

Using Systematic Feedback and Reflection to Improve Adventure Education Teaching Skills

Journal of Experiential Education
2014, Vol. 37(2) 187–206
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DOI: 10.1177/1053825913503116
jee.sagepub.com



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Abstract

This study examined how adventure educators could use systematic feedback to improve their teaching skills. Evaluative instruments demonstrated a statistically significant improvement in teaching skills when applied at an outdoor education center in Western Canada. Concurrent focus group interviews enabled instructors to reflect on student feedback to improve teaching in subsequent courses. Instructors had the opportunity to share their experiences, thereby solidifying their learning and validating their practices. The triangulation of quantitative and qualitative data yielded a descriptive model of the reflective process, featuring multiple channels for repeated, systematic feedback to promote continuous reflection. Creating group opportunities for adventure educators to share their teaching experiences is recommended to facilitate instructional improvement, boost staff morale, and instill a sense of professionalism.

Keywords

feedback, adventure educator, mixed methods research, focus group interviews, reflective practice

There is a need for more empirical research to identify strategies for wilderness educators to continually improve their pedagogy. This mixed methods study's goal was to contribute to the understanding of how ongoing evaluation, feedback, and reflection

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can improve teaching skills in adventure education contexts. This research will be of particular interest to outdoor educators who want to use reflective practice to improve their instructional skills and to institutions that value quality teaching.

Literature Review

Two themes can be extracted from the limited research on adventure education pedagogy. Few adventure education studies have attempted to link measures of effective instruction to student success. Reflective practice theory merits examination for its potential to enhance teaching strategies as it has not been rigorously applied to improving instructional efficacy in the adventure education context.

Instructor Effectiveness in Adventure Education: An Overview

There is a shortage of empirical studies on behavior rated to instructor effectiveness in the adventure education field (Pelchat & Karp, 2012; Phipps & Claxton, 1997). The research emphasis has instead been on the role of the instructor within the teaching process. The most recent inquiries into instructor's impact on student learning applied field observation, individual and group discussion, as well as participant journaling for assessing instructional practices (Pelchat & Karp, 2012). Another recent study surveyed National Outdoor Leadership School (NOLS) alumni and revealed that an instructor's actions (such as role modeling and curriculum delivery) were one of the most important contributors to learning transfer (Sibthorp, Furman, Paisley, Gookin, & Schumann, 2011). Other NOLS research on course-level learning variables suggested that coaching and self-directed learning were effective pedagogical strategies (Paisley, Sibthorp, Furman, Schumann, & Gookin, 2008), which corresponded with earlier research findings (Paisley, Sibthorp, Furman, & Schumann, 2008). Although the literature has acknowledged the role of the instructor as a critical agent for student learning (McKenzie, 2000; McKenzie, 2003; Schumann, Paisley, Sibthorp, & Gookin, 2009; Walsh & Golins, 1976), more attention is needed to identify the specific pedagogical mechanisms instructors use and how they relate to teaching competency.

Several studies have devised instruments for defining and measuring characteristics of effective adventure educators. Brackenreg, Luckner, and Pinch (1994) inventoried skills required of instructors to process adventure experiences. Although not intended to be used as an evaluative tool, it did identify a set of competencies that were important to instructional effectiveness. Some of the concepts their survey measured, such as communication skills, creating opportunities for processing, and providing feedback, were elements incorporated into later research on measuring instructional effectiveness. Attarian (1996) and Doherty (1995) provided numerical procedures for quantifying instructor effectiveness. Importance–performance analysis (IP) identified and ranked outdoor instructors in terms of 23 key teaching attributes and the relative importance of each (Attarian, 1996), whereas Doherty (1995) regarded instructor effectiveness in terms of student retention of learning based on three different teaching/facilitation styles: Mountains Speak for Themselves, Outward Bound Plus, and the

Metaphoric Model. Schumann et al. (2009) identified other instructor behaviors relevant to student learning: patience, knowledge, inspiration, empathy, role modeling, providing feedback, direct instruction/coaching of skills, and creating a supportive learning environment. McKenzie's earlier research (2003) found similar instructor qualities. The instructor characteristics detailed in these studies were incorporated into the evaluative instruments and analytical framework used in this study's research design yet qualities alone do not provide a framework for evaluation.

Incorporating Reflective Practice into Adventure Education Instruction

Brackenreg et al. (1994) identified a shortage of research within the outdoor education field on processing skills, such as reflection, among instructors and claimed that theories relating to experiential education are not generally applied by practitioners. Therefore, empirical evidence that reflective practice theory can improve teaching skills is warranted to encourage adventure educators to examine and implement new strategies.

Numerous teaching and learning models used in experiential and adventure education contain some element of reflection on the part of the practitioner and the student (Drury, Bonney, Berman, & Wagstaff, 2005; Joplin, 1981; Walsh & Golins, 1976), without referring explicitly to the literature on reflective practice for guidelines. Reflective practice is both a theoretical and practical method for promoting continuous professional development and is applied in teacher training programs, in the health sciences fields, and in school settings (S. Thompson & Thompson, 2008). Many explanatory theoretical models have incorporated reflective learning as an important element (Gibbs, 1988; Kolb, 1984). This study treated reflection by educators as part of the more structured process of reflective practice.

While an in-depth discussion of reflective practice theory is beyond the scope of this article, it is worthwhile to identify some of its major features. Quality reflective practice is simultaneously critical, analytical, dialectical, and creative (Johns 2004; S. Thompson & Thompson, 2008). Reflective practice is not a rigid, prescriptive process because it can be retrospective—*reflection on action*—and occur in the moment as *reflection in action* (Schön, 1987). A range of strategies, such as visioning, role playing, asking “why?,” chunking information into smaller or larger units, identifying key prompt words or phrases, and mind mapping may be used to fit different situations (S. Thompson & Thompson, 2008). Metacognition—the ability to examine one's thought processes and being self-aware—is a strategy that can also be used to become a more effective learner and reflective practitioner (Pintrich, 2002), because it requires introspection.

The goal of reflection is to learn from past experiences as a method for improvement. External feedback provides the impetus for reflection. Self-evaluation is another form of reflection, particularly if differences between self-perception and student perception exist (McKeachie, 1987). Contradictions between practitioners' conceptions of their skills and the subjective reality of external feedback can act as a motivator for change (Johns, 2004). Therefore, a prerequisite for change is that practitioners would

have sufficient self-awareness of their own abilities and limitations, as well as a desire to improve. External feedback of teaching effectiveness followed by a structured process of reflection may link theory to practice.

Although reflective practice can be a solitary activity, the research literature has associated more effective reflection with group conferencing (Distad & Brownstein, 2004; S. Thompson & Thompson, 2008). Constructive, immediate feedback, preferably in a group forum, as also suggested by McKeachie (1987), was central to improving teaching skills because instructors had the opportunity to reflect on feedback received and relate it to their developing spectrum of practice. Schumann and Millard (2012) examined the expectations associated with instructor and student feedback in adventure education situations; feedback that was positively framed, constructive, and timely contributed to quality learning (similar to McKeachie's findings). Furthermore, since Schumann and Millard's results suggested that feedback was socially constructed, providing a group forum of peers to share and reflect on feedback would likely foster participant disclosure. Such an environment would be appropriate for data collection and analysis of the effect of feedback on instructional practice. These conclusions suggest that research on instructional improvement should use a qualitative survey of educators' experiences in a group interview format, similar to Schumann and Millard (2012), McKeachie (1987), and/or Pelchat and Karp (2012). Interviews could complement quantitative data of instructor effectiveness using Phipps' Instructor Effectiveness Questionnaire (Phipps & Claxton, 1997; Phipps, Hayashi, Lewandoski, & Padgett, 2005), the most current model for assessing teaching skills within the adventure education context.

Based on the limited research into assessing teaching effectiveness and the benefits associated with reflective practice to improve pedagogy, two research questions were proposed. A quantitative hypothesis was formulated to determine if there was an improvement in instructor effectiveness associated with the use of two evaluative surveys (Phipps & Claxton, 1997; Phipps et al., 2005). The primary qualitative research question asked was, "What improvement effects did adventure educators perceive on their outdoor teaching skills from systematic feedback and reflection?"

Method

The data collection and analysis method deemed most appropriate to answer this study's research questions was based on design criteria from Creswell and Plano (2011): a mixed methods approach involving concurrent data collection followed by sequential data analysis (quantitative before qualitative). This study adopted the Instructor Effectiveness Questionnaire (IEQ) and Instructor Effectiveness Check Sheet (IEC) instruments used in prior research on evaluation of adventure educators' teaching skills (Phipps & Claxton, 1997; Phipps et al., 2005). Scores from these instruments were supplemented with qualitative data from focus group interviews. Data collection and analysis thus focused on multiple and repeated experiences of the study population.

Participants

Twenty-one adventure educators working at Strathcona Park Lodge and Outdoor Education Centre (SPL), located on central Vancouver Island, British Columbia, were tracked over a seven-week period from April 11 to June 3, 2011. Demographics of this sample ($N = 21$) are provided in Table 4. Data collection focused on instructors working with SPL's largest program (about 3,500 participants per year); its size permitted access to a relatively large number of instructors who were delivering the same week-long program multiple times during the study period. Each week, they worked with a different school group, comprising 10 students of the same grade level, with one adult teacher or a parent volunteer chaperone ($n = 44$). Whether or not noticeable changes in instructor effectiveness could be measured over a five-day intensive program posed a valid sample size concern. Nevertheless, measuring changes in teaching the same program over seven weeks could identify significant, medium-term trends and was consistent with the study's goal of fostering instructional improvement based on external feedback.

Quantitative Data Collection

The quantitative component of this study used a concurrent, multiple baseline sampling design as per Phipps et al. (2005) for collecting scores from the IEQ and IEC instruments. The administration of the IEQ and IEC followed a modified pre- and posttest format. No treatment at the beginning of the study established a baseline for instructor performance. The observer then completed the IEQ at the halfway point of the program (Tuesday evening), based on observation of the instruction to date, which comprised an average of five to six lessons. A treatment phase followed, with the instructors using the IEC as a reflective tool to improve their pedagogy. The treatment's effects were assessed with the second application of the IEQ at the end of the week (Thursday evening or Friday morning), covering the subsequent five to six instructional sessions. See Figure 1 for a visual depiction of the process. This was similar to the methodology used in the eight-day wilderness trip in the study by Phipps et al. (2005).

Instructors were briefed on the evaluation process and received blank copies of the IEC at the beginning of each week. Observers were provided with two copies of the IEQ at the beginning of their program week and instructed as to how and when to complete them. Both groups also received written descriptions for their respective duties. Week 1 was used as a pilot to establish routines for distributing and collecting forms and for face validity testing of the IEQ and IEC instruments. Week 1 quantitative data was omitted because of suggested changes in the wording of several IEQ questions during face validity testing. The total number of questions was thus reduced from 59 (Week 1) to 57 (all subsequent weeks).

The IEQ was completed by the chaperone of each group, hereafter referred to as the *observer*. The instructor completed the IEC, which was virtually identical to the IEQ; the only difference between the two instruments was the framing of the questions. IEQ

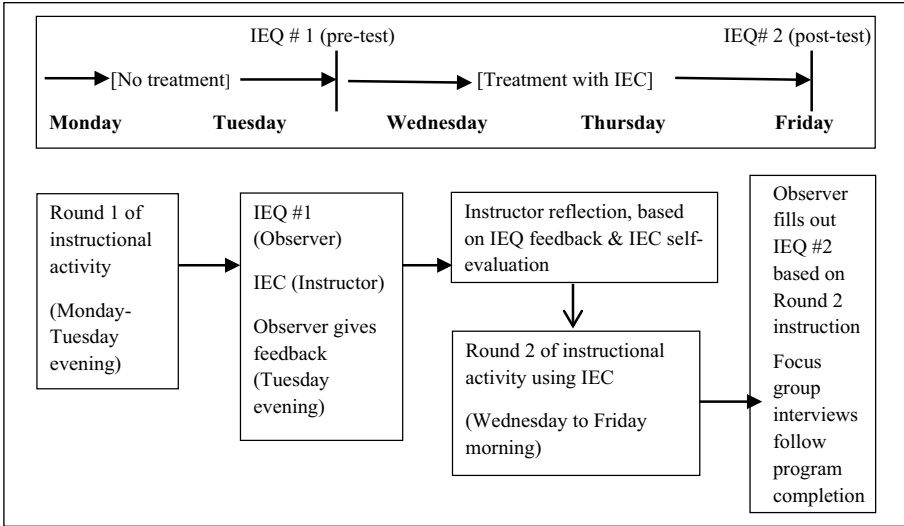


Figure 1. A graphical representation of the data collection process.

questions were directed to the observer's rating of the instructor's teaching, whereas the IEC asked the instructor to rate themselves as to their teaching performance using the same questions. Each question was rated on a 5-point Likert scale, from *completely false* to *completely true* with room for anecdotal comments. Questions were grouped into nine construct categories: action–practice, arousal, communication, feedback, group processing, leadership, motivation, perception, and structure. Table 1 defines each category and provides representative examples.

Observers were encouraged to dialogue with their instructor on Tuesday evening to informally share their observations and their completed IEQ. Prior to this meeting, instructors filled out an IEC, scoring their performance and adding any reflective comments, as needed. Instructors reviewed the observer's IEQ scores and comments and cross-compared them with their own IEC ratings. The intent was that the instructor would use this information to address areas where instructional improvements could be made in subsequent activities, resulting in a possible treatment effect that the second IEQ might identify in terms of a score change.

Quantitative Data Analysis

IEC and IEQ forms were collected by the researcher at the end of each week. The 5-point Likert score for each of the 57 questions was converted into a simplified scale ranging from +2 to –2 to identify any circumstances of “miseducation” (Phipps et al., 2005, p. 59). The score conversion is shown in Table 2. Scores were tabulated in Excel 2010 to enable cross-comparisons with total and mean scores grouped by instructor, week, and instrument question. Since not all questions were answered on some forms,

Table 1. Construct Category Definitions and Examples.

Construct category	Example question
Action/practice Student activity and learning; understanding the “whys” behind learning; emphasis on safety	The pace of instruction was sufficient for learning according to activity/program goals
Arousal Student interest maintained; fear/stress levels managed	Student fear/stress levels were managed so that positive learning occurred
Communication Clarity of instruction; degree of spontaneous dialogue	Information was given in understandable ways
Feedback Appropriateness and timeliness of feedback (corrections, praise, acknowledgment, etc.) to and from students	The instructor gave accurate feedback and corrections. The instructor was open to feedback from individuals and the group
Group processing Management of group behavior/dynamics	The instructor provided leadership/ team building activities to promote a positive group climate
Leadership Ability to multitask; treat students fairly and equally; establish a relaxed and positive learning environment	The instructor focused on the group and individuals rather than himself or herself
Motivation Attention to safety of individuals and group (physical and psychological); instructor enthusiasm	The instructor made efforts to meet individual needs
Perception Ability to relay appropriate information in an understandable fashion; students’ ability to process at higher cognitive levels through debriefing and developing judgment skills	Time was set aside for reflective observations on the reasons why we did things (debriefing). The instructor taught at the students’ level (same wavelength)
Structure Clear program goals; focused instruction promoting individual and group learning; student learning at an appropriate level of difficulty; scaffolding of learning tasks	A clear focus on goals was evident in instructional activities. Program and/or activity goals were clearly defined

mean scores were calculated for each completed IEC and IEQ. The difference between pre- and posttest IEQ values were calculated as a percentage change (change score or

Table 2. Score conversions used for IEQ and IEC questions.

Descriptor	Likert value	Score
Completely true	5	+2
True much of the time	4	+1
Sometimes true and sometimes false	3	0
False much of the time	2	-1
Completely false	1	-2

Note. IEQ = Instructor Effectiveness Questionnaire; IEC = Instructor Effectiveness Check Sheet.

gain value). Percentage change was chosen as a representative value to make the data easier to interpret. If only one IEQ was completed for any instructor, it was not included in the analysis, as both a pre- and posttest measurement was required to determine if a change in teaching effectiveness occurred. Thirty-six sets of paired pre- and posttest IEQ scores were selected for further analysis of statistical significance in SPSS 17.0. Each question was then scrutinized to determine which were consistently high or low scorings across the sample.

Qualitative Data Collection

As noted in the literature review, due to the paucity of research on teaching and learning in adventure education settings, the qualitative component of this study adopted an inductive approach to identify associations and connections between the experiences of different instructors. These interviews built on the studies by Phipps and Claxton (1997) and Phipps et al. (2005), and were informed by the use of group discussion techniques by Pelchat and Karp (2012), yet used in this context to identify and describe improvement effects of adventure educators' instructional competencies.

Weekly focus group interviewing was selected as an appropriate method to sample the instructors' thought processes and reflective strategies, given constraints on their time and availability. Focus groups were chosen because their purpose, according to Kreuger and Casey (2009), was to elicit feelings and opinions, which is facilitated in a small, supportive group environment of peers with shared interests/experiences. Focus groups foster disclosure, interaction, and collaboration, which promoted individual and group reflection in this context. The interviews consisted of a series of open-ended questions posed by the researcher with opportunities for the discussion to evolve as participants saw fit. Each week involved several recurrent questions plus new questions selected to probe themes or issues deemed relevant to the reflective process. A sample of focus group questions are given in Table 3. Two to six participants were interviewed at a time using a mini-focus group format. A total of 11 focus group interviews were conducted, with each session averaging one hr in duration. Two to three focus groups would be scheduled back to back on Friday mornings following

Table 3. Sample Focus Group Interview Questions.

Interview question	Focus group round where questions was posed (Rounds 1-3)
What teaching strategies/techniques were most effective for you?	1, 2, 3
What teaching strategies/techniques were less effective?	1, 2, 3
What was your emotional response to being assessed? Did you feel that it may have affected your teaching performance?	1, 2
Do you believe that the IEQ was an accurate measurement of your teaching ability? Explain why or why not?	2, 3
Was the IEC helpful as a tool to improve your teaching? If so, how?	2, 3
What was the process you used to reflect on and modify your subsequent teaching? What role, if any, did the IEC play?	2,3
How effective was the reflective process in improving your teaching skills? How does it compare with receiving feedback?	2, 3
What does the idea of a “reflective practitioner” mean to you? Could it also apply to outdoor educators?	3
What learning will you take away from this experience?	3

Note. Interview questions were sequenced from less to more complex in later interviews. Two to three focus groups of approximately 1 hr each were scheduled on Friday, immediately after a program was finished. IEQ = Instructor Effectiveness Questionnaire; IEC = Instructor Effectiveness Check Sheet.

the end of the program week. An additional nine individual interviews, 45 min to one hr each in length, were scheduled at the end of the study. Their intent was to determine if any issues not disclosed in the focus groups would be raised at this time.

Qualitative Data Analysis

Qualitative analysis methods were applied to nine focus group interviews and nine individual interviews using a convergent design approach (Creswell & Plano, 2011). Audio recordings were transcribed verbatim using Express Scribe and then uploaded to the NVivo 9 qualitative data analysis (QDA) software package. The QDA process began with a close reading of the text of each interview by two of the researchers working independently to identify a set of emergent codes that were applied to all of the transcripts in an iterative process of reading and reflection. NVivo generated word counts and frequencies that corroborated the researchers' previously identified themes

(referred to in NVivo as *nodes*). Seven general-category-level nodes were collapsed into a subset of primary and distinct themes.

The nine individual interview responses and all qualitative comments recorded on the IEC and IEQ were then merged for comparative analysis, first with focus group transcript data and then with scoring trends from the instruments. This triangulation of IEQ and IEC scoring data and interview responses contributed to a descriptive model of the evaluation, feedback, and reflection process of adventure educators. Triangulation has been used successfully in prior field-based outdoor education research (Pelchat & Karp, 2012). The researchers chose to limit the level of analysis to data display rather than higher levels such as transformation, correlation, or consolidation (Onwuegbuzie & Teddlie 2003).

Results

Significant Findings: Quantitative Analysis of IEQ and IEC Instruments

A total of 115 IEQ and 61 IEC surveys were collected with a 39% return for IEQs and 41% for IECs. Thirty-six sets of paired pre- and posttest IEQ scores were analyzed with SPSS 17.0. Refer to Table 4 for the scores for each participant. The mean change in instructor effectiveness, based on the difference between pre- and posttest IEQ scores over six weeks, was +8.32% for the 21 instructors with a standard deviation of 0.232. All but two of the 21 instructors demonstrated a positive gain score by the end of the study. Paired-sample *t* tests revealed that this increase was statistically significant ($t = -5.635$, $df = 35$, $p < .0001$). The null hypothesis—there would not be significant improvement in instructor effectiveness, identified by IEQ scores—was rejected. Observer evaluation and feedback followed by instructor reflection and modification of their teaching practices was demonstrated by a quantifiable improvement in instructional effectiveness ratings.

Mean totals were also derived for the nine construct categories. Mean scoring prevented unanswered questions from skewing the overall totals. Figure 2 shows the instructors' pre- and posttest IEQ and IEC aggregate mean scores and percent changes over the six-week study period (Week 1 pilot data excluded). All construct category scores were statistically significant ($p < .05$), except for action–practice ($p = .053$) and leadership ($p = .226$). Score increases were noted in all nine constructs. Construct score totals increased from an average of 76.2% on pre-tests to 83.9% on post-tests (+7.7%), with the largest improvements in structure (+13.8%) and perception (+12.1%). Leadership scored the highest, at +19.7%. A noteworthy observation was that instructors consistently rated themselves lower ($M = 61\%$) on their IEC self-evaluations, compared with observers' mean IEQ pretest score of 76.2%.

Significant Findings: Qualitative Analysis of Focus Group Interviews

Qualitative data analysis (QDA) using NVivo 9 revealed a total of seven category-level nodes. From these, four nodes were identified as key themes from the focus

Table 4. Instructor Demographics, Mean Scores, and Percentage Change in Instructor IEQ Scores.

Instructor no.	Mean score/2	% Change	Gender	Age (years)	Years of outdoor education experience
1	1.49	2.70	F	21-25	>2-5
2	1.58	13.40	M	21-25	0-1
3	1.76	1.30	F	21-25	0-1
4	1.59	14.10	F	26-30	>2-5
5	1.77	9.70	F	21-25	>5-10
6	1.72	6.10	F	21-25	>1-2
7	1.27	10.30	F	21-25	>2-5
8	1.81	2.60	F	26-30	>2-5
9	1.27	15.70	M	26-30	>5-10
10	1.62	10.00	F	21-25	>2-5
11	1.62	13.90	M	31-35	>1-2
12	1.22	-3.40	M	41-45	>10-20
13	N/A	N/A	M	41-45	20+
14	1.73	6.10	M	26-30	>5-10
15	1.10	5.40	F	17-20	>1-2
16	2.00	0.40	F	—	—
17	1.35	18.20	M	21-25	—
18	1.61	-2.70	M	21-25	0-1
19	1.58	N/A	M	21-25	>2-5
20	1.78	3.80	M	21-25	0-1
21	1.85	N/A	M	21-25	>2-5
22	1.50	N/A	F	21-25	0-1

Note. Percentage change was either positive, to indicate a quantitative improvement in instructor effectiveness, or negative, showing a quantitative decrease in instructor effectiveness. Percentage changes were calculated based only on paired IEQ samples (both a pre- and posttest IEQ submitted for any given week). Instructors 19, 21, and 22 entered the study late (Week 5), so insufficient data was collected to yield a percentage change value. Instructor 13 was the primary researcher, so his results were excluded from analysis. NA = not available.

group interviews: *feedback*, *evaluation*, *debriefing*, and *reflection*. Table 5 provides NVivo frequency counts, which include the synonyms shown for each theme that were included in the totals.

Feedback and Evaluation Themes

Most instructors noted that they rarely received any feedback about their teaching performance in other educational programs, so they were appreciative of and receptive to the comments from midweek dialogue sessions between instructor and observer. They had a less favorable impression of the IEQ's numerical scores, however, which

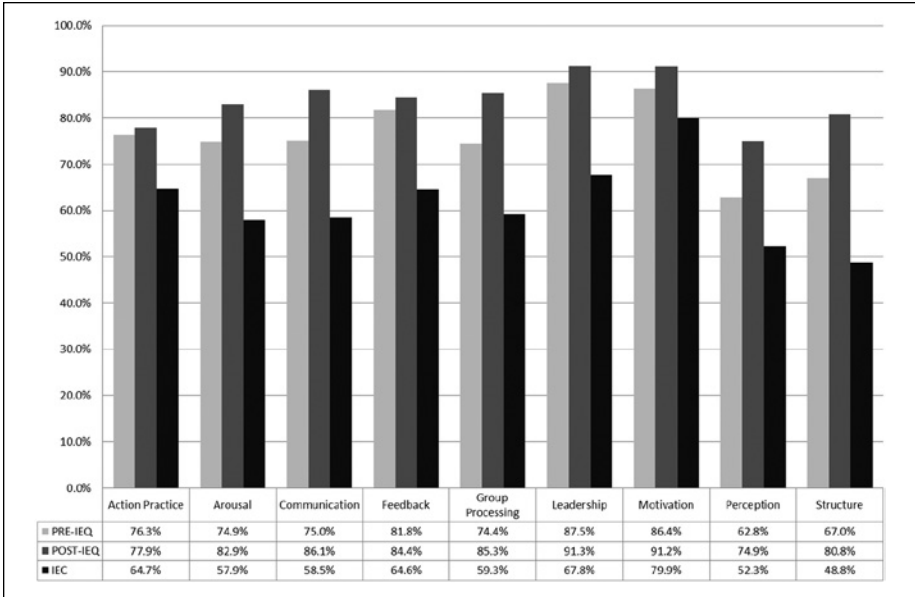


Figure 2. Comparison of mean IEQ and IEC scores by construct category.

Note. IEQ = Instructor Effectiveness Questionnaire; IEC = Instructor Effectiveness Check Sheet.

Table 5. Word Frequency of Key Themes (NVivo 9 Output).

Word	Length	Count	Weighted percentage (%)	Synonyms
Reflection	10	375	0.46	Expressed, observant, observation, observations, observe, observed, observer, observers, observes, observing, reflect, reflected, reflecting, reflection, reflections, reflective, 'reflective, thought, thoughtful, thoughtfully, thoughts
Feedback	8	240	0.44	Feedback
Debrief	7	214	0.39	debrief, 'debrief, debriefed, debriefing, debriefings, debriefs
Evaluation	10	259	0.35	assess, assessed, assesses, assessment, evaluate, evaluated, evaluating, evaluation, evaluation', evaluations, evaluative, evaluator, evaluators, judge, judging, measure, measureable, measured, measurement, measures, measuring, rated, rates, rating, ratings, value, valued, values

many instructors regarded as less important than oral or written feedback because they were seen as more nuanced, accurate, and applicable to specific contexts. Instructor comments indicated that the IEC was considered to be more useful than the IEQ due to issues of utility for the former and accuracy for the latter. Concerns over the validity of a 5-point scale to objectively encapsulate learning experiences that were, by their very nature, more subjective, caused some instructors to have a low regard for the IEQ results: “the numbers (the IEQ scores) were arbitrary.” However, this did not dissuade them from finding utility in the self-reflective process because they valued receiving oral or written feedback from their chaperone, reflecting on it, and then implementing changes:

I think the comments (written on the IEQ by the observer) are by far the most helpful. The teacher is thorough and forthcoming enough to actually critique you and comment on how you have been teaching. The numbers don't do much for me because it seems to be all 4's and 5's. I haven't seen a one or a two, although I'm sure I deserve a few.

Instructors were able to compare their self-perceptions with others: “It's been really valuable to not just have a self-reflection but have someone else give you feedback as well. Not only do they notice things you don't, your awareness is broadened.” Some instructors reported a consistency of scores in some questions from one week to the next, in spite of having different observers:

So, I was giving 3's, 4's or 5's mostly and my instructor, mostly 5's and some 4's and 4.5's, so we didn't match up that way, but if you look at the relative scores, we were scoring low and high on the same things. And then our comments were almost the exact same . . . about how the week was going, how the teaching was going and that was just awesome to me because we could both see that we were on the same page about what was happening.

This consistency of scoring over time contributed to the validity of the IEQ and IEC evaluations and the process used for administering them. Instructors agreed that any evaluation was context specific and was enhanced via dialogue between the observer and the instructor and then among instructors during focus groups.

Debriefing Theme

Most instructors reported enhanced confidence with and efficacy in debriefing students' learning experiences as the study progressed. They used debriefing following activities as a way to check for student understanding and to facilitate learning transfer. They reported positive experiences with self-evaluation using the IEC, and receiving observer feedback provided them with an incentive to do so. Early in the study (Weeks 1 and 2), instructor comments suggested a perceived weakness in debriefing skills, which was corroborated by lower scores for IEQ questions pertaining to debriefing activities. Sharing of ideas to facilitate debriefing and experiences applying these strategies was a common topic of focus groups during Weeks 3 to 6:

I have actually started doing that a lot (frontloading and debriefing) since we started doing this process 'cause there's a lot that talks about that in here (in the focus groups), so I'd never really consciously thought of that (debriefing) like a process.

Instructors who reported implementation of what they had learned from the focus groups about debriefing indicated a perception of improved student understanding in addition to higher IEQ scores on questions related to debriefing skills.

Reflection and Reflective Practice Theme

With regard to reflective practice, a topic that was prominent in the later focus groups, instructors reported that they were receptive toward feedback, both positive and constructive, and regarded themselves as reflective practitioners:

I think it (self-reflection) can act well [*sic*] as a friendly reminder of things that you should be doing as an instructor and this, overall, as a tool (the IEC), has been really effective because I'm usually not the type of person who likes reflecting on myself and how I'm doing, so for me to sit down and write comments and grade myself has been a valuable experience.

The reflective process became more refined as the study unfolded. For example, several instructors commented that as the study progressed, they tended to ignore scores of 4 or 5 on their IEQ assessments and instead focused on anything less than 4 as an area worthy of attention: "I've become harder on myself over the weeks and I'm not afraid to give myself 3's or like a 2 (on their IEC)."

Discussion

Interpretation of Findings: Quantitative Analysis

Quantitative results indicated a statistically significant improvement in instructor effectiveness over 7 weeks, based on positive IEQ gain scores from pre- to post-test. Regular opportunities for feedback and reflection with the focus group as a key element for sharing experiences may have been a contributing factor. Moreover, lower mean IEC scores, compared with IEQ results, suggested that instructors engaged in critical reflection, which is at the core of reflective practice theory (Johns, 2004; Schön, 1987; S. Thompson & Thompson, 2008).

The measured improvements in instructor effectiveness were comparable with results from previous research (Phipps & Claxton, 1997; Phipps et al., 2005). Where this study differed was in terms of gender effects: Phipps observed higher scores for females, but this study could not identify a significant difference between male and female scores (Phipps & Claxton, 1997). Construct category totals from both studies shared highest scores for *leadership* and *motivation*, indicating quality instruction, yet differed on *arousal*, *action-practice*, and *group process*. The larger variety of groups and observers participating in this study may have accounted for these differences.

The researchers could not provide any definitive explanations for the highest score increases in the *leadership* and *structure* construct values. Data fatigue associated with answering 57 questions can be ruled out since construct comprised the first 10 questions and leadership the last six. It is postulated that strongly positive scores under *structure* could be attributed to SPL's activity schedule. High *leadership* scores may have been conflated with a measure of social desirability (Bialeschki, Henderson, Hickerson, & Browne, 2012), although interview questions and comments on this issue were inconclusive.

Interpretation of Findings: Qualitative Analysis

Comments from the focus group interviews indicated that instructors perceived that the evaluation, feedback, and reflection process helped them improve their teaching skills, despite reservations about the applicability and accuracy of the IEQ. They were unanimously enthusiastic about the value of focus groups as a forum for sharing teaching experiences and ideas in an informal, mutually supportive environment. Comments indicated that the instructors perceived that the focus groups contributed most to their improvement, followed by self-reflection using the IEC and/or dialogue with their observer. Instructors also reported that chaperones tended to be more engaged with group activities and instructors tended to develop a stronger rapport with their chaperone because of their participation in a structured study.

The IEC had practical utility because it served as a checklist to remind instructors of key teaching strategies. Several instructors commented on using it in this fashion, particularly early in the study. Positive comments about the IEC, the focus groups, dialogue with observers, as well as the evaluation, feedback, and reflection process suggested that these elements of the study were popular and successful with instructors. In comparison, the IEQ was less popular among instructors; the process and accuracy of observers rating their teaching objectively were questioned. Many instructors and observers reported that the rigid structure of the forms was limiting. Numerous suggestions were given at the end of the study to improve the IEQ. These comments ranged from changing the wording of questions to omitting certain questions. A format that was flexible and allowed for comments, yet could be filled out quickly, was regarded as important. A rubric featuring a rating scale that clearly described what a particular score value would represent was seen as a possible and practical way to create a more effective rating system.

As the study progressed and instructors became more comfortable with the reasons for debriefing as well as how and when to facilitate effective debriefs that maximized learning transfer, they reported a higher degree of satisfaction with the overall evaluation, feedback, and reflection process. The focus groups examined and shared teaching ideas, moving from the *what* and *how* of teaching to the *why*, which is the domain of the critical, reflective practitioner (Johns, 2004). Debriefing student activities in terms of not just *what* they experienced and *how* they went about it, but also *why* they underwent a particular experience made it more relevant to participants and gave instructors deeper insights into the reflective process. As instructors encouraged others to analyze

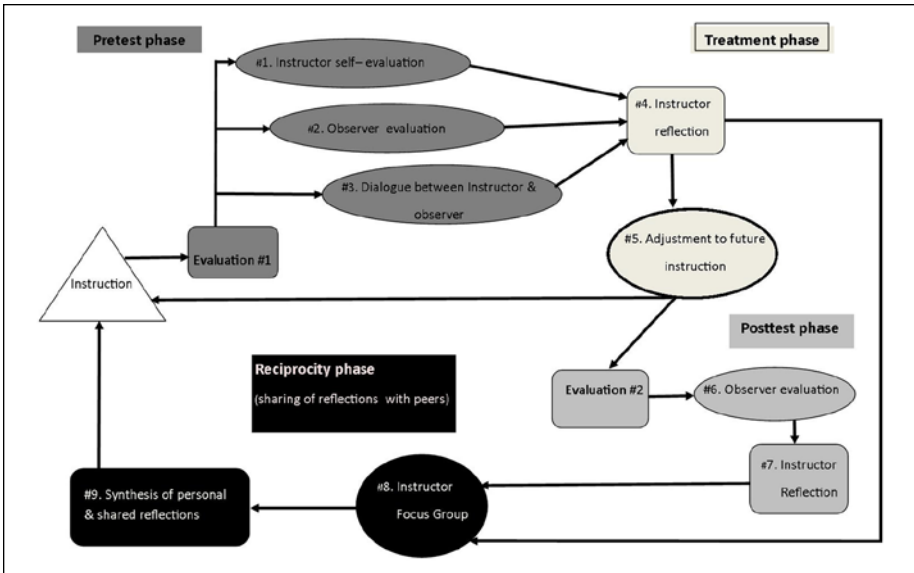


Figure 3. Reflective processing for outdoor educators: a descriptive model.

how they thought, felt, and interacted, they sharpened their own capacity to become reflective practitioners. Nevertheless, instructors often struggled as their metacognitive self-awareness skills were still in development. For example, many instructors could not articulate many of their teaching decisions, merely referring to their rationale as “intuition.” There is an underlying, but not fully understood, decision-making process at work. It would appear that participants’ ability to be introspective had limits based on their metacognitive abilities (Pintrich, 2002).

Triangulation of Quantitative and Qualitative Results

A numerical improvement in instructor effectiveness, as reported by a mean increase in IEQ scores, was matched by positive individual and focus group interview comments, which suggested that a process of evaluation, feedback, and reflection contributed to improvement in teaching skills in this context. Positive results in both quantitative and qualitative outcomes enhanced the validity of the overall research findings.

A descriptive model of the reflective process developed from this study is shown in Figure 3. The reflective process model features a cyclical, feedback mechanism akin to other experiential teaching/learning theories (Drury et al., 2005; Joplin, 1981). Multiple channels for repeated, systematic feedback promoted continuous reflection. Focus groups became an important venue for enhancing reflective practice because they provided additional opportunities to share reflections with peers in a cyclical and spiraling fashion, as per Joplin’s model. The structured nature of the process, as applied

during the study period, contributed to frequent, systematic reflection, beyond the individual reflection that most of us are familiar with. Individual reflection can occur during the treatment phase and again during the reciprocity phase, as the feedback from multiple evaluations can be shared and examined collectively. Positive instructor comments about the value of focus groups plus findings from McKeachie's (1987) survey of assessments of college instructors and S. Thompson and Thompson's (2008) emphasis on the value of a group reflective space recommend focus groups as an important part of any program of reflective practice, and this study's results add support to this strategy.

Study Limitations

There are significant challenges associated with conducting research within the field of adventure education: Varying programs and instructional standards, the myriad of human experiences, weather, and the fluidity of the outdoor environment are factors that do not lend themselves to a laboratory study (Bialeschki et al., 2012; Priest & Gass, 2005). Busy schedules of instructors and chaperones contributed to low return rates of IEQ and IEC forms, resulting in numerous "holes" in the data set. One of the reasons that may account for this is that many overnight trips were scheduled on Tuesdays; the busier pace associated with this activity left less time for completing the forms and receiving feedback. Adjustments to the schedule were not feasible. Some forms had unanswered responses, so mean scores were used instead of summative totals. Interrater reliability was an area of concern, yet the effect of a different evaluator each week could not be controlled for. Since the goal of the study was to assess the improvement effects and attitudes of the instructors each week, intrarater and test-retest reliabilities were considered to be more important factors, hence the decision to include a qualitative component in this study as an additional, comparative source of data.

Another factor that could skew results were instructors who showed the most improvement, or who contributed the most to focus group sessions, would likely have exhibited more "buy-in" and were thus more motivated to participate. Moreover, instructors working with observers who offered honest, relevant feedback were more likely to be motivated than instructors who received limited feedback or mere platitudes.

Conclusion and Recommendations

This study recommends application of evidence-based research as a bridge to link reflective practice theory to adventure educators' teaching strategies. It can also offer a beneficial reciprocity effect for participants. This research provides a possible baseline methodology for examining the evolution of critically reflective practitioner skills. Future research should incorporate a longitudinal study with a larger sample of adventure educators at multiple venues (Bialeschki et al., 2012). Additional research on the metacognitive processes associated with reflection is also suggested, as this is

an area that is not fully understood. As a reflective tool, the use of focus groups have tremendous value for allowing instructors to share ideas and experiences, thereby boosting staff morale and a sense of professionalism—an important theme given recent industry trends (Bobilya, Holman, Lindsey, & McAvoy, 2010). The researchers propose that reflection should form an integral part of experiential education pedagogy, and focus groups are an effective way to inculcate reflective practice into the institutional culture of any adventure education program, which was evident during this study.

Acknowledgment

The authors would like to thank Jamie Boulding, Paul Chatterton, Dave Jackson, Amy Benskin, and all the other instructional staff at Strathcona Park Lodge and Outdoor Education Centre for permission to conduct this study and for their generous support during data collection and interviews. The authors would also like to thank Dr. Maurice Phipps for providing samples of the IEQ and IEC instruments used in his previous research.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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