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Investigating Conditions for Transfer of Learning in an
Outdoor Experiential Study Abroad Course

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Title

Investigating conditions for transfer of learning in an outdoor experiential study abroad course

Författare

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Sammanfattning

Abstract

The purpose of the study was to investigate how teaching for transfer of learning was built into a month-long outdoor experiential education course within a semester long study abroad program and to address the extent to which student perception of learning gains could be transferred for use in future courses and for later in life. From a program planning and evaluation perspective it was also important to determine what types of activities and experiences within the course were instrumental in helping students to develop concepts and skills that could be transferred to life after the course. This research quantifies the frequency and consistency of teaching for transfer events using a tool based on research by a social psychologist (Haskell, 2001) and an outdoor experiential educator. (Gass, 1990) Student perception of learning gains were measured at the end of the course with the SALG assessment tool. (Seymour, Wiese, Hunter, & Daffinrud, 2000)

This research is an ethnographic case study of an expedition field course (EFC) entitled Human Rights and the Environment: Rivers, Dams and Local Struggles at the Institute for Sustainable Development Studies (ISDSI) based in Chiang Mai, Thailand, which included intensive language instruction, expedition field studies, and leadership opportunities to enable students to study the relationship between culture and ecology. Students studied problems of a global scale by learning about local issues with the intent that the program at ISDSI aims to "develop committed leaders for a sustainable future". (Ritchie, 2006, p. 1) It is a response to the call for educational programs in the field of outdoor and experiential learning to examine the benefits and outcomes of course offerings. (Ewert, 1996; Hattie, Marsh, Neill and Richards, 1997; Holman and McAvoy, 2005)

Through a qualitative look at observation data, recommendations were made to increase the capacity for this ISDSI course to promote the transfer of learning.. Some suggestions include expanding the use of systems thinking and examples of individuals who are masters of transfer thinking into course design, heightening culture and ecology connections through increased use of guided facilitation, integrating individual goal setting, and expanding internal assessment and staff development possibilities.

Nyckelord

Keyword

Transfer of learning, outdoor education, experiential learning, culture and ecology, study abroad, Thailand

Abstract

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This research is a case study of an expedition field course (EFC) entitled Human Rights and the Environment: Rivers, Dams and Local Struggles at the Institute for Sustainable Development Studies (ISDSI) based in Chiang Mai, Thailand. Five American university students participated in the course, the second in a four course series of landscape based studies that target issues related to People, Environment and Development. The design of the EFC, standard to other courses at ISDSI, included intensive language instruction, expedition field studies, and leadership opportunities to enable students to study the relationship between culture and ecology. Courses were facilitated by experienced instructors and field staff and highlighted interaction with local experts as participants traveled through and lived in the landscape. Students studied problems of a global scale by learning about local issues with the intent that the program at ISDSI aims to "develop committed leaders for a sustainable future". (Ritchie, 2006, p. 1) Course alumni and faculty agree that students grow and change as a result of the program, (ISDSI, n.d.) but do students transfer what they learn and go on to affect change? This research is a first step in answering this question. In addition it is a response to the call for educational programs in the field of outdoor and experiential learning to examine the benefits and outcomes of course offerings. (Ewert, 1996; Hattie, Marsh, Neill and Richards, 1997; Holman and McAvoy, 2005)

Through a qualitative look at the data, recommendations were made to increase the capacity for this ISDSI course to promote the transfer of learning in future courses and experience in students' lives. Some suggestions include expanding the use of systems thinking and examples of individuals who are masters of transfer thinking into course design, heightening culture and ecology connections through increased use of guided facilitation, integrating individual goal setting, and expanding internal assessment and staff development possibilities.

Guiding research questions

How frequent and consistent were activities and events facilitated that had the potential to promote transfer of learning?

What aspects of the program promoted transfer of learning and what could be added to further increase the capacity for “developing committed leaders for a sustainable future?”

How do students perceive they will transfer newly acquired concepts and skills into their future pursuits?

What activities and experiences within the learning process did students perceive were instrumental in making learning gains in developing concepts and skills that they may use in the future?

Acknowledgements

For Brother John...to inspiration, insight, and transitions.

To venture causes anxiety, but not to venture is to lose one's self...
And to venture in the highest is precisely to be conscious of one's self.
Søren Kierkegaard

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Thanks Mark and Nui for opening your program to me and my students years ago and for encouraging me to return. Your vision makes a difference. See you very soon. Thanks Ajaan Jon for creating an amazing and inspiring course that wouldn't exist without your dedication, sensitivity and persistence. Thanks Ajaan Chu and Ajaan Kim for facilitating the experience and making it a positive learning environment for everyone involved. Thanks Ajaan Howard for insight and advice; the synchronicity emerges everywhere. Much appreciation to all the students- you are bright, unique, and capable; blessed with the ability and the responsibility to affect the future.

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“...does the educated citizen know he is only a cog in an ecological mechanism? That if he will work with that mechanism his mental wealth and his physical wealth can expand indefinitely? But that if he refuses to work with it, it will ultimately grind him to dust? If education does not teach us these things, then what is education for?”

Aldo Leopold, *A Round River Essay on Natural History*, 1953

“...a lot of things have happened in the last century and most of them plug into walls.”
Father John Culkin, Fordham University.

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Chapter 1

Introduction

From a teacher's perspective, few experiences are more fulfilling than watching students take something they have learned and put it to use. Witnessing students go through the process of developing a skill or connecting material to come to a greater understanding of themselves or the world around them is one reason why teaching is such a satisfying pursuit. Consider these examples:

A school year comes to an end and first grade students are reading in the class library. Their teacher watches them and reflects on how much they have learned over their first year of school, knowing that they will soon be 'reading to learn' rather than 'learning to read.'

A middle school science teacher watches students at recess playing tetherball and overhears them connecting the game to a recent lab experiment. They debate whether or not the ball speeds up at the rope shortens around the pole.

High school students huddle in a circle over a lunch table, clearly arguing over a problem that has come up in their group of friends. They respectfully give each other time to voice their opinions without interrupting; their teacher recognizes this group process as one that is modeled in their classroom.

Adult second language learners sit in small groups and role-play a scenario in which they are interviewing each other. The teacher notices that students are able to integrate vocabulary words from a recent lesson and are having more success using the past tense.

From a student's perspective, nothing makes learning more meaningful than being able to take newly developed abilities or freshly understood concepts and actually seeing how they can be used for a purpose. There is great satisfaction taken in seeing something tangibly manifest itself as a result of something learned.

Reconnecting to the scenarios listed above:

A first grader tells his parents that next year, school is going to be more fun because in second grade they will get to read even more books; maybe even some about animals that they saw on a school field trip.

A science student starts seeing how the discussion of circumference and diameter have something to do with the movement of the tether ball around the pole and that it is connected to the work she is doing in math class. She quizzes her math teacher on the topics they learned in science and reflects on the fact that her teacher understands these relationships too.

At the end of the discussion, one of the high school students notices the fact that they were using the same problem solving skills that they once used in social studies during a debate. He tells his friends that he thought that this discussion was even more successful than when the teacher was in charge.

One second language learner talks to a salesman in a shop and finds herself repeating phrases used in class and is even more surprised when she understands the responses of the clerk, despite the fact that his accent is slightly different than her teacher's.

Hopefully these scenarios ring true for many teachers and students, as they display some level of transferring knowledge from school to other related contexts. But what about transferring lessons from the classroom to contexts that appear less related? How well do students apply their understanding of basic math to real life issues like interest accumulation on credit card debt? To what extent can learners apply their knowledge of simple chemistry to cooking, their comprehension of physics to driving a car, or their understanding of history, politics, and social studies in deciding which presidential candidate to vote for? Do schools prepare students for the complex problem solving that is required in peoples' lives beyond the four classroom walls? The short answer is maybe. The long answer may go deeper into what we perceive is the ultimate function of the educational system or of what we mean when we use the words "knowledge" and "understanding."

Within the context of traditional education, there is a concerted push for schools to demonstrate growth by showing increases in student performance on standardized

tests. This may or may not provide a framework by which learning may be compared, but it likely does little to predict how well a student will utilize knowledge for a specific outcome other than performance on a multiple choice exam. It certainly does little to demonstrate how the learner will deal with solving life's difficult challenges like choosing a career path, deciding to become involved in social change, or determining what the greater purposes are in life.

But to focus this research, I want to establish that one overriding goal in education is for a learner to acquire concepts, ideas, attitudes, skills, or knowledge; to internalize and make their own meaning of it and then use it in some way in the context of their lives in the world around them. My intention is not to engage in philosophical discourse over a specific purpose in education, but to merely exhibit the notion that teachers and students alike find hope in the idea that learning can transfer to other areas of life and can be used for tangible purposes. To that end, I want to explore further what the existing literature says about certain types of education and the background on transfer of learning, and finally how this relates to the course that was observed in this research.

I argue that experiential approaches to education provide an integrated process by which these types of challenges could be achieved, or at least addressed. Within this research, I aim to investigate a process of learning that puts forward the mission of developing students to be critical, yet contributing members of society. I am interested in examining the methods by which courses and experiences are designed to cause learners to find ways to apply their knowledge beyond schools.

In Chapter 2, there is an exploration of what the literature says about the limitations of the traditional school system in teaching for the complex demands that learners increasingly face in the world today. There is a presentation on the theoretical and practical roots of experiential education, followed by an overview of outdoor education. Next, there is a review of the current literature on the subject of transfer of learning. In Chapter 3, there is an explanation of the methods of investigation for determining the frequency and consistency of teaching for transfer of learning in an outdoor experiential education program and for addressing students' perception of learning gains as a result of participation in the course. An overview of important results is presented in Chapter 4. Within Chapter 5, there is a discussion of the results, with recommendations and strategies for ISDSI to consider for the purpose of increasing the promotion of transfer of learning in future courses. In addition, a

discussion of the limitations of the research is presented along with ideas for future research. Finally, Chapter 6 touches on an emergent theme that manifested itself during the course observation process and gives some insight into some interesting conceptual issues to consider within experiential teaching and learning settings.

Definition of terms

There are a few key phrases used throughout the paper that are defined here.

Learning- a change or modification in the capacity to alter behavior, actions, ideas, mental models or associations as a result of some experience. Learning is not observed directly, but the products of learning are. (Ormrod, 2004; Schunk, 2004) In the domain of experiential learning theory, it is “the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience” (Kolb 1984, p. 41).

Experience- an event or interaction that may lead to learning (Ormrod, 2004), which may include human and/or non-human interaction (Taniguchi, 2004). An ‘experience’ is not always something ‘active’, as sedentary pursuits such as reading, writing, and thinking all involve some previous experience, such as calling on prior knowledge and reflecting on insights as well as on events and activities. All experiences build on past experiences and are tools in continuous growth and development towards understanding through practice and theory. (Dewey, 1938)

Reflection- a process of analyzing beliefs, ideas, and/or perceptions in the development or refinement of understanding that is necessary to make meaning of an experience which may result in a change of thought or action. (Boud, Keough, & Walker, 1985; Dewey, 1933; Sugerman, Dougherty, Garvey, & Gass, 2000) Experience can be viewed as a requisite for reflection. (Knapp, 1992; Luckner & Nadler, 1997)

Traditional education- a structured and organized system of teaching and learning prevalent in K-12 schools and higher education in the United States that tends to divide curriculum content into discrete subject areas that are taught in a classroom and

places teachers in the position of conveyers of information and students as recipients of this information. (Dewey 1938; Miller, 2005)

Experiential education- “a philosophy and methodology, in which educators purposefully engage with learners in direct experience and focused reflection in order to increase knowledge, develop skills and clarify values.” (AEE, n.d) The focus is on direct interaction with a variety of subject matter mediated through experience. Experience is followed by guided reflective practice. The process of reflection must follow in order for learning to occur (Beard and Wilson, 2002; Dewey 1938).

Experiential Learning- while all learning involves an experience of some sort, within this context, the term is used to specify that the learner is actively involved in the educational process. It can lead to “insight gained through the conscious and subconscious internalization of our own or observed interactions with the perceived environment, built upon our past experiences and knowledge.” (Beard & Wilson, 2002, p. 16) While learning can manifest itself in many ways, the focus in experiential learning is the purposeful facilitation of activities and practices with participants meaningfully engaged, not passive recipients of information; followed by a reflective process. (Joplin, 1995)

Transfer of learning- the ability to apply concepts, knowledge and/or skills in new situations; ‘Problem solving’ is a common manifestation, or form, of transfer. (Ormrod, 2004) “The process of applying knowledge learned in one setting to another situation.” (Knapp, 1992)

Outdoor education- a method of experiential education that combines outdoor activity, environmental education and personal and social development (Higgins and Loynes, 1997) framed by a location or place. The theoretical underpinnings are linked to pragmatist philosophy of John Dewey and “bring conceptual, theoretical, and experiential knowledge together” (Dahlgren and Szczepanski, 1998, p. 23)

Finally, it should be clarified that when the word ‘student’ is used, the word ‘person, participant, child, adult, boy, man, woman, girl,’ could equally substitute. The term ‘student’ can refer to any individual who is engaged a process of learning; of taking in

and processing new information and understanding it with the possibility of adapting it for future use. This is an important distinction to make, as I do not want to present an assumption that learning, and the subsequent transfer of learning, is limited in any way to students within a classroom context. Instead, I want to expand the 'classroom' to include any environment where learning can happen; contexts like the workplace, the home, the sports field, the city, the farm, the mountain, the library, the market, the church, the bathroom, the movie theater. The meaning of the word 'lesson' should be expanded to include any experience from which learning may result. An experience could include a relationship, a business transaction, reading a book, a hiking trip, a debate, a laboratory experiment, a team building game, watching a video, or running in the snow. These are important distinctions to make, in the sense that while learning occurs in the traditional school setting, the capacity for learning is not in any way limited to the formal school environment.

Chapter 2

Literature Review

Background on the current state of traditional education

Let's consider some perspectives on the traditional school situation in the United States. Postman and Weingartner (1969) began their classic diatribe outlining the problems in the American system of education by stating in the introduction of their book that,

School, after all, is the one institution in our society that is inflicted on everybody, and what happens in school makes a difference- for good or for ill. We use the word "inflicted" because we believe that the way schools are currently conducted does very little, and quite probably nothing, to enhance our chances of survival; that is, to help us solve any or even some of the problems we have mentioned." (p. xiii)

David Orr, professor at Oberlin College in Ohio, expresses quite a similar opinion saying, "Americans presently seem not to agree very much. However, they do appear to agree that public schools are failing badly. (1994, p. 35)

While problems with the educational system are bemoaned by many citizens of the United States across the spectrum of politics, economics, and race; there are some who feel that this attack is unwarranted (Rothstein, 1993). Rothstein disagrees with the idea that American education is failing, yet he finishes his article with a rally of a united push for improvement.

We have no reason to be complacent about schools' performance. No democratic society should tolerate adults who cannot interpret bus schedules or newspaper articles... A more effective approach would be praise for accomplishment, provision of additional resources to programs whose results justify support, and reforms on the margin to correct programs and curricula shown to be ineffective. (p. 34)

Rothstein goes on to make a convincing argument that public schools train students effectively for the job market, noting that we have more highly trained

people in the workforce than ever, many of whom are educated far beyond the requirements for their jobs. However, if all society needed today was an assurance that schools were preparing a secure, productive labor force to guarantee economic health, then school failure might actually be a myth; but today's schools need to go beyond merely training future workers. They need to teach more than just how to grasp the basics and how to jump through the hoops of standardized tests. In actuality, the current system's pursuit of high test scores may come at the cost of inadequate understanding (Newton, 2000).

In a world faced with increasingly complex issues, schools need to educate for situations that we are not yet able to anticipate. (Gardner, 1995) That means our children should be playing an active role in making sense of things, in "constructing reality rather than just acquiring knowledge." (Kohn, 2000) They deserve more than fragmented pieces of curriculum, more than just strategies for test taking, and more than the mere transmission of facts that move from teacher to student.

Considering the assembly line organizational structure, segmentation of subject areas, and assessment procedures that measure success in terms of productivity, it becomes quite obvious that the modern school developed alongside the industrial era. In line with this mechanistic view prevalent in that age, follow basic assumptions about learning that are still in place today. Schools still utilize common systems that assume learning is something that happens in the brain, that education should take place in the classroom, and that everyone learns in the same way. Regardless of the fact that many would agree that the educational process shouldn't run in accordance with this type of antiquated structure, these are principles inherent within in the traditional school system as it currently exists. (Senge et al., 2000)

What is life like beyond school? We live in an increasingly globalized world that looks toward technological innovation and economic efficiency to spur growth. The primary method of measuring how well this pattern of growth moves is by way of productivity, largely through economic development; in financial terms like Gross National Product, with little regard for the pressing environmental and social situations.¹

This brings us to many of the current problems that exist today; climate instability, the decline of biodiversity, and negative impacts on natural systems. (Orr, 1994) In addition there is the growing sentiment that these problems, even if fully understood, are viewed as either too large to change on the individual level or simply

someone else's problems to deal with. These global issues are related to collective behaviors and practices of individuals that can be reframed by an expanded view of the possibilities for education.²

Despite the heavy handedness of their comments in pointing out the problems of the current system, Postman and Weingartner were quick to state that, “[The state of education] can be changed, we believe, because there are so many wise men who, in one way or another, have offered us clear, intelligent, and new ideas to use, and as long as these ideas and the alternatives they suggest are available, there is not reason to abandon hope.” (p. xiv) A rather hopeful call to action for those who are equally concerned.

In a similar manner, John Dewey (1963) noted that it is pointless to continuously bash the traditional form of education simply to extol the virtues of another form, in his case progressive education. Dewey stated that it serves to advance neither the cause in question nor does it help in improving the general state of education that is delivered. The implication is that we must look for ways to make the situation better, rather than just sit back and complain.

Robbie Nicol, Ph.D., lecturer in the outdoor and environmental education section at Moray House Institute, the School of Education at University of Edinburgh, UK, agreed that we should continuously strive to improve the process. That we, as educators, should challenge ourselves to seek more effective methods of teaching that are grounded in a solid theoretical and philosophical framework balanced with tested and proven applications. (personal communication, April 10, 2006)

Some would argue that we should not teach for a particular purpose, we should just stick to the basics and remained unbiased in our approach. However, education is not divorced of feeling, emotion or purpose. In fact, it is precisely because of a calling and sense of urgency that education is effective. Nicol notes that concepts of knowing are socially constructed, so the process of education is never neutral. (personal communication, April 10, 2006) From the beginning of the process; in deciding what we teach, to how we teach it, we add our passions, values, concerns, and love. It is what motivates students and gives them incentive to find their callings to put to use the problems solving skills and base of knowledge that can be gained in education. In addition, if we hope that education serves a greater purpose in helping us, it must go deeper and cause us to deal with our fundamental convictions. (Nicol, 2001)

There is growing support for an approach to education that involves teaching students in a more connected way, so as to increase their ability to deal with complex issues they will face when they graduate and enter the real world. There is an unrealized possibility for education of all levels to understand the patterns and connections that individuals can create by teaching principles of community. (Capra, 2005). School reform should be rooted in figuring out how to live sustainably at a local and global level (Sobel, 2004) and should address “the responsibility of schools to communities that support them and to the planet’s life-support system.” (Kiefer and Kemple, 1999, as cited in Sobel, 2004, p. 16) Schools have the capacity to educate for personal, social, and intellectual development, as “all living systems develop, and all development evokes learning.” (Capra, 2005, p.27) This connective form of education contains the capacity to address how we relate to and rely on the natural world; learning how to live capable, purposeful, and whole lives in harmony with the environment. This is a fairly broad contrast to the current purpose in education which tends to view professional competence and earning power as a measure of success. (Orr, 1992)

The fundamental needs of humans, in general, may very well overlap with the search for a purpose in education. In an overview of problems in education, Orr (1994) pieces together some of these concepts in stating;

We need decent communities, good work to do, loving relationships, stable families, the knowledge necessary to restore what we have damaged, and ways to transcend our inherent self-centeredness. Our needs, in short, are those of the spirit; yet, our imagination and creativity are overwhelmingly aimed at things that as often as not degrade spirit and nature. (p. 33)

One approach in education that can begin to address the needs of people and connectedness with their surroundings is by teaching and learning through direct experience. The next section gives an overview on the principles of experience-based learning. A teaching perspective that “provides the opportunity for bringing greater understanding, deeper insight, and clearer meaning to those areas of knowledge... seldom experienced” (Hammerman, 1985, p. 10) by “instilling a sense of ownership over what is learned.” (Luckner & Nadler, 1997, p. 4)

Background on experiential education and experiential learning

The theoretical framework of experiential education can be traced back to the Greek philosophers who believed that the study of virtues was of fundamental importance so that students could become contributing members of society. This pursuit of knowledge, wisdom, and justice was through direct exposure to relevant and meaningful experience, with a high value placed on theory and reason. (Hunt, 1990) The pragmatist philosophy, associated William James and John Dewey, taught that learning through direct experience highlighted practical value, which was a valid test of theoretical worth, and that knowledge must be tied to action and doing. (Dahlgren & Szczepanski, 1998; Priest & Gass, 2005) The quote that may typify the Dewey approach to this type of education is: “An ounce of experience is better than a ton of theory simply because it is only in experience that any theory has a vital and verifiable significance.” (1916, p. 169)

The pragmatist ideas lean on groundwork laid by Comenius, the Czech ‘teacher of nations’ and ‘father of modern education,’ who advocated the use of authentic environments in seeking useful, practical knowledge. (Dahlgren & Szczepanski, 1998) In his work, *Didactica Magna*, his philosophy connects those of the Greeks and the pragmatists, and stretches beyond the classroom into nature, a feeling captured in the following passage:

The proper education of the young does not consist in stuffing their heads with a mass of words, sentences, and ideas dragged together out of various authors, but in opening up their understanding to the outer world, so that a living stream may flow from their own minds, just as leaves, flowers, and fruit spring from the bud on a tree. -Comenius

Dewey carried out the pragmatist philosophy in the form of progressive, experiential education in the United States, while others did so throughout Europe; like Ellen Key in Sweden, Jean-Jacques Rousseau and Johann Pestalozzi in Switzerland and Kurt Hahn in Germany and the UK. (Szczepanski & Nicol, 2005) More recent thinkers and practitioners in the field of experiential education include; Donald Schön, who advocated the need for reflective practices by both students and teachers, (Schön, 1983) Carl Rogers, who stressed the concept that experience forms the basis of all learning, (Beard & Wilson, 2002) and David Kolb, who provided

many conceptual models as the field of experiential learning expanded. (Higgins & Nicol, 2002)

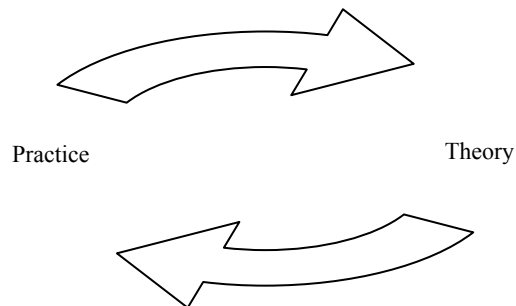
Experiential learning is a way of knowing through experience and occurs when an individual interacts with the surrounding environment and generates thoughts or ideas that may lead to insight. A critical component is the link between experience and the thought processes that follow. This phase, called, reflection is a form of mental processing from which results or consequences related to the encounter most first pass so that meaning can be created. (Beard & Wilson, 2002; Knapp, 2001; Luckner & Nadler, 1997; Priest & Gass, 2005)

The initial focus of experiential learning is in facilitation of activities which provide a basis for experience. Participants can then engage in the activity, reflect on the experience, and construct knowledge. (Knapp, 2001) Yet not all experiences are created equally. Purposeful interaction is the way to draw out memories, activate previous experience, and engage the senses. Learning demands use of prior knowledge and our subconscious ability to scan, filter, and sort information to interact with our surroundings. A key to experiential learning lies in the students' active participation in relevant, meaningful activities, to provide sufficient stimulus for the acquisition of knowledge. (Beard & Wilson, 2002) This acquisition may result in changes in beliefs, attitudes, behaviors, and understanding, as well as an increased capacity to perform skills and tasks. As Dewey stated, "when we experience something we act upon it, we do something with it; then we suffer or undergo consequences." (1916, p. 163)

Learning is a cycle of engaging in relevant experiences followed by some mental analysis, ranging from conscious consideration to subconscious processing. (Newton, 2000) There is a blend of practice and theory, where experience provides some type of action and reflection helps to develop the theory (Beard & Wilson, 2002; Boud, Keough & Walker, 1985; Higgins & Nicol, 2002) This loop feeds on itself, as shown in Figure 1., with the possibility that increased practice may result in a greater theoretical understanding, and a more solid grasp of theory may enhance future action.

Figure 1.

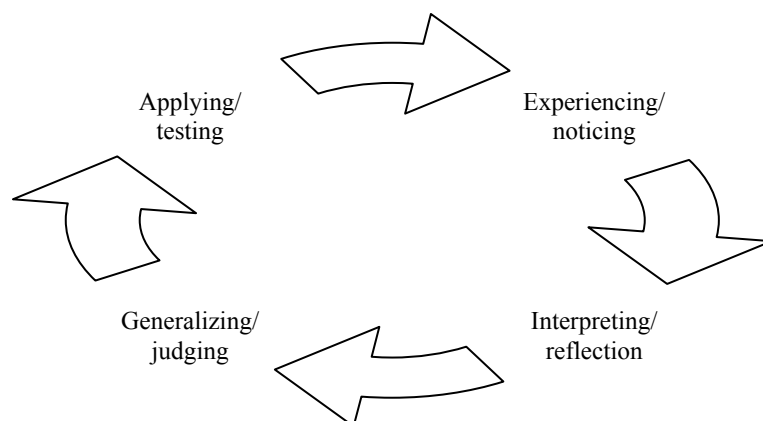
The theory and practice relationship



The experiential learning cycle, shown in Figure 2., was developed by Kolb using a combination of Dewey's pragmatic philosophy, Piaget's work in cognitive development, and social psychology from Lewin, (Kolb, 1999) who previously developed a learning theory feedback chart similar to that of Kolb. (Beard & Wilson, 2002)

Figure 2.

Kolb's experiential learning cycle (1984)



The steps represent the pathway by which the learner travels, or is guided, in a cyclical journey that continues to build upon itself. It outlines a simple framework to interpret the complex actions of the brain within the process. The implication that the steps in the cycle function as discrete entities can be contested as they likely overlap, with each separate step merging into one contiguous spiral. (Higgins & Nicol, 2002) Therefore, each time a new experience is initiated, whether a physical action or a mental challenge, the learner views events through a new set of lenses, with the ability to focus on the issue at hand in a different way. A student can consider the experience by looking back on what happened and reflect via introspection or as part of a group process. The intent, at this point is to “recapture (their) experience, think about it, mull it over, evaluate it” (Boud, Keough, & Walker, 1985, p. 19) in an attempt to draw conclusions or make connections. The student must move on to generalize the insights made and continue to search for deeper patterns that are associated with the previous experience-reflection links. The learner may then apply the acquired information and put it into action to test whether the generalizations make sense. The cycle continues as the student uses what is new background knowledge to engage in the next experience. (Luckner & Nadler, 1997)

The concepts involved in experiential education bridge quite naturally into learning settings that take place outdoors. The next section considers how education in the outdoors expands the possibilities for students to encounter unique environments that integrate relevant experiences into the learning context.

Background on outdoor education

Outdoor education has obvious roots in experiential learning, as they both focus on direct experience as the method of learning with reflection as a requisite follow up process. While experiential learning stipulates that meaningful experiences result in greater outcomes (Beard & Wilson, 2002), outdoor education moves a step further stating that authentic, natural environments in the outdoors provide the primary settings for these learning experiences. (Dahlgren & Szczepanski, 1998; Higgins & Nicol, 2002; Priest & Gass, 2005)

Priest (1986, as cited in Priest & Gass, 2005) identifies four relationships in outdoor education: interpersonal, intrapersonal, ecosystemic, and ekistic. Students develop relationships with others through participating in activities that demand, trust,

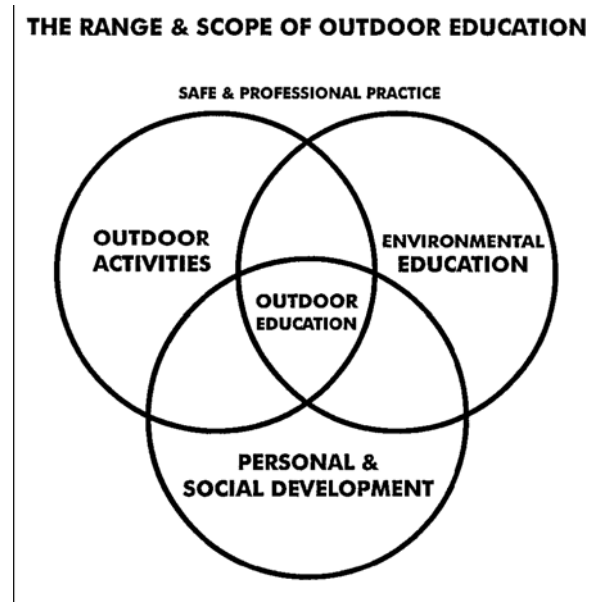
cooperation, and problem solving while providing the possibility for personal growth in gaining confidence and self-concept. Students experience relationships with the ecosystem and have the opportunity to see the interdependency of animals and plants in their habitats, as well as the interdependency of humans and their natural environments.

Outdoor education branches into the two areas of adventure education and environmental education (Priest, 1986, as cited in Priest & Gass, 2005). Adventure education often focuses on use of challenging outdoor activities to teach skills development through the process of completing group tasks like climbing a mountain or canoeing a river. Outcomes are often related to interpersonal and intrapersonal development. Environmental education tends to focus on the ecosystemic and ekistic relationships defined above. While adventure education can be implemented for the purpose of leadership development, skill improvement, or purely recreational pursuits and environmental education can be used to stress nature studies, they are not necessarily mutually exclusive. Educators can integrate various aspects of each branch to create learning objectives that combine different facets of the outdoor relationships.

Higgins and Nicol (2002) note that outdoor education connects the social, cultural, and environmental and places importance on “selecting an appropriate place for education as well as a technique or means of learning.” (p. 2) Again, an emphasis is placed on studying the relationships between people, places, activities and experiences. Higgins and Loynes depict the relationship of outdoor activities, environmental education, and personal and social development in the model of outdoor education shown in Figure 3.

Figure 3.

The relationship between the three dimensions of outdoor education as developed by Higgins and Loynes (1997)



Outdoor activities could include leisurely walks through the woods, hammering rocks to search for fossils, hiking a mountain ridge, examining coastal tide pools, planting a garden, writing in journals while sitting next to a creek, dramatic reenactment of an historical event at a local heritage site; or participating in more adventurous pursuits like kayaking or skiing. Environmental education could involve anything related to the study of social, cultural and/or natural conditions of a given area. Some examples could include the study of plant and animal life in a suburban watershed region, observing weather and investigating climate change, or looking at the complex political and economic connections in relation to air quality of the community. Personal and social development are factors affected by group problem solving challenges, individuals questioning their beliefs and opinions on difficult issues, and relationships established between teachers, students and the environments involved.

Hammerman, Hammerman, and Hammerman (1987) define outdoor education as a development in contemporary curriculum that enhances science, nature, environmental, and a variety of curricular areas while “using the outdoors as a laboratory for learning.” (p. 5) This extension of the classroom provides for direct experiences with ‘real life’ that relate to all disciplines of study, bringing together a learning community of teachers, students and others to “develop an optimum teaching-learning climate.” (p. 5)

By using location as a central focus of the teaching-learning process, outdoor education has the capacity to deal with some of the key pedagogical issues in education. (Dahlgren & Szczepanski, 1998) When a skilled teacher mediates the contact with natural and social phenomenon that exist in a given place, students can identify purpose in activities, develop meaningful communication with the teacher and other students, and take part within the process of learning. Dahlgren and Szczepanski (1998) consider this connection to location to be immediately relevant in providing a problem-based approach to learning.

Some obvious ties can be drawn between this approach and that of place-based education, which brings together the social and natural domains that exist within a particular community in the creation of an integrated classroom. (Sobel, 2004) The place-based approach puts the immediate surroundings of a community at the center of the outdoor learning environment. The emphasis is placed on linking student learning with the local, neighborhood environment to provide for meaningful connections in purpose and content.

In defining outdoor education, we have covered the issues of where it takes place, the role of the student engaging in meaningful experience, the need for reflection, and the ability to address diverse content areas; but what about the role of the teacher? Many outdoor educators view the role of the teacher as that of facilitator. As a facilitator, the responsibility of the teacher is to “stimulate and encourage” group and individual learning by “directing the process along educative paths. (Kalish, 1979, p. 75) Facilitation is viewed by Luckner and Nadler (1997) as the key to creating effective learning experiences. Priest and Gass (2005) see the role as vital in assisting learners in finding direction on the path towards functional change that is lasting and transferable.

Priest and Gass (2005, p. 189) categorize the general styles of facilitation within six generations that have grown and developed over time.

- 1.) Letting the experience speak for itself- learning by doing
- 2.) Speaking for the experiences- learning by telling
- 3.) Debriefing the experience- learning through reflection
- 4.) Directly frontloading the experience- direction with reflection
- 5.) Framing the experience- reinforcement with reflection
- 6.) Indirectly frontloading the experience- redirection before reflection

Some primary distinctions in the implementation of these styles deal with how involved the instructor is throughout the process and the time within the activity at which the instructor takes the lead in facilitating. Throughout the first three styles the instructor tends to take an increasingly greater role in debriefing experience, which usually happens after the experience. The initial style of leading students through an experience with no verbal reflection or review was known in the Outward Bound organization as letting the “mountains speak for themselves” (MST). (Bacon, 1987, n.p.) Thomas James (1980, as cited in Bacon, 1987) was one of the first to popularize use of the phrase and write about it in terms of the strengths and limitations of the MST approach. Of course, the key issue at hand is how transferable are the lessons when learned in such a style? Outward Bound and other outdoor education schools gradually added on to the MST approach by integrating the use of discussion in second generation facilitation, and with increasing use of reflection in the third generation.

The next three generations of facilitation styles are characterized by an increasing amount of involvement on the part of the instructor before, during and after a learning experience. Frontloading involves highlighting valuable points for students to consider before the experience takes place; sort of planting a seed before an event to provide some direction. The fifth generation deals with generating metaphoric ties between experiences and students’ real lives beyond the course, and instructors try to frame the experiences through the metaphoric connection. The final generation involves advanced facilitation techniques which are used very rarely in standard educational settings, and deal with integrating paradoxes into frontloading and reflection. (Priest & Gass, 2005)

The facilitation process can be viewed as the final catalyst for change. At certain points in the experiential education process, students experience states of tension between old ideas and new ways of thinking. (Luckner & Nadler, 1997) The facilitator's role is to assist the learner in navigating these zones of uncertainty. When teachers create environments for students to stretch beyond their comfort zones and test their beliefs, attitudes, skills, and what they know to be true, students can grow and change.

What happens after this learning process is complete? In theory, students are equipped with newly discovered insights and are ready to generalize and apply them to new situations. What follows is a look at what the literature says about the nature of how students take what they learn in applying acquired skills and concept to real life; in short, how students transfer learning.

Background on transfer of learning

'Students' have learned and transferred 'lessons' from the beginning of time; visualize Stone Age man first using a rock as a tool to crack open a nut, then later applying this knowledge to use the rock as tool to crack a skull for food or defense. On some level, the act of transferring learning has enabled survival and the evolution of the human race. Researchers in fields ranging from psychology to education tend to agree on the basics of what transfer of learning entails and on the overarching importance it holds for education and learning. The first formalized study of transfer of learning was initiated by Thorndike and Woodworth in 1901.

Haskell (2001, p. 23) explains that "transfer refers to how previous learning influences current and future learning, and how past or current learning is applied or adapted to similar or novel situations." Transfer is the active ingredient responsible for the most simple connections that are made on a daily basis and a primary mechanism in the greatest discoveries of human kind.

Barnett and Ceci (2002, p. 612) give an overview of the concept of transfer in their research article on the complexities of the issue by asking "can a ninth-grade honors math student apply knowledge of geometry to estimate the square footage of the family's home?" They continue by pointing out the relevance of the subject at hand. "These questions all involve the concept of transfer and learning and

knowledge. This concept is not a new one; the importance of this phenomenon for both everyday functioning and theory has been documented for more than a century.”

Broad (1997, p. 2) defines transfer as “the effective and continuing application by learners- to their performance of jobs or other individual, organizational, or community responsibilities- of knowledge and skills gained in learning activities.” While her focus relates mainly to transfer of training in the workplace, considered to be a more routine expertise which presents a narrow viewer of transfer, she acknowledges the obvious need for successful transfer of learning.

Perkins and Salomon (1992) generalize that any type of true learning must involve transfer at some level, while the student moves on to repeat the skill or exhibit understanding in a different context. They also argue that since the educational system at large operates with the hope that lessons transfer, then educational goals are not met unless transfer is achieved. One key problem with this scenario is that the greater difference between the learning context and the environment intended for application, the greater difficulty the learner will have in completing transfer. They add that, “Abundant evidence shows that very often the hoped-for transfer from learning experiences does not occur.” (1992, n.p)

So while there is a common held understanding in education that the issue of transfer is one of its primary objectives, there is a mounting body of research that suggests that in most learning environments it does not occur. Marini and Genereux (1995, as cited in Haskell, 2001, p. 13) note that “unfortunately, achieving significant transfer of learning has proven to be a difficult chore. Dating back to the beginning of this century, the research literature on transfer is replete with reports of failure.” Or in Perkins’s words, “The preponderance of studies suggest that transfer comes hard.” (1992, n.p.)

How is it that an issue so fundamental to the goals of education collide with such negative results? Haskell (2001, pp. 12-16) presents this as transfer of learning’s “double paradox”; that transfer is of utmost importance, but measuring the outcome is met largely with failure. Haskell addresses the importance of the issue and provides examples that elucidate the relative failure of education to result in the transfer of learning across an array of subjects including critical thinking, problem solving, logic skills, and economics and math courses. Gardner points out that even when schools seem to be on the right path of obtaining results, the majority of evidence shows that even “honor students in college-level physics courses are frequently unable to solve

basic problems and questions encountered in a form slightly different from that on which they have been formally instructed and tested.” (1991, p. 3) Yet despite this body of evidence, perhaps due to the seriousness of the need to accomplish transfer, there still exists some hope, if not optimism, that it can be achieved or at least attempted. At the conclusion of one of their articles, Perkins and Salomon conclude by stating that “a closer examination of the conditions under which transfer does and does not occur and the mechanisms at work presents a more positive picture. Education can achieve abundant transfer if it is designed to do so.” (1992, n.p.)

An overview on types of learning transfer

The literature is deep with information on different types of transfer, with varying levels of complexity. Tables 1, 2, & 3, shown on the following page, provide overview on types of transfer and their characteristics as outlined by Schunk (2004, p. 220), Ormrod (2004, p. 361-362) and Gass (1990, p. 202), respectively.

Table 1.

Types of transfer of learning and their characteristics as outlined by Schunk (2004, p. 220)

<u>Type of Transfer</u>	<u>Characteristics</u>
Near	Much overlap between situations; original and transfer contexts are highly similar.
Far	Little overlap between situations; original and transfer contexts are dissimilar.
Literal	Intact skill or knowledge transfers to a new task.
Figural	Use of some aspects of general knowledge to think or learn about a problem, such as with analogies or metaphors.
Low road	Transfer of well-established skills in spontaneous and possible automatic fashion.
High road	Transfer involving abstraction though explicit conscious formulation of connections between situations. Necessitates mindfulness.
Forward reaching	Abstracting behavior and cognitions from the learning context to one or more potential transfer contexts (a type of high road transfer)
Backward reaching	Abstracting in the transfer context features of the situation that allow for integration with previously learned skills and knowledge (a type of high road transfer)

Table 2.

Additional types of transfer from the field of human learning (Ormrod, 2004, p. 361-362)

<u>Type of Transfer</u>	<u>Characteristics</u>
Positive	Learning in one situation facilitates learning or performance in another situation
Negative	Learning in one situation hinders learning or ability in another situation
Vertical	Learner acquires knowledge or skills by building on more basic information and procedures
Lateral	Knowledge of on one topic that may be helpful, but not essential to learning another, related topic
Specific	Near and far transfer are a subset of specific transfer; they differ with varying degrees of overlap and similarity between situations
General	The original task and the transfer task are different in both content and structure. Also called non-specific transfer. (Bruner, 1960, as cited in Gass, 1990, p. 200)

Table 3.

Three theories of transfer in the field of adventure education (Gass, 1990, p. 202)

<u>Type of Transfer</u>	<u>Characteristics</u>
Specific	Learner takes habits and associations acquired from a previous experience and applies them to a new experience.
Non-specific	Learner generalizes the common underlying principles from a previous experience and employs them in a new situation
Metaphoric	Learner internalizes underlying principles from one experience, creates a symbolic structure of the event, and generalizes these principles to a situation that is contextually very different, but connected metaphorically. Metaphoric transfer is less a type of transfer than it is a method of enhancing transfer, a tool for facilitation “to highlight parallels between learning and future situations” (Priest, Gass & Gillis, 2000, p.112)

There is some obvious overlap between the types of transfer listed above. It is agreed upon in the literature that situations which are closer to near, literal, lateral and low-road transfer tend to occur more automatic and spontaneous, with a low need for attention or mindfulness for the transfer to occur. This also assumes that the contexts are very to somewhat similar and the activities share some commonality. However, as a learner is required to transfer concepts or skills in the opposite end of the transfer spectrum, the tendency for it to happen decreases, perhaps to the extent that it happens very infrequently, if at all. (Greenaway, 2001; Haskell, 2001; Ormrod, 2004; Perkins and Salomon, 1992; Schunk, 2004) The current view on transfer is said to be enhanced when a student uses metacognitive skills and engages in the practice of learning how to learn. In conclusion, the types of transfer that fall more towards a general transfer of learning theory, are likely to occur less often, while specific transfer is likely to occur more frequently.

Despite the difficulty in achieving and documenting general transfer, the attempt to teach for all types of learning transfer is vital to the outcomes of the educational processes. (Broad, 1997; Greenaway, 2001; Haskell, 2001; Ormrod, 2004; Schunk,

2004) Just as educational objectives are set out in advance, transfer can be planned for and integrated into learning contexts to enhance program outcomes for students. (Gass, 1990; Haskell, 2001) Michael Gass, an outdoor experiential educator and Robert Haskell, an educational psychologist, have each developed lists of principles to use in designing and implementing learning experience in order to promote transfer of learning, see Appendix A for reference.

Chapter 3

Methods

The purpose of the study was to look for evidence of how teaching for transfer of learning was built into a month-long outdoor experiential education course within a semester long study abroad program and to address the extent to which students perceived they made gains in their learning that might transfer for future use.

Research design

An ethnographic approach was taken, in the form of a month-long case study; as it involved following a group of participants in a natural occurring environment for the purpose of collecting data to develop an understanding of a process. (Bell 2005, p.17) The research strategy involved qualitative categorization of observation data, blended with simple quantitative analysis of observation, survey, and evaluation data. The qualitative data was coded and classified and also later served to assist in interpreting the quantitative information gathered. For quantitative data, only averages and standard deviations were determined. Detailed statistical analysis was not necessary as the purpose of the study was to explain the issues within this specific course, rather than to try and generalize results to other studies or courses.

Due to the small number of participants on the course; five students, 2 professors and 2 field staff members; methods of data collection and analysis were limited to manual collection methods. All nine primary participants read and signed informed consent agreements once they decided to take part in the study. (Appendix B) Sources of data that are later described and analyzed in the results section are:

Twenty-six days of observation notes; one sheet for each day of the course, each contains a hand-written record of all events, activities, and interactions of interest related to the study objectives and other emergent themes.

Results from the Student Assessment of Learning Gains (SALG) outcomes evaluation, related to learning gains that were achieved as a result of the course. The online evaluation was completed by students after the course ended.

My role as researcher

My position within the research could be described as an active participant and interactive observer. “Experiencing an environment as an insider is what necessitates the participant part of participant observation. At the same time, however, there is clearly an observer side to this process.” (Genzuk, 2003, p.2) I attended all daily activities, collected information in the form of observation notes, and spoke with participants in large groups, small groups and individually. In order to gain trust from participants and to integrate myself into the group, I assumed a role as neither instructor nor student. I engaged in social as well as content-relevant dialogue with students and instructors for the entire duration of the course, yet played a very limited role in group conversation and analysis in more structured settings. In traveling and residing as a member of the learning community for the duration of the course, I understood the possible affect of my presence on the course, but remained mindful of the duty to understand the experience so that I could accurately describe the process for outsiders. As an observer, I attempted to “put people at ease, dispelling notions of obtrusive research approaches; establishing [my identity] as an ‘ok’ person...” (Taylor & Bogdan, 1998; as cited in Nicol, 2001, p. 45) I frequently responded to inquiries about the nature of my research topic, yet revealed little about the guiding research questions, as they had not yet been determined at that point in time. Students were told that they could look at any observation notes written down, and on a few occasions students asked questions about different notes that were recorded.

Data sources

The five participants on the course were all American females in their third year of study, each enrolled in top liberal arts universities in the United States. All participants had previously traveled abroad for a duration of at least three weeks. Three of the participants had already taken part in a study abroad program for at least one semester. For four participants, this was the second course of their four courses in Thailand, and their first expedition field course with extensive time in rural areas. The fifth participant had studied at ISDSI for a semester in the fall and was returning for the spring to continue taking courses and was new to the group. All participants had previous experience in the outdoors and in camping and traveling through the landscape.

There were two professors on the course: a Thai lecturer specializing in social science issues related to sustainable development, and an American professor of chemistry and interdisciplinary ethics and ecology courses, who is also director of an environmental science program at a liberal arts university in the United States.

There were two field staff instructors on the course: an American, ISDSI program alum from 2000-2001 academic year with experience teaching leadership development and outdoor skills, and a Thai educator with a masters in Southeast Asian studies who was worked with the institute for two years facilitating cultural interactions and leading courses in rural areas.

Among the variety of other sources involved in facilitating the course were Thai language instructors, guest university professors, local villagers, community activists, home-stay families, and other sources of local and traditional knowledge.

The International Sustainable Development Studies Institute

ISDSI is an educational organization based in Chiang Mai, Thailand that teaches a blend of sustainable development studies and cross-cultural studies in the context of landscape based, academically focused experiential learning to university students, primarily from the United States. Mark Ritchie Ph.D. developed the People, Environment and Development program with support from and collaboration with Kalamazoo College's Center for International Programs. (ISDSI, n.d.) ISDSI hosts students from Kalamazoo College and other liberal arts universities for one or two academic terms with the focus on "sustainable development issues" that are "supported by two key enabling skills- cross-cultural competency (including language study) and expedition skills." (Ritchie, 2006, p.1) Courses are facilitated by professors, field staff, and local experts of Thai, American, and a variety of minority backgrounds and other ethnicities. The mission of ISDSI is to "develop committed leaders for a sustainable future, embedding education for sustainability within study abroad." (Ritchie, 2006, p.1) More information on the program and mission is located in Appendix C.

Procedure

The initial step was to determine how frequently and consistently the course designed and implemented principles that may promote or enhance transfer of learning. This issue was viewed through a framework adapted from combined work by psychologist Robert Haskell (2001) and experiential educator Michael Gass (1990). A decision was made to blend the information from these researchers into one consolidated research tool used for framing the aggregate observation data collected from the course. What follows is the adapted list of 12 principles to promote transfer of learning, along with explanations of each principle.³

The 26 days of observation were framed through the 12 principles for promoting transfer of learning. Each event or activity that was interpreted as fulfilling one or more condition of transfer was recorded as a principle satisfying event (PSE). The total number of PSEs for each of the four phases of the program was recorded. In many cases, one activity or event could satisfy one or more conditions of transfer, so one event could result in more than one PSE. In order to standardize the counting of PSEs, the process was run on the observation data three separate times and the averages were used to tabulate the final number of PSEs for each principle of transfer, for each course phase.

In appendix E there is a calendar overview of the course and appendix F contains a day-by-day account of the activities that occurred in each of the four course phases. Phase A is referred to as the in-town phase as it contained mainly frontloading of course content through classroom activities and language instruction. Phase B is the rural village home stay week; the course surveyed a major river and dam site and covered social and scientific related issues. Phase C was the river expedition and consisted of canoeing a relatively pristine river valley in a mountainous region. Phase D was the final four days of the course and consisted primarily of a drive back to headquarters and unstructured time. The results and discussion do not take into consideration Phase D, as very few PSEs were generated, as most of this period was used for individual paper writing.

In the results section, more is covered with respect to how the data was later sorted and reviewed.

The research tool: twelve conditions to promote transfer of learning

1. Design conditions for transfer- By integrating various steps prior to a learning experience, transfer from the experience to future implementation may be promoted. Some steps include having students set individual goals for their learning, agreeing on a commitment to change from participants, setting solid learning objectives for the course, and integrating experiences into the program that lend to transferability. (Gass, 1990)

2. Develop primary and general knowledge base- The course should integrate a serious depth in primary content areas so students can develop significant knowledge. In addition, general and interdisciplinary topics should be targeted so that content is integrated and connected. (Haskell, 2001)

3. Create a spirit of and motivation for transfer- Targeting the affective, emotional domain is necessary to develop meaningful connections to the experience. This also means creating a supportive learning environment and a culture that inspires and nurture students which can lead to a high level of motivation and meaningful implementation of knowledge in the future. A lack of support, on the other hand, may lead to inhibition of students and incomplete learning. (Haskell, 2001)

4. Create similar elements- Course design should set up learning experiences in environments as similar as possible to environments in which learners hope to put knowledge to use. “Learning experiences with strong applicability to future experiences have greater potential for a more positive transfer of learning.” (Gass, 1990, p. 204)

5. Include significant others- Including individuals who can play a significant role in facilitating and heightening the process may make it more meaningful to students. Some examples include program alumni, inspiring role models, experts in the field, and sources of local knowledge. (Gass, 1990)

6. Provide opportunities for practice- Offer unlimited opportunities to practice implementing skills, behavior, and understanding of knowledge in the transfer area. This can increase learners’ abilities as well as increase confidence. This can provide time for solving difficult challenges that might be causing problems. (Haskell, 2001; Gass, 1990)

7. Give responsibility and make consequences real- Place as many aspects of the program as possible under the responsibility of students with realistic consequences,

both positive and negative, that are natural and uncontrived. When students fully understand that outcomes are related to choices they make, they can see that accepting the consequences is their own burden. They can see the direct connection between how they perform and the benefits they attain. (Gass, 1990)

8. Teach and integrate theory behind the content- Along with developing primary and general knowledge in content areas, students should be able to grasp theory underlying the content. This includes developing the ability and practicing the skills of thinking in theoretical terms. By doing so, students may process and encode what they learn in transfer terms to apply theory to their practice. (Haskell, 2001)

9. Allow incubation time- Developing knowledge and integrating learning also requires time for reflection and processing; this requires a balance of unstructured time and guided reflection. It is a process that takes time and is individual. It is not at all instantaneous and sometimes requires significant time to pass before relevant connections can be made and transfer can occur. (Haskell, 2001)

10. Teach transfer and ‘masters of transfer’ thinking- Transfer may be promoted when students understand the history, nature and the process of transfer. By comprehending how transfer works, and by understand how individuals who are masters of transfer thinking apply and generalize knowledge in their discoveries, innovations, inventions, and systems thinking, students have tangible examples to witness and emulate. Haskell (2001) believes that poets are masters of transfer and Gass’ extended use of metaphors in facilitation (Priest, Gass, & Gillis, 2000) mirrors this concept of transfer. (Haskell, 2001)

11. Use methods for processing and internalizing- The program should employ methods by which students process experiences so they can internalize their learning. Students must be compelled to examine behaviors, skills and understanding within a learning experience to view how they can put them to use in the future. These methods should provide feedback, meaningful insights, and sharing connections made and can be guided by facilitation as a whole group or individually. (Gass, 1990)

12. Implement follow up experiences- After learning and practicing new sets of skills and behaviors students should have the chance to reflect and prepare for future practice opportunities to come. Designing a course that enables students to further utilize that they have developed reinforces learning gains, gives meaning to the subject and provides vision for future implementation.

The Student Assessment of Learning Gains

The Student Assessment of Learning Gains (SALG) was used to determine the answers to the following research questions:

What activities and experiences did students perceive as important in helping them make learning gains? What skills and concepts did students perceive they gained from the course? What gains did students perceive they will transfer into the future?

The SALG is an online tool that “provides instant statistical analysis of the results, and facilitates formative evaluation throughout a course.” (Seymour, Wiese, Hunter, & Daffinrud, 2000, n.p.) There is substantial research which concludes that administering classroom instruments based on student perceptions of the efficacy of particular teaching methods can be both valid and reliable (Hinton, 1993; as cited in Seymour, et al., 2000).

The SALG questionnaire consists of five general questions (and one open-ended response that was not used in this study), followed by statements to which students rate their level of agreement. The five general questions are structured into the SALG and the follow-up questions are created by the course instructor/s to fit the course goals, objectives, content, and other course-specific details. The five general questions of the SALG survey are:

- 1.) How much did each of the following aspects of the class help your learning?
Followed by 8 subcategories, 5 containing additional statements
- 2.) As a result of your work in this class, how well do you think that you now understand each of the following?
- 3.) How much has this class added to your skills in each of the following?
- 4.) To what extent did you make gains in any of the following as a result of what you did in this class?
- 5.) How much of the following do you think you will remember and carry with you into other classes or aspects of your life?

One of the instructors and I wrote the SALG questionnaire statements that were specific to this course. The complete SALG questionnaire and results are displayed in Appendix J.

In summary, the research addresses the design and delivery of the course in terms of how it might enhance transfer of learning and then ultimately determine the extent

to which students may “develop [as] committed leaders for a sustainable future.” (Ritchie 2006, p.1) In the appendix, there is a general description of the course from the first two pages of the syllabus (Appendix D), an overview of the 4 week schedule (Appendix E) and a day-by-day record of events. (Appendix F)

Chapter 4

Results

Principle satisfying events

The first part of the study focused on determining the quantity of transfer of learning principles that were satisfied by events that took place within each of the program's three major phases. Appendix G displays the aggregate data for the frequency and consistency of PSEs over the three key program phases across the entire program, along with the sums, averages and standard deviations. Appendix H displays graphs that illustrate this data for each separate program phase.

For the purpose of identifying trends in how frequently and consistently the program implemented activities based on the principles that promote transfer of learning, category criterion were defined.

Table 4.

Criterion for categorizing principle satisfying events

Frequent-	average of >19 PSEs per program phase and ≥ 57 PSEs total
Semi-frequent-	average of 10-19 PSEs per program phase and 31-57 PSEs total
Infrequent-	average of <10 PSEs per program phase and ≤ 30 PSEs total
Consistent-	standard deviation of <5 PSEs across three major program phases
Semi-consistent-	standard deviation of 5-9 PSEs across three major program phases
Inconsistent-	standard deviation of >9 PSEs across three major program phases

Applying these criteria to the PSE data, five categories emerged; frequent and consistent, frequent and inconsistent, semi-frequent and consistent, semi-frequent and

semi-consistent, and finally, frequent and consistent. Table 5, below, displays where each of the twelve principles promoting transfer of learning fell with respect to the five categories, and gives their appropriate frequency and consistency ranking. The numerals on the left indicate the order in which each principle was introduced earlier in the paper. A description of the most notable results that should be pointed out from the data takes place in the following pages.

Table 5.

Principles that promote transfer of learning and five categories of frequency and consistency with which each principle was implemented across the program

Category	Frequency Ranking	Consistency Ranking
Frequent & Consistent		
2. Develop primary and general knowledge base	1	5
Semi-frequent & Consistent		
1. Design conditions for transfer	8	8
5. Include significant others	8	6
6. Provide opportunities for practice	6	7
8. Teach and integrate theory behind the content	11	3
11. Use methods for processing and internalizing	5	1
12. Implement follow up experiences	10	4
Semi-frequent & Semi-consistent		
9. Allow incubation time	7	9
Frequent & Inconsistent		
3. Create a spirit of and motivation for transfer	2	10
4. Create similar elements	4	11
7. Give responsibility and make consequences real	3	12
Infrequent & Consistent		
10. Teach transfer and masters of transfer thinking	12	2

The most frequent and consistent principle that occurred during the course was developing a primary and general knowledge base in specific and interdisciplinary areas geared towards attaining course objectives. As illustrated in Table 6, this principle accounted for a total of 74 PSEs, with an average of 24.67 PSEs, and a standard deviation of 3.51 between phases. PSEs dropped slightly across program phases.

Table 6.

Complete data for the principle that promotes transfer of learning that was implemented frequently and consistently throughout the course

2. Develop primary and general knowledge base

Phase A	Phase B	Phase C	Sum	Avg	St. Dev.
28	25	21	74	24.67	3.51

Six separate principles fell under the category of semi-frequent and consistent. Table 7. lists the data for this category in order of their consistency rankings, and how they are discussed below. Integration of these principles ranged quite a bit in frequency from 52 PSEs to 36 PSEs across the entire program, yet remained fairly consistent across all three phases, as indicated by the relatively low standard deviations. Use of methods for processing and internalizing was the principle that had the highest rank of consistency of all transfer principles for the duration of the course, with a standard deviation of only 0.58 between phases and an average of 17.33 PSEs. Two additional principles occurred with a high level of consistency, as indicated by relatively low standard deviations include; implementing follow up experiences and teaching and integrating theory behind the content. Though consistent, each of these principles only generated an average of about 12 PSEs per phase, ranking 10th and 11th lowest in the program for frequency overall, respectively. While principles in this category were generally consistent across all phases, there was a slight decrease in the consistency of two principles; designing conditions for transfer and including significant others, when comparing between phases A and B. See appendix K for a display of the comparison of PSEs between phases across the entire program.

Table 7.

Complete data for the principles that promote transfer of learning that were implemented semi-frequently and consistently throughout the course

11. Use methods for processing and internalizing

Phase A	Phase B	Phase C	Sum	Avg	St. Dev.
17	18	17	52	17.33	0.58

8. Teach and integrate theory behind the content

Phase A	Phase B	Phase C	Sum	Avg	St. Dev.
13	14	9	36	12.00	2.65

12. Implement follow up experiences

Phase A	Phase B	Phase C	Sum	Avg	St. Dev.
11	16	11	38	12.67	2.89

5. Include significant others

Phase A	Phase B	Phase C	Sum	Avg	St. Dev.
9	16	16	41	13.67	4.04

6. Provide significant opportunities for practice

Phase A	Phase B	Phase C	Sum	Avg	St. Dev.
15	14	22	51	17.00	4.36

1. Design conditions for transfer

Phase A	Phase B	Phase C	Sum	Avg	St. Dev.
9	18	14	41	13.67	4.51

*principles listed in order they appear in text, according to consistency ranking

Allowing incubation time for reflection and processing was the only principle placed in the semi-frequent and semi-consistent category with an average of 14.33 PSEs and a standard deviation of 5.51, as shown in Table 8. However, in phase A, only 8 PSEs were generated; one of the lowest frequencies for any individual phase. The frequency of PSEs increased by more than double from phases A to B, and then maintained consistency through phase C.

Table 8.

Complete data for the principle that promotes transfer of learning that was implemented semi-frequently and semi-consistently throughout the course

9. Allow incubation time

Phase A	Phase B	Phase C	Sum	Avg	St. Dev.
8	18	17	43	14.33	5.51

Three principles, shown on the next page in Table 9., were categorized as frequent and inconsistent; create a spirit/motivation for transfer, create similar elements, and give responsibility/make consequences real. Interestingly, these ranked 2nd, 4th and 3rd, respectively, in terms of frequency across the entire program, but ranked 10th, 11th and 12th, respectively, in terms of consistency. This resulted from a large disparity in the number of PSEs that occurred when comparing phases A, B, and C. Appendix I displays these interphase comparisons. Create similar elements increased from eight PSEs in phase A to 21 PSEs in phase B and then remained high at 29 PSEs through phase C. Similarly, give responsibility/make consequences real increased from seven PSEs in phase A to 25 PSEs in phase B and then remained high at 29 PSEs through phase C. Both made dramatic increases from phase A to phase B, accounting for their high inconsistency rankings. On the other hand, create a spirit/motivation for transfer had a high average number, with 18 PSEs in phases A and 18 PSEs in B. The inconsistency was because the number of PSEs almost doubled to 35 in phase C, the highest for any single phase on the course.

Table 9.

Complete data for the principles that promote transfer of learning that were implemented frequently and inconsistently throughout the course

3. Create a spirit of and motivation for transfer

Phase A	Phase B	Phase C	Sum	Avg	St. Dev.
18	18	35	71	23.67	9.81

4. Create similar elements

Phase A	Phase B	Phase C	Sum	Avg	St. Dev.
8	21	29	58	19.33	10.60

7. Give responsibility and make consequences real

Phase A	Phase B	Phase C	Sum	Avg	St. Dev.
7	25	29	61	20.33	11.72

**principles listed in order they appear in text, according to consistency ranking*

The final category of infrequent and consistent belonged to only one principle; teach transfer and masters of transfer thinking, shown in Table 10. This principle occurred in PSEs five times in phase A, then decreased to four times in phase B, and ended with only two events in phase C. In summary, it was consistent only because it was the most infrequent, ranking 12th on the list.

Table 10.

Complete data for the principle that promotes transfer of learning that was implemented infrequently throughout the course

10. Teach transfer and masters of transfer thinking

Phase A	Phase B	Phase C	Sum	Avg	St. Dev.
5	4	2	11	3.67	1.53

It is important to note, once again, that PSE information for the fourth phase of the program was omitted from the discussion of results above, as these final four course days were primarily unstructured, and resulted in very few PSEs. There is

only one obvious exception that should be noted; that the principle of allowing time for incubation, did receive 7 PSEs, as there was much unstructured time over the final four days. The fourth part of the course, phase D, involved one travel day back to the headquarters in Chiang Mai and then three additional days of loosely connected activity. The final three days included a program assessment activity, time for paper writing and consulting with professors on an individual basis, and a two hour session where students presented their papers.

Student Assessment of Learning Gains

The next important focus of the research was to understand which aspects of the course the students perceived had the greatest affect on their learning gains and might transfer to be of use in the future. The results of the student assessment of learning gains (SALG) are listed in Appendix L. Again, the purpose of this survey that students completed at the end of the course was directed at determining what students felt they gained from the course from a wide variety of different areas.

Since there were only five participants, detailed statistical analysis on the assessment data was not run, as it would not provide results. Also, the purpose of the study was not limited to investigating aspects of this particular course, rather than trying to generalize to other courses. Averages and standard deviations were figured and a method of exclusion criteria was created concerning which responses to take into consideration. Responses with standard deviations above 1.00 were normally excluded from consideration, as it meant that there was some relative disagreement among respondents with the issue. The greater the average, the higher degree that students perceived the course affected their learning gains. In some cases, responses that generated a large standard deviation, also added some interesting discussion points.

Question 1, dealt mainly with the process and implementation of course activities and how various aspects helped their learning. Participants generally felt that the material was approached in a way that helped their learning (4.00) and that the way activities and assignments fit together provided a moderate help in their learning. They varied greatly in their opinion on the pace of the course. Participant responses to class activities tended to be divided according to the four program phases. Phases A and C, the first week in class and Yom River expedition, respectively, were

reported as more moderate in helping learning. Phase A averaged 3.40 and the group of activities in phase C ranged from 2.80 to 3.80. Phase B, the Mun River section, was reported as adding much help in learning, and represented a block of the highest averages, ranging from 4.00 to 4.60, and lowest standard deviations across the entire survey. Participants were greatly varied as to the effectiveness of the final paper and the presentation, as an aid to learning, which happened mainly during phase D.

Responses to reading resources as an aid to learning resulted in a wide degree of variation in opinions. Two readings stood out as most helpful to students; Silenced Rivers (4.20) and Thai Baan (4.20), while readings on mental models, ethics, global water, and stream ecology appeared to be less helpful, ranging from 2.20-2.80.

Participant opinions on the information given about various aspects of the course were rather moderate overall. One exception was with respect to learning records (which were assigned during phase A only) and students were in agreement that the information they were given about them were of little to no help (1.60). Two other notable responses were regarding the final paper/presentation and the Issan field briefing, as they generated a high degree of variance between participants.

Under individual support as a learner, participants generally agreed that quantity and quality of contact with instructors, including staff language instructors were of much help, ranging from 3.80-4.20. Participants also felt that the cultural orientation and awareness provided much to them as learners (4.00). It was reported that the way the course was taught overall was of moderate to much help to participants in their learning (3.40).

The next set of major questions in the SALG reflected whether participants perceived activities on the course as helpful in internalizing learning gains and in transferring these gains to use in other classes or areas in the future. Participants tended to agree in 11 of 12 categories for question 2. Understanding as a result of work in the course was highest in the following four areas; impacts of dams on community livelihood/survival (4.60), ideology/history/policy of dam construction (4.40), political struggles for community survival (4.00), and sociological dynamics related to river fishing (4.00), were reported by participants to help understanding from a lot to a great deal. Students reported that work in the class helped their understanding of mental models (3.00), environmental ethics (3.40), sustainable development (3.40), human/natural systems (3.80), and social movements (3.80) from somewhat to a lot. To a lesser extent, students perceived that work in class helped

their understanding of ecological (2.80) and hydrological (2.60) concepts from a little to somewhat.

In question 3, students generally agreed that the course was most helpful in adding or improving their skills in river expeditioning (3.80), listening and questioning (interviewing skills) (3.60), and living in the environment (3.60). Students also tended to agree that the course was somewhat responsible in helping them gain or improve the following skills; river surveying (3.20), working effectively with others (3.20), writing field reflections (3.00), discussing items in class (3.00), and to a lesser extent, Thai language ability (2.80). There was wider deviation in student agreement in the other areas, yet the course's ability to increase skills in leadership (2.80), reading texts (2.40), and preparing/giving presentations (2.00) was perceived as less strong.

Question 4 addressed students' perception of the course in helping them to make learning gains in more abstract and general ways. Across all 12 statements, responses averaged 3.15 and a standard deviation of 0.85, meaning that students seemed to agree that the course was somewhat responsible for learning gains in these areas.

Participants felt more strongly that gains in the following were made as a result of the course; appreciation and understanding of rural culture (4.20), making connections between culture and ecology (3.60), understanding how natural and social science relate to sustainability (3.40), and connecting with the landscape and natural world (3.40). At the bottom of the list, students felt that the course had little to somewhat of an affect in increasing their confidence to be a leader for change (2.60), feeling comfortable with complex ideas (2.40), and in their enthusiasm for learning (2.40).

Relating even more directly to transfer of learning, question 5 asked participants what learning gains they thought they would take with them into other courses or areas of life. The strongest responses (4.20 each) were adapting to new cultures and learning how to learn experientially. Students felt they were very likely to remember and carry these aspects of the course into other areas. They were also in relative agreement, that they would carry the following areas with them: formulating a personal ethic of sustainability (4.00), understanding the role of sustainability in environmental problems (3.80), living by and communicating your personal environmental ethic (3.60) and formulating an environmental argument (3.40). Finally, they reported that it was somewhat possible (3.20) that they could carry leading for social change with them into the future.

Chapter 5

Discussion, Recommendations, Limitations, and Directions for Future Research

Discussion

The following section includes a discussion of the results that were obtained from the PSE and SALG pieces of the research. The first aspect concerned observation data on the frequency and consistency of activities and elements in the course to implement principles that promote transfer of learning. The second concerned survey data on student perception of the extent to which these activities, elements, and the course as a whole, were able to generate learning gains which students might use in the future. This section considers student perception of learning gains as framed through the frequency and consistency of principles of transfer satisfying events. In addition, other factors that emerged during the course of the program that were relevant to discussion of the issues are taken into consideration to add contextual meaning to the data. The five categories used to organize the PSE data provide a structure to discuss the relevant themes that arose.

The five categories of frequency and consistency revisited

It was not surprising that the principle of integrating a depth of primary knowledge and breadth of related knowledge was implemented the most frequently and also consistently. The first phase of the course was frontloaded with five class days of lectures, seminars, class activities and discussions in the natural and social sciences, as well as in environmental ethics, systems thinking, and language training. A key focus was to prepare students adequately with background information for time spent in the field and to meet course objectives at the standard of top liberal arts schools in higher education. As a university study abroad program, this is an ambitious undertaking, as typical international programs courses tend to be light on content. The intense focus on academic content, whether in the classroom or in the field, was a salient feature embedded in the program, as documented by the first two pages in the course syllabus. (Appendix D) Students were expected to be conversant

and informed on articles from the 400 page course reader in order to contribute to group discussions and to integrate into their writing of learning records, field notes, and the final cumulative assignment.

Perhaps the most notable issue with the principle of developing a primary and general knowledge base is that the number of PSEs remained relatively consistent over the first three phases. While phase A took place in the classroom and was designated to frontload information and content, the design of the course integrated the aim of developing a knowledge base throughout the duration of the course. Throughout phases B and C, content was targeted in the field by attending activist meetings, traveling in the landscape, living in rural areas with villagers affected by social and environmental issues, interviewing key figures and agents of change, as well as through reading, writing, and discussing within the group. The SALG data supported the idea that content can be accessed in the field. Students reported that activities during phases B and C, the Mun River survey and the Yom River expedition, helped their learning to a greater degree than during phase A, which took place in class. (Appendix L) This dispelled a widely held belief in traditional education that content happens in the classroom, as students on this course agreed that they gained a great deal from learning in the field. PSE data revealed that instructors were able to create learning events could target an increase in students' levels of primary and general knowledge, and that students gained from these experiences.

Each of the three principles of transfer that fell into the category of frequent and inconsistent could be interpreted as having some affect on acquisition of primary and general content knowledge. During phase A, the transfer principle of learning in similar elements was extremely low when compared to phases B and C. Though a great deal of content was covered in phase A, students perceived this aspect to be less helpful in their learning, perhaps because similar elements that make learning activities meaningful and relevant were less existent, or at least less obvious. It could be argued that an advantage to classroom learning is that students can focus on the matter at hand without distraction, but a potential disadvantage to classroom study is that learning might not be as relevant or as applicable to the outside world. Learning in an environment separated from the source of the content might also make the experience less meaningful and thereby more difficult to remember or to apply.

There were two additional transfer conditions that were extremely low during phase A and increased dramatically by phases B and C that might have had an affect

on student perception of developing content knowledge. The principle of giving students responsibility and making consequences real increased by four times by phase B, and continued to increase into phase C. In a classroom, the setting is more controlled and predictable, and while the feeling of security might be important for certain reasons, the need to take risks and explore boundaries is definitely where meaningful learning happens (Taniguchi, 2004). In the field portions of the course, students were given a great deal more responsibility with natural consequences, which might have been a reason they perceived these phases as more helpful in their learning. Students had the responsibility to read and do assignments for class during phase A, a task to which they devoted a lot of time and one they took very seriously. However, it could be said that this was a responsibility that they had all experienced before, and one that they already developed the necessary coping mechanisms and strategies in order to succeed.

The principle of allowing incubation time doubled from phase A to B and then remained fairly constant. During phase A students took three hours of language in the morning and had a three and a half hour seminar session each day after lunch. With somewhat more unstructured time in the field, it might be interpreted that when students had more time to reflect and process in the later phases, they felt like they retained and learned more of the content. During the later phases, PSEs for incubation time doubled, but still remained low with respect to other areas.

Creating a spirit of motivation and transfer was the second most frequent principle satisfied in the course, yet was inconsistent in a different way than the two principles discussed above. This principle was satisfied fairly consistently to begin with, remained constant, and then doubled in the final phase. In going back to the PSE data coding sheets, it was noted that nine PSEs for this principle also satisfied conditions for methods for processing and internalizing. Three PSEs were related to interactive and emotional classroom discussions led by students, three were related to a holistic processing activity led by an instructor and three dealt with a group dynamics issue that emerged on the second day of the course. While it is quite common for a traditional course to contain spirited discussion among students, it could be considered less common for issues relating to group dynamics and holistic processing to be included. This interpretation could explain that, perhaps, due to use of processing and internalizing common in experiential learning environments, that

the creation of spirit and motivation for transfer during phase A is likely higher than would be anticipated for traditional approaches to classroom learning.

A more important question might be: What accounted for such a large increase in PSEs for spirit of and motivation for transfer in phase C? Again, after going back to the coded data it was found that a possible explanation for the large increase in events during phase C can be explained by an increase in the role of the designated leader of the day. This was evident by the fact that the PSEs related to leader of the day overlapped with responsibility and consequences as well as methods for processing and internalizing. Many of the remaining PSEs for spirit and motivation were directly related to the increased demand for students to work together while living and traveling in the landscape. A total of 13 PSEs in phase C related to cooperative activities that had the capacity to develop meaningful connections to the experience.

However, going back to the principle of development of primary and general knowledge, it is interesting to note that phase C, the Yom River expedition, was considered by students to be less relevant in helping their learning than phase B during the Mun River survey. Quite possibly the addition of so many cooperative activities during phase C, combined with the added stress of living in the landscape, accounted for a drop in the way students perceived this aspect as helping their learning. Events may have reached a point of diminishing returns, where demands on students outweighed the benefits.

As indicated in the SALG results under question 2, (Appendix L) understanding as a result of work in the course was highest in areas linked directly with activities related to the Mun River survey, including impacts of dams on community livelihood/survival, ideology of dam construction, political struggles for community survival, and sociological dynamics related to river fishing. While there were obvious overlaps in content across all phases, these events were most directly linked with phase 2 at the Mun River. The aspects linked with hydrology and ecology activities in the field took place mainly in phase 3, and received far lower ratings by students in the SALG survey.

Direct experience with the landscape and local people could be described as the resource utilized in developing concepts and skills in phases B and C. Students accessed these resources as primary source information which was sometimes facilitated by instructors and field staff. The text and articles in the course reader, sometimes mediated by the instructors, might be viewed as a method of accessing the

same type of information as a secondary source with more theoretical aspects added. When compared in this way, the students perceived that primary resources were more helpful to their learning (3.93) than secondary resources (3.26).

A final possibility must be considered as to why students perceived their learning to be helped by phases B and C more than the in class phase. A greater perception of learning might have been due to a higher total number of PSEs in B and C. Then again, it is also quite possible that students may have felt that being in the field, living in a rural village and canoeing with locals was simply more fun and engaging.

Only one principle, teaching background on transfer and masters of transfer thinking, was categorized as infrequent and consistent. For the sake of discussion, the principle of teaching and integrating theory behind the content is appropriate to include, as it was ranked 11th, and therefore among the least frequently integrated transfer condition. Interestingly, these two principles overlap in a key area, as they like within the domain of abstract thinking, problem solving, and connecting relevant issues. It was already noted that the course frequently focused on integrating content knowledge. Yet, how frequently and how well did students pull apart strands of knowledge, generate deep understanding, and then apply fresh ideas by connecting culture and ecology, social and natural sciences, or by viewing themselves within the context of sustainability issues? There are some responses in the SALG survey and in the questionnaire data that might help answer this question.

The SALG data that most directly related to course integration of transfer and transfer thinking are the statements that dealt with mental models, systems thinking, and ethics. As shown in question 1/F, article 1 and 2, students perceived articles on these topics were much less helpful with their learning as compared to other resources. (Appendix L) Article 12 also integrated systems thinking and ethics but interestingly, two respondents left this question blank or rated the article as not applicable. In question 2, statements 1 and 2, students perceived that they understood this type of thinking somewhat more as a result of the course, perhaps due to the nature of their experiences in the field, rather than from reading the articles. This is not a surprising conclusion. However, question 4, statements 6 and 8 are rated on par with the readings as only a little helpful in achieving learning gains. If students read articles and engaged in activities related to thinking through an argument and feeling comfortable with complex ideas, it seems that learning gains in these areas would also be strengthened. It is important to point out that the total number of events that

satisfied this condition of transfer were likely too few to stimulate significant learning gains in this domain. I suspect that researchers in the field of transfer would echo this statement unconditionally.

In fact, Haskell (2001) argues that the most critical condition for enhancing transfer is observing, and reading masters of transfer thinking. He provides many examples in history of people able how connect ideas and think outside of their discipline to solve problems, create innovations and develop entire domains of knowledge. Gass (1990) supports this idea from an applied perspective and focuses on promoting transfer through facilitating experiences by way of generating metaphors to generalize learning. Csikszentmihalyi (1996) presents case studies of individuals who made extraordinary advances in their fields and classifies them as master systems thinkers. Their ability to make “systemic interconnections among the events that happen on the planet” (p. 314) by transcending their disciplines to find insight “at the threshold between metaphor and natural law; read to move from poetic insight to systemic understanding.” (P. 316) No wonder Haskell classifies poets as “exemplars of transfer thinking.” (2001, p. 46) These are people who reportedly engage in an action-reflection cycle as their creativity unfolds (Csikszentmihalyi, 1996).

In the first seminar, at the beginning of the course, one instructor presented systems thinking and some learning theory in order to frame the journey they were about to begin. He tried to make clear his rationale for approaching the course from this perspective. At least two students later voiced their opinions that they did not feel these articles were very related to the course content. Perhaps from a strict disciplinary perspective, they might have been right, but in consideration of the ideas presented above, approaching a course designed to integrate domains of knowledge and generate problem solving within complex arenas, this was precisely the place to begin.

The next logical progression is to address the principle of developing theory behind content, moving from abstract concepts into a more practical arena. This is essentially how the course was designed, moving from classroom into the field. Going back to the SALG data, students perceived that the course helped them make learning gains in the area of connecting the issues. Students claimed the course best helped them to appreciate and understand rural culture, to connect culture and ecology, to relate social and natural science to sustainability, and to connect with the

landscape and natural world. These are all examples of connecting theory and practice. As the central focus at ISDSI is on culture and ecology, it was anticipated that students would perceive this to be the strongest aspect of the program. Looking at question 5, students noted that participation in the course was quite helpful in teaching them to learn how to learn experientially and how to adapt to new cultures. Using ISDSI's own terminology, these are vital "enabling skills" that provide a foundation from which students can develop a greater understanding of the connection between culture and ecology. Development of these skills may lead to heightened learning gains on future expedition field courses and to integration of this generalized knowledge later in life.

While research pointed to a consistent level of principle satisfying events throughout the course, the relatively low frequency of guided facilitation activities should be noted. A discussion of the issue of signposting vs. spoon-feeding took place during the instructor debrief of the course. The general consensus was that if connections and meanings must be spoon-fed to students, then the knowledge will be of little or no value, and should therefore not be done at all. I contend that conscientious students would agree with this assertion; as they would likely rather draw their own conclusions and tie together themes for themselves. A hallmark of good facilitating is in knowing when to hold back and let students figure things out, and when to post signs with just enough information that students can find a path leading to their own acquisition of knowledge. Skilled experiential educators know this balance all too well.

The next four highest rated outcomes were all related to understanding, developing and communicating a personal ethic of environmental sustainability. An interpretation is that students developed a foundation of concepts that supported their own position in the world with respect to culture and ecology. The SALG data suggests that students would be somewhat inclined in leading for social change (3.20) but had less confidence in their ability to be leaders for change (2.60) based on the gains they made as a result of the course. They reported moderate gains in confidence and independence (3.25), yet were divided in their opinion about gains made in leadership skills (ranging from 1 to 4); two areas in the survey related to becoming agents of social change.

At the time of the survey, four of the five students had been in Thailand for two months and completed only one expedition field course. I hypothesize that as these

students continue to develop enabling skills in future expedition field courses, they will have a more solid foundation from which to understand the theory behind the content, as well as a greater depth and breadth of knowledge to apply to field studies. This, in turn, may lead to an increase in their confidence and ability to develop more completely as leaders for a sustainable future.

Recommendations

On the basis of the results and discussion already presented in this research, I have created a summary of suggestions and recommendations for ISDSI to consider for the purpose of increasing the promotion of transfer of learning in future Human Rights and the Environment: Rivers, Dams, and Local Struggles courses. All of ISDSI's expedition field courses stem from the same philosophy and contain similar design and implementation strategies, so these recommendations may also pertain to their other courses as well. In addition, I also suggest that teachers in other programs that integrate outdoor experiential learning, in cross-cultural settings or otherwise, consider the following suggestions for increasing transfer of learning conditions.

Expand the use of systems thinking and more fully integrate the work of individuals who are masters of systems and transfer thinking into the curriculum.

Instructors need to find key figures in interdisciplinary fields of study that relate to course content, and could present case studies of how these individuals developed their own theories and show how they manifested in practice. Along with this proposition, comes the task of demonstrating the need for this integration to students. Unless students understand and accept the rationale for this approach, student buy-in will be minimal, which was a potential downfall in the use of the systems thinking and learning theory presented in the course studied. Use of key works could also be used across the entire EFC curriculum, displaying the interdisciplinary nature of the thinking, instead of isolating some of these articles to a single course within the program.

A more clear integration of the work of some of the following individuals could help in this pursuit. David Orr was a major influence in the development of expedition field courses at ISDSI (Ritchie, 2006) and his philosophy and approach to the nature of education would likely be motivating to students. With a more clear

understanding of the structure of EFCs, students might better realize their roles and gain greater perspective on the process. Required reading for the first day of the course included Aldo Leopold's *The Land Ethic*, Lily de Silva's *The Buddhist Attitude toward Nature*, and various sections on mental models and systems thinking by Peter Senge. These authors are unquestionably masters of transfer and system thinking, and the readings are varied interdisciplinary texts which bring together ecosystems, ethic and religion; perfect for inclusion in approaching a course with systems in mind. Yet for the reasons mentioned above, there needs to be a more hard hitting integration of these authors and their works, done so in a more practical way. Some possibilities include having students begin to develop their own ethic of sustainability, an activity to map students' perspectives of how they approach nature based on the way they were raised, working as a group to write a shared vision for the course, and using a mental models exercise to bring students to a greater awareness of the courses of our thinking. Finally, as Haskell (2001, p. 46) stresses that poets are masters of systems thinking, the use of writings by Arundhati Roy, some of which relate to rivers, dams, and people's movements could help students to make tighter connections, thereby increasing the possibility of transfer.

Increase culture and ecology connections in theory and practice by way of expanding methods for processing and internalizing, and implementation of follow up activities

Course facilitation, with some noteworthy exceptions, tended to be run in a first generation, MST style. Providing facilitation through processing and debriefing events in a more structured way may assist students to extract more meaning from their field experiences. More active facilitation may also provide students with reflection tools to help them increase their ability to process their experiences individually, modeling in a group what might later be done on their own. This can be done without crossing the barrier from signposting to spoon-feeding, in a way that the mountains do not "have to speak for themselves." Skilled instructors who have the ability in helping interpret the "language of the mountains" can mediate the experience and provide support for students ready to make breakthroughs in connecting culture and ecology.

One of the few mediated processing sessions took place around a small camp fire next to the river, after a long day of science field activities and a group dinner. A

reflection discussion was initiated by one of the instructors by asking the question, “Why do you think we live and travel in the landscape on this course?” Students responded with thought provoking and insightful replies. Most of them articulated connections between the watershed they were living and traveling within and the results of flooding that would take place if a proposed dam was built. It was a peak experience for some of them, and a conversation that three of the students later identified as instrumental in bringing together issues of culture and ecology. With perfectly timed, yet minimal instructor input, these students were guided towards making a vital connection in internalizing their experiences. In this circumstance, the spoon-feeding vs. signposting balance was well negotiated, bringing together the practice of moving through the landscape with students providing the theoretical support for the experience.

In a personal conversation with the executive director of the institute (February 9, 2006), I was told that at the institute’s core lays the mantra “culture and ecology.”

More specifically, that the thrust of the program revolves around generating experiences that lead to a greater awareness of the deep overlap between these dimensions that later involve a future call to action. We discussed the idea that students are likely to develop insight and understanding of the complexity of the issues during certain activities and experiences in the program. Efforts should be increased on the part of the teaching team to help spark moments where vital connections are made between the overlap of culture and ecology and act as anchoring points. These moments can be viewed as breakthroughs in thought; in some significant advancement in understanding that students can anchor to in the future to motivate, inspire, and influence them to become agents of change.

The culminating activity for the course was writing a paper and presentation linking the themes and outcomes and tying together experiences with scientific and human rights issues under the greater context of sustainability. In the first week students completed learning records and throughout the course they were also responsible for keeping field notes and a reflection journal. By the second week of the course, the primary emphasis for assessment became the final paper. While many attempts were made early on in the course to begin thinking about topics, students expressed a sense of struggle between “living in the moment” and thinking weeks into the future for a writing a final paper. Even though instructors were available and made individual meeting times for students, this provided only a certain level of

support, as students focused intensely on the end of the course. They viewed it as an activity associated with a computer in an office, rather than an extension of an activity that would bridge their experiences in the field with their learning. Late in the course, students even voted to end the course a day early to head back to the city to begin working on their papers; which gave them a total of three unstructured days to complete.

For assessment and culminating activities on future EFCs, I recommend developing a series of small, combined field activities instead of one final paper. By asking students to synthesize their experiences while still in the field, they are forced to think differently in terms of how they assimilate learning and convey their knowledge. Use of non-traditional techniques stimulate creativity and motivate students to show what they have learned, and may connect in a greater way with how students generalize their learning in the future. Students might be made responsible for performing a mock debate and play the roles of local business people, village leaders, community members, international investors, and activists in discussing the reasons for and against putting a dam in a nearby river. Students would need to display insight into the various stakeholders' perspectives and become actively involved in understanding how to apply their knowledge for the purpose of a stated goal.

I can almost hear students on the course respond with, "More activities? We had no time to do anything extra on the course!" Over the duration of the course, there were obvious tensions related to not having enough time to allocate to readings, experiences, reflections, and rest. I think that if the unstructured time in phase D (the return to Chiang Mai for paper writing) were applied to various instances throughout the course, time for these activities could be created. Bridges would be formed out of otherwise bumpy course transitions. Links would be created to connect the different changes in theme, location, and focus. It would also provide time for incubation of knowledge; a method of reflection, a time for students to allow tensions to settle, and a space to regroup and prepare for more.

I do understand that higher education courses are under institutional scrutiny to document student outcomes and to produce tangible evidence of learning gains. Learning records, field notes, and reflection journal can be used to support activities done in the field. In addition, students can be involved in developing a method by which they can provide "proof" of meeting learning outcomes. Some students might

be interested in writing editorials or even traditional papers; others might be more willing to convey their ideas in artistic ways. Regardless, students should have a role in determining how they convey their knowledge. For the purpose of promoting transfer of learning, students need to be involved in designing projects that are motivating, that force them to practice what they have learned, and that resemble how they might generalize their knowledge in the future.

Finally, facilitation can be viewed as a way to connect experiences through processing, which can take the form of in-formal, on-going assessment complete with instructor feedback of student progress. These steps can be instrumental in giving cohesion to course activities, connecting culture and ecology in theory and practice, and providing substantial methods of assessment.

Increase the use of student goal setting and include student agreement on a commitment to change

In an instructor debrief following the course, everyone agreed that students should be asked to create personal learning goals for the next EFC. This would give something personal for each student to focus on in their personal and intellectual development. I recommend that this practice become standard on all EFCs and be expanded to include an ongoing project for students in the creation of their own personal commitments to change.

First, it must be certain that students have a full understanding of ISDSI's mission and purpose, beginning with program recruitment. The ISDSI website displays very detailed information on their philosophy, approach to learning and commitment to sustainability in the context of culture and field studies. However, their application may give mixed messages that the program is focused more specifically on Thai culture and outdoor activities. There are three essay questions that applicants must answer that are geared specifically towards culture related issues and one page of questions dealing with previous outdoor and expedition experience. While these are integral to the course of study at ISDSI, a section in the application should address student attitudes, opinions, and backgrounds on issues related to sustainability. A section should be added to the application that asks students to address the mission of the institute including what it would mean to them to become a "committed leader for a sustainable future." This would cause them to look inward towards developing a personal commitment to change.

Once students are enrolled in the program and attending classes, there should be ongoing integration of personal goals and commitment to change. This would most definitely be included within each EFC, but should also exist across all courses as an overriding concept that surrounds what they are experiencing and learning at the institute and in Thailand. This might take the form of developing personal mission statements and could also include work towards something tangible they would like to put into practice once they return to their university lives at home. Through this pursuit, the program in increasing its design for transfer of learning, and making greater steps toward bridging culture and ecology and “developing committed leaders for a sustainable future.”

Continue to develop and implement internal assessment procedures and staff development to maintain a high level of program quality across courses

This research investigated conditions for transfer of learning by counting the quantity and consistency of events that took place, ISDSI would benefit from continuing internal procedures that focus on the quality of program implementation and delivery. As stated earlier, following each course, instructors and program staff meet and discuss strengths, weaknesses and things to be changed in upcoming EFCs. In addition, students have the opportunity to voice their opinions of courses by participating in an activity called “keep, drop, add,” and can help staff determine what can be improved, changed or even deleted from future programs. The program director stated that this process is an important tool in discovering which activities students perceive helped their learning. Students also fill out program questionnaires to put in writing their thoughts and ideas about program development and improvement.

I recommend continuing these types of activities to gauge internal assessment of quality. I want to add that these activities should be varied and reworked occasionally so that students and instructors don't become bored or tired of going through the motions of giving program feedback. The activities need to be obviously meaningful those involved so that they can see that their opinions are valued and worthwhile in establishing change. This aspect was obvious at the following of the course, but over time, if the same process is implemented, it might become less meaningful for all involved.

It is evident at ISDSI that field staff and instructors do a great deal of work together in planning and building courses. Guest instructors have also helped run staff development sessions to expand understanding of theory and content. I recommend this be expanded to include internal staff development to greater understand the role of transfer of learning and the conditions that promote generalization of knowledge. With an increased awareness of aspects of program design and implementation that can enhance what students will take with them and use in the future, instructors can know how to expand and alter the way they approach their teaching. In addition, it can serve to reinforce the reasons why program staff has decided to teach and work with students in this environment in the first place.

Limitations

The results of this study are specific to observations of an EFC that took place at ISDSI. The quantitative data was not collected in a way to generalize results to other groups, nor does it contain a large enough sample size to warrant statistical analysis to support generalization to the field of education at large. However, the observation and analysis was useful in developing a way to frame the consistency and frequency of principle of transfer satisfying events that occurred during this case study. The strength of using the case study method is that it may be useful in implementing program changes and improvements specific to ISDSI. The observation data, combined with student self assessment of learning gains provided a framework to discuss potential areas of improvement in design and implementation in Human Rights and the Environment: Rivers, Dams and Local Struggles courses at ISDSI in the future. It is hopeful that as a result of this research, there will be an increased possibility that learning gains may be transferred for use beyond the courses.

The list of tools of transfer was not developed with the intent to be implemented as a recipe or a checklist to follow, but as a group of principles held in mind in designing and implementing courses. One reason why I think it is effective in providing a lens through which to investigate conditions at ISDSI is because the institute is a well established organization that has already gone through internal investigation. The institute has also opened itself up to assessment and evaluation by outside groups including the National Outdoor Leadership School and the School for Field Studies; both leaders in the outdoor and experiential learning in North America.

For this reason, ISDSI is in a place in its development that it does not need to rely on a checklist approach to program improvement, but can be improved by measuring itself against educational methods and strategies that are academically sound in theory and in practice.

Finally, while the findings of this study are specifically geared towards one single course at ISDSI, it is evident that the same process may be used to implement changes and improvements across the ISDSI curriculum as a whole. In addition, other outdoor education programs that already have a sound foundation could consider addressing the areas recommended in this research with the understanding that possibilities for generalization are limited. Information may also be helpful to organizations that run programs similar to ISDSI, but generalizations must be made with care.

Directions for future research

As the concept of transfer of learning deals most directly with what students generalize and apply to future situations, additional longitudinal research might provide a method to investigate the effectiveness of courses at ISDSI over a long period of time. This could be done by attempting to measure the degree to which students perceive learning gains made on EFCs affect performance and learning on future EFCs. The fact that courses at ISDSI run on a month-long block format is conducive to examining what skills and concepts that were gained on one EFC become useful on future EFCs. While a cause and effect relationship would be extremely difficult to establish, students would be able to express their ideas about how they perceived specific activities as helping them to apply and generalize learning from one course to the next. At the very least, this type of investigation could provide a method of formative assessment for program improvement.

In keeping with the mission of the institute to “develop committed leaders for a sustainable future” it would also be worthwhile to begin an ongoing investigation with regards to how students implement their ISDSI experiences after returning home. By maintaining connections with students that finish the program, ISDSI can track what past students are doing and the extent to which they are putting into practice the skills and concepts they took from the institute. Again, while this information may be nothing more than anecdotal, a large body of information may produce significant insight into the nature and process of this type of education over a long period of time.

Chapter 6

Future issues for consideration

The final discussion point to present deals around an emergent theme that manifested itself and grew during the length of the course. It revolves around the idea of “space.” During the opening week of the course, students were assigned a reading that explored the idea of space as representing something other than merely a physical place. The piece urged readers to consider that space is also a socially constructed area of importance for a community to gather and share ideas in a deeper, perhaps more spiritual sense. Just as, say, a soccer field is a space for kids to come together for exercise, social interaction, and skill development; it is also a figurative space for parents and kids to interact and increase the feeling of involvement and investment in community. The act of working together, encouraging youth, engaging in conversation and interacting becomes a space for much more than just a simple game of soccer.

The idea that space exists as a “meeting place” in some form other than just a physical entity emerged early in the course. It became a central theme of conversation between one of the instructors and me and we developed an ongoing dialogue about how the discourse of space seemed integrally connected with some tensions that students were expressing during the course. The concept ties into some ideas about community presented by Parker Palmer; a writer, educator and senior associate of the American Association of Higher Education. One image of teaching that has guided his educational mission is his idea that “to teach is to create a space in which the community of truth is practiced.” (1998, p. 90) This image ties in with the following three aspects of space the course instructor and I defined; space as a physical location, space as an expression of time, and space as an intellectual arena. I will elaborate more on the idea of space as a framework for creating a place for students and teachers to learn.

Location as space

This is likely the most tangible aspect of the framework. The space for learning can exist in many forms; from lecture hall to laboratory to field study site. It is the

context that students or teachers agree to use for connection to material and, particularly for experiential learning, to bring together the learning team with experiences. For this particular ISDSI course, this type of space was created in the following examples: on a long tail boat upstream from a run-of-river dam, in a meeting house for youth environmental activists, in a communal bedroom at a rural home stay site, camped on the shore of a river slated for damming in the future, in a lecture hall at the government power plant facility, in a van moving across the countryside, at a weekend fresh market in a small town. The notion of space in this context is tightly associated with concepts of place-based education. (Sobel, 2004)

Course organizers have the initial responsibility to set up logistics for accessing and providing these spaces. In the example of the Human Rights and the Environment course, the Thai instructor spent months, including repeated visits, in developing and building connections with villagers and community leaders in order to set up this space as a learning context for students. A conscientious teacher then has the duty of framing the experience within that space; of uniting students with the learning environment and encouraging or motivating them to engage with what is available to them. Students then have the responsibility of taking advantage of these interactions in that space to make it meaningful and a sources of learning. Finally, teachers play an on-going part in monitoring these interactions, providing feedback, and facilitating the experience. Teachers must be sensitive in determining what types of tools need to be provided for students that have not yet developed the skills to interact effectively with this space for learning. It is naïve to assume that students intuitively know what to do when they are introduced to a learning environment.

Above, I listed a few examples of obvious spaces that existed for students, teachers and field staff to engage in place-based learning on this course. Perhaps, less obvious physical spaces that also must be considered, are those locations that students can use for reflection and unstructured time. Looking out over a mountain, sitting by a creek, surrounding an evening camp fire, or lying in a tent listening to crickets are all great places to think, to write, to talk or to process experiences in other ways. On this course, students listed these spaces as settings they used for reflection. They were fairly unanimous in their opinion that while these were great learning spaces, they lacked a different type of space that I will talk about next; that is space in terms of time.

Time as space

Haskell (2001) considers the allocation of time for reflection and contemplation as an incubation period. This can be viewed as a collection of spaces in time in which students can “go to” for working out ideas, for open-ended contemplation, or simply zoning out. For people who practice meditation, this might involve spending time devoted to consciously emptying the mind for the purpose of clearing space to become more centered or grounded. Many people share the common experience of developing breakthrough ideas while exercising, in developing an unconscious rhythm or flow to the physical body a parallel process might take place in the mind.

I contend that when people are aware of themselves and their surroundings and have developed practices and routines, they are more likely to seek out spaces in their minds for deliberating and pondering issues in their lives. Perhaps ironically, when individuals are out of sync with their environment or have not yet established methods to process experiences they are going through, they are less likely to know how to allocate spaces in time for figuring out what is going on emotionally or intellectually. Immersion into a foreign culture is very much one of the physical spaces in which this disconnect is bound to occur; precisely the reason for the tremendous possibility for individual growth and development.

There are roles that curriculum designers and instructors can play in setting up courses that provide spaces in time for these periods of incubation. In setting up courses, special consideration should be given to experiences that will likely result in highly emotional responses from students and staff. Spaces should be allocated to accommodate either structured processing events or unstructured time so that students can deal with issues that emerge as a result of the experience-reflection cycle. Instructors should be mindful of their demanding role, one which requires them to be “at once self-aware, observant of the group, sensitive to changing needs, and resourceful in directing the process...” (Kalish, 1979, p. 78) In this respect, the sensitive instructor can recognize when space for incubation outweighs the inclusion of yet another experience; as more is not necessarily better.

Intellectual space

There is much to be said of total immersion; to be engulfed by an experience to the extent that it surrounds one’s entire being can bring about foundation-shaking

changes. When this type of challenge is presented to students, staff and faculty take on the responsibility for dealing with the variety of issues that are generated. To shake up a person's beliefs without providing a space for managing and coping with the potential fall out would be considered irresponsible. I place the accountability for creating such a space directly on instructors, with some indirect liability on other participants within the program. I call this domain "intellectual space" as it is an arena where students should feel safe and comfortable to present emerging ideas, to voice opinions, and to respectfully challenge ideas brought forth by others. Within the intellectual space, the ideas of all participants should be brought forward and validated. Care should be taken, however, to separate ideas that represent beliefs and opinions from facts or truths. This shared responsibility falls on instructors and all participants, as the group needs to be able to challenge and provide constructive criticism for ideas that deviate from fact, yet give support to an individual who is wrestling with issues more related to behavior or personality. This takes a measure of sensitivity and tact, balanced with thorough knowledge and understanding of the subject area. An instructor must have experience in facilitating the divide between guiding students through the content and maintaining a positive environment for personal growth and exploration.

Closing

Personally, this investigation gave me a heightened awareness of the factors that must be considered in planning and implementing courses to enhance the transfer of learning. While these factors for increasing transfer should not be employed prescriptively, they should serve as a guide that is referred to in creating long term outcomes that go beyond a set of narrowly focused objectives. Those involved in teaching and developing curricula, in general, should gain benefit from considering the suggestions offered in the discussion that influence what students take beyond their courses. Since a primary purpose of education of all ages is to be able to apply learning gains to real life, whether the "classroom" is in the mountains, in a local park or forest, or enclosed under a roof within four walls; these factors should play a role in course planning and implementation. This approach, in the spirit of Johan Comenius, John Dewey, Ellen Key, Kurt Hahn and other leaders in outdoor and

experiential education “requires teachers who are well trained... a community beyond the walls of the school... And... a student body sufficiently motivated and responsible so that it can make the most of the opportunities offered and accept the responsibilities it entails.” (Gardner 1991, p. 195)

References

- AEE (n.d.). Retrieved April 20, 2006, from Association for Experiential Education web site <http://www.aee.org/customer/pages.php?pageid=47>
- Bacon, S. B. (1987). *The evolution of the Outward Bound process*. Greenwich, CT: Outward Bound USA. Retrieved October 19, 2005, from <http://wilderdom.com/html/Bacon1987EvolutionOBProcess.htm>
- Barnett, S.M., & Ceci, S.J. (2002). When and where do we apply what we learn? A taxonomy for far transfer. *Psychological Bulletin*, 128(4), 612-637.
- Beard, C., & Wilson, J.P. (2002). *The power of experiential learning: A handbook for trainers and educators*. London: Kogan.
- Bell, J. (2005). *Doing your research project: A guide for first-time researchers in education, health, and social science*. (4th ed.). UK: Open University Press.
- Broad, M.L. (1997). *Transferring learning to the workplace: Seventeen case studies from real world training*. Alexandria, VA: American Society for Training and Development.
- Bruner, J. (1960). *The process of education*. NY: Vintage Books.
- Capra, F. (2005). Speaking nature's language: Principles for sustainability. In M.K. Stone & Z. Barlow (Eds). *Ecological Literacy: Educating our children for a sustainable world*. (pp.18-29). San Francisco: Sierra Club Books.
- Cohen, S.A. (1987). Instructional alignment: Searching for a magic bullet. *Educational Researcher*, 16(8), 16-20. Retrieved January 27, 2006, from [http://links.jstor.org/sici?sici=0013-189X\(198711\)16%3A8%3C16%3AIASFAM%3E2.0.CO%3B2-%23](http://links.jstor.org/sici?sici=0013-189X(198711)16%3A8%3C16%3AIASFAM%3E2.0.CO%3B2-%23)
- Csikszentmihalyi, M. (1996). *Creativity: Flow and the psychology of discovery and invention*. NY: Harper Collins Publishers.
- Dahlgren, L.O. & Szczepanski, A. (1998). *Outdoor education- literacy education and sensory experience: An attempt at defining the identity of outdoor education*. Kisa, Sweden: Kunskapscentrum I Kinda.
- Dewey, J. (1916). *Democracy and education: An introduction to the philosophy of education*. New York: Macmillan.
- Dewey, J. (1938). *Experience and education*. New York: Macmillan.
- Ewert, A. W. (1989). *Outdoor adventure pursuits: Foundations, models and theories*. Columbus: Horizons.

- Ewert, A. (1996). Research in outdoor education: Our place on the porch. In L.H. McAvoy, L.A. Stringer, M.D. Bialeschki, & A.B. Young (Eds.) *Coalition for education in the outdoors*. Third research symposium proceedings. (pp. 7-8). Cortland, NY: Coalition for Education in the Outdoors.
- Gardner, H. (1991). *The unschooled mind: How children think and how schools should teach*. New York: Basic Books.
- Gardner, J.W. (1995). *Excellence: Can we be equal and excellent too?* NY: Norton & Company, Inc.
- Gass, M. (1990). Transfer of learning in adventure education. In J.C. Miles & S. Priest (Eds.) *Adventure education*. (pp. 199-208). State College, PA: Venture Publishing.
- Genzuk, M. (2003) *A Synthesis of Ethnographic Research*. Occasional Papers Series. Center for Multilingual, Multicultural Research (Eds.). Center for Multilingual, Multicultural Research, Rossier School of Education, University of Southern California. Los Angeles. Retrieved on March 27, 2006, from http://www-rcf.usc.edu/~genzuk/Ethnographic_Research.pdf
- Greenaway, R. (2002) How Transfer Happens. In *Organisation Development: Topical Papers No. 5, February*, 39-55, Brathay, Ambleside, UK. Retrieved on December 12, 2005, from <http://reviewing.co.uk/transfer/index.htm>
- Hammerman, D.R., Hammerman, W.M., & Hammerman, E.L. (1985). *Teaching in the outdoors*. Danville, Illinois: The Interstate Printers and Publishers, Inc.
- Haskell, R.E. (2001). *Transfer of learning: Cognition, instruction, and reasoning*. San Diego, CA: Academic Press.
- Hattie, J., Marsh, H.W., Neill, J.T., & Richards, G.E. (1997). Adventure education and Outward Bound: Out-of-class experiences that make a lasting difference. *Review of Educational Research*, 67(1), 43-87.
- Higgins, P., Loynes, C. & Crowther, N. (1997). *A Guide for Outdoor Educators in Scotland*. SNH: Perth.
- Higgins, P. & Nicol, R. (2002). Outdoor education in theory and practice. In P. Higgins & R. Nicol, *Outdoor education: Authentic learning in the context of landscapes*. (Volume 2) (pp. 3-14). Kisa, Sweden. Retrieved on September 13, 2005, from [http://www.kinda.se/web/kinda/internet.nsf/0/aa200509091224034104704386323668/\\$FILE/booklet2.pdf](http://www.kinda.se/web/kinda/internet.nsf/0/aa200509091224034104704386323668/$FILE/booklet2.pdf)

- Holman, T. & McAvoy, L.H. (2005). SEER 2004 Abstract. Transferring benefits of participation in an integrated wilderness adventure program to daily life. *Journal of Experiential Education*, 27(3), 322-325.
- Hunt, J.S. (1990). Philosophy of adventure education. In J.C. Miles & S. Priest (Eds.) *Adventure education*. (pp. 119-128). State College, PA: Venture Publishing.
- ISDSI (n.d.). Retrieved November 25, 2005, from Institute for Sustainable Development Studies web site <http://www.isdsi.org/about.html#who>
- James, T. (1980). *Can the mountains speak for themselves?* Un-published manuscript, Colorado Outward Bound School, Denver, Colorado
- Joplin, L. (1995). On defining experiential education. In K. Warren, M. Sakofs & J. S. Hunt (Eds.), *The Theory of Experiential Education* (pp. 15-22). Dubuque, IA: Kendall/Hunt Publishing Company.
- Kalish, K.R. (1979). *The role of the instructor in the Outward Bound educational process*. Kearny, NE: Morris Publishing.
- Kolb, D.A. (1984). *Experiential Learning: Experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice Hall.
- Kolb, D.A., Boyatzis, R.E., & Mainemelis, C. (1999). *Experiential Learning Theory: Previous Research and New Directions*. Retrieved on April 6, 2006, from http://www.medizin1.klinikum.unierlangen.de/e113/e191/e1223/e1228/e989/inhalt990/erfahrungslernen_2004_ger.pdf
- Knapp, C.E. (1992). *Lasting lessons: A teacher's guide to reflecting on experience*. Charleston, WV: Clearinghouse on Rural Education and Small Schools.
- Kohn, A. (2000). *The schools our children deserve: Moving beyond traditional classrooms and "tougher standards."* NY: Houghton Mifflin.
- Marini, A. & Genreux, R. (1995). The challenge of teaching for transfer. In A. McKeough, J. Lupart, & A. Marini (Eds.), *Teaching for Transfer: Fostering generalization in learning*. (pp.1-20). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Miller, R. (2005, January). *A brief introduction to holistic education*. Paths of Learning Recourse Center. Retrieved January 30, 2006, from <http://www.infed.org/biblio/holisticeducation.htm>
- Newton, D.P. (2000). *Teaching for understanding: What it is and how to do it*. London: Routledge/Falmer.

- Nicol, R. (2001). *Outdoor education for sustainable living?: An investigation into the potential of Scottish local authority residential outdoor education centres to deliver programmes relating to sustainable living*. Doctoral dissertation, University of Edinburgh.
- Ormrod, J.E. (2004). *Human Learning*. (4th ed.). Upper Saddle River, NJ: Pearson Education, Inc.
- Orr, D.W. (1992). *Ecological literacy: Education and the transition to a postmodern world*. NY: State University of New York Press.
- Orr, D.W. (1994). *Earth in mind: On education, environment, and the human prospect*. Washington, DC: Island Press.
- Palmer, P.J. (1998). *The courage to teach: Exploring the inner landscape of a teacher's life*. San Francisco, CA: Jossey-Bass.
- Perkins, D.N. & Salomon, G. (1992). Transfer of learning (A contribution to the *International Encyclopedia of Education*, 2nd Ed.) Oxford: Pergamon Press. Retrieved March 22, 2006, from <http://learnweb.harvard.edu/alps/thinking/docs/traencyn.htm>
- Postman, N. & Weingartner, C. (1969). *Teaching as a subversive activity*. NY: Dell Publishing Co., Inc.
- Priest, S. (1986). Redefining outdoor education: A matter of many relationships. *Journal of Environmental Education*, 17(3), 13-15.
- Priest, S., Gass, M.A., & Gillis, L. (2000). *The Essential Elements of Facilitation*. USA: Kendall/Hunt Publishing.
- Ritchie, M. (2006). *People, environment and development: Landscape based experiential studies of Southeast Asian ecosystems and cultures*. Retrieved April 15, 2006, from Institute for Sustainable Development Studies Web site <http://www.isdsi.org/news.html>
- Rothstein, R. (1993). The myth of public school failure. *The American Prospect*, Spring, 20-34. Retrieved March 10, 2006, from http://policy.rutgers.edu/faculty/coleman/RRothstein_The%20Myth%20of%20Public%20School%20Failure.pdf
- Schunk, D.H. (2004). *Learning theories: An educational perspective*. (4th ed.). Upper Saddle River, NJ: Pearson Education, Inc.
- Schön, D. A. (1983). *The Reflective Practitioner: How professionals think in action*. London: Temple Smith.

- Senge, P.M., Cambron-McCabe, N., Lucas, T., Smith, B., Dutton, J., & Kleiner, A. (2005). *Schools that learn: A fifth discipline fieldbook for educators, parents, and everyone who cares about education*. NY: Doubleday.
- Seymour, E., Wiese, D., Hunter, A.B., & Daffinrud, S.M. (2000, March). *Creating a better mousetrap: On-line student assessment of their learning gains*. Using real-world questions to promote active learning. Paper originally presented to the National Meetings of the American Chemical Society Symposium. Retrieved March 10, 2006, from <http://www.wcer.wisc.edu/salgains/ftp/SALGPaperPresentationAtACS.pdf>
- Sobel, D. (2004). *Place-based education: Connecting classrooms and communities*. Great Barrington, MA: The Orion Society.
- Szczepanski, A. & Nicol, R. (2005). *Defining outdoor education*. Unpublished manuscript, Linköping University, Linköping, Sweden.
- Taniguchi, S.T. (2004, April). *Outdoor education and meaningful learning: Finding the attributes of meaningful learning experiences in an outdoor education program*. Doctoral dissertation, Brigham Young University. Retrieved on October 29, 2005, from <http://patriot.lib.byu.edu/ETD/image/etd438.pdf>
- Thorndike, E.L., & Woodworth, R.R. (1901). The influence of improvement in one mental function upon the efficiency of other functions. *Psychological Review*, 8, 247-261.

Endnotes

¹ The kingdom of Bhutan uses Gross National Happiness Index as an indicator of progress and development, a concept introduced by the king in 1972. Other western European countries are developing models to also address this type of growth indicator that takes into account well being to determine the relative success of society rather than addressing only financial concerns. The four areas that comprise GNH are economic self-reliance, environmental conservation, the maintenance and promotion of Bhutanese culture, and effective democratic governance. Nadia, M. (2005, January 10). What about gross national happiness? *Time*. Retrieved March 22, 2006, from http://www.time.com/time/health/article/0,8599,1016266,00.html?primed=rss_top

² Orr suggests six principles for rethinking education that are “measured against the agenda for human survival:” (1994, p. 12)

- 1.) All education is environmental education; by content that either included or excluded, students are taught to be part or separated from the natural world.
- 2.) Education is about mastery of the self, not of the subject matter.
- 3.) With knowledge comes responsibility to see that it is used for good purposes
- 4.) One cannot claim to know without understanding the effects of knowledge on real people in their communities.
- 5.) Learning institutions must model integrity in teaching and practice as their students learn from them by their examples.
- 6.) The learning process is as important as the content. The process must take place in realistic contexts rather than isolated from the “real world.”

³ There was room for consolidation of the two pieces of research of transfer principles into one list as there was some degree of crossover between lists. Also, in four cases, aspects of a similar nature from Haskell’s list were combined into one new category and in four cases, two aspects of a similar nature from Gass’ list were combined into one new category. The merging of research also provided a more manageable group of variables through which to view and sort aspects of the course that could enhance transfer of learning. In doing so, the transfer principles were shortened from a list of 21 items to 12 items.

Appendices

Appendix A

Principles of transfer of learning according to Haskell (2001) and Gass (1990)

“Ten techniques adaptable to the transfer of learning” (Gass, 1990, pp. 204-207)

- 1.) Design conditions for transfer before the learning activities actually begin. Several steps can be done prior to a learning experience that can aid in the transfer of learning from an adventure activity.
- 2.) Create elements in the student’s learning environment similar to those elements likely to be found in future learning environments. Learning environments with strong applicability to future experiences have greater potential for a more positive transfer of learning.
- 3.) Provide students with the opportunities to practice the transfer of learning while still in the program.
- 4.) Have the consequences of learning be natural- not artificial. With artificial consequences the result of learning for transfer is extremely limited.
- 5.) Provide the means for students to internalize their own learning.
- 6.) Include past successful alumni in the adventure program.
- 7.) Include significant others in the learning process.
- 8.) Place more responsibility for learning in the program with the student.
- 9.) Develop focused processing techniques that facilitate the transfer of learning.
- 10.) Provide follow-up experiences that aid in the application of transfer

11 principles for achieving transfer (Haskell, 2001, pp. 45-46)

- 1.) Learners need to acquire a large primary knowledge base or high level of expertise in the area that transfer is required.
 - 2.) Some level of knowledge base in subjects outside the primary area is necessary for significant transfer. Peripheral knowledge often provides important links... that make it possible to engage in transfer.
 - 3.) An understanding of the history of transfer is vital. Without at least a general grasp... transfer may be inadequate. George Santayana said, “those who cannot remember the past are condemned to repeat it, and in transfer thinking... “those who cannot remember the past are condemned not to transfer their learning.” (As cited in Haskell 2001, p. 75)
 - 4.) Motivation or more specifically, a “spirit of transfer” is a primary prerequisite for transfer to occur.
 - 5.) Students need to understand what transfer of learning is and how it works.
 - 6.) An orientation to think and encode learning in transfer terms is necessary, for significant transfer doesn’t happen automatically
 - 7.) Cultures of transfer need to be created. To one degree or another, transfer is supported or inhibited by the group or culture in which learning takes place.
 - 8.) An understanding of the theory underlying the transfer area is crucial. Hours of practice and drill are requisite.
 - 9.) Significant transfer requires time to incubate; it tends not to occur instantaneously.
 - 10.) Finally, and most importantly, learners must observe and read the works of people who are exemplars of transfer thinking. This means reading systems thinkers, accounts of scientific discoveries, or invention and innovation; it means reading the great poets. Poets are masters of transfer.
- “Unless we adopt in some manner the eleven principles of transfer outlined above, we will at best continue to be limited to the lowest levels of simple transfer”. (pp. 47)

Appendix B

Participant informed consent and research description



LINKÖPINGS UNIVERSITET

Dear ISDSI Faculty and Students,

6 February 2006

My name is Michael Anderson and I am a graduate student in an international master's degree program entitled Outdoor Environmental Education and Outdoor Life at Linköpings Universitet in Linköping, Sweden. As part of the program, I will prepare a case study on an expedition field course at the International Sustainable Development Studies Institute, where you are currently a student or faculty member.

As part of my research, I am going to participate as an observer on the course *Human Rights and the Environment: Rivers, Dams, and Local Struggles* from February 6 through March 4, 2006. During this period, I plan on gaining information and insight on specifics about activities and experiences of the course and am asking for your assistance and permission in doing so. In general, I am interested in investigating how the design of the course blends experiential learning techniques with academic content, outdoor activities, leadership development and language/cultural studies. Methods of data collection will include various questionnaires for students and instructors before, during and after the course, semi-structured interviews, an on-going action research activity, as well as my presence on the course as an observer. In addition, I will request copies of students' field journals and final reflective essays at the end of the course.

All information and data collected while on the course will be used for the sole purpose of my master's thesis research with the intent of expanding the understanding of experiential learning in outdoor education settings. As willing participants, your confidentiality and anonymity will be maintained. During the course, you may ask any further questions regarding the nature of the research and you retain the right to participate in completing questionnaires and /or interviews as you choose. In addition, you may request a final copy of the thesis that results from my research.

After completion of the course, you may reach me for further questions by contacting me directly at my university email address: mican457@liu.se. You may contact my thesis advisor, Dr. Dušan Bartunek at his university email address: bartunek@ftvs.cuni.cz. Written communication with me and/or Dr. Bartunek may be sent to the Center for Environment and Outdoor Education at Linköpings Universitet, Linköping, Sweden 58183.

Thanks very much for your consideration and I look forward to spending time with you on the course.

Sincerely,

Michael Anderson

PARTICIPANT CONSENT AGREEMENT

I understand that my participation in this study is strictly voluntary and I may discontinue my participation at any time. I understand that the purpose of the study relates to design and implementation of outdoor experiential learning programs. I further understand that any information about me that is collected during this study will be held in the strictest confidence and will not be part of any permanent record. I understand that at the conclusion of this study all records which identify individual participants will be destroyed. I will be provided with a copy of this letter/participant consent agreement.

I have read the above and consent to participate in the research project listed above.

Participant's signature

Date

Appendix C

Summary of ISDSI and course description

People, Environment and Development

Landscape based experiential studies of Southeast Asian ecosystems and cultures

January, 2006

International Sustainable Development Studies Institute — www.isdsi.org

SUMMARY

The mission of the International Sustainable Development Studies Institute (ISDSI) is to develop committed leaders for a sustainable future. Our vision is to combine the best of cross-cultural study abroad with leadership development—focused on the study of people, the environment, and sustainable development. We believe that hands-on learning in a cross-cultural environment is the best way to help students understand the challenges of creating a sustainable future, and engender a commitment in them to be change agents in their future careers.

What distinguishes the ISDSI People, Environment, and Development program from both faculty led and the university-based programs is the “landscape-based” course design model. Drawing on the education for sustainable development work of David Orr and Roselyn McKeown, among others, the ISDSI program strives to take advantage of natural teaching opportunities that are “locally relevant and culturally appropriate” (Orr) rather than taking a curriculum developed in a North American college or university and trying to fit it to the Southeast Asian context. ISDSI offers courses designed and taught with the collaboration of the local communities and the non-governmental organizations that the students will be learning about, from and with.

Working in Southeast Asia with American, Thai and other students, ISDSI has developed unique “Expedition Field Courses” which allow the students to be immersed in field studies for weeks at a time. A strong academic focus on sustainable development issues is supported by two key enabling skills—cross-cultural competency (including language study) and expedition skills.

The most comprehensive program in Thailand, the ISDSI People, Environment and Development program has courses in every region of the country, representing every significant region in Thailand and Southeast Asia. These include upland (mountain) ecosystems and tribal communities, lowland villages, rivers, cities, islands and coasts.

Nationally recognized in the US as a “best practice” program by the Institute of International Education (IIE) in 2005, several things make ISDSI programs unique:

- The semester is a series of four courses, each one a month long “block”—one week on campus and then three weeks of field studies.
- The curriculum is landscape based—developed out of specific environments and cultures—to take advantage of contextually rich learning opportunities.
- Courses are collaborations between ISDSI, local communities and NGOs, ensuring that the program is both culturally sensitive and accountable.
- Cross-cultural skills, including language, are a key component of courses on the program.
- Expedition skills and leadership are required and taught as necessary during the courses.

ISDSI Expedition Field Courses are an innovative approach to studying ecology and sustainability within the context of cross-cultural learning. By participating in the program, students will become knowledgeable about sustainability, cross-culturally competent, and have the leadership skills to be change agents on their return home. (Ritchie, 2006, n.p.)

HUMAN RIGHTS AND THE ENVIRONMENT: Rivers, dams and local struggles

(Political Science/Ecology): This course examines how human rights and environmental rights are linked. Special emphasis is on communities and their access to forest and river resources, specifically the social and ecological impact of dams—one of the most important and contentious issues facing the developing world. Field studies may include monitoring of water quality, river travel, and extended time with local communities. Spring (Ritchie, 2006, p. 20)

Appendix D
Course syllabus



Human Rights and the Environment: Rivers, Dams, and People Struggles
 Political Science and Eco-hydrology of the Yom and Mun Rivers

People, Environment and Development Program
 International Sustainable Development Studies Institute

Feb. 6 – March 3, 2006

Instructors: Ajaan [redacted], Ph.D., Ajaan [redacted], M.A.

Course Overview

This course examines the linkage between human rights and the natural environment with a focus on the sustainable use of aquatic resources. A common theme of environmental classes (in contrast with ecology classes) is that environmental problems address conflicts among human values systems. It is rare when environmental management decisions leave ecosystem services intact and improve society's most disenfranchised peoples' lifestyles. In some cases, ecosystem processes are improved at the expense of the livelihood of the least powerful individuals in society. Often, ecosystem processes are compromised and the lives of individuals with little power are made worse. Though global examples where environmental sustainability is compromised are plentiful, the issues affecting human rights are more pronounced in Southeast Asia and countries of the "Global South." This class requires you to assess a broad range of issues in this area, including Third World environmental ethics, impacts of environmental destruction on local communities, local and national conflicts over resource management, and the articulation of people's environmental rights in everyday life and other issues.

We will be focusing on a specific and globally significant issue—the environmental and social impact of dams. After a week in the classroom learning about systems thinking, ethics, hydrology, ecology and human rights, we will focus our field studies on two river ecosystems—the Mun and the Yom. The Mun has been dammed, while the Yom has not yet been dammed. Both rivers have active community members working to restore or preserve their ways of life. The peoples whose lives depend on the Yom and Mun Rivers and whose lives have been impacted by construction of the Pak Mun Dam will be significant teachers for this course.

Most of this course occurs off campus. Students are required to be flexible and motivated learners, working to study and understand the class material through class readings and discussion, but most importantly, by reflecting on their day-to-day experiences. Seminars, discussions and scientific field study will take place in context. We will be traveling on both the Mun and Yom Rivers, and living and paddling with the local people. The Mun River in the Northeast and the Yom in the North of Thailand will be our classroom.

Objective

By the end of the course, students will better understand river ecology and hydrology as well as some major issues of human rights and the environment. Specifically, we will assess the origin of our western value systems and come to appreciate holistic approaches by thinking more systemically about the linkages between human livelihood and the river ecosystem, comparing western and local ethno-hydro-ecological knowledge, assessing the level of integration between natural science and social science perspectives, understanding the eco-hydrologic impacts of dam construction, and assessing the effectiveness and methods of grassroots movements in national-level politics concerning river development in Thailand.

Learning Outcomes

Students successfully completing the course will demonstrate competency in the following:

- Understand systems connections between social science (e.g. human rights) and natural science issues (e.g. riparian ecosystems)
- Understand how social movements have been used to affect riparian ecosystem management
- Understand the eco-hydrological impacts of dams

- Understand the Impacts of dams on community livelihood and survival
- Understand the political struggles for community survival and peoples' movements against unsound dam construction in Thailand
- Learn about the Ideologies, history, and policies of dam construction in Thailand
- Understand the sociological dynamics related to river fishing in Northeastern Thailand
- Compare western scientific-based resource management approaches with ethno-hydro-ecological knowledge of river resource utilization and management
- Gain skills for conducting simple biological, chemical and hydrological river survey methods
- Gain proficiency in river expedition skills, especially down-river canoeing and river navigation

Grading and Assessment

Participation	10 %
This means doing the reading, participating in discussions, and being an active member of the course.	
Expedition skills	10 %
This means being competent in working together in a group, sharing the leadership and being an active follower, as well as being able to safely travel and learn in the varied environments where the course takes place. This also means talking with local people at every opportunity. If you choose to hang out with fellow American students when you could be talking with a villager, you will not receive much credit.	
Learning Record	15 %
For full credit, you are required to write a two to three-page learning record each night in the first week of the course. Instructions for learning records are provided below. The latter assignments will carry more weight than the former so you can get used to the style.	
Field notes / journal	20 %
For full credit, you need to take legible, well-organized field notes. This is an important skill you will learn on the course. For full credit, you need to record in a consistent way what you are observing each day, and demonstrate that you are able to process and understand your experience. This includes lectures, seminars, guest speakers, course activities and explorations, etc.	
River Synthesis	
For full credit, you will write a thoughtful 10-15 page essay reflecting on a substantive question that incorporates scientific and human rights perspectives based on your readings, discussions and most importantly, your experiences on the two rivers and your learning from spending time with the affected communities. The paper should relate to the themes and outcomes for the course. The essay needs to include a discussion of the link between social aspects affecting human rights and how management decisions affect ecosystem processes and how these two related but often conflicting aspects relate to the broader issues of sustainability. The thesis of your essay should be supported with field observations, interviews and/or other supporting primary data. This also needs to be supported by reference to material from the reader for the course. The final paper will be submitted as a Word document in electronic format to both Ajaan Howard and Ajaan Jon.	
Outline	5 %
First draft	5%
Final paper	20 %
Final presentation	15 %
Each student will prepare a 10-minute presentation that describes their paper thesis. Comments and questions from the presentation should be used to improve your final draft of the essay.	
A note on learning records and field journals: Your journal and learning records need to be legible and neatly presented. It is VERY important that the instructor can read them with no difficulty within the constraint of time and environment during the EPC. If the instructor can't read it, it will not get graded!	

Appendix E

Overview of four week course schedule

Human Rights and Environment Course Schedule 2006

Sun	Mon	Tue	Wed	Thu	Fri	Sat
5 Feb	6 ←	7	8 Class at the Institute	9	10 →	11
12 Travel to Khon Khan – Ubonrat Dam	13 Seminar am. Travel to Ubon Meet host family pm.	14 Family day (fishing) Community History talk pm.	15 River study Dam site visit (down stream) People's movement: talk with villagers and AOP	16 Seminar at Ubon University am. Seminar with EGAT pm.	17 River study (up stream) Fishing village visit and study about local knowledge	18 Visit Baan Nontan: Grandma Hai 's case on Human Rights Pm. Cultural night and farewell party
19 Travel to Kang Sue Ten National Park	20 Writing and rest Paper due pm.	21 Travel to Don Chai village Talk with villagers pm. Talk with Youth at night	22 ←	23	24 River study Paddle Yom →	25
26 River study Paddle Yom →	27	28 Reach KST. National Park am. Writing and rest pm.	1 March Presentation am. Travel back to ISDSI pm.	2 Course debrief am. Gear return pm.	3 Instructor debrief	4

AOP: Assembly of the Poor

EGAT: Electricity Generating Authority of Thailand

KST: Kang Sue Ten

Appendix F

Day-by-day record of course events and activities

Phase A: In-town section at ISDSI Campus, Chiang Mai

2/6 Monday (day #1)

- Thai language classes, 3 hours in the morning
- Lunch on campus
- Course introduction and syllabus
- Seminar: Leadership Theory
- Seminar: Mental Models and Environmental Ethics
- Reading and learning record assignments

2/7 Tuesday (2)

- Thai language classes, 3 hours in the morning
- Lunch on campus
- Holistic check-in
- Seminar: Re-thinking Development Issues
- Seminar: Systems Thinking
- Reading and learning record assignments

2/8 Wednesday (3)

- Thai language classes, 3 hours in the morning
- Lunch on campus
- Holistic check-in
- Seminar: Energy, Global Water Supply, Water Cycle

- Seminar: Watershed mapping activity and Hydrology
- Group dynamics discussions- one on one

2/9 Thursday (4)

- Thai language classes, 3 hours in the morning
- Lunch on campus
- Holistic check-in
- Seminar: Biological and chemical aspects of riverine ecology
- Seminar: Water flow and river ecology
- Reading and learning record assignments

2/10 Friday (5)

- Thai language classes, 2 hours in the morning
- Thai culture discussion- question and answer hour
- Group lunch on campus
- Seminar: Human Rights in Action, videos and discussion
- Reading assignments, student led discussion
- Course briefing on Ubon/Pak Mun River section
- First Aid and medical briefing
- Course briefing on Phrae/Yom River section
- Packing and Equipment briefing

2/11 Saturday (6)

- Rest and individual preparation day

Phase B: Rural Village Section at Pak Mun Dam, Ubon Ratchitani

2/12 Sunday (7)

- Departure from Chiang Mai at 5:30am, leader of the day (LOD)
- Group breakfast in Lampang
- Van drive thorough northern provinces
- Group lunch in Phitsanuloke
- Van drive into Northeast (Isaan) provinces
- Arrive in Khon Kaen at UbonRat Dam at 6pm
- Group dinner

2/13 Monday (8)

- Morning dam walk, power generating office (LOD)
- Group breakfast
- Van drive through central Issan
- Group lunch in Khon Kaen
- Arrival in Ubon province at 5:00pm
- Drop off students with homestay families in Huay Hai Village, Ubon
- Group meeting and cultural briefing and Ubon week schedule overview
- First night with homestay families

2/14 Tuesday (9)

- Unstructured family day with students (LOD)
- Students walk to temple in the morning with moms

2/14 Tuesday (9) continued...

- Encounter with 3 government employees at the temple and in the village
- Debrief incident; instructor team, student group
- Afternoon group swim in Mun River tributary with village children
- Village elder meeting; history and question/answer session
- Briefing for tomorrow's activities
- Night with homestay families

2/15 Wednesday (10)

- 7am departure from village for Downstream Mun River Study (LOD)
- Walk across Pak Mun Dam, group discussion/site visit
- Lower Mun River/Mae Khong boat ride
- talk led by villager, Pi BoonMe from AOP
- Assembly of the Poor Headquarters- members planning for Bangkok demonstration
- AOP "way of life" museum
- Unstructured time and group lunch at AOP
- Attend AOP member large group meeting

- Group discussion, question/answer with AOP leaders/representatives
- Ajaan/student office hours, individual discussions about paper topics and unstructured time
- Return to Huay Hai Village
- Culture debrief/meeting of students
- Night with homestay families

2/16 Thursday (11)

- 7:45am departure to Ubon, main provincial town (LOD)
- Ubon Univ. lecture and discussion with Aj. Kanokwan
- academic perspective on Pak Mun case
- Group lunch, Isaan food restaurant
- Van drive to EGAT, brief students for EGAT meeting
- EGAT meeting with Khun P., public relations officer on Pak Mun case
- Van transportation return to Huay Hai Village via local town
- Night with homestay families

2/17 Friday (12)

- 7:00am departure from village (LOD)
- Ban Kor Dai for Upstream Mun River Study
- Fishing equipment talk and village walk, making tum baskets with Paw Suan Torn
- Group lunch in Kor Dai Village
- Upper Mun River boat ride and river survey, radio talk
- Stops at rapid areas and forest temple, conservation strategies/local space

- Return to AOP headquarters, "shared vision discussion" and check in with students
- Van ride back to Huay Hai Village to homestay families
- ANCHOR meeting- all instructor team and students
- Final night with homestay families

2/18 Saturday (13)

- 8am departure from Huay Hai Village and goodbye to homestay families (LOD)
- Van ride to Na Dan Village to meet Grandma Hai and her family
- Walk in field/former reservoir of Hai family lead by Grandma Hai's son Pi Du,
- Grandma Hai tells story of the family struggles/ followed by questions
- Group lunch with Grandma Hai and family
- Van ride back to AOP
- Unstructured time
- Students help prepare dinner in kitchen at AOP
- Group dinner
- Cultural night at Thai dancing and Isaan music performance
- Overnight in bungalows at AOP

2/19 Sunday (14)

- Early 4am departure from Ubon headed to Phrae (LOD)
- Group breakfast in Roi Et province, main town
- Van ride through Isaan

- Stop for long group lunch in Phitsanuloke
- Van ride to Phrae
- Stop for dinner at Lotus
- Van ride to Yom River National Park, Kaeng Sua Ten campgroups
- Group dinner- meet up with program director
- First night in tents

Phase C: Yom River Expedition, rural mountain region, Phrae

2/20 Monday (15)

- Morning field briefing for the KST campground area (LOD)
- Unstructured time for paper writing and meetings with profs.
- Group lunch
- Paper topic presentations, student questions and discussions; part 1
- Unstructured time for paper writing
- Group dinner
- Briefing for Yom River trip
- Paper topic presentations, student questions and discussions; part 1
- Night in tents at campground

2/21 Tuesday (16)

- Break camp, pack paddling gear and group breakfast (LOD)
- Van to Don Chai Village, Song district, Phrae province

- Unstructured time in Don Chai Village at local's house in town
- Meet Paw Med and Paw Sa-nguan
- Group lunch in Don Chai
- Assemble canoes, repair bamboo canoes
- Interview Don Chai Village leader on history of Don Chai and the Yom River issues
- Group prepares dinner and eats together
- Don Chai Village Youth Environmental Group meeting, discussion
- Night together in Don Chai Village

2/22 Wednesday (17)

- Pack paddling gear and canoes, drive to put-in location (LOD)
- Unload and prepare equipment for put-in
- Safety briefing, short paddling introduction
- Canoeing the Yom River, (2.5 hours)
- Group lunch- 3 villagers, students and instructor team
- Canoeing the Yom, (1hour), LOD decides on Camp 1 area
- Unload and set up camp
- Unstructured time- villagers/students make bamboo cups,
- Field briefing, hygiene in the woods, water pumping
- Stretching exercises
- Students and villagers make dinner/eat group dinner
- Students clean up
- Tomorrow's LOD is briefed, today's LOD debriefed one-on-one
- Night at Camp 1

2/23 Thursday (18)

- Up early with some rain, group breakfast and unstructured time (LOD)
- 9:30am class start- From Science to Common Sense article discussed
- Hydrology field activities- measuring flow, longitudinal stream survey, sampling macro invertebrates, learning river classification
- Unstructured time
- Students make dinner, group dinner, clean
- Group discussion; living and traveling in the landscape discussion
- ANCHOR meeting, students and instructor team
- Tomorrow's LOD is briefed, today's LOD debriefed one-on-one
- Second night in Camp 1

2/24 Friday (19)

- Up early with a few sprinkles, group breakfast and break camp (LOD)
- Load boats and group game before launch
- Canoe Yom River (4 hours)
- Group lunch, villagers fish, then clean nets
- Canoe Yom River (2 hours)
- Unstructured time
- Students make dinner, group dinner/ clean
- Tomorrow's LOD is briefed, today's LOD debriefed 1 on 1
- Unstructured time
- Night at Camp 2

2/25 Saturday (20)

- Breakfast and early morning walk to Teak Forest with Paw Sanguan (LOD)
- Break camp, load boats, depart
- Canoe Yom River (3.5 hours including some stops and canoe instruction)
- Group lunch, villagers fry fish they caught this morning, small forest burn here
- Canoe Yom River (2.5 hours) with a few stops to inspect camp site possibilities
- Choose camp site, unload, make camp at sand/rock Camp 3
- Group sets camp and pumps water
- Students prep group dinner, clean
- Group processing time led LOD, unstructured time
- Tomorrow's LOD is briefed, today's LOD debriefed one-on-one
- Night at Camp 3

2/26 Sunday (21)

- Up early, group breakfast, break camp, load boats (LOD)
- Canoe Yom River (4 hours with a few swim and rest breaks)
- Locate camp 4 in tributary, group lunch with roasted fish
- Unload boats and make camp
- Course and final paper rubric discussion

- Spear fishing demo and snorkeling, unstructured time
- Villagers prepare dinner, group dinner
- Unstructured time
- Tomorrow's LOD is briefed, today's LOD debriefed one-on-one

2/27 Monday (22)

- Relaxed morning, unstructured time, villagers go fishing (LOD)
- Discussion and interview of 3 villagers
- Group lunch prepared by villagers, rice prepared in bamboo
- Big group variety show; skits, songs
- Break camp and departure
- Canoe Yom River- tough rapid section, briefing on safety and paddling
- Group hangs out after final rapid, pictures and lao khao with the villagers
- Final paddle into KST main campground at Yom River National Park
- Unload boats, clean canoes, set camp
- Unstructured time, big group with villagers and park officials
- Group dinner and goodbye to villagers
- Unstructured time- students work on papers and meet w/ profs
- Tomorrow's LOD is briefed, today's LOD debriefed one-on-one
- Night at KST campground

Phase D: In town, Program Wrap up

2/28 Tuesday (23)

- Group breakfast (LOD)
- Break camp, pack canoes, load up equipment
- Unstructured time, most worked on papers or talked with ajaans
- Travel to Chiang Mai and Dinner in Chiang Mai
- Arrive at ISDSI, profs available for questions about papers
- Check and clean gear and equipment (Pi Kim)
- Unstructured time

3/1 Wednesday (24)

- Morning student and staff meeting at ISDSI; Keep, Add Drop debrief
- Rest of the day is unstructured for paper writing and completion

3/2 Thursday (25)

- Unstructured time for paper completion
- Evening student presentations

3/3 Friday (26)

- Unstructured time for paper completion
- Papers due by 5pm today

Appendix G

Aggregate data of PSEs over three key program phases

Aggregate data displaying the number of principle satisfying events that took place in each phase of the course

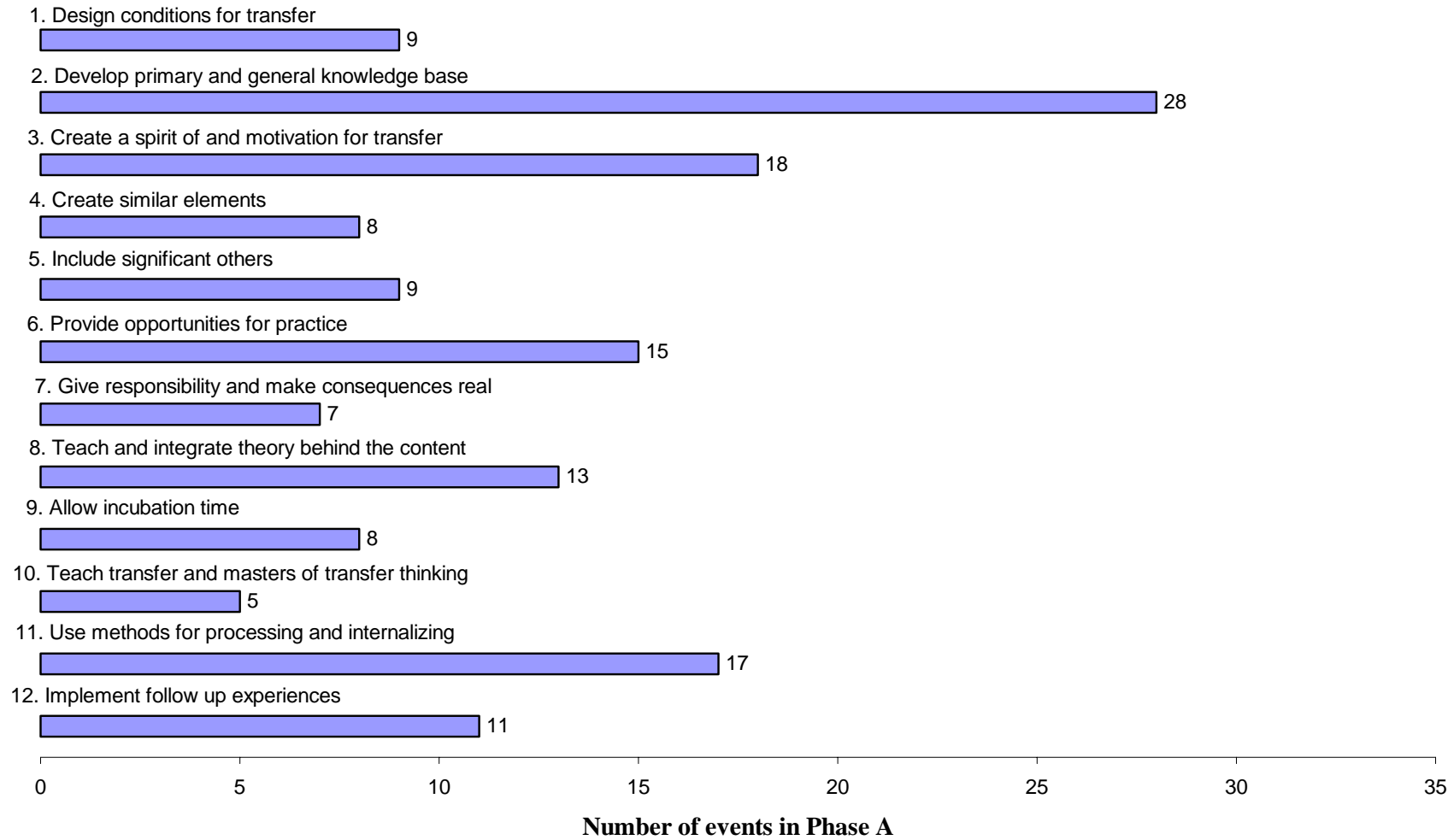
	Number of principle satisfying events that took place in each phase of the course			Totals across the 3 phases		
	Phase A	Phase B	Phase C	sum	avg	stdev
1. Design conditions for transfer	9	18	14	41	13.67	4.51
2. Develop primary and general knowledge base	28	25	21	74	24.67	3.51
3. Create a spirit of and motivation for transfer	18	18	35	71	23.67	9.81
4. Create similar elements	8	21	29	58	19.33	10.60
5. Include significant others	9	16	16	41	13.67	4.04
6. Provide opportunities for practice	15	14	22	51	17.00	4.36
7. Give responsibility and make consequences real	7	25	29	61	20.33	11.72
8. Teach and integrate theory behind the content	13	14	9	36	12.00	2.65
9. Allow incubation time	8	18	17	43	14.33	5.51
10. Teach transfer and masters of transfer thinking	5	4	2	11	3.67	1.53
11. Use methods for processing and internalizing	17	18	17	52	17.33	0.58
12. Implement follow up experiences	11	16	11	38	12.67	2.89
sum	148	207	222			
avg	12.33	17.25	18.50			
stdev	6.40	5.53	9.35			

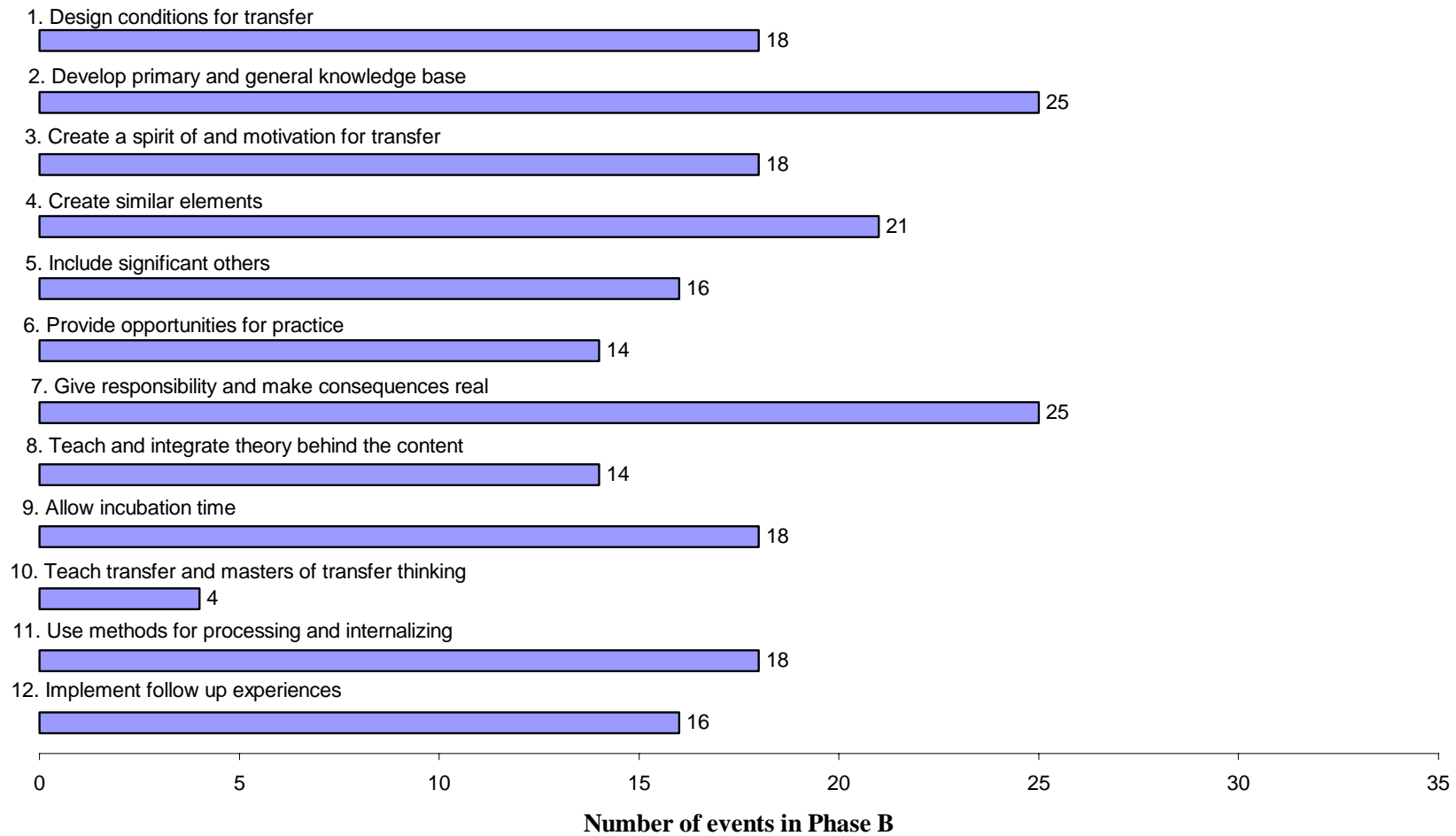
Appendix H

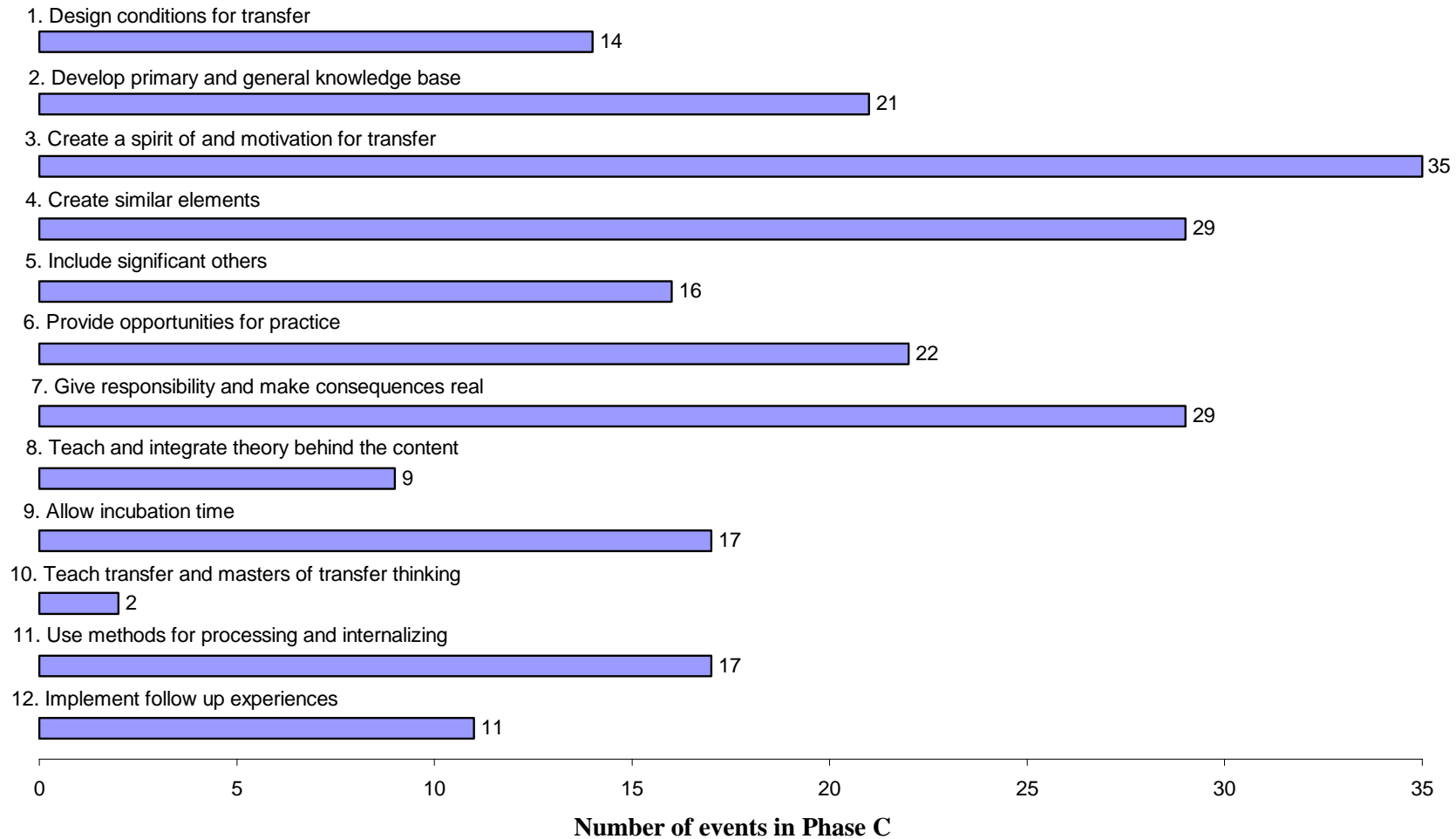
Graph of frequency of PSEs in Phase A

Graph of frequency of PSEs in Phase B

Graph of frequency of PSEs in Phase C

Frequency of events promoting transfer of learning during Phase A

Frequency of events promoting transfer of learning during Phase B

Frequency of events promoting transfer of learning during Phase C

Appendix I

Comparison of PSE frequency and consistency data
between three key program phases

A comparison of the frequency and consistency of principle satisfying events across principles that promote transfer between Phases A and C, Phases A and B, and Phases B and C

Comparing phase A and C

	Phase A	Phase C	avg	stdev
1. Design conditions for transfer	9	14	11.50	3.54
2. Develop primary and general knowledge base	28	21	24.50	4.95
3. Create a spirit of and motivation for transfer	18	35	26.50	12.02
4. Create similar elements	8	29	18.50	14.85
5. Include significant others	9	16	12.50	4.95
6. Provide opportunities for practice	15	22	18.50	4.95
7. Give responsibility and make consequences real	7	29	18.00	15.56
8. Teach and integrate theory behind the content	13	9	11.00	2.83
9. Allow incubation time	8	17	12.50	6.36
10. Teach transfer and masters of transfer thinking	5	2	3.50	2.12
11. Use methods for processing and internalizing	17	17	17.00	0.00
12. Implement follow up experiences	11	11	11.00	0.00

Comparing phase A and phase B

	Phase A	Phase B	avg	stdev
1. Design conditions for transfer	9	18	13.50	6.36
2. Develop primary and general knowledge base	28	25	26.50	2.12
3. Create a spirit of and motivation for transfer	18	18	18.00	0.00
4. Create similar elements	8	21	14.50	9.19
5. Include significant others	9	16	12.50	4.95
6. Provide opportunities for practice	15	14	14.50	0.71
7. Give responsibility and make consequences real	7	25	16.00	12.73
8. Teach and integrate theory behind the content	13	14	13.50	0.71
9. Allow incubation time	8	18	13.00	7.07
10. Teach transfer and masters of transfer thinking	5	4	4.50	0.71
11. Use methods for processing and internalizing	17	18	17.50	0.71
12. Implement follow up experiences	11	16	13.50	3.54

Comparing phase B and phase C

	Phase B	Phase C	avg	stdev
1. Design conditions for transfer	18	14	16.00	2.83
2. Develop primary and general knowledge base	25	21	23.00	2.83
3. Create a spirit of and motivation for transfer	18	35	26.50	12.02
4. Create similar elements	21	29	25.00	5.66
5. Include significant others	16	16	16.00	0.00
6. Provide opportunities for practice	14	22	18.00	5.66
7. Give responsibility and make consequences real	25	29	27.00	2.83
8. Teach and integrate theory behind the content	14	9	11.50	3.54
9. Allow incubation time	18	17	17.50	0.71
10. Teach transfer and masters of transfer thinking	4	2	3.00	1.41
11. Use methods for processing and internalizing	18	17	17.50	0.71
12. Implement follow up experiences	16	11	13.50	3.54

Appendix J

Student Assessment of Learning Gains aggregate data

Display of results from on-line student assessment of learning gains (SALG)

After completion of the course, all five students completed this anonymous assessment by responding to a set of statements related to 5 major questions. Q1 relates to the learning process and is followed by 8 subsections. Q2-Q5 relate to student perception of learning gains. Each is followed by 9-12 subsections.

Q. 1: How much did each of the following aspects of the class help your learning?

1=No help, 2=A little help, 3=moderate help, 4=Much help, 5= Very much help, blank= n/a

avg	stdev	
4.00	0.71	A. The way in which the material was approached
3.20	0.84	B. How class activities, labs, reading, and assignments fit together
3.00	1.22	C. The pace at which we worked
		D. The class activities
3.40	0.55	1. First week reading, discussions and learning records
4.40	0.55	2. Mun River: living with villagers and family day
4.40	0.55	3. Mun River: Downstream/Upstream site visits
4.60	0.55	4. Mun River:EGAT & Ubon University visits
4.00	0.71	5. Mun River: activism (Grandma Hai & AOP)
3.80	1.30	6. Don Chai Village: elder & youth discussions
3.80	0.45	7. Yom River: living and traveling in the landscape
3.60	0.55	8. Yom River: villagers and local/traditional knowledge
2.80	0.84	9. Yom River: hydrology and ecology
3.00	1.41	10. Final paper and presentation
3.78	0.74with 1 & 10 removed to isolate phases B and C
		Avg 3.93 Stdev 0.69
avg	stdev	F. Resources
2.20	1.10	1. Mental models/Systems thinking articles
2.80	0.84	2. Ethics articles
3.60	1.14	3. Post-Development article (Rahnema)
2.80	0.84	4. Global water (Ehrlich; Postel)
3.00	1.00	5. Hydrology (Leopold; Forsyth)
2.60	0.55	6. Stream & Aquatic Ecology
4.20	0.84	7. Silenced Rivers (2 chapters from McCully)
3.20	0.84	8. Videos of Mun River
3.40	0.55	9. Human Rights Articles
4.20	0.45	10. Thai Baan research article
3.40	0.89	11. Ubon University readings
xx	xx	12. Sacred Ecology readings (2 responses blank or n/a)
3.26	0.82	
avg	stdev	G. The information we were given about
2.80	0.45	1. ISDSI's mission in general
3.00	1.00	2. Background on sustainable development
3.20	0.45	3. Class syllabus
3.00	0.71	4. Course reader
2.20	0.84	5. Grading rubrics
1.60	0.55	6. Learning records

3.00	1.41	7. Final paper/presentation
3.20	1.30	8. Isaan field briefing
2.60	0.89	9. Yom River field briefing
3.20	0.84	10. Leadership and self-leadership expectations
3.40	0.89	11. Equipment/Gear list
3.00	0.71	12. Course Outcomes
2.85	0.84	

avg	stdev	H. Individual support as a learner
4.00	1.00	1. The quality of contact with ajaans
4.20	0.84	2. The quality of contact with field staff
3.80	0.84	3. The quantity of contact with ajaans
4.00	0.71	4. The quantity of contact with field staff
3.40	1.14	5. Discussions with peers
2.60	1.14	6. Emphasis on safety/risk management
4.20	0.84	7. Language instructors
4.00	0.71	8. Cultural orientation/awareness
3.60	0.55	9. Staff/faculty availability for individual support
3.76	0.86	
3.40	0.55	K. The way this class was taught overall

Q2: As a result of your work in this class, how well do you think that you now understand each of the following?

1=Not at all, 2=A little, 3=Somewhat, 4=A lot, 5=A great deal, blank=n/a

avg	stdev	
3.00	0.71	1. Mental models and systems thinking
3.40	0.55	2. Environmental Ethics
3.40	0.55	3. Sustainable development
2.60	0.55	4. Hydrological concepts
2.80	0.84	5. Ecological concepts
3.80	0.45	6. Relation between human and natural systems
4.00	0.71	7. Sociological dynamics related to river fishing
3.80	0.45	8. Social movements (activism)
4.60	0.55	9. Impacts of dams on community livelihood and survival
4.00	0.00	10. Political struggles for community survival
4.40	0.89	11. Ideologies, history and policies of dam construction
3.60	1.14	12. Connections between local and "western" (ecosystem) management strategies
3.62	0.61	

Q3: How much has this class added to your skills in each of the following?

1=Not at all, 2=A little, 3=Somewhat, 4=A lot, 5=A great deal, blank=n/a

avg	stdev	
2.40	1.14	1. Reading texts
2.80	1.10	2. Leadership
3.00	0.82	3. Discussing items in class
3.20	0.84	4. Working effectively with others

2.00	1.22	5. Preparing and giving oral presentations
3.60	0.55	6. Improving your listening and (interview) questioning skills
2.80	1.30	7. Using GIS and reading maps
3.60	0.89	8. Living in the environment
3.80	0.45	9. River expedition skills (navigation and canoeing)
3.20	0.84	10. River surveys (morphology, ecology and hydrology)
3.00	0.71	11. Writing field reflections
2.80	0.84	12. Thai language skills

3.02	0.89
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Q4: To what extent did you make gains in any of the following as a result of what you did in this class?

1=Not at all, 2=A little, 3=Somewhat, 4=A lot, 5=A great deal, blank=n/a

avg	stdev	
3.20	0.84	1. Understanding the main issues of sustainable development
3.40	0.89	2. Understanding how natural and social science relate to sustainability
3.20	0.45	3. Applying prior experience to new learning contexts
3.50	1.00	4. Understanding the relevance of this field to real world issues (1 response blank or n/a)
3.60	0.89	5. Making connections between culture and ecology
2.60	1.14	6. Ability to think through an argument
2.60	0.89	7. Confidence in your ability to be a leader for change
2.40	0.89	8. Feeling comfortable with complex ideas
2.40	0.55	9. Enthusiasm for learning
3.40	0.89	10. Connecting with the landscape and natural world
4.20	0.84	11. Appreciation and understanding of rural culture
3.25	0.96	12. Increased confidence & independence (1 response blank or n/a)

3.15	0.85
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Q5: How much of the following do you think you will remember and carry with you into other classes or aspects of your life?

1=Not at all, 2=A little, 3=Somewhat, 4=A lot, 5=A great deal, blank=n/a

avg	stdev	
3.80	0.84	1. Understanding the role of sustainability in environmental problems
4.20	0.45	2. Adapting to new cultures
4.00	0.71	3. Formulating your personal ethic of sustainability
3.60	0.55	4. Living by your personal environmental ethic
3.60	0.89	5. Communicating your personal ethic of environmental sustainability
3.40	0.89	6. Formulating an environmental argument
2.60	1.14	7. Writing to learn
3.60	1.14	8. Developing relevant questions
3.20	0.84	9. Leading for social change
2.80	1.30	10. Reading critically
4.20	0.84	11. Learning how to learn experientially

3.55	0.87
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REVIEW OF MASTER THESIS

Michael Laden Anderson

*Investigating Conditions for Transfer of Learning in an Outdoor Experiential Study
Abroad Course*

This thesis is a great example of explaining the process of learning. Main interest was focused to the whole process of transfer of learning which is the most important thing in learning and education. The work is of a quite high level of quality and the time for writing was very short. This study is quite special because the author did his research very properly and relatively deep. I have to say that author invested quite a lot of energy to prepare this research and run it as well spending time as an observer; especially when the course was in Asia – Thailand. The research itself has high value as well because the methods the author used were properly prepared by action pre-research as well.

The author showed his knowledge and orientation in this subject and knows a lot of important books as theoretical background and his aims and goals very successfully accomplished. The chapter *Review of Literature* and *Discussion* are compile references very well.

All thesis text is very well structured but the format is not perfect yet, regarding table of contents, and pages aren't clear for appendices and for web pages citations in the text. In the methodology chapter, there could be a more clear explanation of the SALG tool – more connected to process of research. All methodology part could have been better structured – more understandable – some introductions for smaller parts /questionnaires etc. Also chapter *Results* could be better structured. The results illustrated by Tables could be included as a results chapter – better for understanding- instead of as appendices.

I have some question for the author of thesis as answers I expect in examination time:

- 1) Do relevant or similar studies exist? If yes, what are their results?
- 2) How much can we believe that the results are objective for explaining transfer as learning from longitudinal overview?
- 3) In the thesis, the definition of outdoor education is used studies only by Dahlgren and Szczepanski, Higgins and Loynes. What about the American approach?
- 4) Do real connections exist in your research/results and Kolb's learning cycle? And if so, in which phases? Could be nice to illustrate it.
- 5) What is more appreciated by participants as outcomes – experiences or learning outcomes?
- 6) Is it “*outdoor*” way of learning really effective – compare with the other ways? Is it possible to illustrate this by results from research?
- 7) Do you have some recommendations for this sort of expeditions for better and more effective transfer of learning?

This thesis is finally very interesting and brings great results from very properly research. Finally, I recommend this thesis for examination.

Dusan Bartunek – thesis advisor

5th of June 2006 – Ovcin – The Czech Republic

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REVIEW OF MASTER THESIS

Michael Laden Anderson

*Investigating Conditions for Transfer of Learning in an Outdoor Experiential Study
Abroad Course*

The transfer of knowledge is fundamental to all kind of education and therefore this thesis is of great interest.

It clearly has been hard work to accomplish this thesis. The introductory chapters show that the author has good knowledge in this field. It is apparent that he read, and thought, a lot about this subject. In addition planning and conducting the study under field conditions adds to the effort. For this reason, it pleasing to see that the result from the research is of good quality.

The report is all in all very well written and organized. But nevertheless, there are some aspects that could be considered to improve it. Considering organisation of the text, I find that use of different font size, or bold letters, makes it easier to separate headlines from text. The table texts are short. Explanatory texts would make it easier to understand the tables without having to go back to the texts. The presentation of results could be refined. Some graphs and tables, not necessarily the same as presented in the Appendix, would have been a good complement to the text and made it easier to take in the results.

Chapter 6 made it clear that the author not only observed the course but also gained personal knowledge and formed new thoughts about the importance of space in different context. It is an interesting text, but does it contribute substantially to the thesis? Perhaps it is my background in natural sciences, in which concise report writing is characteristic, which makes me think that it gets a lot of space and might be a bit outside the initial objectives of the thesis.

Questions for examination

- One of your guiding research questions was: “How do students perceive they will transfer newly acquired concepts and skills into their future pursuits?”. Explain how the questions asked answers this question.
- Would it been possible to merge the result from PSEs and SALG into some kind of table or graph?
- One of the programs ambitions is to “developing committed leaders for a sustainable future.” Do you think the goal in terms of educating leadership was reached? If the answer is no, what could be improved to reach that goal?
- In my mind learning should be enjoyable. Therefore, the SALG result 2.40 in “Enthusiasm for learning” is a discouraging. Any suggestions to improve that score?
- You are writing about “unstructured time” as time for incubation and reflection. Do you think “unstructured time” is best for that purpose or would it possibly be better with “structured time” for the same purpose?
- In your experience, what is the best way to make this kind of expedition field courses to good education and not just nice trips to Asia with semi-academic objectives?

I congratulate you to a thesis well done and recommend this thesis for examination.

Björn Johansson – thesis opponent

7th of June 2006 – Brodalen – Sweden

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