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An Application of a Modified Experiential Learning Model for a Higher Education Course: Evidence of Increased Outcomes

Mark F. Roark
Utah State University

Jonathan C. Norling
Lyndon State College

This case study applied a modified Experiential Learning Theory (ELT) model in an undergraduate outdoor recreation management course. The Kolb (1984) ELT model was modified to accommodate the higher education learning processes suggested by L. B. Sharp (1943), Sugarman (1985) and Greenaway (1995). Results indicate evidence of increased student learning. Quantitative results from a retrospective pre/posttest evaluation of change score means in learning outcomes supported the study hypotheses that 1) the application of a modified ELT model affects the outcomes of planning, knowledge/skills, and potential for transfer of learning and 2) previous trip experience affects these outcomes. A secondary analysis of qualitative data supports the notion that the experiential learning process inherently increased student personal development. Implications for instructors and research are discussed.

KEYWORDS: developmental outcomes, Experiential Learning Theory, higher education, learning outcomes

Introduction

Experiential learning has gained increasing acceptance in educational settings. Specifically, higher education has championed the implementation of experiential education models and techniques which can lead to effective learning (e.g., Bruner 1960a & 1960b; Dewey, 1916 & 1938; Kolb & Kolb, 2005; Piaget 1950, 1952 & 1971) and which have been shown to influence the achievement of learning outcomes (e.g., Davis, Steen, & Rubin, 1987; Gagne, 1965; Gordon, 1994). One of the better-known conceptual approaches is Kolb and Kolb's (2005) Experiential Learning Theory (ELT), which integrates the works of Dewey and Piaget and presents a 4-stage model for the process of experiential learning (Kolb, 1984; Kolb & Kolb, 2005). Accordingly, Kolb (1984) defines learning as "the process whereby knowledge is created through the transformation of experience" (p. 38) which implies that a concrete experience comes first, followed by reflective observation, abstract conceptualization, and then active experimentation.

This begs the question, "What is a concrete experience?" For purposes of this paper the authors make the distinction that concrete experience requires direct, active, and engaging activity with real consequences (e.g. Prouty, Panicucci, & Collinson, 2007), whereas, abstract conceptualization happens in the world of the mind, per the key word "conceptualize" (i.e., you can't get struck by lightning by reading about it). According to Sugarman's (1985) work with ELT in higher education, it is reasonable to consider that the application of the ELT model does not effectively accommodate typical academician's practices that begin a learning process with teaching concepts. While Kolb's model can serve as an effective learning tool, it arguably does not accommodate the utility of starting the learning process with the acquisition of concepts, but rather it begins with a "concrete" or "hands on" experience.

Therefore, the authors consider that a modified experiential learning model could be an effective tool to elicit learning outcomes. Accordingly, the unanswered question is: "Will a modified ELT-based model still be affective when teaching undergraduate students?" Thus, the purpose of this case study is to share the evidence of student learning in a higher education course that applied a modified experiential learning model.

Rationale

Although Kolb and Kolb's Experiential Learning model may have some conceptual problems, applying this model in undergraduate courses can benefit students. One such benefit is increased student learning. Integrating experiential learning opportunities in courses constructs new knowledge through both personal experiences (Dewey, 1938) and the dialectic process of assimilating experiences into concepts and accommodating these concepts into new experiences (Piaget, 1952). These two educational perspectives are seminal in Kolb's ELT and principles. According to Kolb & Kolb (2005, p.184), contemporary ELT is characterized by the following principles:

> -Learning results from synergetic transactions between the person and the environment. Learning requires the resolution of conflicts between dialectically opposed modes of adaptation to the world.
> -Learning is a holistic process of adaptation to the world. Not just the result of cognition, learning involves the integrated functioning of the total person - thinking, feeling, perceiving, and behaving.
> -Learning is best conceived as a process, not in terms of outcomes.

As noted earlier, Kolb (1984) conceptualized the ELT into a process with a four-stage cycle beginning with concrete experience, reflective observation, abstract conceptualization, and then active experimentation. In doing so, Kolb notes that students construct meanings that may lead to skill acquisition and constructed knowledge with an increased transfer of learning (Holman & McAvoy, 2005; Kolb, 1984). In its classic design, Kolb's cycle is to begin with the concrete stage. Yet, it does not accommodate starting a learning cycle with another stage, such as abstract conceptualization.

Abstract conceptualization as the origin of the experiential learning cycle could also increase learning. Sugarman's (1985) work with experiential learning in the academic setting suggests that introducing abstract concepts first in the classroom may better prepare students to construct new knowledge in field experiences. In line with L. B. Sharp (1943), this may also provide a richer context for meaningful learning since students are cognitively prepared to connect new constructs during concrete experiences. Complimenting Sugarman's and Sharp's perspectives is a modified version of Kolb's cycle that includes a three-stage version of plan, do, and review (Greenaway, 1995). Greenaway's cycle parallels three of Kolb's four stages as follows: (1) plan = abstract conceptualization, (2) do = concrete experience, and (3) review = reflective observation. Sharp's idea of prior conceptual understanding and Sugarman's work with academic settings coupled with Gre-

enaway's three-stage model suggests beginning the experiential learning process with abstract concepts in the academic setting.

Since Greenaway's model includes three stages, it currently does not parallel Kolb's fourth stage of active experimentation. Given this stage typically refers to "extending" acquired learning from the previous stages (e.g., Kolb, 1984, p. 52). Thus, the authors label the modified model's fourth stage as "extend" to parallel Kolb's fourth stage of active experimentation (Figure 1). In addition to the modified experiential learning model, there are other factors that can improve the effectiveness of student learning. For instance, Bain (2004) purports effective instructors in higher education get to know students' previous experiences to assist in increasing learning. In terms of preparing students to get the most out of the "concrete experience" a student's prior experience level would influence abstract conceptualizations and constructed knowledge before the course began, and could affect student's perceived learning level. Therefore, the specific purpose of this paper was to (1) examine the application of using a modified experiential learning model among undergraduate students on their acquisition of the following three learning outcomes: planning, knowledge/skill, and potential for transfer of learning and (2) the effect of previous student trip experience on the learning outcomes.

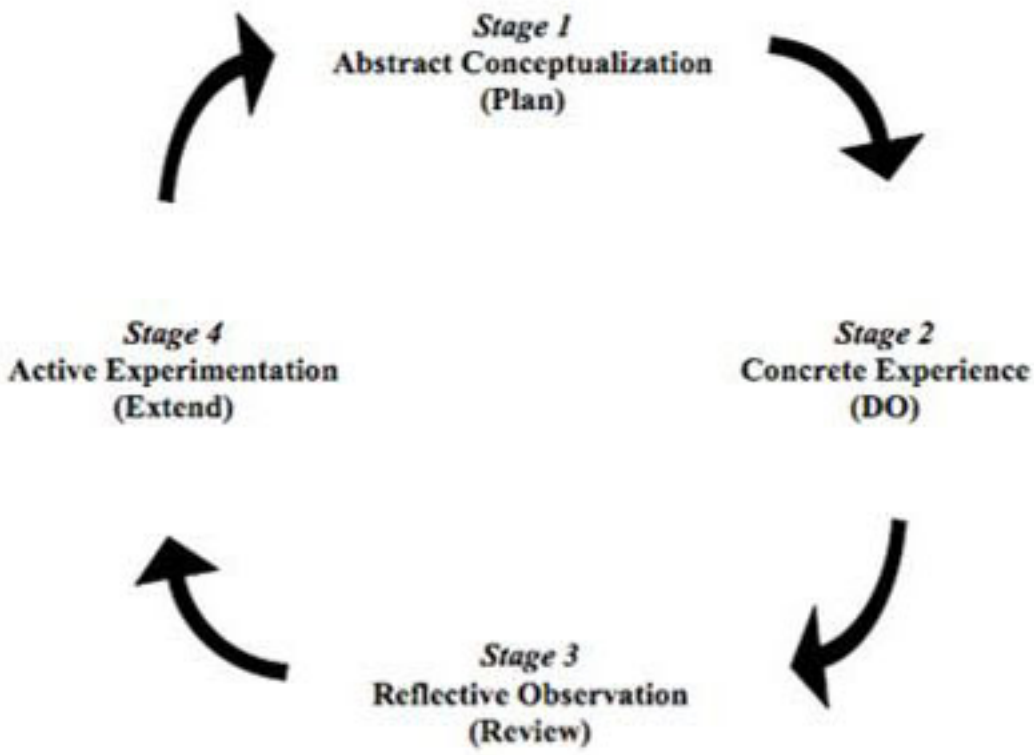

Figure 1. Modified Experiential Learning Model for a Higher Education Course

Method

Procedures

The following procedures were designed using the modified experiential learning model for higher education. Recall that Figure 1 depicts

Kolb's (1984) learning cycle modified to parallel Greenaway's stages of plan, do, and review, as well and according to L. B. Sharp's (1943) and Sugarman's (1985) perspective in academic settings the cycle began with abstract concepts. Similar to Greenaway's work, the instructor utilized the first three stages of the modified model since the academic setting traditionally ends a course cycle on "review" and anticipates current learning to be "extended" or "actively experimented" with in students' future experiences. To address Stage 4 (active experimentation/ extend) in this case study, students were asked questions regarding their likelihood to transfer course learning after their experiences with the first three stages.

Prior to Stage 1, the course instructor gained permission to take offsite outdoor trips from the university risk management office. In the syllabus, trip guidelines were intentionally designed and two general course goals were identified: (a) plan a safe, enjoyable, and educational outdoor recreation experience and (b) access and assess a managed outdoor recreation area. In addition, within the three stages, ten intentionally designed course objectives that could affect the learning outcomes (Allen, Stevens, Hurtes, & Hartwell, 1998) of planning, knowledge/skills, and potential for transfer of learning were included. Accordingly, the ten objectives were implemented during the course progression of the three-stage cycle.

Stage 1: Plan - Abstract Conceptualization Phase. The planning stage included four conceptual objectives: (1) Understand the university's Outdoor Recreation Center trip planning, implementation, and risk management protocol; (2) Become familiar with the Wilderness Education Association (WEA) trip planning, and risk management suggestions (Drury, Bonney, Berman, & Wagstaff, 2005); (3) Develop a budget for the trip; (4) Design a trip experience to elicit the defined outcome of recreation satisfaction. Student groups with varying levels of trip experience within each group were created during the first class. There were four student-created field experiences varying in length that included a one-day fishing excursion on the Logan River, a day hike in Logan Canyon, an overnight backpacking trip to White Pine Lake, and a 4-day canyon exploration to Grand Staircase Escalante National Monument. Prior to departure, a discussion took place with students on course concepts on the "concrete" trip experience, sequentially in class and students scheduled times to meet with the instructor.

Stage 2: Do – Concrete Experience. The doing stage included four objectives as well: (5) Apply the university's Outdoor Recreation Center trip planning, implementation, and risk management protocol. For instance, an appointed student leader per group met with the instructor to review and seek approval regarding trip location, itinerary, duration, permits, fees, emergency procedures, and student transportation; (6)

Use topographic maps available from the library map room; (7) Measure the outcome of recreation satisfaction for a trip experience as a way to learn how to collect data on an outcome-based designed trip; (8) Identify and assess several issues in outdoor recreation management while on the trip, such as, crowding, conflict, ecological impacts, goal interferences, Leave No Trace ethics, and risk management (Brame, Henderson, Lamb, & Goodrich, 2006; Manning, 1999). While on site, the students documented applicable evidence (e.g., photographs, videos, field notes) to be reviewed later.

Stage 3: Review – Reflective Observation. The review stage included two objectives to help students integrate course learning: (9) Analyze the trip experience data to learn how to evaluate an outcome-based designed trip and (10) Display the experience, results, and learning via a formal 20-minute group delivered PowerPoint presentation and debrief the experience to reinforce the potential for future transfer of learning (Luckner & Nadler, 1997). The presentations also included APA citations and references from the course literature, and adhered to these seven guidelines:

1. Introduce the trip overview, site overview, activities, outcomes sought, and issues assessed.
2. Describe the activity, travel mode, and itinerary (visuals were video or photos).
3. Describe the course objectives and the measured results in a graph (quantitatively) and with quotes (qualitatively).
4. Describe the management issues (evidenced with photos and integrated with literature).
5. Describe management strategies that were implemented (e.g., signage, fees, boundaries, access, permits, risk management, zoning, etc.).
6. Discuss implications and suggest considerations for management.
7. Discuss, debrief, and conclude learning (three key findings from the trip; three key concepts that you want to learn more about).

Design

A retrospective pretest-posttest design (e.g., Sibthorp, Paisley, Gookin, & Ward, 2007) was used to evaluate student learning. According to Sibthorp, et al. (2007),

> With self-report measures, the metric resides within the study participants and, thus, can be directly affected by the intervention. If participants' levels of self-knowledge change as the result of a recreation program, then this metric may also shift, making comparisons between measures from before and after the program problematic (p. 295).

In other words, using a traditional pre and posttest format, the participant could self-assess that they were very good at, for example, navigation, but after the intervention realize that they did not know as much as they thought they did about navigation (e.g., Sibthorp, et al. 2007).

The problem of internalization of the metric by the participant is referred to as "response shift bias" (e.g., Howard, 1980; Howard, Ralph, Gulanick, Maxwell, Nance, & Gerber, 1979), and may lead to the posttest score appearing lower than the pretest score possibly indicating that the intervention was not effective in improving an increased level of chosen outcome. To address the shift, the pretest is given not at the beginning of the intervention but after the intervention simultaneously with the posttest.

However, there are several limitations with this design. Namely, truthfulness of the participant's response, participant biases in both pre and posttest scores to show changes (Howard, 1980), and failure to recall accurately true levels prior to the intervention leading to a false response (e.g. Pearson, Ross, and Dawes, 1991).

Despite the limitations of the retrospective pretest/posttest design, the benefits can outweigh the problems. For instance, Sibthorp et al.'s (2007) NOLS outcomes findings suggested that participant's recalibrated their internal metrics using the retrospective design, and that pretest does not become part of the intervention as a potential and unwanted frontload to the experience. However, a warning is offered; the retrospective design should not be substituted for other options when the outcome variables have a stable metric, or when other methods are not possible, such as, behavioral rating scales, or in the case of more time consuming qualitative inquiry. After careful consideration, we adopted the retrospective design for the current study. In alignment with the retrospective design, each pretest item preceded a similar posttest item on the questionnaire.

Analysis

To collect data, a 12-item questionnaire designed to measure acquisition of course content was used. Based on the course objectives, the instrument measured the learning outcomes of planning (3 items), knowledge/skills (4 items), and potential for transfer of learning (5 items). Each item was scored on a 0 to 6 scale: 0 = not at all, 1 = very little, 2 = rather little, 3 = neither little nor much, 4 = rather much, 5 = very much, 6 = completely.

The three planning items were: (1) I feel comfortable designing outdoor recreation trip plans for a specific outcome, (2) I am comfort-

able designing a complete outdoor recreation trip, and (3) I understand the importance of risk management for trip planning.

The four knowledge items were: (1) I feel knowledgeable about Leave No Trace principles, (2) I apply the seven Leave No Trace principles, (3) I understand the importance of maps and map reading, and (4) I am comfortable presenting information about outdoor recreation management issues.

The five transfer of learning items were: (1) I think participating in the trip/excursion will help me understand course content, (2) I think that participating in the trip will help me to transfer learning from class to other outdoor recreation situations, (3) I think that participating in the outdoor trip will help me to grow as a leader, (4) I think that participating in a class with an experiential learning component will help me to understand conceptual management models, and (5) I would like to participate in experiential learning components in my other parks and recreation classes. Due to the nature of this being a case study with limited sample sizes, alpha reliability coefficients were not computed for the measures.

The questionnaire also measured independent variables. Demographic items collected were age, gender, major, and minor. To capture the level of students' previous course experiences one item asked students their "experience with a university class field-based outdoor trip component." This variable included the five categories of never, 1-2 trips, 3-5 trips, 6-10 trips, and 11+ trips.

Qualitative responses were collected to evaluate the course. Three qualitative, open-ended questions were asked: (1) What were two of the greatest "learnings" from the trip? (2) In what ways did debriefing the trips during and after the presentations reinforce learning? (3) In what ways could the trip/experiential learning component of this class be improved?

Quantitative data were analyzed through descriptive statistics and frequency procedures using Statistical Package for the Social Sciences (SPSS version 17). Change scores computed from pretest and posttest means measured increases (or decreases) in the three learning outcomes (Howard et al., 1979). Qualitative data were only assessed by the instructor for common themes and coded numerically to categorize frequencies of responses. Thus inter-coder reliability was not computed.

Results

Data were collected from 24 students in an elective Parks and Recreation undergraduate outdoor recreation management course at a United States Western Mountain University. The sample was 13 fe-

males (54 %) and 11 males. The average age of the students was 23.08 (*SD* = 4.66). Regarding students' field-based experiences in the university class setting, 11 students had never experienced an outdoor trip, 11 participated in 1-2 trips, and 2 had participated in 3-5 trips. As displayed in Table 1, change scores (i.e., increases or decreases in learning) indicated an increase in all learning outcomes by previous experience categories. Despite this increase, a comparison of change scores across the outcomes of planning, knowledge/skill, and transfer of learning by previous experience suggested an inverse relationship. (See Figure 2 for a pictorial representation of the change scores for the three outcomes increasing as the number of students' previous university outdoor trips experiences decreased.)

Categorical themes emerged from the qualitative data. As displayed in Table 2, the responses to the question "What were two of the greatest items learned from the trip?" were coded and then recorded as frequency counts based on emergent categories. Table 3 displays the frequency responses from the question "In what ways did debriefing the trips during and after the presentations reinforce learning?"

Table 1
Increases in Learning Outcomes by Experience with Previous University Outdoor Trips

	Never (*SD*)	1-2 trips (*SD*)	3-5 trips (*SD*)
Planning	1.53 (*1.18*)	1.33 (*.75*)	1.00 (*.95*)
Knowledge/Skills	2.18 (*1.5*)	1.32 (*.84*)	0.88 (*.18*)
Transfer of Learning	1.33 (*1.15*)	1.05 (*.49*)	0.50 (*.42*)

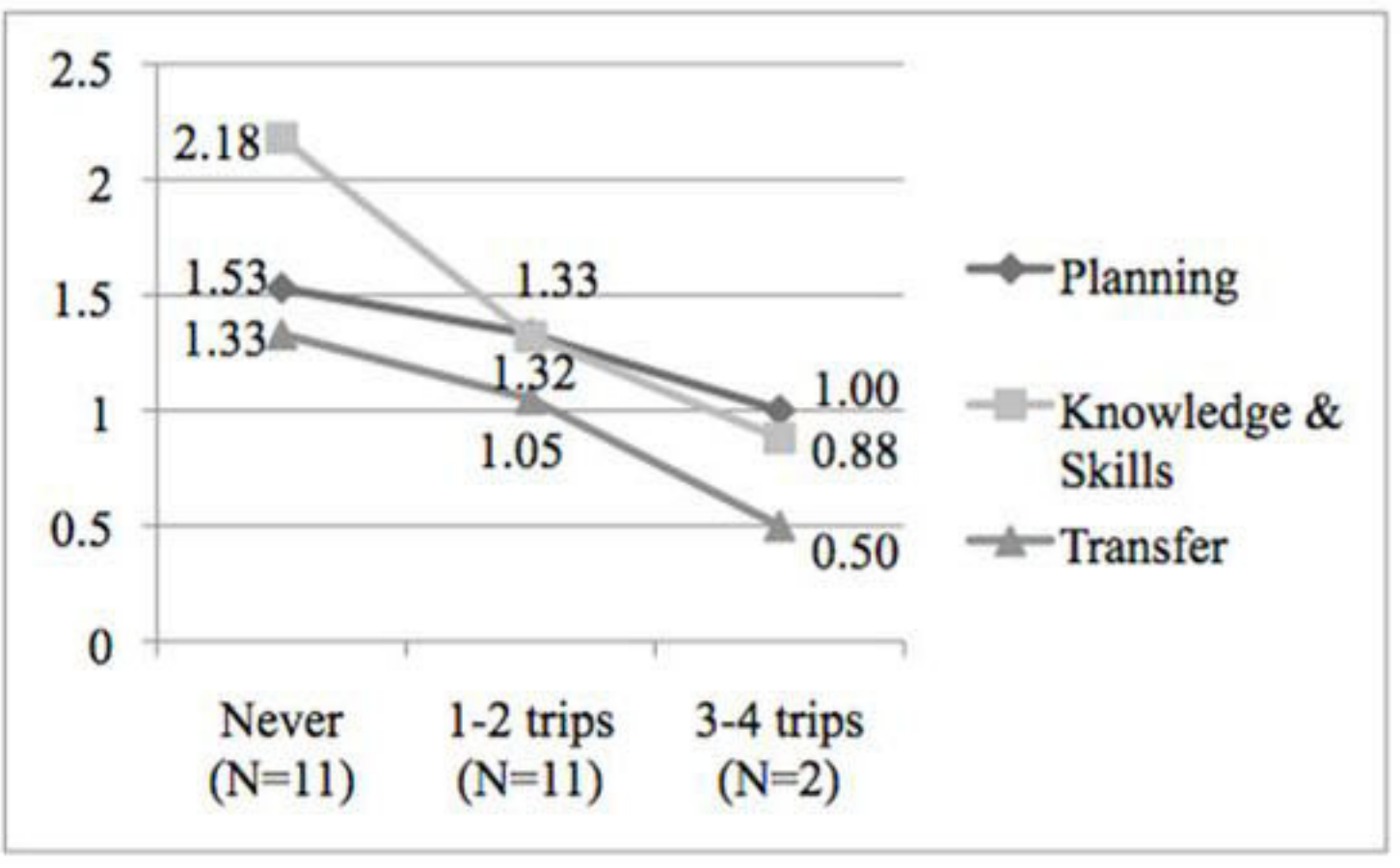

Figure 2. Increases in learning outcomes by experience with previous university outdoor trips

Table 2
Qualitative Frequency Responses to Trip Assignment on Outcomes

Outcome	*Count*
Knowledge/Skills Understanding outdoor recreation issues in general (n = 11) Risk management issues (n = 5) Outdoor skills (n = 4) Leave No Trace issues (n = 3)	n =23
Planning	n =19
Developmental Working in a group	n =5
Transfer of Learning Integrating and applying Information	n = 2

Table 3
Qualitative Frequency Responses to Presentations and Discussions on Outcomes

Outcome	*Count*
Transfer of Learning	n = 13
The presentation and discussion reinforced learning (n = 7) Identified management issues discussed in class and in the field (n = 6)	
Knowledge/Skills	n = 5
Became more aware of other management issues	
Developmental	n = 3
Values clarification	

Discussion

The purpose of this case study was to examine the effect of applying a modified Experiential Learning Theory model in a higher education course on learning. According to student change scores, learning increased on all the learning outcomes of planning, skills/knowledge, and potential for transfer of learning. These outcomes were positively

influenced in the academic setting by the use of the plan, do, and review cycle (Greenaway, 1995; Sugarman, 1985). The use of the modified higher education version of Kolb's (1984) experiential learning cycle appeared effective.

Qualitative data also supported the application of the higher education experiential learning model. The enumerated data from the qualitative questions strongly supported the learning outcomes. The question referring to "What were two of the greatest items learned from the trip?" included 23 items for knowledge/skills and 19 items for planning, whereas transfer of learning was two. This data is in line with the experiential learning process applied in this study. The introduction of course concepts prior (plan/abstract conceptualization) to the trip experience (do/concrete experience) increased acquisition of the learning outcomes while potential for transfer of learning was very limited without use of reviewing (reflective observation) course content. For instance, students met course objectives such as identifying and assessing outdoor recreation management issues (e.g., Leave No Trace, risk), developing a budget, applying outdoor skills, university trip protocol, and Wilderness Education Association suggestions.

The review stage of the course experience positively affected the potential for transfer of learning. Responses from the question asking, "In what ways did debriefing the trips during and after the presentations reinforce learning?" elicited 13 transfer of learning responses and 5 knowledge/skills responses. This data also corresponds with the experiential learning process applied in this study. The course objectives for the group presentations were primarily designed to assist with increasing the potential for transfer of learning by allowing students the opportunity to review/ reflect on trip experiences. Of tangential importance, results indicated students also gained new knowledge/skills by becoming more aware of other management issues presented. In other words, the presentations also served as an opportunity for audience participants to learn unknown issues. Along with the qualitative and quantitative support of increased learning, the previous trip experience of students affected learning.

There was an inverse relationship between previous student experience and learning. Students' prior experience level with university experiential trips appeared to have influenced the learning outcomes of this course. As students' experiences with university outdoor trips increased, student learning (operationalized as the change scores) incrementally decreased. Specifically, as experience with university outdoor trips increased, generally, the change scores were not as high as those that had never experienced such a trip. The implications for instructors are to be aware of student experience level prior to assignment to groups. Grouping students based on prior experience is one possibility.

For instance, students with more experience could plan a more complex trip (e.g., longer), possibly leading to increased learning while students with less experience may equally benefit by leading a simpler (e.g., shorter) trip. This relationship between trip experience and learning provided insight for future course design.

Student's written feedback based on the course also provided insights toward improving the trip component. For instance, by creating a checklist of potential recreation impacts to investigate while on the trip, students may have been more cognizant of a wider array of management issues. Another suggestion was to assign teaching topics for students to deliver a structured lesson plan while on site. An excellent model is provided by WEA's Backcountry Classroom (Drury et al., 2005).

Student's feedback also provided insights toward improving the assignment. For instance, and in line with experiential learning principles, not being so prescriptive with outcomes (e.g., the management issues) would have allowed students to assess additional issues on sight. Creating a checklist of potential recreation impacts could have guided learning and invited discussion. Along with ways to improve the course and increased student learning, there were indicators of personal development.

Personal development could be a learning outcome in course content. A secondary analysis of qualitative data supports the notion that the experiential learning process inherently increased student personal development. Without any instructor identification of developmental outcomes in course content, student responses from the trip and presentation experiences identified group work and values clarification as learned outcomes. These two outcomes are developmental in that they are personal, not intellectual (Bain, 2004). Recall that the experiential learning process inherently incorporates a dialectical structure for students to adapt from "confrontation [the unknown] to resolution [discovery]" which in turns actualizes development (Kolb, 1984, p. 134). Appropriately, the holistic adaptive process of the experiential learning cycle also serves an avenue for personal development. With this study's discovery also came limitations.

Limitations existed in this study. Limitations may have been present for the self-report measure. Students may not have accurately recalled their level of knowledge from the beginning of class in the retrospective pretest-posttest design. Due to limited sample size, the questionnaire was not assessed for reliability and may not have been an accurate measure. The sample size was too small for statistical analysis of relationship between learning outcomes and student trip experience. Consequently, the generalizations of study findings are limited to this case study. Future studies may want to consider applications of this

modified experiential learning model in other non-field based courses to test further its applicability and reliability in higher education courses.

In conclusion, applying a modified experiential learning model for a higher education course has appeared to increase learning for these undergraduate students. In support of Sharp (1943) and Sugarman (1985), the incorporation of course concepts prior to experiencing outdoor trips assisted in increasing students' learning to implement the planning of outdoor experiences and develop knowledge/skills. Students described that they developed a better understanding of outdoor recreation management issues, such as, risk management, outdoor skills, and Leave No Trace ethics. Based on the comparison of learning scores among previous trip experience, instructors should consider grouping students by similar trip experience and modifying the complexity of trip logistics (e.g., length) accordingly. Further, the student presentations that synthesized course concepts and the trip component reinforced the potential for transfer of learning and increased exposure to a number of management concepts for future application of student "active experimentation/ extending" of their learning. Additional analysis of student feedback regarding personal learning indicates that higher education courses can also be developmental when applying a modified version of an experiential learning model.

References

Allen, L. R., Stevens, B. W., Hurtes, K. P., & Harwell, R. (1998). *Benefits-based programming of recreation services.* Ashburn, VA: National Recreation and Park Association.

Bain, K. (2004). *What the best college teachers do.* Cambridge: Harvard University Press.

Brame, S. C., Henderson, C., Lamb, J., & Goodrich, G. (Eds.). (2006). *NOLS wilderness ethics: Valuing and managing wild places.* Mechanicsburg, PA: Stackpole Books.

Bruner, J. (1960a). *The process of education.* New York: Vintage Books.

Bruner, J. (1960b). *Toward a theory of instruction.* New York: W. W. Norton.

Davis, J., Steen, T., & Rubin, S. (1987). A Study of the internship experience. *Journal of Experiential Education, 10*(2), 22-24.

Dewey, J. (1916). *Democracy and education.* New York: Simon and Schuster.

Dewey, J. (1938). *Education and experience.* New York: Simon and Schuster.

Drury, J. K., Bonney, B. F., Berman, D., & Wagstaff, M. C. (2005). *The backcountry classroom: Lessons, tools, and activities for teaching outdoor leaders* (2nd ed.). Guilford, CT: Falcon Guides of Globe Pequot Press.

Gagne, R. (1965). *Conditions of learning*. Chicago: Holt, Reinhart and Winston.

Gordon, R. (1994). Keeping students at the center: Portfolio assessment at the college level. *Journal of Experiential Education, 17*(1), 23-27.

Greenaway, R. (1995). *Powerful learning experiences in management learning and development: A study of the experiences of managers attending residential development training courses at the Brathay Hall Trust (1988-9)*. Unpublished doctoral dissertation. The University of Lancaster, Centre for the Study of Management Learning, Lancaster, England.

Holman, T., & McAvoy, L. H. (2005). Transferring benefits of participation in an integrated wilderness adventure program to daily life. *Journal of Experiential Education, 27*(3), 322-325.

Howard, G. S. (1980). Response-shift bias: A problem in evaluating interventions with pre/post self-reports. *Evaluation Review, 4*(1), 93–106.

Howard, G. S., Ralph, K. M., Gulanick, N. A., Maxwell, S. E., Nance, D. W., & Gerber, S. K. (1979). Internal invalidity in studies employing self-report instruments: A suggestion remedy. *Journal of Educational Measurement, 16*(2), 129–135.

Kolb, A. Y., & Kolb, D. A. (2005). Learning styles and learning spaces: Enhancing experiential learning in higher education. *Academy of Management Learning & Education, 4*(2), 193-212.

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice-Hall.

Luckner, J. L., & Nadler, R. S. (1997). *Processing the experience: Strategies to enhance and generalize learning* (2nd ed.). Dubuque, Iowa: Kendall Hunt Publishing Co.

Manning, R. (1999). *Studies in outdoor recreation: Search for meaning and satisfaction*. Corvallis, OR: Oregon State University Press.

Piaget, J. (1950). *The psychology of intelligence* (1st ed.) (M. Piercy & D. Berlyne, Trans.). London: Routledge & Kegan Paul LTD.

Piaget, J. (1952). *The origins of intelligence in children* (1st ed.). New York: International Universities Press.

Piaget, J. (1971). The theory of stages in cognitive development. In D. R. Green, M. P. Ford & G. B. Flamer (Eds.), *Measurement and Piaget*. New York: McGraw-Hill.

Pearson. R. W., Ross. M., & Dawes. R. M. (1991). Personal recall and limits of retrospective questions in surveys. In J. Tanur (Ed.), *Questions about questions* (pp. 65-100). New York: Russell Sage Foundation.

Prouty, R. G., Panicucci, J., and Collinson, R. (2007). *Adventure education: Theory and applications*. Champaign, IL: Human Kinetics.

Sharp, L. B. (1943). Outside the classroom. *The Educational Forum, 7*(4), 361-368.

Sibthorp, J., Paisley, K., Gookin, J., & Ward, P. (2007). Addressing response-shift bias: Retrospective pretests in recreation research and evaluation. *Journal of Leisure Research 39*(2), 295-315.

Sugarman, L. (1985). Kolb's model of experiential learning: Touchstone for trainers, students, counselors, and clients. *Journal of Counseling & Development, 64*(4), 264-268.