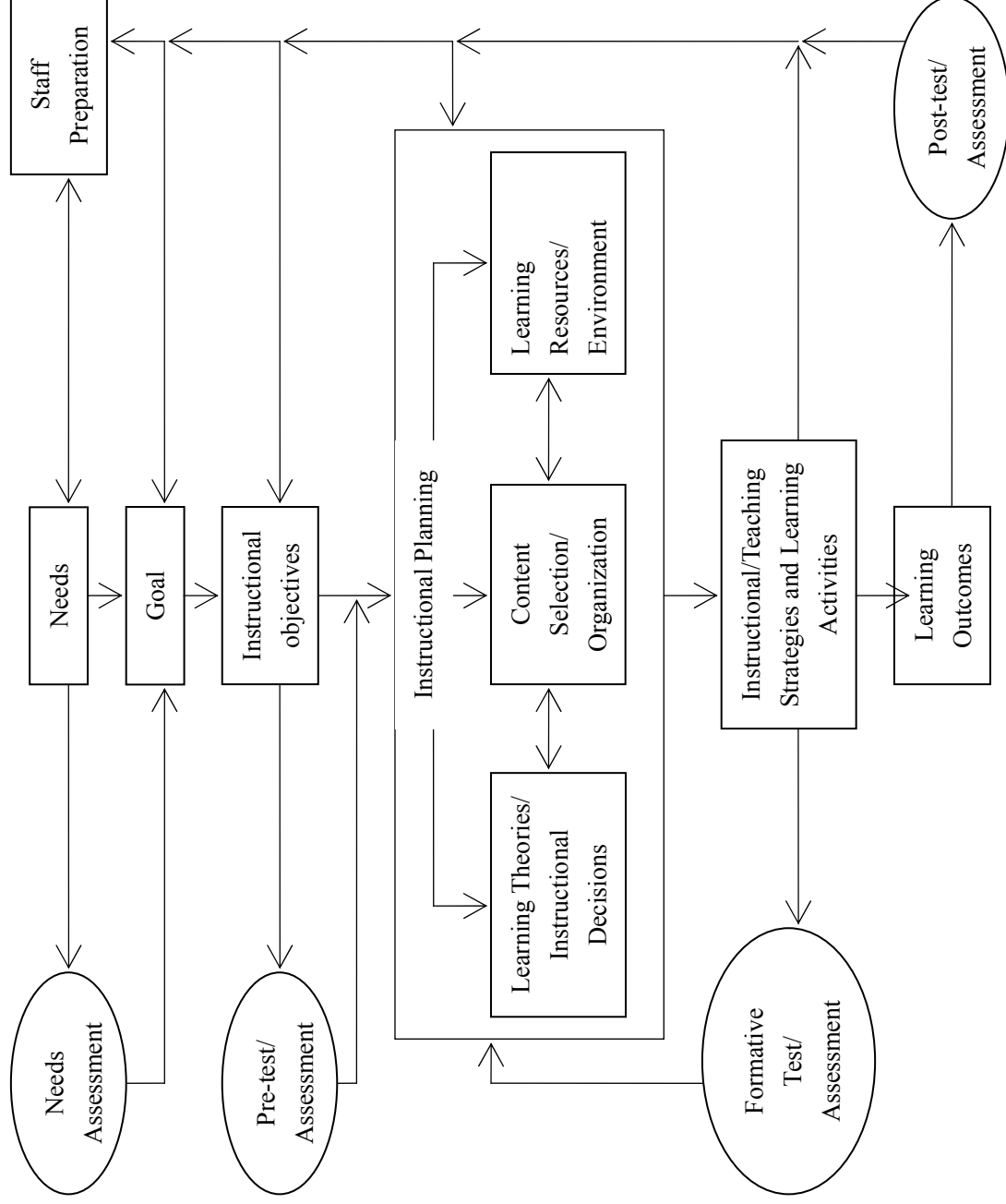


Figure 2.3 The Role of Evaluation in Program and Planning and Implementation

Engleson and Yockers (1994) identified the following elements as important to program planning and implementation:

Needs Assessment: A needs assessment is used to identify and qualify current and/or projected needs of learners, teachers, the program, program supporters, and other entities served in and through a program.

Goals and Instructional Objectives: The goals, subgoals, and instructional objectives ... are the heart of the curriculum. Goals and subgoals are based on identified needs of students. Instructional objectives stem from goals and subgoals and may be validated by using pretesting and assessment techniques.

Instructional Planning: There are three components of instructional planning: selecting learning theories and instructional designs, identifying and organizing content, and identifying learning resources and environments. Pretesting can validate not only instructional objectives but all three components of instructional planning as well.

Instructional/Teaching Strategies and Learning Activities: Formative test and assessments may yield results that suggest a need to modify one or more of the components of the instructional plan.

Learning Outcomes: If the learning outcomes are tested, the results may suggest a need to modify any of the elements of the curriculum plan, from goals to instructional/teaching strategies and learning activities and environments.

Staff Preparation: The staff should be consulted at every step. (Engleson and Yockers 1994)

b) Formative Evaluation and Summative Evaluation

As Daniel R. Tomal indicated, one key to understanding the evaluation component of action research is the concept that this research is often a cyclical process (Tomal, 2003).

According to Sarah Wilcox, formative evaluation provides data about which aspects of the design work and which do not. Summative evaluation is used to collect information at the conclusion of a course to determine how successful the course was in an applied setting (Wilcox, 2004). It is conducted at the end of the program (Worthen and Sanders, 1987, as cited in Mattano, 2005).

Some researches used pre/post test design as evaluation strategies to ascertain if there was an increase in participant knowledge after having taken the online course ((interview with Karla Lockman, October 2006). Under this design, the results from both pre- and post-test are compared to determine whether a change occurred as a result of the course. In this study, a post survey, using the participants' opinions, was conducted to evaluate whether there was an increase in both the participants' literacy on China and their confidence with respect to the upcoming trip.

c) Evaluation Models to Online Courses

A number of experienced distance educators have developed evaluation approaches that focus exclusively on distance education (Thompson and Irele, 2003). Flagg (1990, as cited in Thompson and Irele, 2003) offers seven steps for planning and implementing a formative evaluation:

(1) Clarify; state the purpose of the evaluation study.

- (2) Select and specify recipients of the evaluation information.
- (3) List evaluation questions.
- (4) Indicate the overall scheme or “paradigm” of the evaluation.
- (5) Select data collection strategies and measurement tools.
- (6) Identify respondent samples.
- (7) Select evaluation setting and procedure.

Researchers identify a range of data collection methods, including participant observations, questionnaires, interviews, online monitoring of responses, surveys, student personal diaries, learning assessment instruments and product assessment criteria (Moore and Kearsley, 1996, Cyrs, 2001, as cited in Thompson and Irele, 2003). Willis (1993) and Wilcox (2004) also suggest the need to adapt traditional evaluation methods to the internet-delivery format.

After reviewed the related literatures, the researcher came to the conclusion that 1) the online course, Environmental Studies of China would incorporate education for sustainable development, international education, and multicultural education domains; 2) this online course would follow the GET online course model; 3) this course be evaluated through formative and summative assessment.

CHAPTER THREE

METHODS

This Chapter describes the methodology used to accomplish the goal and the process of this study. The review of the methods included the development, pilot-testing, evaluation and recommendation of the online course of *NRES 679: Environmental Studies of China*.

I. General Introduction of the Methods and Timeline

II. Development of the Course

III. Process of Pilot-Testing

IV. Assessment and Evaluation Methods

V. Recommendation Process

I. General Introduction of the Methods and Timeline

The goal of this study was to **develop, pilot-test, evaluate, and revise** an online course that assists Wisconsin educators in understanding the cultural, educational, and political situations that affect the sustainability of the natural environment in China. The online course was a one-credit graduate course, titled *Environmental Studies of China*. The course was developed between February 2006 and January 2007. It was piloted from January 17th, 2007 to February 18th, 2007. Evaluation of the pilot included four formative surveys, one summative survey and one post survey, taken by the course participants during January 21 to February 23rd, 2007. The recommendations for revision of the course in preparation for its

next offering were made based on the evaluation result.

This study used action research as the overall method. Action research includes the following steps: initiating, reconnaissance, general plan, implementation of actions, monitoring and continuing reconnaissance. (See the Chapter Two, Literature Review.)

The initiating and reconnaissance steps in this study have been completed by the Wisconsin Center for Environmental Education (WCEE). In 2002, the WCEE conducted a survey with over 200 teachers who were either enrolled in or had completed the Extended Masters Program to determine how to improve the graduate program. A significant number of teachers indicated they would like to have an overseas course option (Ermer, 2005). The Global Environmental Teachings Program was developed as a result of the survey and identified Puerto Rico, South Africa, and China as the first countries to begin exchanges with.

Figure 3.1 shows the steps of this study based on Elliott's and Lewin's Model of Action Research.

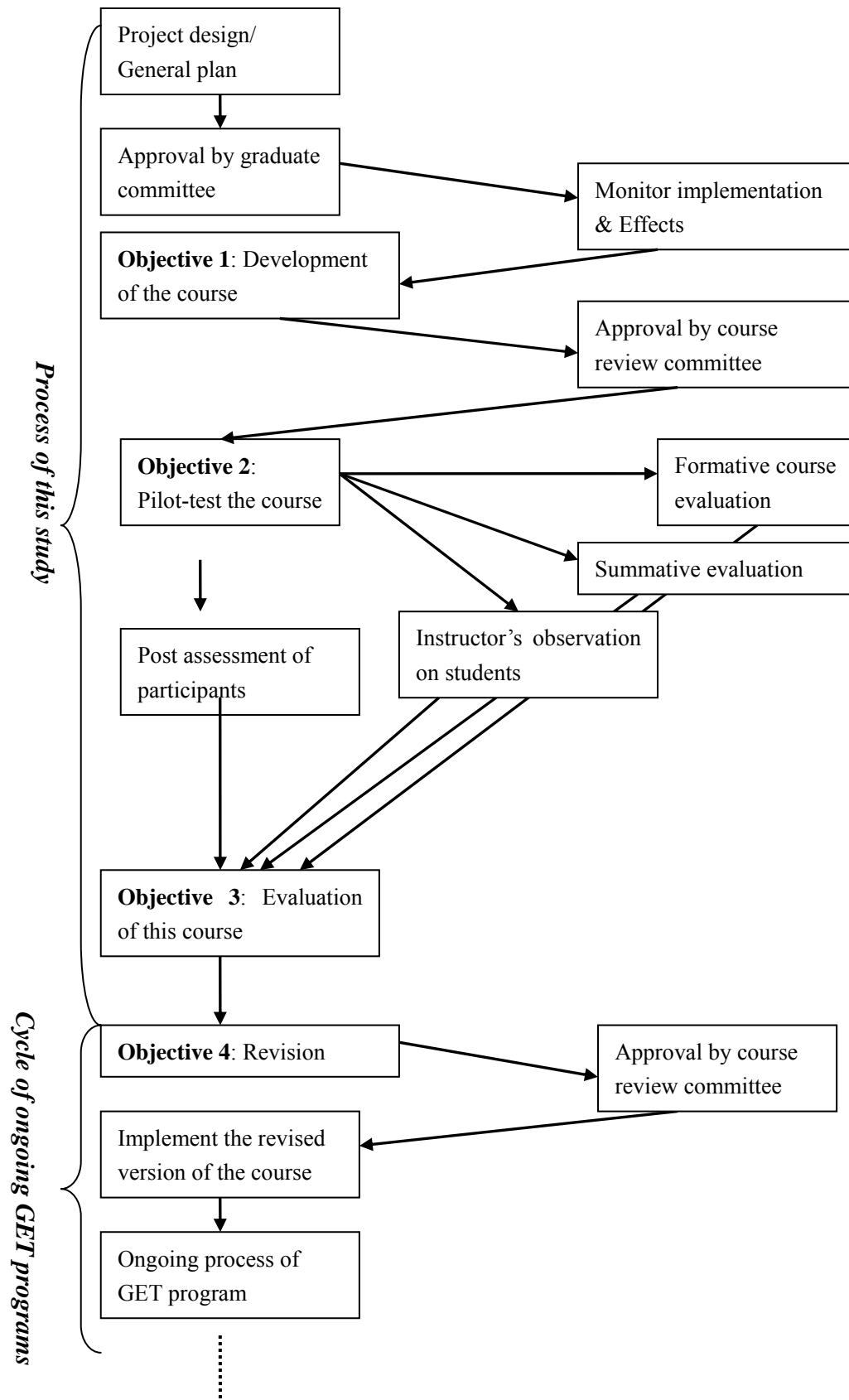


Figure 3.1 Steps of This Study

The General plan step of this study was conducted as the project designing process. The project proposal, including general plan and related methods, was designed between September 2005 and January 2006, and approved by the researcher's graduate committee in February, 2006.

Implementation of actions included two objectives of this study: development of an online course and pilot-testing. The development of the course included the tasks of related literature review, outline determination, materials collection, writing the draft, webpage design, finishing online components, and revising the draft. The online course, ***NRES 679:***

Environmental Studies of China, was developed between February 2006 and January 2007.

A course review committee reviewed and approved the content of the online course before it was offered. The course was piloted by 14 participants from January 17th, 2007 to February 18th, 2007.

Monitoring related to this study, solving the third subproblem, was the evaluation of the online course. During the course, four formative surveys were conducted in order to collect the participants' opinions on the effectiveness of each unit. Simultaneously, the instructor observed the students' performances in the course, for instance, the time each student spent online, the frequencies of postings to the discussion board, and the interaction between students. Following the end of the online course, a summative assessment was administered to collect data on the achievement of and assessment on the course.

The reconnaissance step of the research involved revision of the course. This step addressed the fourth subproblem of the study, and produced revision recommendations for future offering of the online course.

The cycle of ongoing GET programs indicates the continuing progress beyond this study.

The researcher identified the tasks of this study from Figure 3.1. Table 3.1 shows all the tasks and time period of the entire study.

Table 3.1 Timeline of the Study

Tasks	Date and Time Period
Preparation	
1. Writing Research Proposal	September, 2005 - January 2006
2. Proposal Approved by Graduate Committee	7 th February, 2006
3. Literature review	September, 2005 – June, 2006
Course Development	
4. Goals and Objective Identification	December, 2005 – March, 2006
5. Materials Collection for Course Development	February, 2006 – October 2006
6. Writing the First Draft of the Course	February, 2006 – June 2006
7. Web Design and Course Page Set-up	June 2006 – November 2006
8. Writing the Second Draft of the Course	September 2006-November 2006
9. Collecting Suggestions from the Course Review Committee	December 2006 – January 2007
10. Final Version	January 2007
11. Finishing D2L Component	December 2006 - January 2007
Course Pilot	
12. Recruit participants	September 2006 – January 2007
13. Participants Registration	January 2007
14. Course Orientation	January 17 - January 20, 2007
15. Course Offering	January 21 – February 18, 2007
16. Grading	February 19 - February 23, 2007
Course Evaluation	
17. Evaluation Design	September 2006-November 2006
18. Institutional Review Board Approval	December 14, 2006
19. Formative Assessment	January 21 – February 18 th , 2007
20. Post Survey	February 18 th - 23 rd , 2007
21. Evaluation Analysis	February – March 9 th , 2007

II. Development of the Course

The first subproblem was to **develop** an online course about environmental sustainability in China. The course was offered for one credit to relevant teachers/graduate students through the College of Natural Resources and UWSP Continuing Education at the University of Wisconsin-Stevens Point.

The course was developed between February 2006 and January 2007. The development included the processes below:

1. Identification of the Course Format, and Goals and Objectives


In general, the course format followed the online course model from the Global Online Long Distance (GOLD) education program (interview with Dr. Mai Phillips on December 14th, 2005). The GOLD model uses both course webpage and **Desire2Learn** platform (D2L) for course offerings. The course webpage contains summaries and highlights for modules, and offers super links to further readings. Those readings are normally academic articles, official factor information, or other electronic publication from journals, web libraries, and free webpages. D2L is where the interactions happen between the instructor and the learners and among the learners.


The course content was composed of four units. The duration of the content was four weeks—one unit was completed each week by students. Students had a flexible time frame of a week to finish their readings, complete the assignments, and share their thoughts with each other. In addition to the four weeks for each unit, NRES 679, the Environmental Studies of China added a half week for orientating the participants to online learning and navigating them with

the D2L components.

Goals and Objective were identified for the entire course based on literature reviews of China's environment and the GET China Study Program structure. Separate goals and objectives for each unit were sketched out according to the general goals and objectives for the course. Detailed goals and objectives are offered in Chapter Four.



In this course, two types of learning objectives were determined: “Nice to Knows” and “Need to Knows.”

Need-to-Knows referred to information that was required based on the course goals and objectives. All the “Need-to-Knows,” including the required readings and compulsory assignments, were marked with the  symbol in all web pages.

Nice-to-Knows were optional information and might be selected by the learners based on their personal experiences, subject needs, and interests. All the “Nice to Knows,” including the selective readings and assignments, were marked with the  symbol.

2. Course Structure and Components

A) Course Structure

The content of the online course, NRES 679 Environmental Studies of China, consisted of four units. Each unit had a few modules based on the objectives of the unit and specific content. All modules were listed on the webpage for that unit. The researcher offered a paragraph of summary to lead the module and to introduce the readings. All URL addresses of readings were listed under the module outlines. There were two types of the readings: required readings, marked with the  symbol, and suggested readings, marked with .

symbol, corresponding to the “Need to Know” requirements and “Nice to Know” requirements. Both required and suggested readings were online accessible; these were normally academic articles, official factor information, or other electronic publications from journals, web library, and free webpage. Some of the readings were from China-based web page, some were non-China resources.

There were discussion questions listed in D2L platform, requiring the participants to reflect on the readings and other materials.

B) Supplemental Course Materials for NRES 679: Environmental Studies of China

A *Map of China*, including administration and geography information, and a documentary DVD series on China, *China Rises*, were sent to the participants prior to the course starting, as part of course supplemental materials. The map was published by SinoMaps Press. The DVD was produced by the Discovery Communications Inc. Instruction on watching the DVD and reflecting on the reading materials was provided on the D2L discussion board.

C) Assignments

Assignments for the online course *NRES 679: Environmental Studies of China* included the required readings, suggested readings, quizzes, discussion, watching the DVD of *China Rises*, and a final project.

The paragraphs below explain all types of assignments participants were required.

- ◆ Required readings

These readings were required of everyone in the class. All the basic reading materials were available online through links on the course page site and D2L.

- ◆ Suggested readings

The researcher provided a list for suggested readings with hyperlinks. Students could select readings from the list based on their interest. All suggested readings were available online.

- ◆ Quizzes

Quizzes were designed to primarily help the instructor evaluate if students were relating to important information in the course. Thus, in this course, completing quizzes resulted in pass or fail grades; scores of the quizzes were not carried into final grading.

- ◆ Discussion

Students were required to post their opinions and/or reflect on readings in D2L. Also, responding to classmates' opinions and reflections was required and considered in grading.

- ◆ Watching the DVD of *China Rise*

Students were required to watch one segment of the DVD of *China Rises, Getting Rich*, and reflect on the question on the D2L discussion board.

- ◆ Final project

By the end of this course, participants developed a curriculum plan based on the

information gained in the course, and infused into their teaching grade level(s) and subject area(s).

3. Web Design and D2L Set-up

The course template for NRES 679: Environmental Studies of China was designed by Denise Deering, Web Designer for UWSP and a work student, Boun Moua. The initial template was created using Dreamweaver software. The researcher used Microsoft FrontPage software to modify the pages. A site map is presented in Chapter Four. Appendix A included a few pages of snapshots of the course webpages.

This course used Desire2Learn (D2L) as the main platform for the course pilot. D2L is a UW System-wide Learning Management System that began during the Fall Semester of 2003. Learning Management Systems (LMS) can be used to deliver a course completely online or to enhance aspects of a traditional face-2-face class (UWSP Teaching and Learning Network, 2007). The D2L was setup by the researcher with the advice and suggestions from Mary Mielke, Information Technology and D2L specialist for UWSP. Nine tools were offered for the participants: Course Home, Content, Classlist, Discussion, Dropbox, Quizzes, Survey, Grades, and E-mail.

4. Course Review Committee

A course review committee consisted of my graduate committee, and two Chinese faculty at UWSP, Ms. Liao and Ms. Lu, reviewed the course web page and approved the content of the

online course before the pilot-testing. Table 3.2 below listed the Review Committee for *NRES 679: Environmental Studies of China*.

Table 3.2 Review Committee for *NRES 679: Environmental Studies of China*

Name	Title	Affiliations	Expertise Field
Dr. Randy Champeau	Professor and Associate Dean	College of Natural Resources, WCEE	Environmental education; international education; pre and in-service training
Dr. Dennis Yockers	Associate Professor	College of Natural Resources, WCEE	Environmental education; international education; pre and in-service training
Dr. Mai Phillips	Senior Scientist	College of Natural Resources	Conservation biology; tropical biodiversity; country studies; online teaching
Dr. John Coletta	Professor	Department of English	Literature and ecology, scientific and technical writing, Environmental studies
Susan Ermer	Program Coordinator	GET, College of Nature Resources	Environmental education; international education
Yan Liao	Assistant Professor	University Library	Language acquisition; library information science; Chinese history
Jia Lu	Assistant Professor	Department of Geography and Geology	City planning; GIS; urban economics; Chinese geography

Appendix B included an evaluation form for the Course Review.

III. Process of Pilot-Testing

The second subproblem was to **pilot-test** the course with teachers. This course was piloted from Jan. 17th-Feb. 18th, 2007. The researcher was also the instructor of this course.

1. Recruitment process

The course promotion and recruiting process was completed by Susan Ermer (Program Director of the GET Program), Jamie Hiler (Program Assistant of the GET Program), Tim Byers (Environmental Education Outreach Program Manager at WCEE), and Angela Lemar (Environmental Education Outreach Program Assistant) as part of the GET 2007 China Study Program. The target group of this online course, as well as the GET 2007 China Study Program, was K-12 school teachers.

Five approaches were used to recruit the participants: posting course- and program-related information on websites; mailing brochures and other materials to relevant people; sending through Email; distributing information at conferences and workshops; and spreading information through word of mouth. Below is a list of all promotion activities for the online course *NRES 679 Environmental Studies of China*.

Websites

- 1.) Highlight the program on the front page of the GET website
(<http://www.uwsp.edu/get>)
- 2.) Wisconsin Education Association Council website (<http://www.weac.org/>)
- 3.) EEK Website (<http://www.dnr.state.wi.us/org/caer/ce/eeek/index.htm>)
- 4.) The ide@s website: www.ideas.wisconsin.edu/

Mailing

- 5.) Sent brochures to Courses Participants of the Wisconsin K-12 Energy Education Program (Fall, 2006)
- 6.) Mailed GET past participants
- 7.) Sent a mailing to Wisconsin educators teaching Geography, International Studies, and Physical Science (November, 2006)
- 8.) Sent a mailing to all the registered environmental science teachers in Wisconsin (November, 2006)

E-mail

- 9.) Sent promotional materials to Northern Illinois University to distribute to their teacher contacts.
- 10.) Sent out the program information through the KEEP Online Bulletin (October, 2006)
- 11.) Information sent to the EE Masters Program participants through the University of Wisconsin-Continuing Education (October, 2006)
- 12.) Emailed all past GET program participants (November, 2006)
- 13.) Emailed all US people in the GET Database (November, 2006)
- 14.) Information posted in the Agricultural Education Weekly (September, 2006)
- 15.) Information posted in the Wisconsin Society for Science Teacher Fall Newsletter
- 16.) Emailed the contacts in the International Education List (October, 2006)
- 17.) Emailed Friends of International Education (October, 2006)
- 18.) Information posted in the International Education and Resource Network newsletter

Conferences and Workshops

- 19.) Wisconsin Association for Environmental Education Fall Conference (October, 2006)
- 20.) North American Association for Environmental Education Conferences (October, 2006)
- 21.) Global Education Conference (November, 2006)
- 22.) Wisconsin Governor's High School Environmental Conference (November, 2006)

Word of Mouth

Two participants identified that they heard about the program and the online course from a faculty members at the College of Natural Resources or a friend who was a past participant.

The result of the promoting process was that sixteen students were registered in the online course. There were seven people put on a waiting list for future offerings of the online course.

2. Course Timeline

The course was piloted in four and a half weeks. The beginning half week was the orientation and preparation period. During this half week, the instructor helped the students set up their account, familiarized them with the course website and D2L program, and encouraged the participants getting to know each other virtually. The following four weeks focused on one unit per week. Each unit began on Sunday and all assignments for the week were due by the following Sunday at midnight. Below is the course schedule for the **NRES 679-China, Spring 2007**:

Orientation: January 17th-January 20th, 2007

Unit One: January 21st - January 27th, 2007

Unit Two: January 28th - February 3rd, 2007

Unit Three: February 4th - February 10th, 2007

Unit Four: February 11th - February 18th, 2007

3. Grading Rubrics

Three items were graded in this course: readings, discussion, and the final project. Table 3.3 below shows the grading items and respective indicators and points.

Table 3.3 Grading Rubrics for Environmental Studies of China

Activity	Indicators	Points
Finishing required readings for each unit	Complete quiz: One complete quiz counts for 10 points	40%
Posting and responding at the discussion board	Reflection and responses on D2L discussion board: 1 reflection shown reflective thoughts and opinions for 10 points, plus at least 2 response for 2.5 points	50%
Final project	An written essay submitted to “drop box”: Cover all required points for writing, and reflect the information on China	10%
TOTAL		100%

Grading scale reflected on the total points:

93-100=A

90-92=A-

87-89=B+

83-86=B

80-82=B-

77-79=C+

73-76=C

70-72=C-

67-69=D+
63-66=D
60-62=D-
Below 60=F

IV. Assessment and Evaluation Methods

The third subproblem was to **evaluate** the impacts and effectiveness of the course.

As Daniel R. Tomal indicated, one key to understanding the evaluation component of action research is the concept that this research is often a cyclical process (Tomal, 2003). The evaluation of the course pilot included four formative surveys and one post-assessment. Four formative surveys were required to take during the pilot-testing. The post-assessment, including two parts, post-survey and summative survey, was taken by the course participants during the period of February 18th to February 23rd, 2007. Figure 3.2 shows the steps of the Environmental Studies of China evaluation process.

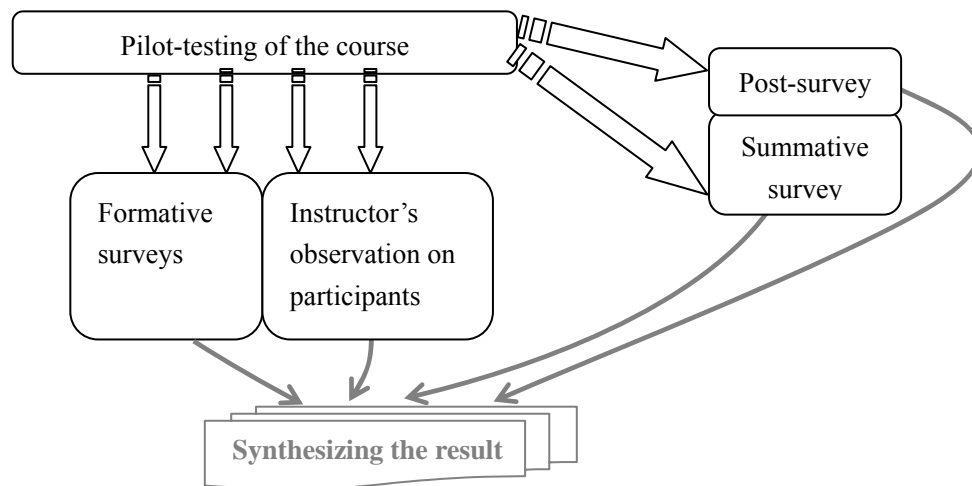


Figure 3.2 The Process of the Course Evaluation

All evaluation methods and surveys were approved by the Institutional Review Board at University of Wisconsin-Stevens Point (IRB) by December 14, 2006. The Consent Form for

this research is presented in Appendix C.

The sections below explain the objectives, methods, and process of assessment instruments.

a) Formative Assessment

The objectives of the Formative Assessment were to:

- ◆ Collect participants' opinions to the content and materials of each unit.
- ◆ Collect their suggestions for revision
- ◆ Evaluate whether the workload for each unit is appropriate

A formative survey was required at the end of each unit. Each formative survey asked four open-ended questions. The questions for all four units were the same as follows:

Question 1: What did you like the most of this unit?

Question 2: What did you think the least useful of this unit?

Question 3: What do you recommend to improve?

Question 4: Please estimate the time you spent in this unit

_____ hours on reading required materials

_____ hours on reading suggested readings

_____ hours on writing discussion and response to other class participants

_____ minutes on quiz

_____ minutes on this survey

The course participants were asked to log on to D2L and to take the surveys under the Survey section. Only one attempt was available to individual students for each unit. The researcher kept all answers unread until the grades were submitted to all fourteen students who participated in the evaluation.

b) Post-assessment

There were two parts included in the post-assessment: post-survey and summative survey.

The two parts were pulled together to reduce the time and efforts course participants spending on the survey. The post assessment was required of participants after they finished all four units. The researcher kept all answers unread until the grades were submitted to all fourteen students who participated in the evaluation.

A) Post-survey

The objective of the post-survey was to evaluate the overall effectiveness of the course. Four Likert scale questions were asked to assess participants' opinion on the course achievement.

Questions are shown below:

To what extent do you agree or disagree with the following statement:

Question 1: The course content promoted the accomplishment of the course goals and objectives.

A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

Question 2: I feel more prepared for a trip to China as a result of taking this online course

A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

Question 3: How much did you know about China before taking this course?

A. A lot B. Some C. A little D. A little E. Nothing

Question 4: How much do you know about China after taking this course?

A. A lot B. Some C. A little D. A little E. Nothing

B) Summative Survey

The objectives of the summative survey were to:

- ♦ evaluate the course structure and organization
- ✓ determine whether the aim/goals/objectives of the course were well expressed and

understood by the learners

- ✓ determine whether the structure followed the aim/goals/objectives
- ✓ determine whether the units of the course and the modules of the units were organized in a logical way
- ◆ evaluate the course materials
- ◆ evaluate online instructional strategies
 - ✓ determine whether the assignments were clear.
 - ✓ determine whether the interaction between the instructor and participants, and among the participants were adequate and helped learning
- ◆ evaluate the instructor's efforts in relate to offering this course
- ◆ evaluate students' workload
- ◆ evaluate course outlook and technology
 - ✓ determine whether the course pages were designed in a user-friendly way
 - ✓ determine the tools used in D2L helped the content learning

The summative survey included seven sections based on the objectives: Course Structure and Organization, Course Materials, Online Instructional Strategies, Instructor, Workload, Course Outlook and Technology, and Suggestions. Below paragraphs discussed all six sections.

a). Course Structure and Organization

Five Likert scale questions were asked to evaluate the course structure and organization:

To what extent do you agree or disagree with the following statement:

Question 5. The goals and objectives of the course were clear and well expressed.

Question 6. The structure of the course followed the goals and objectives.

Question 7. The units of the course and the modules of the units were organized in a logical way.

Question 8. The breadth of topic covered was adequate for a one-credit course.

Question 9. The depth of the topics covered was adequate for a one-credit course.

Five answers were provided for the participants to chose:

A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

b). Course Materials

Three Likert scale questions were asked to evaluate the course materials:

To what extent do you agree or disagree with the following statement:

Question 10. The course materials helped to reach the course goals and objectives.

Question 11. The readings were authentic and offered abundant information.

Question 12. The use of other resources, like maps, DVDs helped to express subject matter.

Five answers were provided for the participants to chose:

A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

c). Online Instructional Strategies

Five Likert scale questions were asked to evaluate the online instructional strategies:

To what extent do you agree or disagree with the following statement:

Question 13. The discussion assignment supported the accomplishment of course objectives.

Question 14. The assignments provided clear and adequate instructions.

Question 15. The quizzes supported the accomplishment of course objectives.

Question 16. The interaction among the class supported the accomplishment of course objectives

Question 17. The interaction between the instructor and class participants supported the accomplishment of course objectives.

Five answers were provided for the participants to chose:

A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

d). Instructor

Three Likert scale questions were asked to evaluate the instructor's efforts in this course:

To what extent do you agree or disagree with the following statement:

Question 18. The instructor(s) were readily available and returned emails, pagers and discussion questions.

Question 19. The instructor(s) involvement in the course was adequate.

Question 20. The instructor(s) showed enthusiasm for the course.

Five answers were provided for the participants to chose:

A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

e). Workload

One Likert scale question was asked to evaluate the workload:

To what extent do you agree or disagree with the following statement:

Question 21. The workload in this course was reasonably affordable.

Five answers were provided for the participants to chose:

A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

f). Course Outlook and Technology

Four Likert scale questions were asked to evaluate the course outlook and technology:

To what extent do you agree or disagree with the following statement:

Question 22. The course page design was easy to follow.

Question 23. D2L components were appropriate and friendly to users.

Question 24. I would recommend this course to others.

Question 25. I would participate in another online course as a result of this experience.

Five answers were provided for the participants to chose:

A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

g). Suggestions

Five open-ended questions were asked to collect the participants' comments and suggestions on the online course:

Question 26. What did you like the most about this online course?

Question 27. What did you like the least about this online course?

Question 28. Do you have suggestions for improving the course and/or the instruction?

Question 29. In addition to the assigned discussion activities in this course, what other activities would you recommend for interaction between the participants and the instructor(s)?

Question 30. Were there any barriers to you in the course? If yes, please list them.

The course participants were asked to log on to D2L and take the post-assessment under the Survey section. Only one attempt was available for individual students. The researcher kept all answers unread until the grades were submitted to all students who participated in the evaluation.

All survey forms were attached in Appendix D

V. Recommendation Process

The fourth subproblem was to make recommendations on revising the course. Results from the evaluation, the researcher's observation, and the suggestions from the researcher's graduate committee were all considered when providing recommendations for future course offerings.

CHAPTER FOUR

RESULTS

I. Introduction to Results

II. The development of *NRES 679 Environmental Studies of China*

III. The Pilot of *NRES 679 Environmental Studies of China*

IV. The Evaluation of *NRES 679 Environmental Studies of China*

I. Introduction to Results

The goal of this study was to **develop, pilot-test, evaluate, and revise** an online course that assists Wisconsin educators in understanding the cultural, educational, and political situations that affect the sustainability of the natural environment in China. The online course was a one-credit graduate course entitled *Environmental Studies of China*. The course was developed between February 2006 and January 2007. It was piloted from January 17th, 2007 to February 18th, 2007. Evaluation of the pilot, including four formative surveys and one summative assessment, was taken by the course participants during January 21 to February 23rd, 2007.

II. The Development of *NRES 679: Environmental Studies of China*

The course was developed between February 2006 and January 2007. The results of the development processes include the goals and objectives of the course, the course structure, online components of the course, and the suggestions from the Course Review Committee.

1. The Goals and Objectives of the Course

The researcher identified two goals and four objectives for the entire course, based on literature reviews and the GET China Study Program structure. Separated goals and objectives for each unit were developed out according to the general goals and objectives.

A) Goals and Objectives of the Course

The goals for the online course, Environmental Studies of China, were:

- ◆ To help participants develop a better overall understanding of China
- ◆ To help students understand how global development impacts the environmental sustainability of China at both local and national levels

Objectives for the course:

After completing this web-based course, students would be able to:

- ◆ express a basic understanding of China
- ◆ understand the status of biological diversity in China with examples in Yunnan and Xinjiang
- ◆ identify the major environmental problems in China
- ◆ link societal changes in China to its environmental problems and identify potential solutions.

B) Goals and Objectives of Unit One: General Introduction

The goal of Unit One was to help the students understand the general cultural and physical characteristics of China. The objective of this unit was stated as follows: “After completing this unit, students will be able to summarize the general cultural and physical characteristics of China and compare them to the U.S.”

C) Goals and Objectives of Unit Two: Biodiversity and Conservation

The goal of Unit Two was to help the students understand biodiversity in China, the importance of China’s biodiversity to the world, and relevant conservation activities in China. The objectives, including two “Need to Know” requirements and one “Nice to Know” requirement, were:

After completing this unit, students will be able to

- ✚ Identify the importance of the biodiversity of China to both China and the world
- ✚ Describe some examples of declining biodiversity in China
- Evaluate conservation policies and capacities of China relative to preserving biodiversity in China.

D) Goals and objectives of Unit Three: Major Environmental Issues

The goal of Unit Three was to help the students understand the major environmental issues in China. The objectives, including one “Need to Know” requirement and one “Nice to Know” requirement, were:

After completing this unit, students would be able to

- ✦ Describe the major environmental problems of China
- Evaluate the impacts of the problems on the national and the global population

E) Goals and objectives of Unit Four: Society and Efforts

The goal of Unit Four was to help the students reflect on economic development in China and the associated problems relative to sustainable development at a global level.

The objectives, including two “Need to Know” requirements and two “Nice to Know” requirements, were:

After completing this unit, students would be able to

- ✦ Evaluate the interaction between China's economic development and environment at the global level
- ✦ Identify socio/economic factors that will contribute to sustainable development efforts in China
- In general explain or diagram China's government structure
- Compare the environmental management of China to that of the United States

2. Course Structure

The content of the online course, NRES 679 Environmental Studies of China, consisted of four units, relative to the four objectives of the course. Besides the four weeks to cover the four units, a half week was added for orientating the participants to online learning and navigating them with the D2L components. The course structure included the course

orientation; module, readings, and assignments for each unit; and the crossing-over interaction questions.

A) Course Orientation

◆ Readings for Course Orientation

#1 *Course Information* (<http://www.uwsp.edu/natres/nres679china/courseinfo.asp>)

#2 *Syllabus* (http://www.uwsp.edu/natres/nres679china/courseinfo_syllabus.asp)

#3 *Student guide to D2L* (Available at D2L when log-on)

◆ Discussion Forum for the Orientation and Introduction Week

✓ Introductions

Take a couple minutes to introduce yourself to the class. Where are you from? What grade(s) do you teach? What are some of your hobbies or interests? Do you have any overseas experiences? What do you know about China. Have fun with this!

✓ Show & Tell

This discussion topic is a place that you can share resources, thoughts, perspectives, ideas, or just get to know one another. Enjoy!

✓ Questions

Post any questions you have related to the course or D2L tools here.

B) Unit One: General Introduction

◆ Modules of Unit One

✓ Physical Geography

✓ History

✓ People and Culture

✓ Xinjiang

✓ Yunnan

◆ Readings for Unit One

Required

#1 *Geography of China* (<http://countrystudies.us/china/32.htm>)

#2 *History Timeline of China* (<http://depts.washington.edu/chinaciv/timeline.htm>)

#3 *History* (http://english.gov.cn/2005-08/06/content_24233.htm)

#4 *Population* (http://english.gov.cn/2005-08/08/content_27315.htm)

#5 *Population Control Programs in China* (<http://countrystudies.us/china/34.htm>)

#6 *Regional Autonomy and China's Ethnic Minority Population and Distribution*
(<http://www.china.org.cn/e-china/population/Autonomy.htm>)

#7

Yin and Yang

(http://www.china-window.com/china_briefing/china_summary/the-yin-and-yang.shtml)

Brief introduction about the lunar year and the Five Elements

(http://www.china-window.com/china_briefing/china_summary/brief-introduction-about-.shtml)

The Chinese lunar calendar

(http://www.china-window.com/china_briefing/china_summary/the-chinese-lunar-calenda.shtml)

Confucianism

(http://www.china-window.com/china_briefing/china_summary/china-philosophy-religion.shtml)

Daoism

(http://www.china-window.com/china_briefing/china_summary/china-philosophy-religion-2.shtml)

Buddhism

(http://www.china-window.com/china_briefing/china_summary/china-philosophy-religion-3.shtml)

Suggested

Introduction on Xinjiang @Wikipedia (<http://en.wikipedia.org/wiki/Xinjiang>)

Xinjiang @gov.cn

([http://www.xinjiang.gov.cn/1\\$002/1\\$002\\$015/365.jsp?articleid=2005-6-22-0008](http://www.xinjiang.gov.cn/1$002/1$002$015/365.jsp?articleid=2005-6-22-0008))

Introduction on Yunnan @CBIK (http://cbik.ac.cn/cbik-en/cbik/where_work.htm)

Yunnan @Wikipedia (<http://en.wikipedia.org/wiki/Yunnan>)

◆ Discussion Forum for Unit One

- ✓ Physical factors of China
What are your impressions after learning about the geography and other physical factors of China?
- ✓ Cultural factors of China
Answer one of these questions:
What are the interesting points you found from the readings related to cultural factors (history, people and culture)?
Explain differences or similarities between China and America?
Explain how the principle of "Yin and Yang" and "five elements" might contribute to the concept of sustainable development?
- ✓ Why Xinjiang and Yunnan (for those registered for the travel program)
What is your first impression of Xinjiang and Yunnan? What are some physical or cultural features you hope to see when you travel there?

C) Unit 2: Biodiversity and Conservation

◆ Modules of Unit Two

- ✓ Biodiversity in China
- ✓ Biodiversity Conservation Policies and Natural Reserve
- ✓ Biodiversity in Yunnan
- ✓ Biodiversity in Xinjiang

◆ Readings for Unit Two

Required

#1 *Executive Summary of China's Biodiversity: a Country Study*
(<http://www.chinagate.com.cn/english/2036.htm>)

#2 *Habitat and Ecosystem Diversity* (<http://bbsp-neca.brim.ac.cn/books/bdinchn/2.html>)

#3 *Executive Summary of China's National Report on Implementation of the Convention on Biological Diversity* (<http://us.tom.com/english/2068.htm>)

#4 *Introduction to Nature Resources of China* (<http://www.chinagate.com.cn/english/530.htm>)

#5 *Biodiversity in Yunnan* (http://cbik.ac.cn/cbik-en/cbik/where_work/biodiversity.htm)

#8 *Report of Nature Reserves from the Biggest Province*

Suggested

#6 *Polices and Implementation in the Nature Reserves of Yunnan Province from Links between Cultures and Biodiversity*
(<http://www.cbik.ac.cn/cbik-cn/cbik/resource/download/Proceedings2000.pdf>, file pages for this article are 97-115)

#7 *Culture and Ethnic Diversity*
(http://www.cbik.ac.cn/cbik-en/cbik/where_work/culture.htm).

◆ Discussion Forum for Unit Two

- ✓ Threats to Biodiversity of China
What are the major threats to biodiversity of China?
- ✓ Does Panda Matter?
Identify what value the biodiversity of China is to a citizen of the U.S.?

D) Unit Three: Major Environmental Issues

◆ Modules of Unit Three

- ✓ State of the Environment
- ✓ Energy issues
- ✓ China's Environment in a Globalizing World

♦ **Readings for Unit Three
Required**

#1 *State of the Environment (Human Development Report 2002: Making Green Development a Choice* p17-38: <http://www.undp.org.cn/downloads/nhdr/nhdr2002.pdf>)

#2 *Chinese Energy Policy Outlook: Renewable Energy and Energy Efficiency* (http://adrf.trf.or.th/ADRF6update/Full_Papers/Energy_Security/Li_Junfeng/Fullpaper_Li_junfeng.pdf)

#3 *China's Environment in a Globalizing World*:
<http://www.nature.com/nature/journal/v435/n7046/pdf/4351179a.pdf>

Some of the Suggested Readings (@)

China's Burning Ambition
(<http://www.nature.com/nature/journal/v435/n7046/pdf/4351152a.pdf>)

Energy of China (Human Development Report 2002: Making Green Development a Choice p55-58: <http://www.undp.org.cn/downloads/nhdr/nhdr2002.pdf>)

♦ **Discussion Forum for Unit Three**

✓ **Environmental News**

From the websites below, find an article published in the last 3 months about China's Environmental issues. Summarize the problems, challenges, or/and possible solutions.

New York Times (<http://www.nytimes.com/>)

Chinawatch (<http://www.worldwatch.org/features/chinawatch/>)

BBC News (<http://news.bbc.co.uk/>)

ABC News (<http://abcnews.go.com/International/>)

Xinhua Net (<http://www.chinaview.cn/>)

China Daily (<http://www.chinadaily.com.cn/home/index.html>)

✓ **Ecological Footprint**

Go to the Earthday Network's website (<http://www.earthday.net/Footprint/index.asp>), and take the Ecological Footprint Quiz. Read the Global Context: Humanity's Ecological Footprint. Then compare your footprint to a Chinese, and post your reflection on the discussion board.

E) Unit Four: Society and Efforts

◆ Modules of Unit Four

- ✓ Politics
- ✓ Economics
- ✓ Recent Movements and Efforts

◆ Readings for Unit Four Required

#1 *Government structure, principal government and party officials, and legal system*
(<http://www.state.gov/r/pa/ei/bgn/18902.htm#gov>)

#2 *Key Environmental Laws and Regulations*

#3 *Economy* (<http://www.state.gov/r/pa/ei/bgn/18902.htm#econ>)

#4 *Report on the Implementation of the Central and Local Budgets for 2005 and on the Draft Central and Local Budgets for 2006* (<http://www.china.org.cn/english/2006lh/161850.htm>).

#5 *Local Environment Management in China*
(<http://www.wilsoncenter.org/topics/pubs/ACF3D9.pdf>)

#6-1 *China Daily* 4-14/05
(http://www.chinadaily.com.cn/english/doc/2005-04/14/content_434145.htm)

#6-2 *China Daily* 9-10/05
(http://www.chinadaily.com.cn/english/doc/2005-09/10/content_476713.htm)

#7 *Addressing Urgent Needs: The Emergence of Environmental Education in China*
(<http://www.wilsoncenter.org/topics/pubs/meneil-lin.pdf>)

Some of the Suggested readings (📖)

The legislative system of China

(<http://www.china.org.cn/english/features/legislative/75857.htm>)

The Constitutional System (<http://www.china.org.cn/english/Political/26143.htm>)

The System of People's Congress (<http://www.china.org.cn/english/Political/26144.htm>)

The Party in Power (<http://www.china.org.cn/english/Political/26151.htm>)

The Central Administrative System (<http://www.china.org.cn/english/MATERIAL/28847.htm>)

Public participation in Environmental Impact Assessment (EIA) Law of China
(<http://www.riel.whu.edu.cn/show.asp?ID=3082>)

◆ Discussion Forum for Unit Four

- ✓ Environment and Politics
Reflect on the readings in previous units, and explain how environment is impacted by politics (in terms of government, laws and legislation) in China.
- ✓ Environment and development
Explain how the environment and economic development are interacting? What are the strategies China should take in order to approach environmental sustainability?
- ✓ China Rises--Getting Rich
Watch the DVD of China Rises--Getting Rich (other sections are selective choice).
What major ideas did you learn from this DVD?

F) Interaction Questions Crossing-over the Course Period

The “Share and Tell” forum was open for the participants for the overall course period time and served as a free sharing area on D2L. “Share and Tell” included three topics:

- ✓ Share your thoughts
Share any thoughts you have on China, environmental education, and global connections here.
- ✓ Further Research Questions
From this course, identify a research question you would like to continue to explore and post for discussion prior to your trip to China.
- ✓ Educational Plan
What do you plan to do with your students or colleagues after your learning on China?
Share your topics, lessons, activities or any ideas.

3. Course Webpage and D2L Components for NRES 679: Environmental Studies of China

The direct outcome of the development process is the course page of NRES 679:

Environmental Studies of China. This course is given the URL address

<http://www.uwsp.edu/natres/nres679china/> and all pages were put online in December, 2006.

Figure 4.1 shows two Sitemaps of the URL pages for *NRES 679: Environmental Studies of China*, and the structure of the course site. The upper part shows the pages of the site; the lower part shows the links existing to all pages.

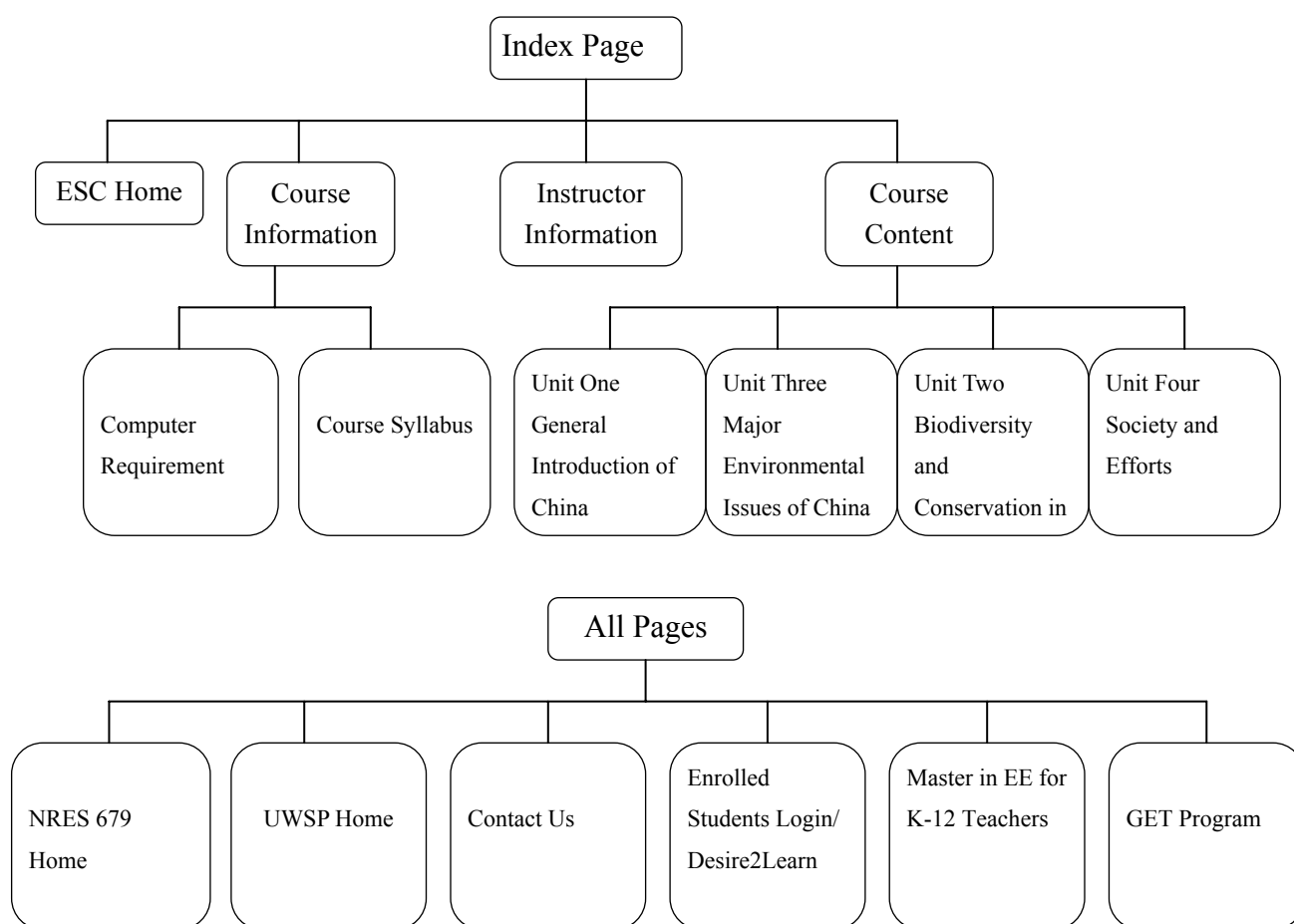


Figure 4.1 Sitemaps of the China Course WebPage

The D2L component for this course included [Message Board](#), [Content](#), [Classlist](#), [Discussion](#), [Dropbox](#), [Quizzes](#), [Survey](#), [Grades](#), and [E-mail](#). Among these nine components, [Course Home](#), [Content](#), [Classlist](#), and [Discussion](#) were open to all in the class; [Dropbox](#), [Quizzes](#), [Surveys](#), and [Grades](#) were all restricted to individual students and viewed only by the instructor(s) and students separately.

The **[Message Board](#)** was the first page the students could see when they logged on to their course or clicked on the Course Home. It was used by the researcher to post leading messages during the course pilot. Information for the week, common questions, and learning tips for the unit were the types of leading messages the researcher posted during the pilot.

The **[Content](#)** was used to organize the course content information and materials. It was divided into 6 divisions: [Introduction](#), [Unit One](#), [Unit Two](#), [Unit Three](#), [Unit Four](#), [Final Project](#), and [Resources](#). [Introduction](#) division contained a [welcome page](#), the [course information](#), [syllabus](#), and a [checklist](#). All four units had a [starting page](#), [Course Page](#) which linked to the free webpage for that unit, a [reading list](#) offering the links to all readings, and a [checklist](#). [Final Project](#) division contained the requirement for the final project. The [Resources](#) division had three pages, linking to a few online resources: [Maps of China](#), [Teachers Guide](#) from the University of Washington, [Convert Online](#).

The **[Classlist](#)** allowed all students view their instructor's and classmates' profile information. The instructor was able to check the [User Progress](#) in using this tool, besides their profiles.

The **[Discussion](#)** board was where the interaction occurred among students, as well as communication between the students and instructor. There were 2-3 questions required to reflect on D2L discussion board for each unit. The researcher also requested each individual

participant to respond to at least two posts from others. Discussion questions were listed in previous section (Section 2, Page58-63).

The **Dropbox** was a designated area for submitting the final project. Feedback on the final project was offered after the instructor read through the final project in the individual folder. Only the instructor had the access to opening and downloaded the files dropped through this area. Participants were restricted to checking only their own folders.

The **Quizzes** tool was where the students could find the quiz for each unit. D2L offers automatic grading and shows the questions incorrect when properties were properly set. The instructor allowed two attempts for each quiz in this course.

The **Surveys** contained four Formative Surveys and the Summative Assessment.

The **Grades** book was only modified by the instructor and viewed by individual participants.

The **E-mail** on D2L offered a shortcut of using the UWSP user account to send out email without logging on to UWSP email system. However, this tool doesn't offer receiving emails.

4. Suggestions from the Course Review Committee

A course review committee consisted of the researcher's graduate committee, and two Chinese faculty at UWSP (See table 3.2 for the details of the committee members). They reviewed the course web page and approved the content of the online course in December 2006, before the pilot-testing.

Four of the committee members filled out the Course Review Form. Two sent comments via emails. One offered suggestions orally. Following is a summary of the suggestions from both the review form and email conversations.

- ◆ Check the links for the reading
- ◆ Make the readings open up in a new window.
- ◆ Give examples of NGO's efforts in biodiversity and conservation.
- ◆ Justify why Yunnan and Xinjiang were chosen in Unit One and Two.
- ◆ Choose more current articles on China.
- ◆ Add 1-3 articles about the Environmental Impact Assessment of Old Summer Palace Park in Unit Four. Or design this topic like a "case study" for Unit Four
- ◆ Flip the objectives for Unit Four
- ◆ Have just one final assignment and reduce the discussion questions to two for each unit.
- ◆ Clarify some terms that might not be familiar to U.S. students

III. The Pilot of NRES 679 Environmental Studies of China

The course was piloted from January 17th, 2007 to February 18th, 2007. The researcher was also the instructor of the pilot. Below is the course schedule for the **NRES 679-China, Spring 2007**:

Orientation: January 17th - January 20th, 2007

Unit One: January 21st - January 27th, 2007

Unit Two: January 28th - February 3rd, 2007

Unit Three: February 4th - February 10th, 2007

Unit Four: February 11th - February 18th, 2007

Sixteen students were registered, including 11 participants from the GET China Study Program, and 5 volunteers. By the end of the course schedule, 14 students completed all of

their assignments and received their grade. One student from the five volunteers dropped due to computer and technical barriers. One China Study Program participant has extended the course and received an “I” (incomplete) temporarily when the course ended.

1. Participants Demographic

All participants were K-12 public school teachers. Among the fifteen students, one was from Puerto Rico, the other fourteen were from Wisconsin. Gender distribution was fourteen females and only one male. There was not much ethnic diversity in the group: only one black and one Hispanic participant; the rest thirteen were all white. The age of this group varied from 26 to 56, with an average of 41.2 (by Jan 17th, 2007).

The participants came from a variety of subject areas. As shown in Figure 4.2, there were five participants teaching all subject areas in their classes, three teaching Science, and the rest teaching Spanish, English, Reading, World Geography, and Agriscience.

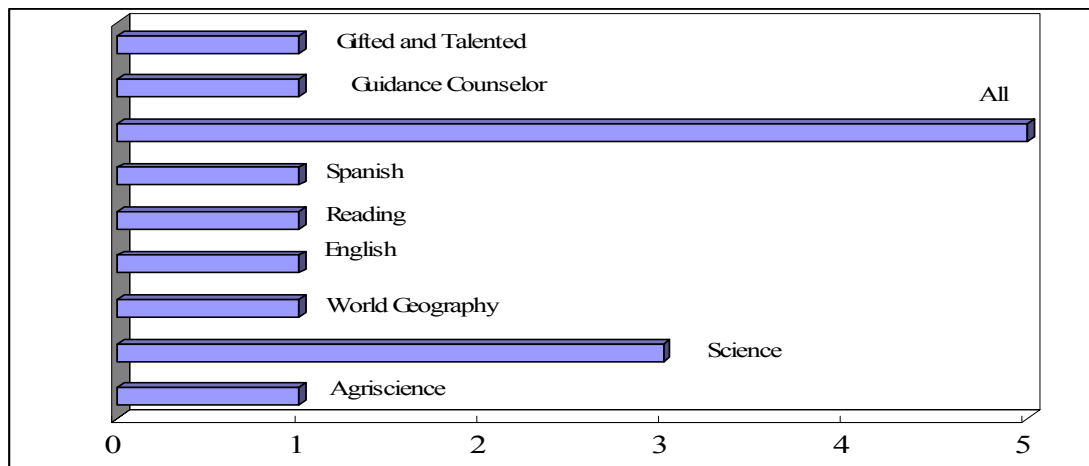


Figure 4.2 Participants' Subject Areas (N=15)

The participants taught at a variety of grade levels. Seven of them teach K-5th grades and eight teach 6th-12th grades (Figure 4.3).

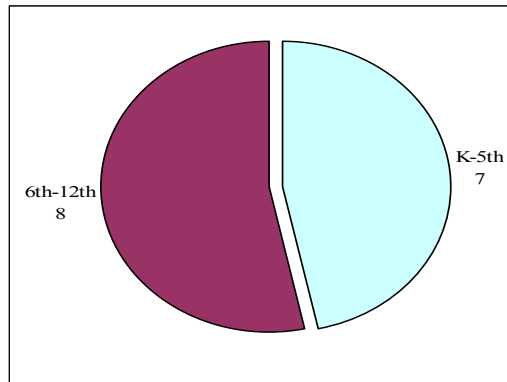


Figure 4.3 Participants' Teaching Grade

2. Course Interaction Among the Students and Instructor

In this pilot, the researcher was the main instructor. During the course period of time, the researcher used emails, leading messages, and discussion board to interact with the students. Emails were used to respond to the questions students had and to alert students who failed to finish the assignments by the deadline or had very low scores from quizzes. Leading messages were listed under the “Message Board,” the first page whenever the students logged onto D2L and started the course. Also a few assisting pages on D2L were posted under “Content” on D2L, including a starting page, a reading list, and a checklist for each unit. Both the starting page and the checklist contained all of the assignments for each unit. Students were directed to start with the starting page and end with the checklist. The researcher’s involvement also included commenting on students’ opinions and addressing some questions students posted in the discussion board. From January 22nd to February 18th, the researcher offered two virtual office hours for instant request in a frequency of five days a week (Monday, Tuesday, and Thursday to Saturday).

The majority of the interaction among the students in this course occurred on the Discussion Board. There were 2-3 discussion questions required to reflect on D2L for each unit. Also, responding to at least two of the posts not authored by themselves was required. Table 4.1 shows the number of posts each forum and question had during the course period of time. As shown in the table 4.1, the number of expected posts to reach the minimum requirement was 290. The actual quantity of posts from each participants and the total number of all posts, 1095, was higher than this minimum requirement.

Table 4.1 The Amount of Posts

Forum/Topics	Open Period	#of mini. requirement*	# of posts
Orientation Week /Welcome to ESC	Jan. 17- Feb. 20	42	381
♦ Introductions		42	283
♦ Show Resources		0	18
♦ Questions		0	80
Unit One: General Introduction	Jan. 21- Feb. 20	66	224
♦ Physical factors of China		14	84
♦ Cultural factors of China		14	67
♦ Why Xinjiang and Yunnan		10	73
Unit 2: Biodiversity and Conservation	Jan. 28- Feb. 20	56	145
♦ Threats to Biodiversity of China		14	78
♦ Does Panda Matter?		14	67
Unit 3: Major Environmental Issues	Feb. 4- Feb. 20	56	158
♦ Environmental News		14	73
♦ Ecological Footprint		14	85
Unit 4: Society and Efforts	Feb. 11- Feb. 20	70	161
♦ Environment and Politics		14	51
♦ Environment and development		14	54
♦ China Rises--Getting Rich		14	56
Share and Tell	Jan. 28-Feb. 20	0	26
♦ Share your thoughts		0	10
♦ Further Research Questions		0	2
♦ Educational Plan		0	14
TOTAL AMOUNT of POSTS		290	1095

3. Grading the Participants

The researcher was responsible for keeping track of student performance. Grades for the week were given within two to three days after the assignment deadline. Individual students had access to check their grades immediately after the instructor updated the D2L grade book.

Final grading was completed by the researcher by February 26th, 2007. One week was allowed for students to inquire about their final grades before they were submitted to the

* There was one student taking this online course with special arrangement, and was not required to post reflection on the Discussion Board. The other fourteen participants were required to post reflections to 2-3 questions each unit, plus minimum 2 response to others' reflections. One question was required of the 2007 China Study Program Participants.

Registration and Record Office at UWSP. Among sixteen registered students, one dropped, one extended, and the rest of the students all completed the course and received their grades by March 5th, 2007.

IV. The Evaluation of *NRES 679 Environmental Studies of China*

Evaluation of the pilot included four formative surveys and one post assessment. A formative survey was required at the end of each unit. The post assessment, including a post survey and a summative survey, was taken within February 18th to 23rd, 2007.

Among the sixteen registered students, one was not included in the evaluation, due to her special time arrangement. Fifteen students were informed about the evaluation and this study by the researcher prior to the course pilot. All fifteen students agreed to participate in the research and signed the consent form. An example of the Consent Form is presented in Appendix C. One of the fifteen students dropped the course; therefore, there were fourteen students that participated in the evaluation.

The following sections described the result from the Formative Assessments, Summative Survey, and Post Assessment.

1. Results from the Formative Surveys

Four questions were asked in each of the formative surveys, as shown below:

Question 1: What did you like the most of this unit?

Question 2: What did you think the least useful of this unit?

Question 3: What do you recommend to improve?

Question 4: How many hours did you spend on reading required materials, how many hours on suggested readings, how many hours on writing discussion and response to other class? How many minutes did you spend on the quiz, how many minutes on this survey?

Following sections described the results from questions 1 to 3 in each unit, and summary result from question 4 for all four units.

A) Formative-Unit One: General Introduction

Question 1: What did you like the most of this unit?

Eight participants mentioned readings. Some had specific comments on certain readings. Four mentioned history, two mentioned the reading of timeline specifically; three mentioned culture, the Five Elements, and Religion and Philosophy were pointed; two mentioned the readings on the regions the GET Study Program group is visiting in the summer of 2007.

Four participants mentioned that they liked the resources of information. They noted “a little bit of all kinds of information,” “variety of information,” and “from a number of different sources.”

Four participants identified certain content they liked the most. The subunits mentioned were physical factors of China, cultural factors of China, people and culture, and birth control.

Three participants wrote that they liked learning about the Yunnan and Xinjiang most. Two mentioned the map; one mentioned the discussion board.

Question 2 What did you think the least useful of this unit?

In this question, ten participants mentioned readings. Three of them didn't like the length, amount, and details of some readings; two of them didn't like the statistics in some of the readings; someone thought the history reading was dry; one didn't like the articles from the government site; one didn't like the print size for some readings; someone didn't like the charts in a few readings; three pointed specific readings that s/he thought the least useful for

her/him: the history timeline, reading on the population and reading on the ethnicities.

Five participants thought the following content was the least useful: History (4 mentioned) and Geography (1 mentioned).

One participant stated that the visualization was lacking.

Question 3. What do you recommend to improve?

The recommendations from all participants were categorized into five groups: 1) Readings, 2) Interaction, 3) Comparison, 4) Quiz, and 5) Course Timing. Recommendations for categories as follows:

1). Readings

“A shorter reading on the history”

“Pare down the information, particularly about the history to a timeline.”

“Address major historical event and depth of event”

“Have students post both their thoughts and also a question or two that they have regarding the readings”

“Have a study guide to accompany the reading so we are a bit more focused when completing all of the readings for unit 1”

“On-line maps”

2). Interaction

“More guidelines on our reflections (keep them straight)”

“Instructions for typing one's reflections/impressions aren't very clear, and don't seem to be used by the participants in this class”

“Need a face with a name”

“Personalize the personal communication”

3). Comparison

“A comparison with locales in the U.S.”

4). Quiz

“Make quiz questions more of the “big picture” rather than stats.”

“Make the quiz available at the beginning of the unit.”

5). Course Timing

“Stretch out the readings, have more of an overlap of time.”

B) Formative-Unit Two: Biodiversity and Conservation

Question 1 What did you like the most of this unit?

Eight participants wrote that they liked the content the most of this unit. Specific subunits mentioned included: diversity (3), actual actions/projects (2), medicinal value of plants (1), major treats to plant biodiversity (1), cultural diversity (1).

Seven participants mentioned readings. Specific readings cited and times mentioned were: country study (2), first 3 readings (1), diverse areas (1), diversity of plants and animals (1), Yunnan (1).

Four participants wrote that they liked how this unit focused in specific regions.

One participant mentioned the discussion board.

Question 2 What did you think the least useful of this unit?

In this question, five participants mentioned readings. Two of them didn't like the reading(s) about the government act; one didn't like that a particular reading used a lot of abbreviations; two didn't like the readings on natural reserves; one didn't like the statistics in some of the readings.

One participant stated that the quiz was the least useful part of this unit.

Question 3. What do you recommend to improve?

The recommendations from all participants focused on readings and the quiz. The original writings were listed below.

1) Readings

"Some information that explains how China's biodiversity relates to the rest of the world."

"More specific information about projects that are now being done in China"

"Have a web link that showed pictures of some of these plants and animals that I have never heard of before"

“Pictures. More interesting reading.”

“More articles from a western NGO would be great “

“Make the optional reading on cultural and ethnic diversity a required one.”

2) Quiz

“Questions more holistically about what you have read are more useful”

“In a paragraph explain what should happen after taking a quiz.”

C) Formative-Unit Three Major Environmental Issues

Question 1 What did you like the most of this unit?

Ten participants stated that they liked the questions and activities on the discussion board. Nine of them mentioned the Footprint activity, and five mentioned the Environmental News activity.

Six participants mentioned readings. The specific readings they like most and the times mentioned were: *Environment Statement* (2), *Environmental Issues* (2), *China’s Environment in a Globalizing World* (1), *Toxic China* (1)

One participant stated that s/he liked the content most. One liked the comparisons with the US and China.

Question 2 What did you think the least useful of this unit?

In this question, nine participants mentioned some readings were the least useful thing of this unit. Three of them didn’t like article “Energy Policy Outlook”; one thought the article, “China’s Burning Ambition” was least useful. One didn’t like the length and statistics of some readings; one thought some readings were dry; one didn’t like the Doom and Gloom manner of China’s environment.

One participant stated that the quiz of this unit was the least useful.

Question 3. What do you recommend to improve?

In this unit, the recommendations from all participants focused on readings and the quiz. The original writings were listed below.

1). Readings

“Less governmental documents as readings”

“Articles from 2006, success stories”

“Shorter readings, or just pick several pages by instructor”

“Take out the Chinese Energy Policy outlook and allow for some more choice of reading current environmental news articles.”

“Some of the readings were QUITE long”

“Different sources”

“Find a chapter or essay from a larger, more in depth study of China's environment for the reading.”

2). Quiz

“Quiz more on major concepts, not the little details.”

D) Formative-Unit Four Society and Efforts

Question 1 What did you like the most of this unit?

Eight participants liked the DVD segment of this unit the most.

Three participants liked the content of this unit. Two subunits were mentioned: Green labeling & EE, and Politics and social factors; one just liked the way that the unit tied everything together.

One participant mentioned that s/he liked the reading on Strategies for Approaching Environmental Sustainability the most.

Question 2 What did you think the least useful of this unit?

In this question, six participants stated the least useful aspect were the readings. The readings pointed out were the budget reading (3), Economic statistics (1), Energy policy outlook (1),

and government (1); one pointed out the readings of government type; one didn't like the details; one was unsatisfied by the level of quality of some readings.

One participant stated that the economics content was not useful. One participant felt that the quiz was the least useful in this unit.

Question 3. What do you recommend to improve?

The recommendations from all participants can be categorized into three groups: Readings, Interaction, and Quiz. The original writings were listed below.

1). Readings

"Some of the longer articles should be printed and sent to students."

"Give two weeks for this last unit, there was a lot to do, watch, and read."

"Having everyone watch all the segments of the video"

"Highlight parts of the budget report for us to focus on."

"Link a couple Chinese NGO's to the website for us to explore."

"A different article or reading than the budget"

"Charts or tables to identify keep economic information"

"Readings need a better voice. Too bureaucratic."

2). Interaction

"Require more reflection on other topics on the video."

"One less question for this unit."

3). Quiz

"Stick to big ideas."

E) Summary on Question 4: Time Spent on Each Unit

It was stated in the **Course Syllabus** that the total amount of estimated time to complete this course was 20-30 hours. A breakdown of time spent on the course by individual is presented in Table 4.2. The average hours of total time spent on this online course were 27.58 hours, with 7.36 the average hours spent on Unit One; 5.54 the average hours spent on Unit Two;

8.18 the average hours spent on Unit Three; and 6.50 the average hours spent on Unit Four.

Time spent on the evaluation and final project was not counted. The time spent on Unit Four did not include the time spent on watching the DVD documentary.

Table 4.2 Time Spent on Each Unit

	Unit One	Unit Two	Unit Three	Unit Four
Average hours spent on required readings	3.86	2.55	5.00	4.07
Average hours on suggested readings	1.07	0.89	1.30	0.18
Average hours on Discussion	2.43	1.86	1.64	2.01
Average hours on Quiz	0.35	0.24	0.23	0.24
Average of total hours spent on each unit	7.36	5.54	8.18	6.50
Average of total time spent on this course (hours)	27.58			

N=14

2. Post Assessment

The post assessment included a post survey and a summative survey, and was taken within the time period of February 18th to 23rd, 2007. The following sections provide results from the post survey and the summative survey.

A) Post Survey

The objective for the post survey is to collect the participants' overall opinions on the effectiveness of the course. Four Likert-scale questions were asked. Questions 1 and 2 requested their judgments on the course achievement. Question 3 and 4 asked them to compare their knowledge on China before and after taking this course.

Question 1: To what extent do you agree or disagree with the following statement:

The course content promoted the accomplishment of the course goals and objectives.

As shown in the Figure 4.4, six participants, accounting for 42.86%, strongly agreed with the statement; eight, accounting for 57.14% agreed.

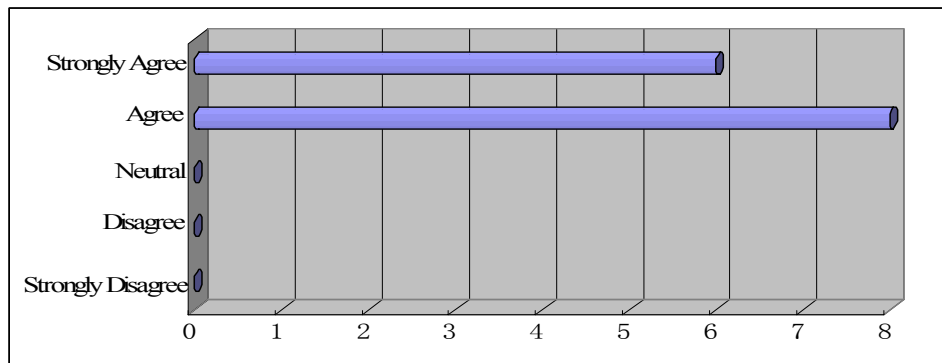


Figure 4.4 Evaluation Result of Question 1 (N=14)

Question 2: To what extent do you agree or disagree with the following statement:

I feel more prepared for a trip to China as a result of taking this online course

All participants were asked to answer Question 2. Yet, this question is more relevant to the GET China Study Program Participants. As shown in the Figure 4.5, eleven participants (78.57%) strongly agreed with the statement; one (7.14%) agreed; two (14.29%) held the opinion of “neutral.” Ten China Study Program Participants all strongly agreed that they felt more prepared for a trip to China as a result of taking this online course.

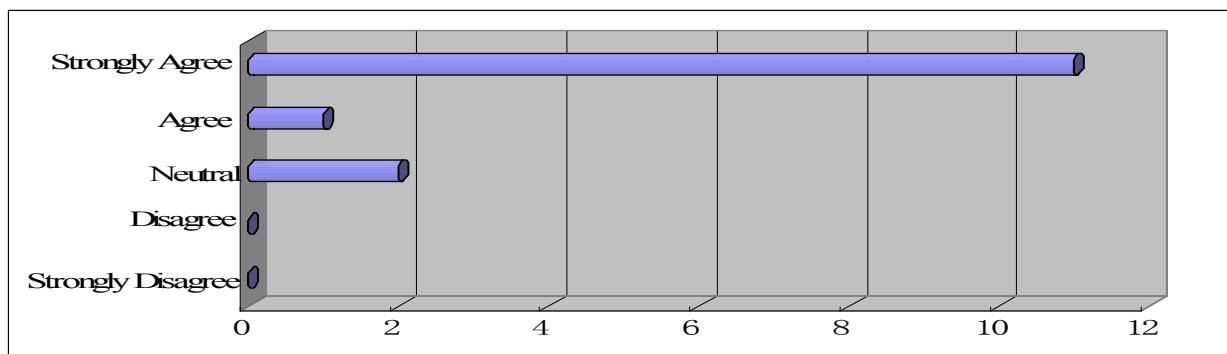


Figure 4.5 Evaluation Result of Question 2

Question 3: How much did you know about China before taking this course?

Question 4: How much do you know about China after taking this course?

Four choices were given: *a lot, some, a little, nothing*. Given the values 4 to “a lot,” 3 to “some,” 2 to “a little,” and 1 to “nothing,” the researcher computed the scores and used a student-t test to determine whether there is a statistically significant difference between “before” and “after” the course. Table 4.3 shows the average value participants gave. The average value to question 3 was 2.2, between “a little” and “some,” to question 4 was 3.57, between “some” and “a lot.” The increased value was 1.31, with a rate of 56.71%.

Table 4.3 Self-Assessment

(N=14)

Questions (3, 4)	Average
How much did you know about China before taking this course?	2.29
How much do you know about China after taking this course?	3.57
Average increased rate	1.29

4: “a lot”; 3: “some”; 2: “a little”; 1: “nothing”

To determine whether two values were statistically different, the researcher conducted a student t test using the significant level of .01. The result ($t=-4.935$ with 13df), found a highly significant difference between two scores. The computation process and results were presented in Appendix E.

B) Summative Survey

The summative evaluation collected the participants’ opinion about the following: course structure and organization, course materials, instructional strategies, instructor, workload, and course design and computer application. Following are the results of their stated opinions.

1). Evaluate the course structure and organization

Five Likert-scale questions were asked. The results and distribution bar charts were offered below.

Question 5: To what extent do you agree or disagree with the following statement:

The goals and objectives of the course were clear and well expressed.

As shown in Figure 4.6, 10 participants, accounting for 71.43%, strongly agreed with the statement; 4, accounting for 28.57% agreed.

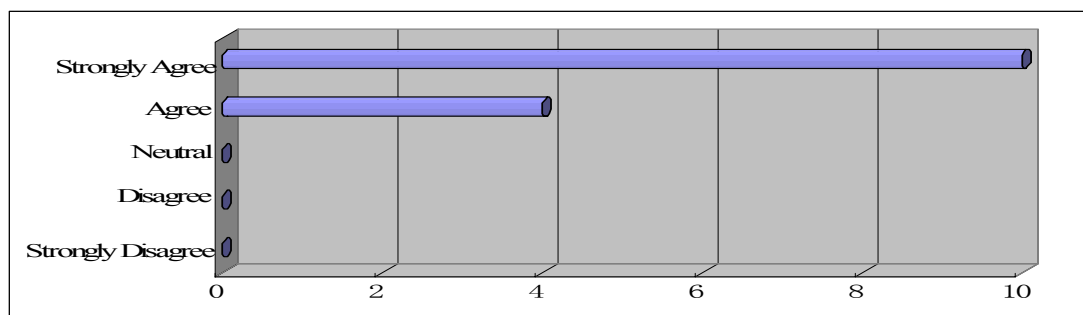


Figure 4.6 Evaluation Result for Question 5 (N=14)

Question 6: To what extent do you agree or disagree with the following statement:

The structure of the course followed the goals and objectives.

As shown in Figure 4.7, 10 participants, accounting for 71.43%, strongly agreed with the statement; 4, accounting for 28.57% agreed.

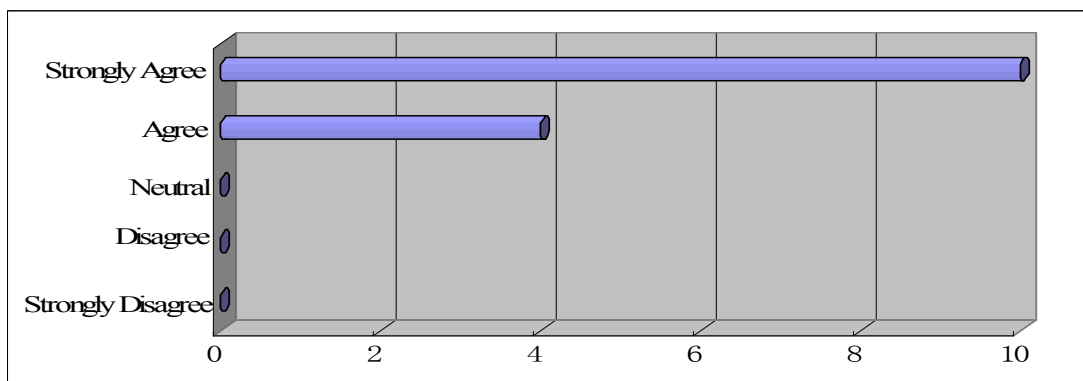


Figure 4.7 Evaluation Result for Question 6 (N=14)

Question 7: To what extent do you agree or disagree with the following statement:

The units of the course and the modules of the units were organized in a logical way.

As shown in Figure 4.8, 10 participants, accounting for 71.43%, strongly agreed with the statement; 4, accounting for 28.57% agreed.

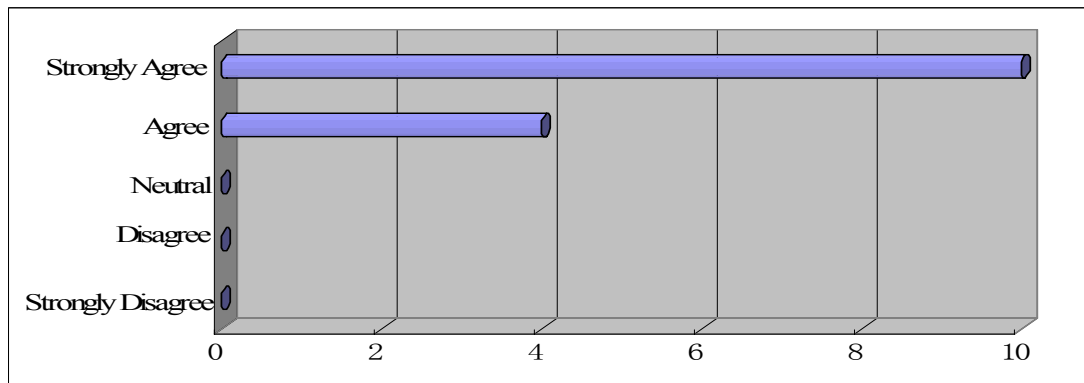


Figure 4.8 Evaluation Result for Question 7(N=14)

Question 8: To what extent do you agree or disagree with the following statement:

The breadth of topic covered was adequate for a one-credit course.

As shown in Figure 4.9, 8 participants, accounting for 57.14%, strongly agreed with the statement; 3, accounting for 21.43% agreed; 1, accounting for 7.14%, held “neutral” opinion; 3, accounting 14.29%, disagreed with the statement.

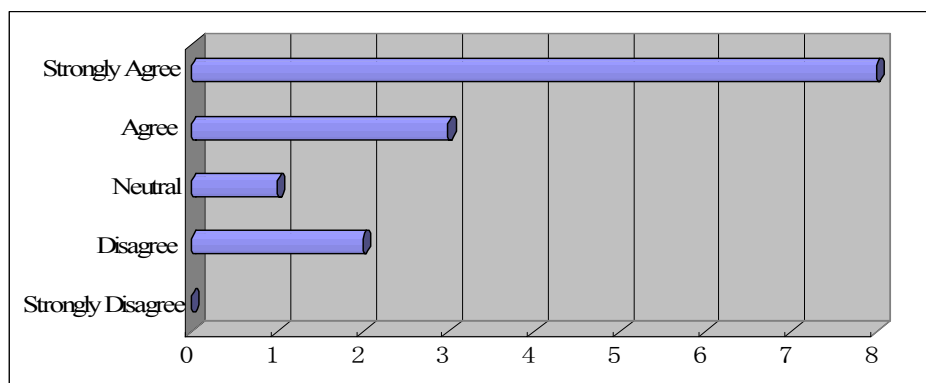


Figure 4.9 Evaluation Result for Question 8 (N=14)

Question 9: To what extent do you agree or disagree with the following statement:
The depth of the topics covered was adequate for a one-credit course.

As shown in Figure 4.10, 8 participants, accounting for 57.14%, strongly agreed with the statement; 3, accounting for 21.43% agreed; 1, accounting for 7.14%, held “neutral” opinion; 3, accounting 14.29%, disagreed with the statement.

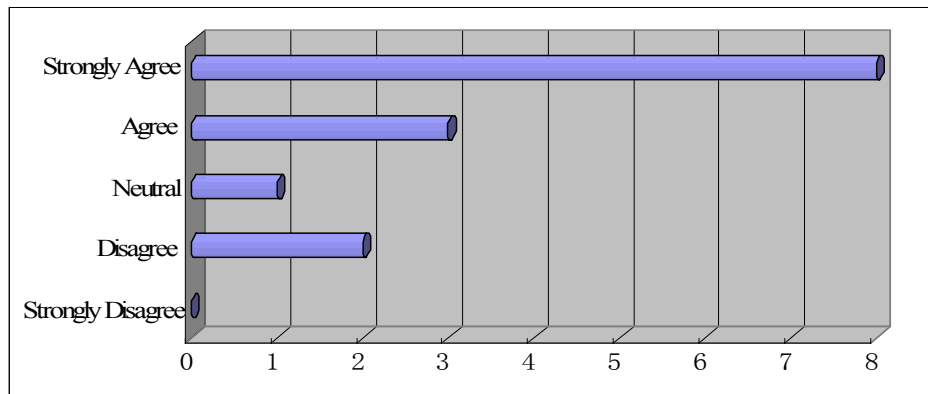


Figure 4.10 Evaluation Result for Question 9 (N=14)

2). Evaluate the course materials

Three Likert-scale questions were asked.

Question 10: To what extent do you agree or disagree with the following statement:
The course materials helped to reach the course goals and objectives.

As shown in Figure 4.11, 8 participants, accounting for 57.14%, strongly agreed with the statement; 6, accounting for 42.86% agreed.

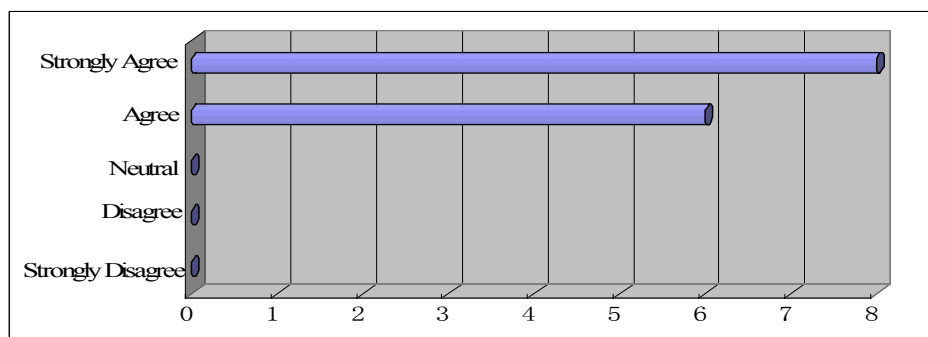


Figure 4.11 Evaluation Result for Question 10 (N=14)

Question 11: To what extent do you agree or disagree with the following statement:

The readings were authentic and offered abundant information.

As shown in Figure 4.12, 10 participants, accounting for 71.43%, strongly agreed with the statement; 4, accounting for 28.57% agreed.

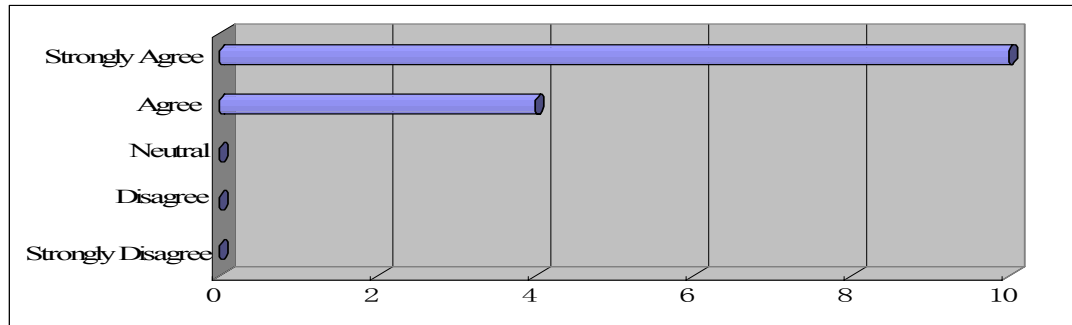


Figure 4.12 Evaluation Result for Question 11 (N=14)

Question 12: To what extent do you agree or disagree with the following statement:

The use of other resources, like maps, DVDs helped to express subject matter.

As shown in Figure 4.13, 11 participants, accounting for 78.14%, strongly agreed with the statement; 3, accounting for 21.43% agreed.

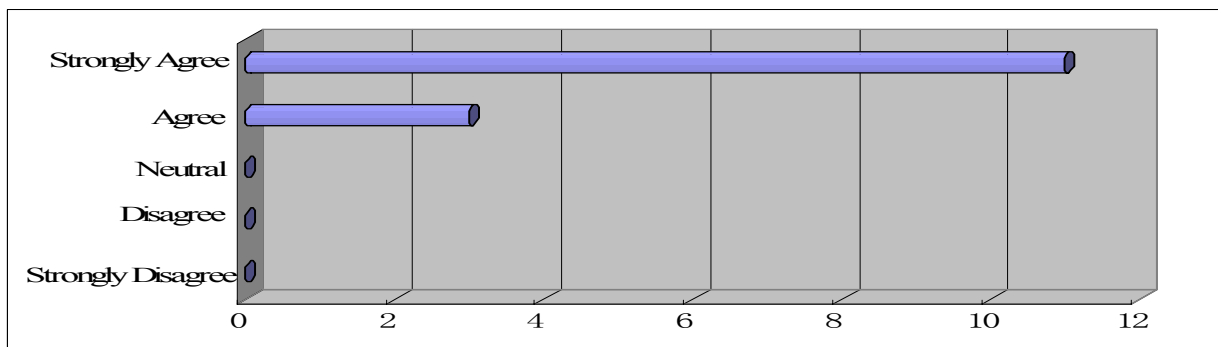


Figure 4.13 Evaluation Result for Question 12 (N=14)

3). Evaluate online e-instructional strategies

Five Likert-scale questions were asked.

Question 13: To what extent do you agree or disagree with the following statement:

The discussion assignment supported the accomplishment of course objectives.

As shown in Figure 4.14, 8 participants, accounting for 57.14%, strongly agreed with the statement; 6, accounting for 42.86% agreed.

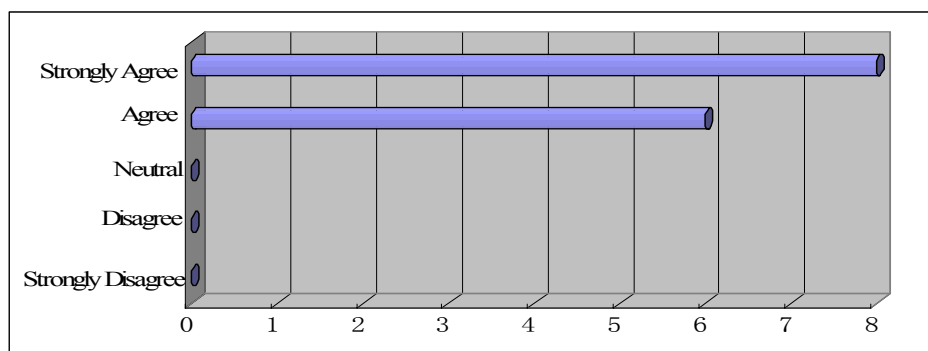


Figure 4.14 Evaluation Result for Question 13 (N=14)

Question 14: To what extent do you agree or disagree with the following statement:

The assignments provided clear and adequate instructions.

As shown in Figure 4.15, 6 participants, accounting for 42.86%, strongly agreed with the statement; 7, accounting for 50.00% agreed; 1, accounting for 7.14%, held “neutral” opinion.

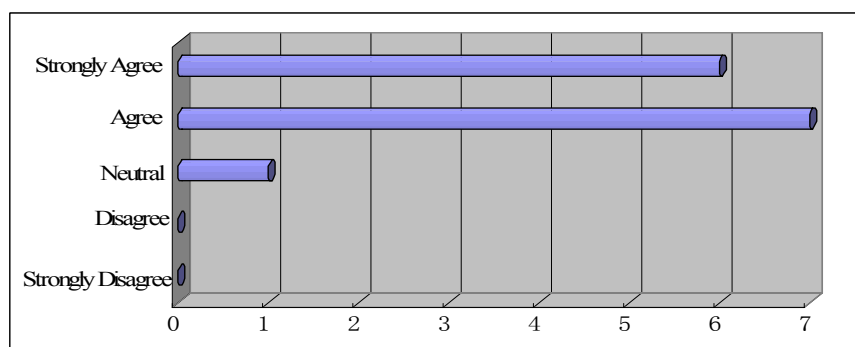


Figure 4.15 Evaluation Result for Question 14 (N=14)

Question 15: To what extent do you agree or disagree with the following statement:

The quizzes supported the accomplishment of course objectives.

As shown in Figure 4.16, 3 participants, accounting for 21.43%, strongly agreed with the statement; 5, accounting for 35.71% agreed; 3, accounting for 21.43%, held “neutral” opinion; 3, accounting 21.43%, disagreed with the statement.

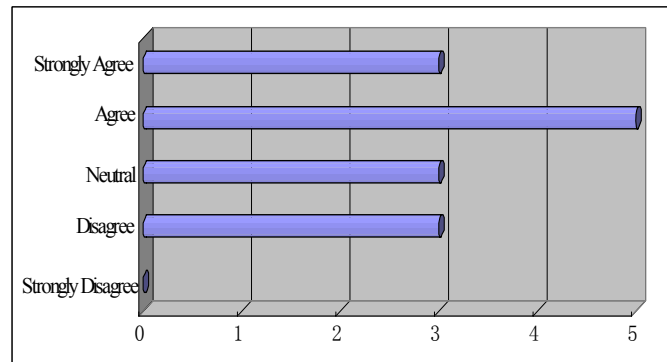


Figure 4.16 Evaluation Result for Question 15 (N=14)

Question 16: To what extent do you agree or disagree with the following statement:

The interaction among the class supported the accomplishment of course objectives

As shown in Figure 4.17, 10 participants, accounting for 71.43%, strongly agreed with the statement; 3, accounting for 21.43% agreed; 1, accounting for 7.14%, held “neutral” opinion.

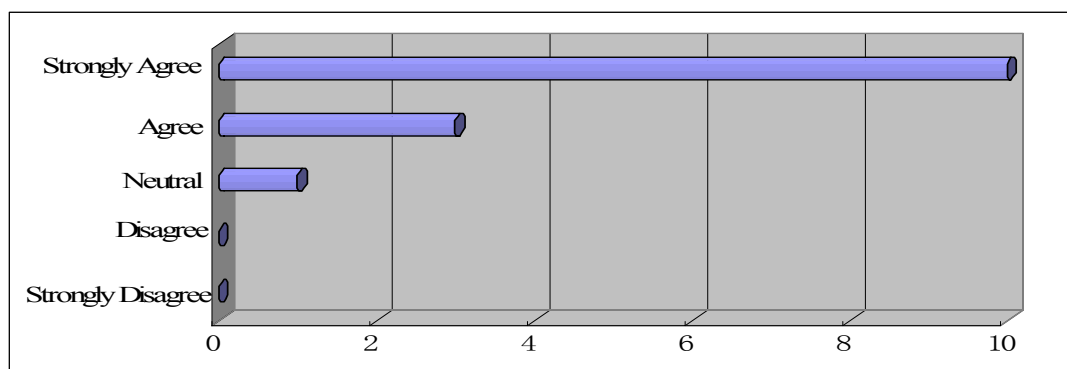


Figure 4.17 Evaluation Result for Question 16 (N=14)

Question 17: To what extent do you agree or disagree with the following statement:
The interaction between the instructor and class participants supported the accomplishment of course objectives.

As shown in Figure 4.18, 8 participants, accounting for 57.14%, strongly agreed with the statement; 6, accounting for 42.86% agreed.

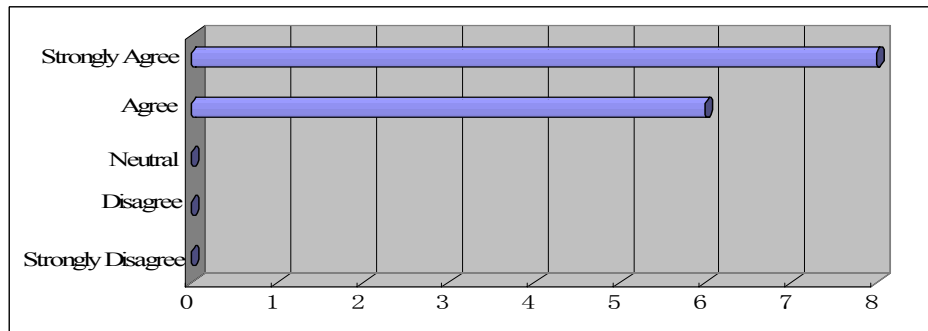


Figure 4.18 Evaluation Result for Question 17 (N=14)

4). Instructor

Three Likert-scale questions were asked.

Question 18: To what extent do you agree or disagree with the following statement:
The instructor(s) were readily available and returned emails, pagers and discussion questions.

As shown in Figure 4.19, 10 participants, accounting for 71.43%, strongly agreed with the statement; 4, accounting for 28.57% agreed.

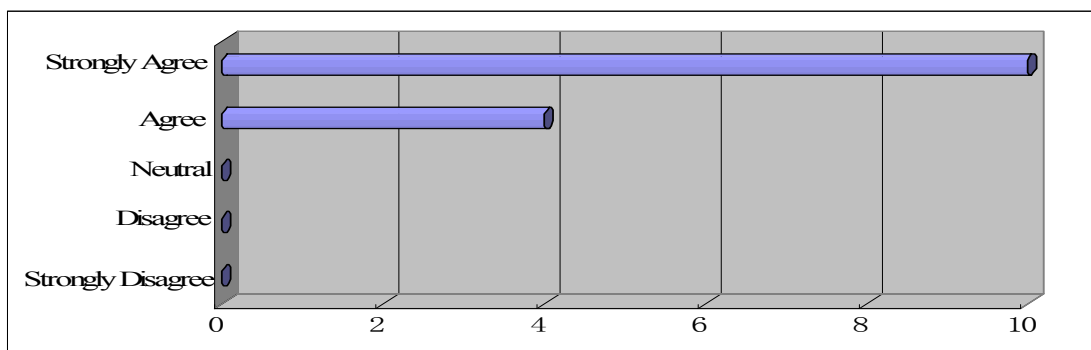


Figure 4.19 Evaluation Result for Question 18 (N=14)

Question 19: To what extent do you agree or disagree with the following statement:

The instructor(s) involvement in the course was adequate.

As shown in Figure 4.20, 9 participants, accounting for 64.29%, strongly agreed with the statement; 5, accounting for 35.71% agreed.

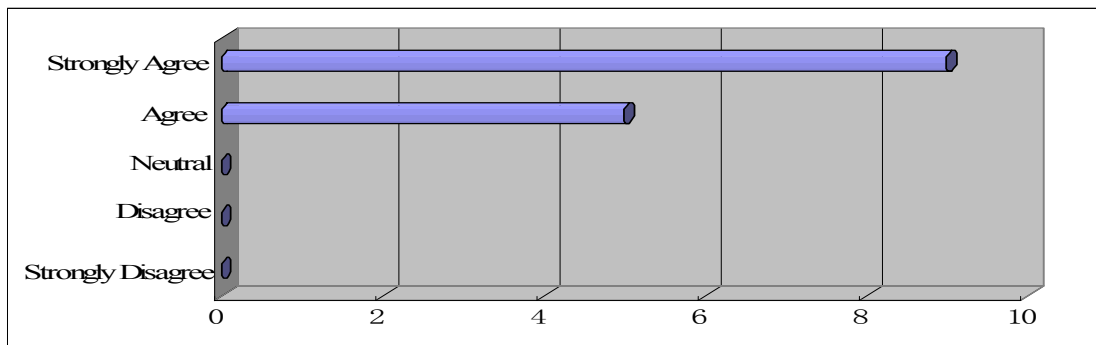


Figure 4.20 Evaluation Result for Question 19 (N=14)

Question 20: To what extent do you agree or disagree with the following statement:

The instructor(s) showed enthusiasm for the course.

As shown in Figure 4.21, 11 participants, accounting for 78.57%, strongly agreed with the statement; 3, accounting for 21.43% agreed.

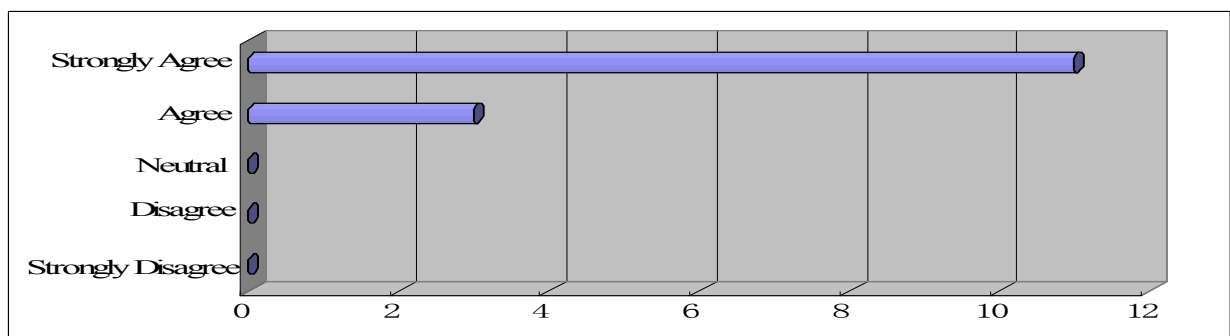


Figure 4.21 Evaluation Result for Question 20 (N=14)

5). Course Workload

One Likert-scale question was asked

Question 21: To what extent do you agree or disagree with the following statement:

The workload in this course was reasonably affordable.

As shown in Figure 4.22, 6 participants, accounting for 42.86%, strongly agreed with the statement; 6, accounting for 42.86% agreed; 2, accounting 14.29%, disagreed with the statement.

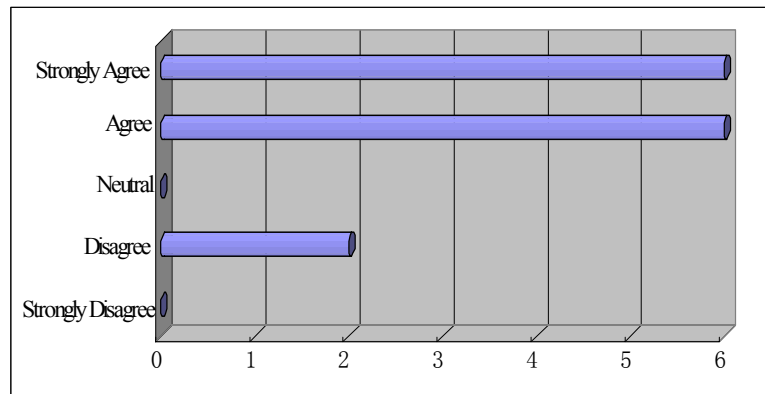


Figure 4.22 Evaluation Result for Question 21 (N=14)

6). Course Design and Computer Application

Four Likert-scale questions were asked.

Question 22: To what extent do you agree or disagree with the following statement:

The course page design was easy to follow.

As shown in Figure 4.23, 7 participants, accounting for 50.00%, strongly agreed with the statement; 7, accounting for 50.00% agreed.

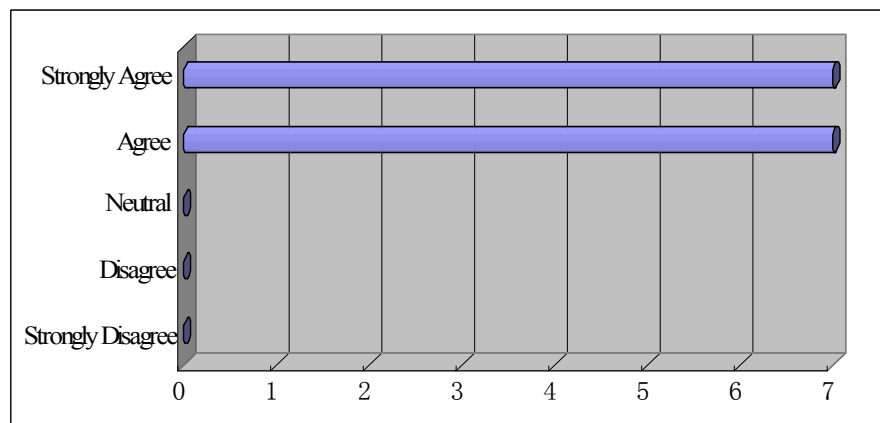


Figure 4.23 Evaluation Result for Question 22 (N=14)

Question 23: To what extent do you agree or disagree with the following statement:

D2L components were appropriate and friendly to users.

As shown in Figure 4.24, 5 participants, accounting for 35.71%, strongly agreed with the statement; 8, accounting for 57.14% agreed; 1, accounting for 7.14%, held “neutral” opinion.

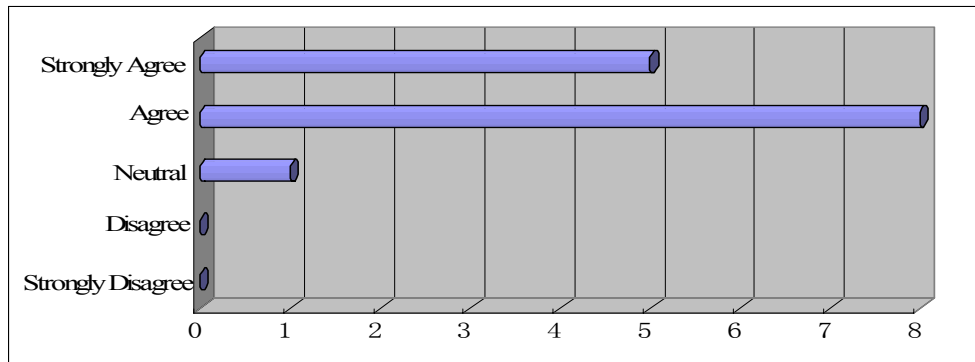


Figure 4.24 Evaluation Result for Question 23 (N=14)

Question 24: I would recommend this course to others.

As shown in Figure 4.25, 8 participants, accounting for 57.14%, strongly agreed with the statement; 5, accounting for 35.71% agreed; 1, accounting for 7.14%, held “neutral” opinion.

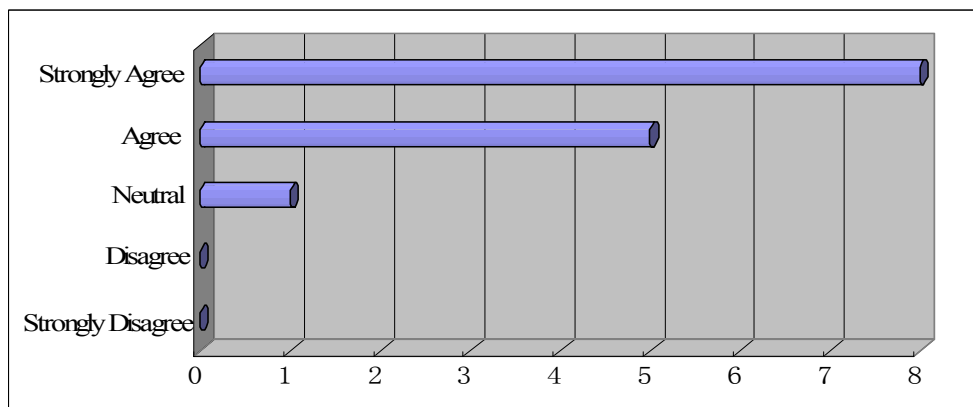


Figure 4.25 Evaluation Result for Question 24 (N=14)

Question 25: To what extent do you agree or disagree with the following statement:
I would participate in another online course as a result of this experience.

As shown in Figure 4.26, 9 participants, accounting for 64.29%, strongly agreed with the statement; 4, accounting for 28.57% agreed; 1, accounting for 7.14%, held “neutral” opinion.

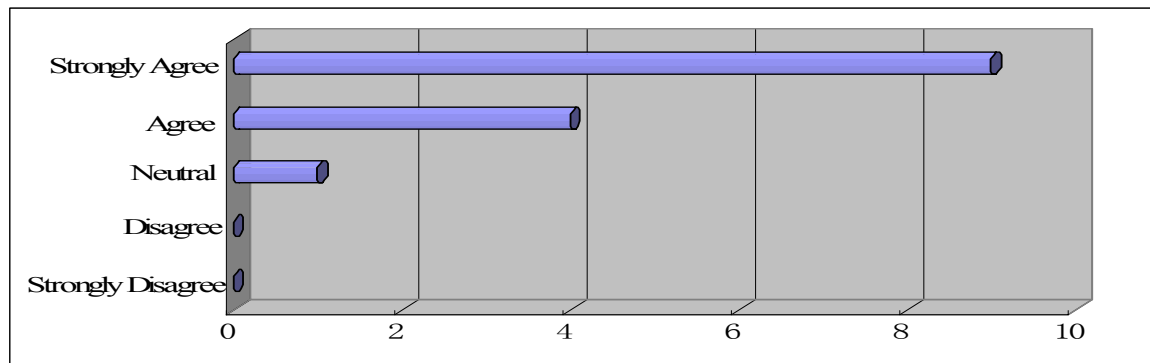


Figure 4.26 Evaluation Result for Question 25 (N=14)

7). Results from Open-ended Questions

Question 26. What did you like the most about this online course?

Nine participants stated the interaction with other students. Six said something regarding the information and resources. Five noted the format and the organization. Four mentioned the instructor.

Question 27. What did you like the least about this online course?

Seven participants stated that they didn't like some of the articles in the course. Three noted the quizzes. One said “not being able to work ahead”. One didn't like D2L. One noted that the beginning she was “confused”. One felt there were “too much readings”. One suggested having “more time between assignments”. One participants mentioned that her computer access was “little”.

Question 28. Do you have suggestions for improving the course and/or the instruction?

The responses to this question can be categorized into seven groups: add or replace resources and readings, adjust the time frame, quizzes, restriction of personal communication, more feedback from instructor, D2L, and others. All quotations in seven groups were listed as below:

Add or Replace Resources and Readings

“Please provide teachers with websites for use with elementary students.”

“Reduce the number or length of some of the readings.”

“Or cut and paste the most important pieces of a long document.”

“More videos”

“I would allow for some exploration of topics and then sharing.”

“Improve readings to include National Geog., NYTimes and other articles with a better voice than CIA type readings.”

Adjust the Time Frame

“For weeks where longer readings are required, give an extra week.”

“Have the assignments due every other week.”

“Have all readings available at the beginning so time management is more in the hands of the learners' schedules.”

“Maybe making due dates come after the weekend...so a person has the entire weekend to work”

Quizzes

“higher level thinking skills used in quizzes”

“I don't think the quizzes represented the concept.”

“Let me see the questions I got wrong on the quiz.”

“Make the quiz questions more general”

Restriction of Personal Communication

One participant suggested the instructor to “recommend that participants e-mail each other with their personal discussions, instead of posting them all on the discussion board.”

More Feedback from Instructor

One participant stated s/he “would like more feedback from instructor, individually or as a group.”

D2L

One participant suggested to add an interactive “checklist” on D2L.

Others

One participant suggested the researcher to “print and send the longer readings to participants.”

Question 29. In addition to the assigned discussion activities in this course, what other activities would you recommend for interaction between the participants and the instructor(s)?

Two participants would like meeting other participants; two recommended to share photos with each other; one suggested to “post the lesson plan earlier.”

Question 30. Were there any barriers to you in the course? If yes, please list them.

“Computer security system”

“downloading access”

“It was (and still is) difficult to remember who has what ideas.”

“time”

“My personal life and health”

“Getting started”

“technology”

“an unexpected family issue”

“My computer”

CHAPTER FIVE

DISCUSSION AND RECOMMENDATIONS

I. Overview of Course Development

II. Pilot-test of the Online Course NRES 679: Environmental Studies of China

III. Interpretation of Evaluation Results

IV. Revision Recommendations

V. Other Recommendations

The goal of this study was to **develop, pilot-test, evaluate, and revise** an online course that assists Wisconsin educators in understanding the cultural, educational, and political situations that affect the sustainability of the natural environment in China. The online course was a one-credit graduate course entitled *NRES 679: Environmental Studies of China*. The course was developed between February 2006 and January 2007. It was piloted from January 17th, 2007 to February 18th, 2007. Evaluation of the pilot, including four formative surveys and a post-assessment, was taken by the course participants from January 21 to February 23rd, 2007. Results of the evaluation indicated that the participants valued the course and improved their literacy relative to China and its environmental issues as a result of taking this online course. The course also helped 2007 China Exchange program participants prepare for their upcoming July 2007 trip. Recommendations for the revision of the next course offering were offered based on the evaluation results. A few additional recommendations to the GET program, College of Natural Resources, and the Continuing Education Program at UWSP were also offered in the last section of this chapter.

I. Overview of Course Development

The online course, *NRES 679 Environmental Studies of China*, was developed between February 2006 and January 2007. The goals of this course were to help participants develop a better overall understanding of China, and to help students understand how global development impacts the environmental sustainability of China at both local and national levels. Four objectives were identified to address the goals:

After completing this web-based course, students would be able to:

- ◆ express a basic understanding of China
- ◆ understand the status of biological diversity in China with examples in Yunnan and Xinjiang
- ◆ identify the major environmental problems in China
- ◆ link societal changes in China to its environmental problems and identify potential solutions.

The content of this course was organized relative to the goals and objectives. It consisted of four units: *Unit One: General Introduction*, *Unit Two: Biodiversity and Conservation*, *Unit Three: Major Environmental Issues*, and *Unit Four: Society and Efforts*. Students spent one week on each unit. Besides the four weeks for content units, the course included a half week for orientating the participants to online learning and navigation.

NRES 679 Environmental Studies of China used both course webpage and **Desire2Learn** platforms for the course offering. This course was given the URL address <http://www.uwsp.edu/natres/nres679china/> and all pages were put online in December, 2006.

The D2L components for this course included Message Board, Content, Classlist, Discussion,

Dropbox, Quizzes, Survey, Grades, and E-mail.

II. Pilot-test of the Online Course NRES 679: Environmental Studies of China

The course was piloted from January 17th, 2007 to February 18th, 2007. The researcher was also the instructor of the pilot. Below is the course schedule for the **NRES 679-China**,

Spring 2007:

Orientation: January 17th-January 20th, 2007

Unit One: January 21st - January 27th, 2007

Unit Two: January 28th - February 3rd, 2007

Unit Three: February 4th - February 10th, 2007

Unit Four: February 11th - February 18th, 2007

Sixteen students were registered, including 11 participants from the GET 2007 China Study Program, and 5 volunteers. A total of 14 students completed all of their assignments and received a grade. One student from the five volunteers dropped the course due to computer and technical barriers. One China Study Program participant did not finish the course and received an “I” (incomplete).

III. Interpretation of Evaluation Results

Evaluation of the course pilot included the formative assessments and one post-assessment.

The formative assessment, including four formative surveys, was required at the end of each unit. The post-assessment, including a post-survey and a summative survey, was taken by the course participants from February 18th to February 23rd, 2007. The following sections interpret the results from the four formative surveys and the two parts of the post-assessment, and give preliminary recommendations accordingly.

1. Formative Assessment

Four questions were asked in each of the formative assessments. The results from the Formative Assessment were very descriptive. Although some responses were related and reflected the participants' personal interests and various needs, there were a few trends that helped the researcher in evaluating the course pilot.

Participants' major concern was with the readings. Below is a list of the readings the participants liked the least, or thought "least useful" in each unit.

Unit One

#2 *History Timeline of China*

#3 *History*

#6 *Regional Autonomy and China's Ethnic Minority Population and Distribution*

Unit Two

#3 *Executive Summary of China's National Report on Implementation of the Convention on Biological Diversity*

#4 *Introduction to Nature Resources of China*

Unit Three

#2 *Chinese Energy Policy Outlook: Renewable Energy and Energy Efficiency: China's Burning Ambition (Suggested)*

Unit Four

#1 Government structure, principal government and party officials, and legal system

#3 Economy

#4 Report on the Implementation of the Central and Local Budgets for 2005 and on the Draft Central and Local Budgets for 2006

Second, participants felt that the quizzes didn't help the participants in content learning in this course.

Third, the discussion and sharing helped the participants. They liked the interaction the most in Unit Three, when activities were engaged. But they felt more and clearer instructions would improve the discussion and online learning.

Recommendations:

Based on those trends and results from the Formative Assessment, the researcher had the following recommendations:

- ◆ This list of “least useful” readings is a reference for future consideration. Those readings listed need to be reviewed and considered for possible replacement.
- ◆ The quizzes need to be eliminated in future offerings.
- ◆ More instructions for discussion and interaction should be offered in future offerings.

2. Post Assessment

The Post-assessment consisted of a post-survey and a summative survey. Both parts were taken from February 18th to February 23rd, 2007 by fourteen course participants, who completed their course work by the end of the course schedule. Discussions on both parts were separated as follows.

A) Post Survey

The objective of the post-survey was to evaluate the overall effectiveness of the course. Four Likert-scale questions were asked to assess participants' opinion on the course achievement. Questions 1 and 2 requested their judgments on the course effectiveness. Question 3 and 4 asked them to compare their knowledge on China before and after taking this online course. Based on the results from Question 1 and Question 2, the researcher found the trends below:

- ◆ All students agreed or strongly agreed that the course content promoted the accomplishment of the course goals and objectives.
- ◆ All 2007 GET China Program participants strongly agreed that they were more prepared for a trip to China as a result of taking this online course.

The results from Question 3 and Question 4 showed a highly significant difference of the participants' opinions on their knowledge of China before and after taking this online course. Participants indicated a 56.71% increase of their knowledge on China based on the Likert-scale questions.

The only student, who rated her knowledge on China lower after taking the course than before, wrote in an email to the researcher:

" I didn't mean to convey that I know less about China after taking the course, but after taking the course, I am very much aware of how little I actually know! ... As a result, it seems as though I know a lot less now than I did before (but only because I'm so much more aware of some aspects of China)."

Based on those trends and comments, the researcher drew the conclusion that this course improved the learners' overall understanding of China and its environment, and the

participants for 2007 GET China Program were more prepared for their upcoming trip to China as a result of taking this online course.

Recommendations:

- ◆ The online course, *NRES 679: Environmental Studies of China*, prior to the trip to China is valuable and helpful. Future programs should require all program participants to take this online course before their travel trip to China.
- ◆ The online course, *NRES 679: Environmental Studies of China*, could be offered to university students who want to increase their general understanding of environmental sustainability in China.

B) Summative Survey

The objectives of the summative survey were to evaluate the participants' opinions on the course offering and collect their suggestions. Seven items were evaluated by a using Likert-scale questionnaire: course structure and organization, course materials, online instructional strategies, instructor, workload, and course outlook and technology. Additionally five open-ended questions were asked to collect the participants' comments and suggestions.

1) Course Structure and Organization

Five Likert-scale questions were asked to evaluate the course structure and organization.

From the results, the researcher found the following trends:

- ◆ All students agreed or strongly agreed that the goals and objectives of the course were clear and well expressed.
- ◆ All students agreed or strongly agreed that the structure of the course followed the goals

and objectives.

- ◆ All students agreed or strongly agreed that the modules in the units were organized in a logical way
- ◆ The majority (78.57%) of students agreed or strongly agreed that the breadth of the topic covered was adequate for a one-credit course.
- ◆ The majority (78.57%) of students agreed or strongly agreed that the depth of the topic covered was adequate for a one-credit course.

From the responses to question 26: “What did you like the most about this online course,” five participants also mentioned that they liked the format and organization.

Based on these trends and comments, the researcher drew the conclusion that the course structure promoted the accomplishment of the goals and objectives, and the organization was appropriate to the content. Some participants disagreed that the breadth and the depth of the topics covered were adequate for a one-credit course. There were no other comments provided as to whether they thought the topic was too broad and deep, or the opposite.

Recommendation:

Future course offerings should follow the same structure and organization. The long and detailed articles should be reviewed for breadth and depth to the content. Besides reviewing and reconsidering the existing articles, more articles and resources should be offered as suggested reading to serve broader subject areas the participants might be interested.

2) Course Materials

Three Likert-scale questions were asked to evaluate the materials. From the results, the

researcher found the following trends:

- ◆ All students agreed or strongly agreed that the course materials helped to reach the course goals and objectives.
- ◆ All students agreed or strongly agreed that the readings were authentic and offered abundant information.
- ◆ All students agreed or strongly agreed that the use of other resources, like maps, DVDs helped to express subject matter.

Some participants also stated in the formative assessment that they liked the variety of information and the supplemental materials, including the maps and DVDs. The responses to Question 26 in the Summative Survey indicated that six participants liked the information and resources “the most.” Based on those trends and comments, the researcher drew the conclusion that the course materials helped to reach the goals and objectives and to express subject matter.

Recommendation:

The variety of information and supplemental materials were a great value to the course.

Where possible more should be identified and added to the course.

3) Online Instructional Strategies

Five Likert-scale questions were asked to evaluate the online instructional strategies. From the results, the researcher found the following trends:

- ◆ All students agreed or strongly agreed that the discussion assignment supported the accomplishment of course objectives.

- ◆ The majority of (92.86%) students agreed or strongly agreed that the assignments provided clear and adequate instructions.
- ◆ Slightly more than a half of the students (57.14%) agreed or strongly agreed that the quizzes supported the accomplishment of course objectives. 21.43% held “neutral” opinion, 21.43% disagreed.
- ◆ The majority of (92.86%) students agreed or strongly agreed that the interaction among the class supported the accomplishment of course objectives.
- ◆ All students agreed or strongly agreed that the interaction between the instructor and class participants supported the accomplishment of course objectives.

Some participants also stated that they dislike the quizzes in the Formative Assessment. One participant mentioned that “getting started” was a barrier to her in the course. Nine participants stated that they like the interaction with other students “the most.” Based on those results and the comments, the researcher drew the conclusions:

- ◆ The online instruction, including the discussion assignment, interaction among the class and between the instructor and class participants supported the accomplishment of the objectives.
- ◆ The quizzes didn’t support the learning process to the extent they were intended to do so.

Recommendation:

From the conclusions above, the researcher recommended that the online discussion be continued in future offerings as it engaged the learners and caused them to share their knowledge and ideas with each other and thus increase the learning. The quizzes need to be canceled.

4) Instructor

Three Likert-scale questions were asked to evaluate the instructor's efforts in this course.

From the results, the researcher found the following trends:

- ◆ All students agreed or strongly agreed that the instructor was readily available and returned emails, calls and discussion questions.
- ◆ All students agreed or strongly agreed that the instructor's involvement in the course was adequate.
- ◆ All students agreed or strongly agreed that the instructor showed enthusiasm for the course.

Four participants also mentioned in the open-ended questions that they liked the instructor the most about this online course. Based on those trends and comments, the researcher drew the conclusion that the instructor was actively involved in an interaction between the learners.

Recommendation:

From the conclusions above, the researcher recommended that future instructors should also be actively involved in the discussion, return emails, and share enthusiasm with the course participants.

5) Workload

One Likert-scale question was asked to evaluate the workload of this course. From the evaluation, the researcher found that the majority of students (85.71%) agreed or strongly agreed that the workload in this course was reasonable. A few participants suggested reducing the discussion questions to two in Unit Four. The three forums in this unit had the least

number of posts as well. The results from the Formative Assessment showed that the students spent an average of 27.58 hours total on this online course, which was in accord with the estimated time the instructor stated in the syllabus, 20-30 hours. Therefore, the researcher concluded that the overall workload was appropriate for a one-credit course.

Recommendation:

From the conclusions above, the researcher recommends that the future offerings should follow the same workload in general. The discussion questions for Unit Four need to be cut to two. Other than that, if any more readings or assignments are added, some existing corresponding items then need to be taken out or left as “suggested.”

6) Course Design and Computer Application

Three Likert-scale questions were asked to evaluate the course design and computer application. From the results, the researcher found the following trends:

- ◆ All students agreed or strongly agreed that the course page design was easy to follow.
- ◆ The majority of students (92.86%) agreed or strongly agreed that D2L components were appropriate and friendly to users.
- ◆ The majority of students (92.86%) stated that they would participate in another online course as a result of this experience.

Based on those results, the researcher drew the conclusion that the course outlook and technology served the content learning.

Recommendations:

One participant suggested to use the electronic checklist tool on D2L in the open-ended

questions in the Summative Survey. Based on the conclusions above and the participant's suggestion, the researcher recommended that the future offerings should

- ◆ use all the tools that were used in this course pilot;
- ◆ add an electronic checklist as a tool to help the students keep track of their course accomplishment.

7) Open-ended Questions

Question 26 and 27 asked what the participants liked the most and least about this online course. Responses were discussed in the above conclusions (page 95 to page 100).

Question 28 asked the participants' suggestions for improving the course and /or instructions. The detailed suggestions were presented in Chapter Four (page 87-88). Some suggestions were taken into consider in the revision recommendations in next sections.

Question 29 asked suggestions for other activities for interaction. The detailed suggestions were presented in Chapter Four (page 88).

Question 30 asked their barriers in the course. Computer and internet condition, personal issues, and family matters were commonly expressed.

IV. Revision Recommendations for Future Offerings

Based on the evaluation results and the researcher's observation during the course pilot, the researcher recommended that the course could be improved in four perspectives: course materials, assignments, interaction online, and D2L tools.

1. Course Materials

◆ Revise Required Readings

Readings were often mentioned in the formative surveys as both liked “the most” and “least useful.” The results from the formative survey offered a list of “least useful” readings. Future offerings should review those readings and consider replacing them with better written, more relevant, or easier reading articles.

◆ Add Resource Website or Reference Books

A participant suggested providing “websites for use with elementary students” in the Summative Survey. A few websites with teaching guides relevant to China were offered in this course. But it is obviously not enough, considering the variety of subject areas and teaching grades.

◆ Add Multiple Resources of Materials

The DVD, *China Rises*, was mentioned as the “like most” part of Unit Four in the formative survey. Videos can offer the most current information and help the students learn visually.

Therefore, well-selected videos can be used in future offerings.

One participant noted that she wanted “online maps” to be able to view and use anywhere with internet access.

According to some participants' suggestions, readings should come from more diverse

resources. This point needs to be considered when undesired readings are replaced.

2. Assignments

- ◆ Have more applicable assignments

The assignments of the Unit Three, **Ecological Footprints** and **Searching for Environmental News of China**, were more favored by the course participants than those of other units. Some learners stated that they like the activities the most, and had actually shared them with students, families, or colleagues. From the researcher's observation, the assignments helped the students to tie the content of the unit together very well. One participant also suggested that to "allow (the participants) for some exploration of topic." Therefore, more applied assignments, including activities and topics studied by learners, should be employed in future offerings.

- ◆ Reduce the number of discussion questions to TWO for each unit.

A participant suggested that one question be cut from Unit Four. The researcher drew the conclusion that two discussion questions for each unit is appropriate workload for a one-credit course.

- ◆ Offering a study guide/questions to help the learners keep their focus along with the readings

Some participants stated in the informative surveys or the summative survey that some readings were too long, need some highlights, or guiding questions.

- ◆ More feedback for the assignments from the instructor

It was difficult for the instructor to offer feedback for the assignments, since the discussion

went back and forth. To allow more feedback and easier management, the researcher suggested that the participants write the reflection as an essay and submit the file to the Dropbox on D2L. Dropbox offers easier management of documents, and allows the instructor to leave the feedback directly to the individual learner.

- ◆ Improve the instructions on discussion questions.

The discussion questions on D2L need to be reviewed. Some of the instructions need to be more succinct and clearer.

- ◆ Quizzes

The researcher suggested to eliminate the quizzes from the assignments. Quizzes were noted as the “like least” in all the four Formative Surveys and the Summative Survey. The participants stated that the quiz didn’t “represent the concept.” The original goal of having the participants take the quizzes was to help the instructor evaluate if students were relating to important information in the course. From the researcher’s observation, the reflection on discussion questions gave better track on whether the learners complete the required reading or not than did the quizzes. It is unnecessary to have the quizzes for future offerings. However, completing quizzes had an impact on grading. A possibly alternative to the quiz is having a Scavenger Hunt for each unit, which encourages the participants to look for some detailed information in the readings or content. Another solution is adjusting the grading rubrics accordingly (e.g. grade the students only by the discussion and the final project).

3. Interaction Online

Interaction among the students was one of the most valued parts of this online course. Besides the positive opinions on the online discussion, some participants also had some suggestions

for improvement of the interaction through the discussion board in D2L. One participant recommended to “personalize the personal communication.” One suggested to “email each other with their personal discussions, instead of posting them all on the discussion board.” From the researcher’s observation, the participants really enjoy knowing each other through online “chatting” and sharing, and it is unnecessary to restrict the discussions. Students can elect to limit their personal communication, or the solution can be opening a chat forum for the participants to post their personal conversations. Another tool on D2L can be used to limit the personal conversation on discussion board, the Chat Room.

The Chat Room can also improve the interaction between the instructor and the students in this online course. The researcher offered two virtual office hours each of five days every week. But those virtual office hours were barely used for any “emergency assistance.” But from the survey result, the participants expected more involvement of the instructor. A fixed time of meeting in the Chat Room may make them feel as though the instructor is more involved.

4. D2L Tools.

◆ E-checklist

One participant suggested to add an electronic checklist to help the participants keep track of their assignments.

◆ Add a chat room

As stated in the previous section (section 3), a chat room should be added to improve the interaction between the students and the instructor, and among the students.

V. Other Recommendations

Based on all evaluation results, comments from the pilot-participants, and the observation from the researcher, a few addition recommendations to the College of Natural Resources, GET program, and UWSP-Continuing Education were provided as below:

- ◆ Offer a separate online course for NRES 679 Environmental Studies of China

There were seven potential students still on the waiting list to take the future offerings of the online component of NRES 679. This seems to show a big demand for learning about China and its environment. The course can also be taken by other undergraduate or graduate students within the College of Natural Resources for those who have interests in improving their knowledge on China, in addition to preparing for a trip to China.

- ◆ Add an orientation period in future online courses following the GOLD format

Some students stated that the beginning of the online course was confusing. Helping the course learners navigate through D2L and the course page is important to engage their online learning. Some students suggested having all readings available, or having the quiz available at the beginning of the unit. Those were all available, but some learners failed to determine this. Therefore, clear instructions and the orientation are necessary and valuable.

- ◆ Further evaluate the impact of the online course and International Environmental Seminar

As a preparation of the 2007 GET China Program, the online component of **NRES 679:**

Environmental Studies of China, was only a part of the GET China Study Program.

Evaluating the impact of this online course to the program and the impact of the whole program to the participants will be valuable for GET program improvement. The evaluation may include, but not be limited to, questions like how the GET program of the International

Environmental Seminar can help the educators in teaching about environment, international studies, and other subject areas, or how the online component can help the program participants with face-to-face learning components.

In conclusion, the results of the evaluation indicate that the participants valued the course and improved their understanding of China and its environmental issues as a result of taking this online course. The development and pilot-test process offers a model for subsequent course offerings. However, if the course is applied to another target group, or offered separately, further evaluation and comparison study should be carried out.

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APPENDICES

APPENDIX A: Course Webpages Snapshots

**University of Wisconsin-Stevens Point**

UWSP Search **GO**




NRES 679

Environmental Studies of China

ESC Home
Course Information
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**Masters in EE for K-12 Teachers
GET Program**



NRES 679 Environmental Studies of China

Welcome to the Environmental Studies of China (ESC). This course is designed for K-12 Teachers in any subject areas. Some of them may be taking the China Travel Program the same year they are taking this online course. This page is also open for those who are interested in learning about China.

China's large territory and population guarantee its environmental impact on the rest of the world. China is the world's most populous country and the fourth largest in area. Its economy is growing at the fastest rate of any major nation, and its environmental problems are among the most severe of any major country. China and the rest of the world have become closely interconnected.

This course aims to assist educators in understanding the cultural, educational, and political situations that impact the environment in China.

Please take time to explore the navigation links on the left. These links contain important information about the course. Please feel free to contact us by get@uwsp.edu for any questions related to this course.

[NRES 679 Home](#) | [UWSP Home](#) | [Contact Us](#)
403D LRC | University of Wisconsin-Stevens Point, WI 54481 | Phone: 715-346-4150
Comments or questions to [webmaster](#)



ESC Home
Course Information
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Masters in EE for K-12 Teachers
GET Program

Desire2Learn
Online Courses

Instructor Information

Wang Yu (王愉) was born and raised in Kunming, Southwest China. Her interest in environmental issues started when she founded a student's association, Huangqing Association in Yunnan University in 1997. After she pursued her Bachelor's degree in Ecology from Yunnan University in 2000, Yu worked for a local non-governmental organization, the Center for Biodiversity and Indigenous Knowledge (CBIK).

While working with multiple ethnic groups in Yunnan Province for five years, she gained the desire to support local communities in sustainable development through Environmental Education. Wang Yu is a graduate assistant with the GET Program and a fellow of the Ford Foundation's International Fellowship Program.



Yu's virtual office hours for the course:

8:00 - 9:00am & 3:00 - 4:00 pm

(Monday to Saturday, except Wednesday)

You may get instant response during the virtual office hours, but feel free to contact me via Email at any time.

Address and contact information:

403D LRC Stevens Point, WI 54481-3897, USA
Email: ywang@uwsp.edu
Telephone: 715.346.4150 Fax: 715.346.4698



NRES 679 *Environmental Studies of China*



ESC Home
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**Masters in EE for K-12 Teachers
GET Program**



Course Content

This online course consists of four units: General Introduction of China, Biodiversity and Conservation in China, Major Environmental Issues of China, and Social and Environmental Efforts of China. All enrolled students are required to complete this course by logging on to the D2L (Desire 2 Learn) platform. Your logon and password will be sent to you by UW-Stevens Point. This webpage is also open to anyone else interested in learning more about China. Please explore the course by clicking the links to the units.

[Unit One General Introduction of China](#)

[Unit Two Biodiversity and Conservation in China](#)

[Unit Three Major Environmental Issues of China](#)

[Unit Four Social and Environmental Efforts in China](#)

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NRES 679

Environmental Studies of China



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Masters in EE for K-12 Teachers
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Desire2Learn
Online Courses

Unit One: General Introduction

Unit 1 Unit 2 Unit 3 Unit 4

The goal of this unit is to help the students understand the general cultural and physical characteristics of China.

In this unit, students will learn about the geography, history, people, and cultures of China. For those of you who are traveling with the GET program to China in 2007, the background information on two of the study tour sites, Xinjiang Uigur Autonomous Region and Yunnan Province, is also provided.

Objective

After completing this unit, students will be able to

- ⊕ Summarize the general cultural and physical characteristics of China and compare them to the U.S.

Before exploring the subunits below, link to the CIA World Factbook's China page (<https://www.cia.gov/cia/publications/factbook/geos/ch.html>) for its newly updated data on China. You may save it in your favorites folder for further reference.

Content Table

- [Physical Geography](#)
- [History](#)
- [People and Culture](#)
- [Xinjiang](#)
- [Yunnan](#)

Physical Geography

China is by far the largest country of eastern Asia, situated between the Yellow and East China Seas to the east, Central Asia to the west, Russia to the north, and the South China Sea to the south (Lu, 2005, p 13). The total area of China is 9,596,960 km² (3,705,407 mi²), slightly smaller than the United States. The longitude spans more than 60 degrees, from the confluence of the Heilong River and the Wusuli River (135°E) to the Pamirs (73°E); the latitude spans more than 49 degrees, from the Mohe River (53°N) to the southernmost tip of the Nansha Islands, Zengmu Reef (4°N) (Lu, 2005, p 23). Shaped like a chicken facing east, China is the home to more than 1.3 billion people as of July 2006 (CIA, 2006). Read the paragraph about the *geography of China* (⊕ #1, required) at the Country Studies' China page <http://countrystudies.us/china/32.htm>.

Content Table

History

China is a country with a very early civilization and a long, prosperous history. Archaeological studies provide evidence of still more ancient origins in a culture that flourished between 2500 B.C.E. and 2000 B.C.E. in what is now central China and the Lowland Yellow River Valley of north China. Click the link for a *History Timeline of China* (⊕ #2, required): <http://depts.washington.edu/chinaciv/timeline.htm>. The first dynasty, the Xia Dynasty, emerged in China 4,100 years ago (Chinese Government's Official Web Portal, 2006). Successive dynasties developed a system of bureaucratic control that gave the agrarian-based Chinese an advantage over neighboring nomadic and hill cultures. Chinese civilization was further strengthened by the development of a Confucian state ideology and a common written language that bridged the gaps among the country's many local languages and dialects. During the 19th century, while the last dynasty, the Qing (Ch'ing) dynasty, weakened, China suffered massive social strife, economic stagnation, explosive population growth, and Western penetration and influence. Inspired by the revolutionary ideas of Sun Yat-sen, a revolutionary military uprising on October 10, 1911 led to the abdication of the last Qing monarch. The People's Republic of China was established on October 1st, 1949. A new political and economic order modeled on the Soviet example was quickly installed (U.S. Department of State, 2006). Read the *History* (⊕ #3, required) on the Chinese Government's Official Web Portal (http://english.gov.cn/2005-08/06/content_24233.htm).

Content Table

People and Culture

Population and Population Control Program

At the end of 2003, China's total population in the mainland amounted to 1,292 million. Of the population, males and females accounted for 51.5% and 48.5% respectively. The new birth rate was 12.41 per thousand in 2003; the mortality was 6.4 per thousand. The net increase of the population was 7.74 million, and the natural growth rate was 0.601%. Comparing with 2002, the birth rate dropped 0.045%; the mortality went down 0.001%; and the natural growth rate dropped 0.044% (Chinese Government's Official Web Portal:2006). Go to the following link, and read the complete page of the *Population* (⊕ #4, required): http://english.gov.cn/2005-08/08/content_27315.htm.

Since 1979 the government has advocated a one-child limit for both rural and urban areas and has generally set a maximum of two children in special circumstances. Read the paragraph about the *Population Control Programs in China* (⊕ #5, required) at the Country Studies' China page <http://countrystudies.us/china/34.htm>.

Ethnicities

Like all large countries, China is multiethnic, but one ethnic group—the Han Chinese—dominates the politics, government, and economy (3). Nearly 92% of China's 1.3 billion people come from the group of Han. Nevertheless, China is by no means a homogeneous nation. In fact, China's government officially recognizes 55 ethnic minority groups. Click the following link, and read about the *Regional Autonomy* and *China's Ethnic Minority Population and Distribution* (⊕ #6, required) at <http://www.china.org.cn/e-china/population/Autonomy.htm>.

Language

There are seven major Chinese dialects and many subdialects. Mandarin (or Putonghua), the predominant dialect, is spoken by over 70% of the population. It is taught in all schools and is the medium of government. About two-thirds of the Han ethnic group are native speakers of Mandarin; the rest, concentrated in southwest and southeast China, speak one of the six other major Chinese dialects. Non-Chinese languages spoken widely by ethnic minorities include Mongolian, Tibetan, Uygur and other Turkic languages (in Xinjiang), and Korean (in the northeast). (U.S. Department of State, *Background Note: China*, 2006)

The Pinyin System of Romanization

On January 1, 1979, the Chinese Government officially adopted the pinyin system for spelling Chinese names and places in Roman letters. A system of Romanization invented by the Chinese, pinyin has long been widely used in China on street and commercial signs as well as in elementary Chinese textbooks as an aid in learning pronunciations of Chinese characters. Variations of pinyin also are used as the written forms of several minority languages.

Pinyin has now replaced other conventional spellings in China's English-language publications. The U.S. Government also has adopted the pinyin system for all names and places in China. For example, the capital of China is now spelled "Beijing" rather than "Peking." (U.S. Department of State, *Background Note: China*, 2006)

Religion and Culture

Religion and philosophy play a significant role in the life of many Chinese. Buddhism is the most widely practiced with 100 million adherents. Official figures indicate that there are also 20 million Muslims, 5 million Catholics, and 15 million Protestants; unofficial estimates are much higher.

Two concepts are essential for our understanding of the traditional Chinese view of the universe: *yin-yang* and *wu xing* (the five elements: metal, wood, water, fire, and earth). Three broad religion and philosophical traditions—Taoism(also spelled as Daoism), Confucianism, and Buddhism—prevail in China and are still practiced by modern Chinese. Confucianism and Taoism share the same fundamental ideas, based on *yin-yang* and *wu xing*, of a cosmic harmony that evolved from the ancient Chinese view of the universe (UNDP, 2002).

Read the following articles (⊕ #7, required) to learn more about *yin-yang* and *wu xing*, *Confucianism*, *Taoism*, and *Buddhism*:

Yin and Yang:

http://www.china-window.com/china_briefing/china_summary/the-yin-and-yang.shtml

Brief introduction about the lunar year and the Five Elements

http://www.china-window.com/china_briefing/china_summary/brief-introduction-about-.shtml

The Chinese lunar calendar

http://www.china-window.com/china_briefing/china_summary/the-chinese-lunar-calenda.shtml

Confucianism

http://www.china-window.com/china_briefing/china_summary/china-philosophy-religion.shtml

Daoism

http://www.china-window.com/china_briefing/china_summary/china-philosophy-religion-2.shtml

Buddhism

http://www.china-window.com/china_briefing/china_summary/china-philosophy-religion-3.shtml

Other interesting articles about Chinese culture (Ⓢ suggested):

Chinese Silk and the Silk Road

<http://chineseculture.about.com/library/weekly/aa021201a.htm>

Richness, Diversity and Natural Beauty on the Tea Horse Road

<http://english.cri.cn/725/2006/02/19/168@52713.htm>

China Language

http://www.china-window.com/china_briefing/china_summary/china-language.shtml

Chinese Festivals and Holidays

http://www.china-window.com/china_briefing/china_summary/Chinese-Festival.shtml

Calligraphy and Painting

<http://www.china.org.cn/english/features/China2005/142254.htm>

Chinese Stone Lions

<http://chineseculture.about.com/library/weekly/aa090299.htm>

Chinese Stone Lions

<http://chineseculture.about.com/library/weekly/aa090299.htm>

Fundamentals of National Reconstruction (written by Sun Yat-sen, the father of modern China in 1924): <http://acc6.its.brooklyn.cuny.edu/~phalsall/texts/sunyat.html>

Content: Table

Xinjiang

Xinjiang, literally meaning "New Frontier," is the short term of the Xinjiang Uyghur Autonomous Region. It is a large, sparsely populated area which takes up about one sixth of the country's territory. Xinjiang borders the Tibet Autonomous Region, Qinghai, Gansu provinces, Mongolia, Russia, Kazakhstan, Kyrgyzstan, Tajikistan, Afghanistan, and the Kashmir Region. Read the introduction on Xinjiang (suggested) at the link:

<http://en.wikipedia.org/wiki/Xinjiang>, or [http://www.xinjiang.gov.cn/1\\$002/1\\$002\\$015/365.jsp?articleid=2005-6-22-0008](http://www.xinjiang.gov.cn/1$002/1$002$015/365.jsp?articleid=2005-6-22-0008)

Content: Table

Yunnan

Yunnan, meaning "south of the clouds," is located in Southwest China bordering the Tibet Autonomous region of China in the Northwest, Sichuan Province in the north, Guizhou and Guangxi Provinces in the east, Vietnam in the Southeast, Laos in the South, and Myanmar in the Southwest and West. Read the introduction on Yunnan (suggested) at the link:

http://cbik.ac.cn/cbik-en/cbik/where_work.htm, or <http://en.wikipedia.org/wiki/Yunnan>

Content: Table

Other Online Resources

Listed below are a number of web-sites where we found information pertinent to this content area. Please conduct a general exploration of these sites in order for you to gain knowledge and background about it.

General information and country features

Country Studies: <http://lcweb2.loc.gov/frd/cs/cntoc.html>

[The World Watch Institute-Chinawatch](#)

[China View at Xinhua Net](#)

[China in brief in 2005\(@china.org.cn\)](#)

[Sino-Italian Cooperation Program](#)

[Chinese Embassy](#)

English Newspapers from China

[People's Daily](#)

[China Daily](#)

References

Lu, Jia[2005], the *Geography of China*, Mason Crest Publishers, Broomall, PA.

The CIA World Factbook, [2006],

(<https://www.cia.gov/cia/publications/factbook/geos/ch.html>)

Department of the Army, *Ethnic Boundaries*, Country Studies/Area Handbook Program (<http://countrystudies.us/china/40.htm>)

Chinese Government's Official Web Portal [2006]: <http://english.gov.cn/about.htm>

U.S. Department of State, *Background Note: China*, [2006]

(<http://www.state.gov/r/pa/ei/bgn/18902.htm#history>)

UNDP (United Nation Development Program), [2002]: *China Human Development Report 2002: Making Green Development a Choice* available at the website:

<http://www.undp.org.cn/downloads/nhdr/nhdr2002.pdf>



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Unit Two: Biodiversity and Conservation

[Unit 1](#) [Unit 2](#) [Unit 3](#) [Unit 4](#)

The goal of this unit is to help the students understand the biodiversity in China, the importance of China's biodiversity to the world, and relevant conservation activities in China.

In this unit, students will learn about the biological resources, natural reserves, biodiversity in Yunnan, and biodiversity in Xinjiang.

Objectives

After completing this unit, students will be able to

- ⊕ Identify the importance of the biodiversity of China to both China and the world
- ⊕ Describe some examples of declining biodiversity in China
- ⊙ Evaluate conservation policies and capacities of China relative to preserving biodiversity in China.

Content Table

- [Biodiversity in China](#)
- [Biodiversity Conservation Policies and Natural Reserve](#)
- [Biodiversity in Yunnan](#)
- [Biodiversity in Xinjiang](#)

Biodiversity in China

China is one of the countries with the richest biodiversity in the world. The vast land area, diverse climatic conditions, and complicated geographical natural conditions have resulted in various types of ecosystems, including forest, grassland, desert, wetland, seas, and coastal ecosystems and various agricultural ecosystems. The various ecosystems give rise to rich biological diversity (SEPA, 1998). The loss of these diverse ecosystems gives rise to the loss of genetic diversity, which is key to the agricultural base of any country. Read the *Executive Summary of China's Biodiversity: a Country Study* (#1, required) at <http://www.chinagate.com.cn/english/2036.htm> for an overview of China's biodiversity.

China has a vast territory with complex climate, varied geomorphic types, a large river network, many lakes, and a long coastline. Such complicated natural conditions inevitably form diversified habitats and ecosystems. The terrestrial ecosystem can be divided into several types such as forest, tundra and marsh. The aquatic ecosystem can be classified as marine, riverine and lacustrine (Biodiversity Committee of the Chinese Academy of Science, 1992). Read the Chapter of *Habitat and Ecosystem Diversity* (#2, required) at <http://bpsp-neca.brim.ac.cn/books/bdinchn/2.html>.

[Content Table](#)

Biodiversity Conservation Policies and Natural Reserves

China signed onto the Convention on Biological Diversity during the UNCED in June, 1992, and ratified it on January 5, 1993, becoming one of the earliest countries to ratify the CBD. To implement Article 6 of the CBD, China began to formulate the "China Biodiversity Conservation Action Plan" in 1992 and officially launched it in June 1994. In addition to the national strategy and action plan, the relevant sectors under the State Council have actively incorporated conservation and sustainable utilization of biodiversity into their own sectoral action plans and programs. Read the *Executive Summary* of (#3, required) *China's National Report on Implementation of the Convention on Biological Diversity* (<http://us.tom.com/english/2068.htm>) to learn more about the government efforts and policies on Biodiversity.

China established 1,276 nature reserves of various kinds by 2001, covering 123 million hectares of land, accounting for 12.44 percent of the country's land area. The number of China's nature reserves will reach 1,800 by 2010, covering a combined area of 155 million hectares, or 16.14 percent of the country's total land area, sources with the State Forestry Administration say (People's Daily 04/23/2001). Read the article, *Introduction to Nature Resources of China* (#4, required), at China Internet Information Center (<http://www.chinagate.com.cn/english/530.htm>).

[Content Table](#)

Biodiversity in Yunnan

The land area of Yunnan accounts for just four percent of China's total land area; however its eco-systems include:

1. Tropical and Seasonal Rain Forest
2. Tropical Scattered Forest and Shrubbery and Grass (Dry-hot Valley)
3. Sub-tropical Evergreen Broadleaf Forest
4. Sub-alpine Conifer Forest
5. Alpine Meadow eco-system, Alpine-lake
6. River
7. Various man-made ecosystems (CBIK, 2006).

Read the following page at http://cbik.ac.cn/cbik-en/cbik/where_work/biodiversity.htm to learn more about the *biodiversity in Yunnan* (⊕ #5, required).

By 2004, Yunnan had 193 nature reserves; total area of reserves is 4.088 million hectares (40880 km²) (National Bureau of Statistics of China, 2005). Those reserves, counting 10.4% of total land of the province, are currently protecting 70% of plant species, 80% of wildlife species, and 25% freshwater fishes in Yunnan (Li Chun, 2000). Download the **Links between Cultures and Biodiversity** at <http://www.cbik.ac.cn/cbik-en/cbik/resource/download/Proceedings2000.pdf>, and read the article of *Policies and Implementation in the Nature Reserves of Yunnan Province* (NOTE: this link leads you to a very big file, and may take you up to 20 minutes to download. File pages for this article are 97-115. ©#6, suggested).

Yunnan is the home for more than 25 ethnic groups. Ethnic minorities account for one-third of the total population of Yunnan (CBIK, 2006). Many researchers believe that there is a correlation between biological and cultural diversity (Xu and Mikesell, 2002). Read the article, *Culture and Ethnic Diversity*, at http://www.cbik.ac.cn/cbik-en/cbik/where_work/culture.htm (©#7, suggested).

[Content Table](#)

Biodiversity in Xinjiang

Xinjiang is a typical inland arid region which is marked by great differences in the natural environment, with forests, deserts, grasslands, desert highlands, mountains, glaciers, and many other types of ecosystems. Xinjiang has a wide diversity of wild plants and vertebrates and microbial resources. Read the *Report of Nature Reserves from the Biggest Province* (⊕#8, required) in China [here](#).

[Content Table](#)

References

- SEPA (State Environmental Protection Administration) (1998), *China's Biodiversity: A Country Study*, China Environmental Science Press, Beijing, China
- SEPA (State Environmental Protection Administration), *China's National Report on Implementation of the Convention on Biological Diversity*, cited by China Development Gateway (<http://us.tom.com/english/2068.htm>)
- Biodiversity Committee of the Chinese Academy of Science, (1992), *Biodiversity in China*, (<http://bpcsp-neca.brim.ac.cn/books/bdinchn/index.html>)
- SEPA (State Environmental Protection Administration), *China's National Report on Implementation of the Convention on Biological Diversity*, (<http://us.tom.com/english/2068.htm>)
- People's Daily 04/23/2001
- CBIK (Center for Biodiversity and Indigenous Knowledge), (2006), *Biodiversity in Yunnan* http://cbik.ac.cn/cbik-en/cbik/where_work/biodiversity.htm
- National Bureau of Statistics of China [2005], *China Statistical Yearbook 2005* available on: <http://www.stats.gov.cn/tjsj/ndsj/2005/html/L1221E.xls>
- Li Chun [2000], *Policies and Implementation in the Nature Reserves of Yunnan Province*, *Links between Cultures and Biodiversity--Proceedings of the Cultures and Biodiversity Congress 2000*, Yunnan Science and Technology Press, Kunming.
- Xu J. and Mikesell S, [2002], *Indigenous Knowledge for Sustainable Livelihoods and Resources Governance in the MMSEA Region*, *Landscapes of Diversity: Indigenous Knowledge, Sustainable Livelihoods and Resource Governance in Mountain Mainland Southeast Asia*, Yunnan Science and Technology Press, Kunming.



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Unit Three: Major Environmental Issues

Unit 1 **Unit 2** **Unit 3** **Unit 4**

The goal of this unit is to help the students understand the major environmental issues in China.

In this unit, students will learn about the issues of air, water, energy, and land.

Objectives

After completing this unit, students will be able to

- ⊕ Describe the major environmental problems of China
- ⊙ Evaluate the impacts of the problems on the national and the global population

Content Table

- [State of the Environment](#)
- [Energy issues](#)
- [China's Environment in a Globalizing World](#)

State of the Environment

China's environment is complex. Its environmental problems are among the most severe of any major country and are mostly getting worse. The list of the environmental problems ranges from air pollution, biodiversity loss, depleted fisheries, desertification, disappearing wetlands, grassland degradation, and increasing frequency and scale of human-induced natural disasters to invasive species, overgrazing, interrupted river flow, salinization, soil erosion, trash accumulation, and water pollution and shortages. These issues are causing serious economic loss, social conflict, and health costs within China (Liu and Diamond, 2005). Download the *China Human Development Report 2002: Making Green Development a Choice* at the UNDP-China website (<http://www.undp.org.cn/downloads/nhdr/nhdr2002.pdf>); then read *Chapter 2, State of the Environment* (⊕ #1, required). (NOTE: this link leads you to a very big file, and may take you up to 20 minutes to download. Enrolled students should go to D2L for reserved file of Chapter 2.)

Content Table

Energy issues

China's industrialization is creating a huge demand for energy. Coal is the country's default source of energy: coal-fired power stations produce about 80 percent of the country's needs, and a great deal of carbon dioxide emission (Leech, 2006). Read the article, *Chinese Energy Policy Outlook: Renewable Energy and Energy Efficiency* (⊕ #2, required) at http://adrf.trf.or.th/ADRF6update/Full_Papers/Energy_Security/Li_Junfeng/Fullpaper_Li_junfeng.pdf for further information of the energy issues in China.

Content Table

China's Environment in a Globalizing World

China's environmental problems are also spilling over into other countries, while other countries affect China's environment through globalization, pollution, and resource exploitation. Read the article, *China's Environment in a Globalizing World* (⊕ #3, required) at <http://www.natureasia.com/ch/focus/environment/4351179a.pdf>, and then log on to D2L discussion board to check out your reflection assignment for this unit.

[Content Table](#)

Ⓢ Suggested readings for this unit:

Northern China Desertification Critical

(<http://www.sinoitaenvironment.org/ReadNewsex.asp?NewsID=2499>)

Solid Waste (<http://www.sinoitaenvironment.org/ReadNewsex.asp?NewsID=435>)

Water Environment (<http://www.sinoitaenvironment.org/ReadNewsex.asp?NewsID=431>)

Atmospheric Environment (<http://www.sinoitaenvironment.org/ReadNewsex.asp?NewsID=433>)

China's Burning ambition

(<http://www.nature.com/nature/journal/v435/n7046/pdf/4351152a.pdf>)

The Exploitation and Utilization of Energy Sources in China and the Effects on the Environment (<http://www.sinoitaenvironment.org/ReadNewsex.asp?NewsID=280>)

3.8 Energy of China *Human Development Report 2002: Making Green Development a Choice* (P55-58)

Toxic China (<http://www.spiked-online.com/index.php?/site/article/233/>)

References

Liu, Jianguo and Diamond, Jared [2005], *China's Environment in a Globalizing World*, *Nature*, Vol 435/30 June 2005: 1179-1186

Leech, Kirk, 2006, *Toxic China?* Spiked Online, (<http://www.spiked-online.com/index.php?/site/article/233/>)

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Unit Four: Society and Efforts

[Unit 1](#) [Unit 2](#) [Unit 3](#) [Unit 4](#)

The goal of this unit is to help the students reflect on economic development in China and the associated problems relative to sustainable development at a global level.

Objectives

After completing this unit, students will be able to

- ⊕ Evaluate the interaction between China's economic development and environment at the global level
- ⊕ Identify socio/economic factors that will contribute to sustainable development efforts in China.
- ⊙ In general explain or diagram China's government structure
- ⊙ Compare the environmental management of China to that of the United States

Content Table

- [Politics](#)
- [Economics](#)
- [Recent Movements and Efforts](#)

Politics

Government Structure

The Chinese Government has always been subordinate to the Chinese Communist Party (CCP); its role is to implement party policies. The primary organs of state power are the National People's Congress (NPC), the President (the head of state), and the State Council. Read the description about the **government structure, principal government and party officials, and legal system** (⊕ #1, required) at the U.S. Department of State website (<http://www.state.gov/r/pa/ei/bgn/18902.htm#gov>).

[Content Table](#)

Environmental Regulation and Legislation in China

Since environmental regulations were first enacted in 1979, China has continued to improve its regulatory practices and to learn from the experiences of other countries. Current environmental legislation covers the management and protection of forests, grasslands, soils, fisheries, mineral resources, water resources, wildlife, coal, and other energy resources. At the national level, environmental policies are formulated by the state council. The national Environmental Protection Agency (now the State Environmental Protection Administration, SEPA), established in 1988 as an independent agency, is the secretariat for the State Environmental Protection Commission. The SEPA's primary functions are to disseminate national environmental policy and regulations, collect environmental data, provide training and administrative support to local environmental protection bureaus, and provide technical and policy advice to the State Environmental Protection Commission on both national and international environmental issues. Implementation of environmental policy in China is also the responsibility of ministries and related agencies at all levels of

government. (World Bank, 1997)

China has been taking steps to construct a legislative and regulatory framework as a foundation for economic and social behavior. Since the promulgation of the first Environmental Protection Law in 1979, China has adopted and enacted more than 20 statutes on pollution control, natural resource conservation, and human health and safety. In addition, dozens of regulations, procedures and initiatives, as well as hundreds of standards, have been passed (UNDP, 2002). Click [here](#) (#2, required) for an illustration of the hierarchy of **key environmental laws and regulations**, and an indication of how national and local laws interrelate. (Resource from UNDP, 2002, as adapted from ERM China, 1998)

Below is a list for a few readings about China's Political System (@, suggested):

The legislative system of China:

<http://www.china.org.cn/english/features/legislative/75857.htm>

The Constitutional System: <http://www.china.org.cn/english/Political/26143.htm>

The System of People's Congress: <http://www.china.org.cn/english/Political/26144.htm>

The Party in Power: <http://www.china.org.cn/english/Political/26151.htm>

The Central Administrative System: <http://www.china.org.cn/english/MATERIAL/28847.htm>

Content Table

Economics

China's economy during the last quarter century has changed from a centrally planned system that was largely closed to international trade to a more market-oriented economy that has a rapidly growing private sector and is a major player in the global economy. Reforms started in the late 1970s with the phasing out of collectivized agriculture, and expanded to include the gradual liberalization of prices, fiscal decentralization, increased autonomy for state enterprises, the foundation of a diversified banking system, the development of stock markets, the rapid growth of the non-state sector, and the opening to foreign trade and investment. Measured on a purchasing power parity (PPP) basis, China in 2005 stood as the second-largest economy in the world after the US, although in per capita terms the country is still lower middle-income and 150 million Chinese fall below international poverty lines. Economic development has generally been more rapid in coastal provinces than in the interior, and there are large disparities in per capita income between regions. (The CIA World Factbook, 2006)

Read the **Economy** (#3, required) on the U.S. Department of State's *Background Note: China* (<http://www.state.gov/r/pa/ei/bgn/18902.htm#econ>), and the full text (#4, required) of the *Report on the Implementation of the Central and Local Budgets for 2005 and on the Draft Central and Local Budgets for 2006* (<http://www.china.org.cn/english/2006lh/161850.htm>).

Content Table

Recent Movements and Efforts

Local Management and recent movement

For the past 20 years, China's most pressing imperative has been economic development. While Chinese leaders at the central, provincial, and local levels clearly recognize the compelling need to deal with burgeoning environmental concerns, they struggle with the tension that exists between facilitating economic growth and promoting a healthy environment. Read the article, *Local Environment Management in China* (#5, required), on how economic, social, and political reforms, particularly political devolution and decentralization, have impacted environmental protection efforts at <http://www.wilsoncenter.org/topics/pubs/ACF3D9.pdf>

Public Participation in Environmental Impact Assessment

The Environmental Impact Assessment Law (EIA, also translated as the Law on Evaluation of Environmental Effects) was passed on October 28th 2002. The law explicitly encourages relevant units, specialists, and the public to participate in the evaluation of environmental impacts (Article 5). In many cases, assessments were conducted in the absence of any public consultation and supervision (Wang, 2005). However, the Public Hearing Symposium of the Yuanmingyuan Park (or the Old Summer Palace) was acknowledged by some journalists as a milestone in the history of environmental protection and law enforcement in

China (South Weekend, July, 21st, 2005). Read the two articles (⊕ #6, required) on China Daily webpage (http://www.chinadaily.com.cn/english/doc/2005-04/14/content_434145.htm, and http://www.chinadaily.com.cn/english/doc/2005-09/10/content_476713.htm), and look for more information if interested.

Below are the law documents found on the People's Congress webpage, and an analysis article about the EIA law. (⊙ Suggested readings)

Law on Evaluation of Environmental Effects (Environmental Impact Assessment Law):

<http://www.npc.gov.cn/zgrdw/english/news/newsDetail.jsp?id=2204&articleId=345137>
Public participation in Environmental Impact Assessment (EIA) Law of China
<http://www.riel.whu.edu.cn/show.asp?ID=3082>

Environmental Education

Environmental education has been emerging in China since early 90s. In 1992, the first environmental education conference was held in China. By the middle 90s, the Minister of Education (MOE) and the State Environmental Protection Administration (SEPA) initiated environmental education as part of the formal education system. In 1997, the World Wildlife Fund (WWF)-China's Environmental Educators' Initiative started to support mainstreaming environmental education in formal schools through pre-service training in twelve normal universities, writing EE guidelines and textbooks, pilot-testing, and in-service teacher training. The Center for Environmental Education and Communication (CEEC) under SEPA was established in 1996, responding to the demands of environmental education for children and the public. CEEC plays an important role in promoting environmental education in China by implementing the Outline for National Environmental Education Actions. The MOE issued a national mandate for 1st-11th grades in 2003 and, at the same time, published the Environmental Education guidelines, which were written in collaboration with WWF-China. In January 2006, the first meeting of the National Environmental Education Committee was held in Beijing. Read the article, *Addressing Urgent Needs: The Emergence of Environmental Education in China* (⊕ #7, required) at <http://www.wilsoncenter.org/topics/pubs/mcneil-lin.pdf>

Content Table

China Internet Information Center [2003], *the Legislative System of China*, China.org.cn (<http://www.china.org.cn/english/features/legislative/75857.htm>)

World Bank [1997], *Clear Water, Blue Skies*, Washington, D.C., the World Bank
 The CIA World Factbook's, [2006],

(<https://www.cia.gov/cia/publications/factbook/geos/ch.html>)

Lin, Jing and Ross, Heidi [2005], *The emergence of Environmental Education in China*, China Environment Series Issue 7, 2005: 74-78, Woodrow Wilson International Center for Scholars.

Beach, Marilyn [2005], *Local Environment Management in China*, China Environment Series Issue 4, 2001: 21-31, Woodrow Wilson International Center for Scholars.

Wang Ziyuan, 2005, *Public participation in Environmental Impact Assessment (EIA) Law of China*, China Environmental Law Net, Environmental Laws Institute, Wuhan University

WWF-China 2006, *Environmental Educators Initialization Project*, WWF-China (<http://www.wwfchina.org/>)

Appendix B: Evaluation Form for the Review Committee

Reviewer:_____ Date_____

Questions for the Course Page Review:

What is your general impression on the course page?

Do you think the objectives are clear and realistic?

Do you think the units and subunits are logical and the workload is appropriate for a one-credit course?

Materials for the Unit__:

Are the reading materials (both required and selective) authentic and offering abundant information?

Are the goals and objectives for the unit covered and supported by the materials?

Do you have any suggestions for the first offering?

Appendix C: Consent Form

CONSENT FORM—

PARTICIPANTS IN THE ENVIRONMENTAL STUDIES OF CHINA ONLINE COURSE THROUGH THE WISCONSIN CENTER FOR ENVIRONMENTAL EDUCATION

Yu Wang, a graduate student at the University of Wisconsin—Stevens Point, Dr. Randy Champeau, Director of the Wisconsin Center for Environmental Education and Associate Dean of the College of Natural Resources, are conducting a study to measure the effectiveness of an online course through the Wisconsin Center for Environmental Education. This is the first pilot of this course. The evaluation will provide us with invaluable information for the revision and continuation of the course. We would appreciate your participation in this study.

As part of the study, I would request you to complete an informative survey by the end of each unit, a summative survey and a post-assessment when you finish all four units to gather your input and feelings about the online course. All these surveys and assessment will be formed over internet via email, and D2L platform. Copies of online survey and post-assessment will be viewed via D2L platform after you log in.

Through the research, we will not associate your name with the answers you give. This study will pose no risk to you other than the inconvenience of extra time required of you to answer the questions.

For the purpose of the study, your surveys and post-assessment will be coded so that your name will not appear anywhere. Information about participants will be viewed only by the participants themselves and the researchers. Publication or presentation of the study data would in no way identify you as a participant. Only the researcher will have access to the names associated with the codes.

If you wish to withdraw from the study at this time, you may do so. Any information that you provided up to this point would be destroyed.

Once the study is complete, you may receive the results by contacting the researcher or the research advisor. If you have any questions or comments in the meantime, please contact:

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403 LRC, WCEE, UW-SP
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or

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715 346 4174
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If you have any complaints about your treatment as a participant in this study, please call or write:

Dr. Karlene Ferrante, Interim Chair
Associate Vice Chancellor
IRB—Human Subjects
Department of Communication
University of Wisconsin-Stevens Point
Stevens Point, WI 54481
715 -346-3952
kferrant@uwsp.edu

I have received a complete explanation of the study, and I agree to participate.

Name: _____

Date:

(Signature of the subject)

Appendix D: Survey Forms

Informative Survey

When you finish this unit, please answer the following question. All responses to this survey are anonymous, so please answer the questions honestly. The results will help us improve our future work greatly.

Please write a paragraph, sentences, or phrases to answer the follow questions.

1. What did you like the most of this unit?
2. What did you think the least useful of this unit?
3. What do you recommend to improve?
4. Please estimate the total time you spent in this unit
_____ Hours on reading required materials
_____ Hours on reading suggested materials
_____ Hours on writing discussion and response to other class participants
_____ Minutes on quiz
_____ Minutes on this survey

Summative Survey

All responses to this survey are anonymous, so please answer the questions honestly. The results will help us improve our future work greatly.

To what extent do you agree or disagree with the following statement:

Student self assessment on improvement

1. The course content promoted the accomplishment of the course goals and objectives.

A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

2. I feel more prepared for a trip to China as a result of taking this online course

A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

3. How much did you know about China before taking this course?

A. A lot B. Some C. Neutral D. A little E. Nothing

4. How much did you know about China after taking this course?

A. A lot B. Some C. Neutral D. A little E. Nothing

Course Structure and Organization

5. The goals and objectives of the course were clear and well expressed.

A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

6. The structure of the course followed the goals and objectives.

A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

7. The units of the course and the modules of the units were organized in a logical way.

A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

8. The breadth of topic covered was adequate for a one-credit course.

A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

9. The depth of the topics covered was adequate for a one-credit course.

A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

Course materials

10. The course materials helped to reach the course goals and objectives.

A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

11. The readings were authentic and offered abundant information.

A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

12. The use of other resources, like maps, DVDs helped to express subject matter.
A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

Online instructional strategies

13. The discussion assignment supported the accomplishment of course objectives.
A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

14. The assignments provided clear and adequate instructions.
A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

15. The quizzes supported the accomplishment of course objectives.
A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

16. The interaction among the class supported the accomplishment of course objectives
A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

17. The interaction between the instructor and class participants supported the accomplishment of course objectives.
A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

Instructor(s)

18. The instructor(s) were readily available and returned emails, pagers and discussion questions.
A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

19. The instructor(s) involvement in the course was adequate.
A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

20. The instructor(s) showed enthusiasm for the course.
A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

Workload

21. The workload in this course was reasonably affordable.
A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

Course Outlook and Technology

22. The course page design was easy to follow.
A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

23. D2L components were appropriate and friendly to users.
A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

24. I would recommend this course to others.

A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

25. I would participate in another online course as a result of this experience.

A. Strongly Agree B. Agree C. No Opinion D. Disagree E. Strongly Disagree

Other comments

26. What did you like the most about this online course?

27. What did you like the least about this online course?

28. Do you have suggestions for improving the course and/or the instruction?

29. In addition to the assigned discussion activities in this course, what other activities would you recommend for interaction between the participants and the instructor(s)?

30. Were there any barriers to you in the course? If yes, please list them.

Appendix E: The t-test and Results of the post survey

To determine whether two values from Question 3 and 4 (Post-survey) are statistical different, the researcher conducted a student t test using the significant level of .01. The compute process and result are presented below.

$$H_0: \mu_1 = \mu_2$$

$$H_1: \mu_1 \neq \mu_2$$

$$\alpha = .01$$

- ◆ Determine the limits of Critical region:

$$P(|t| \geq t_0) = .01$$

$t_0 = \pm 3.013$ with 13 degree of freedom

- ◆ compute t

Data Table

Before	After	d	d ²
2	3	-1	1
2	4	-2	4
2	3	-1	1
2	4	-2	4
2	4	-2	4
3	4	-1	1
2	3	-1	1
2	4	-2	4
3	4	-1	1
2	3	-1	1
3	3	0	0
3	2	1	1
3	4	-1	1
2	4	-2	4

N=14

$t = -4.935$ with 13 degree of freedom

$|t| \geq t_0$, therefore, the researcher rejected the null-hypothesis, accepted H_1 , and concluded that there was a highly significant difference between two scores from Question 3 and Question 4.