The Illusion of Competence: Increasing Self-Efficacy in Outdoor Leaders

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The development of self-efficacy from participation in adventure education is consistently viewed as a positive and desirable outcome. However, outdoor leadership training is a context in which self-efficacy enhancement should be approached with caution. Recent research outside the field of outdoor leadership and adventure education has called into question the assumption of a consistently positive relationship between increased self-efficacy and subsequent behavior. Self-efficacy beliefs can be overinflated and result in inappropriate selection of behaviors, acceptance of risk, and decreased performance. This has particular relevance for outdoor leaders because of the dire consequences associated in outdoor settings. Several conditions in outdoor leadership training may contribute to inflated or inaccurate self-efficacy beliefs. These include the overprovision of success, isolated lessons of instruction, and inadequately processed experiences. Solutions to the conditions which create outdoor leaders' illusions of competence include providing a balance of opportunity for failure and success, combining skills in lessons to accurately represent future contexts of application, and the adaptation of metacognitive monitoring interventions to improve students' interpretations of experience and competence.

KEYWORDS: outdoor leadership training, self-efficacy, competence, metacognition

In an era of outcome assessment and accountability, self-efficacy is a popular outcome measure in outdoor leadership and adventure education (Hattie, Marsh, Neill, & Richards, 1997; Jones & Hinton, 2007; Paxton & McAvoy, 1998; Sibthorp, 2003). The development of self-efficacy from participation in adventure education is consistently viewed as a positive and desirable outcome (e.g., Kimbrough, 2007). However, recent research outside the outdoor leadership and adventure education field has called into question the assumption of a consistently positive relationship between increased self-efficacy and subsequent behavior (e.g., Schmidt & DeShon, 2009). In some cases, self-efficacy beliefs can be overinflated and result in inappropriate selection of behaviors, acceptance of risk, and decreased performance. In addition, several pedagogic approaches present in outdoor leadership training may contribute to inflated or inaccurate self-efficacy beliefs. Thus, the purpose of this paper is to examine the importance of accurate self-efficacy beliefs in outdoor leaders, identify potential sources of inaccurate efficacy beliefs present in outdoor leadership training, and offer strategies to intervene and develop more accurate beliefs. While we acknowledge differences in definitions of outdoor leadership, outdoor education, and adventure-based education, in the extant literature these terms are conflated. Thus, for purposes of this paper, literature on each of these related terms is considered relevant and these terms are sometimes used interchangeably.

"Efficacy beliefs are the foundation of human agency" (Bandura, 2001, p. 10). Self-efficacy beliefs influence the challenges individuals choose to undertake in similar settings in which the beliefs were developed (Pajares, 1997, 2008), and influence thoughts and behaviors beyond the original contexts (Paxton & McAvoy, 1998). Specifically, self-efficacy beliefs are concerned with what people believe they can do with their skills and abilities amidst conditions where circumstances are ambiguous or unpredictable.

Outdoor leadership contexts commonly possess ambiguous and unpredictable conditions, making self-efficacy beliefs particularly important. In essence, self-efficacy beliefs are future-oriented perceptions of competence which influence the approach or avoidance of tasks amidst uncertainty (Bandura, 1986).

Self-Efficacy in Outdoor Leadership

Considering the influence of self-efficacy beliefs on behavior, it is not surprising that outdoor leadership and adventure-based researchers have paid significant attention to their development. Sibthorp (2003) noted how the congruencies between efficacy belief development and adventure education models "make an adventure experience ideal for self-efficacy development" (p. 88). Findings from Hattie et al.'s (1997) meta-analysis indicated significant positive effects on the development of self-efficacy from participation in adventure and outdoor leadership programs. Bunting (2000) contended that increases in self-efficacy from participation in adventure-based programs contribute to psychological well-being and, subsequently, overall health. It is generally accepted that self-efficacy gains in one adventure-based setting will translate into a similar adventure-based setting (Propst & Koesler, 1998). For example, perceptions of paddling competence in one setting may influence perceptions of paddling competence in another setting.

Nearly unanimously, authors of adventure-based literature view the development of self-efficacy beliefs as positive and desirable. In light of this, there is a surprising lack of attention in outdoor and adventure-based research regarding either the accuracy in the development of self-efficacy beliefs, or the subsequent benefits of increased self-efficacy beliefs in the outdoor leadership context.

Accuracy of Self-Efficacy Beliefs

Accuracy of self-efficacy beliefs is critical in the outdoor leadership context. Outdoor leader self-efficacy beliefs which are inaccurate, as either over or underestimations of a likelihood of success, carry consequences for student safety and learning. For example, a leader may be presented with an opportunity to lead a group across technical mountain terrain; if her self-efficacy beliefs are *overestimations* of her likelihood to succeed, she may risk student safety and the possible consequences include injury or death (Martin & Priest, 1985). Between 1951 and 2007, overestimation of one's ability was the second most common contributing factor to the 905 climbing accidents in the United States; the first was climbing unroped, arguably another overestimation of ability (American Alpine Club, 2009). Conversely, if the outdoor leader *underestimates* her likelihood of success and avoids the challenge (i.e., technical terrain) she may deprive the students of a learning opportunity to experience safe travel on technical ground.

The consequences of inaccurate self-efficacy beliefs are not exclusive to the technical aspects of outdoor leadership. Regarding facilitation, processing, or teaching, a leader may need to assess her competence and predict the likelihood that she can effectively debrief a failed summit attempt or teach strategies to resolve conflict. Overinflated efficacy beliefs may cause the leader to attempt facilitating a discussion beyond her ability, possibly resulting in psychological damage to her participants. Conversely, she may underestimate her competence in an interpersonal task, avoid processing the event, and fail to provide a valuable additional learning opportunity. In sum, the accuracy of self-efficacy beliefs is an important consideration amidst the myriad of tasks an effective outdoor leader must select and perform.

Though no research has been conducted in outdoor leadership or adventure education on the impact of self-efficacy accuracy, authors in applied psychology have recently explored the importance of accurate self-efficacy beliefs, examined the consequences of inflated beliefs and identified a possible cause for inaccurate beliefs (Vancouver, Thompson, & Williams, 2001). Historically, research findings have shown a positive relationship between self-efficacy and performance when examined statistically among persons (i.e., relating a composite measure of self-efficacy across participants to a composite measure of performance); however, a *negative* relationship was observed when examining the within-person variance over time (i.e., comparing individuals to themselves over several performances; Richard, Diefendorff, & Martin, 2006; Vancouver et al., 2001; Vancouver & Kendall, 2006; Vancouver, Thompson, Tischner, & Putka, 2002; Yeo & Neal, 2006).

Simply stated, the overall positive relationship for groups was overshadowing a negative relationship for some individuals; increases in efficacy did not always indicate increases in performance. Vancouver and colleagues (2001; 2002) found that increases in self-efficacy can eventually exert a progressively smaller and potentially negative influence on performance. The authors explained that high self-efficacy beliefs can translate to overconfidence, complacency, and inaccurate perceptions of progress towards a goal, resulting in decreased resource allocation, motivation, and performance. In other words, it seems that if self-efficacy beliefs become inflated, an individual might be overconfident in their likelihood to succeed and fail to devote adequate effort and attention to a task. Vancouver, et al.'s findings came under considerable criticism (e.g., Bandura & Locke, 2003); however, the results have been examined and replicated by other researchers (Moores & Cha-Jan Chang, 2009; Schmidt & DeShon, 2009; Yeo & Neal, 2006). In general, recent research findings refute the adage "more is always better" in the context of self-efficacy beliefs.

Reasons for inaccurate self-efficacy beliefs and subsequent poor performance include the degree of prior success and a lack of continual self-assessment. Schmidt and DeShon (2009)

found that "following poor or substandard performance, self-efficacy was actually accurate in relation to subsequent performance. However, following increasingly more successful prior performances, *self-efficacy was negatively related to subsequent performance*" [italics added] (p. 198). For a significant number of participants, as self-efficacy increased, performance actually decreased. Several authors contend that these findings point to the importance of continual self-assessment of competence in the effort to avoid the over-inflation of efficacy beliefs despite apparent previous successes (Moores & Cha-Jan Chang, 2009; Schmidt & DeShon, 2009).

In spite of Bandura's criticisms, this is actually consistent with his explanations of the sources contributing to the development of efficacy beliefs: Self-assessments of past performances are the largest contributing factor (Bandura, 1977, 1986). Further, it should be noted that efficacy beliefs are formed based on self-assessments of performance regardless of their accuracy. For example, if an outdoor leader makes an assessment of competently climbing a rock face, though he was assisted up the crux by his belayer, the resulting inaccurate self-assessment of performance may translate to an inflated self-efficacy belief in future climbing experiences.

Inflation of efficacy beliefs should be avoided in an outdoor leadership context due to the physical and educational consequences associated with failure. Where conditions are controlled and risk is managed, failure can be instructive (Nicolazzo, 2004), yet in other conditions, failure can result in physical and psychological damage (Martin & Priest, 1985). Outdoor leadership training programs which intend to develop outdoor leaders should pay particular attention to the accuracy of self-assessments in order to keep outdoor leader self-efficacy beliefs and subsequent behaviors in check.

The Problematic Nature of Self-Assessment

Individuals generally overrate themselves compared to their actual knowledge or behavior (e.g., Dunning, Heath, & Suls, 2004). Limited research to date has been conducted on the accuracy of self-assessments in outdoor leadership or adventure education contexts. In exploring recent outdoor leadership related self-efficacy data collected from the National Outdoor Leadership School (NOLS) and the Wilderness Medicine Institute, the authors noted some curious patterns. First, there was practically no relationship between self-efficacy and actual skill performance in a wilderness first aid scenario (Schumann, Schimelpfenig, Sibthorp, & Collins, 2012). In subsequent data analysis, as part of a scale development study, there was also virtually no relationship between teaching outdoor education self-efficacy and either number of field weeks, or course level (Schumann & Sibthorp, 2013). In general, NOLS instructor candidates, arguably more experienced outdoor leaders, should be more confident in their outdoor education teaching skills than beginning outdoor education students. However, these anticipated patterns were not evident in the data. These findings are consistent with studies in other fields. Individual's notions of their skill and cognitive capacity often do not correlate with their performance (Bjork, 1994, 1999; Chemers, Hu, & Garcia, 2001; Dunning, Johnson, Ehrlinger, & Kruger, 2003; Hansford & Hattie, 1982; Mabe & West, 1982).

Dunning et al. (2004) illustrated the importance of accurate self-assessment and the resultant behaviors by noting:

> To the degree that people judge themselves accurately, they make decisions, big and small, that lead to better lives. However, to the extent that people misjudge themselves, they may suffer costly consequences by pursuing wrong paths and missing opportunities to take advantage of special skills and resources they truly own…at times the consequences of flawed self-assessment can be severe, as in

the case of the novice airplane pilot who thinks he can take off into fog without his flight instructor's supervision (p. 70).

Furthermore, the consequences of inaccurate self-assessment, self-efficacy beliefs, and behaviors are not confined to the individual, e.g., a poorly built climbing anchor exposes other climbers to unnecessary risks that might be life threatening. The accuracy of self-efficacy beliefs and the corresponding appropriateness of subsequent choices hinges upon accurate self-assessments (Bandura, 1986). Thus, outdoor leadership training is a context in which the accuracy of self-assessment should be a priority, and self-efficacy enhancement should be approached with caution.

Sources of Inaccurate Self-Efficacy Beliefs in Outdoor Leadership Training

One of the many goals of outdoor leadership programs is to train outdoor leaders in a variety of technical and interpersonal skills and develop a leader's "ability to accurately self-assess" (Pelchat & Williams, 2009, p. 36). Paradoxically, there are several mechanisms present in adventure education and outdoor leadership programs which may lead to outdoor leaders' inaccurate self-assessments and subsequently, inaccurate self-efficacy beliefs. As such, the following will bring particular attention to sources that contribute to the proximal outcome of inaccurate self-assessments that can potentially contribute to the distal outcome of inaccurate self-efficacy beliefs.

The provision of success. A potential source present in outdoor leadership training which contributes to inaccurate self-assessments and subsequently inaccurate self-efficacy beliefs is the provision of success. Bjork (1994) points out the importance of introducing difficulties to the learner in order to make the experience a more accurate index for assessment. In essence, too much success and not enough opportunity for error might mislead the learner into an illusion of competence. The author goes on to explain that failures more effectively inform the learner of future conditions of practice and give a more comprehensive perspective of ability and limits. McKenzie's (2000) review of how adventure education programs achieve outcomes also emphasizes the importance of building a balance of success and failure into activities and programs. It seems that the adventure-based and outdoor leadership literature none-the-less possesses a considerable bias towards success. Walsh and Golins (1976) described the steps necessary to maximize the students' potential for success. Kimball and Bacon (1993) explained that adventure education activities are typically "structured so that success and mastery are not only possible, but probable" (p. 21). Bisson (1998) conducted a comprehensive examination of sequencing in adventure education and categorized the final stage of sequenced adventure activities as "group achievement" (p. 210).

Is it possible that a benevolent outdoor leadership instructor, intending to develop future outdoor leaders' confidence, might provide a disproportioned number of opportunities for success? For example, in the process of teaching orienteering, an instructor may repeatedly choose locations with easily identifiable topographic features (i.e., defined ridgelines, deep valleys, and clearly defined summits). Each time, the students quickly develop an understanding of the relationship of the map to the field. Success comes relatively easily, perhaps too easily. Subsequently, the outdoor leadership students may be provided a challenge to apply their orienteering skills and navigate through mountainous terrain toward an open meadow in a valley below. In reality, the contours of the terrain make it difficult to miss the meadow. Based upon their successful arrival to the meadow, the students might assess themselves as competent in orienteering. Initial

success was necessary and instructive; however, the repeated provision of success failed to provide information on their skill limits. This may contribute to illusions of competence in their ability (Bjork, 1994) and subsequently (and dangerously) contribute to inflated self-efficacy beliefs in orienteering.

Isolated lessons of instruction. Sometimes referred to as massed training (Glenberg, 1979), instructional lessons isolate each skill training, as opposed to intermingling the skills, in an effort to more accurately represent the context to which the skill will be transferred. Simon and Bjork (2001) found that individuals who learned skills in an intense block of instruction, which did not accurately represent the complex nature of the tasks in context, were significantly outperformed by the groups who learned the task in an environment which more accurately represented the transfer context. The isolated skill group actually learned the skill faster but consistently made more overly optimistic predictions of their subsequent performance. Dunning et al. (2003b) aptly explained this error by noting, "short-term excellence is mistaken for long term competence" (p. 87).

Several examples of this approach are apparent in current adventure-based texts (e.g., Stremba & Bisson, 2009). In a chapter on sea kayak skill development, Holden (2009) provides a single intense "Eskimo bow rescue" lesson. Whilst in calm water, the paddler intentionally flips her boat upside down, waits, and moves her hands back and forth along her hull, while another boater brings his bow to the side of the capsized boat. Finally, she reaches up to grab the bow and rights herself without exiting the kayak cockpit. The author's follow-up activity is to perform this task again at an unannounced time in a calm protected area. Though the follow-up is nearing an accurate representation of the real context it is only until the participant is required to perform in the real context that she will have accurate information upon which to base her self-assessment. Anyone who has experienced success learning the similar self-rescue Eskimo roll in a pool understands this misperception of ability when they attempt their first Eskimo roll in actual surf. Without subsequent practice in real conditions, the participant may falsely believe she has the competence in this skill. Misinformed skill-efficacy beliefs may result and lead her to believe she could perform this skill if necessary in a leadership context.

Processing experiences. Processing experiences is an inherent component in training outdoor leaders which may contribute to inaccurate self-assessments and subsequent self-efficacy beliefs. Any model of experiential or adventure-based education contains the essential element of experience (e.g., Kolb, 1984; McKenzie, 2003; Walsh & Golins, 1976). Outdoor leaders-in-training are provided experiences from which they can learn, grow, and develop an understanding of themselves and the world around them (Hunt, 1999). Sugarman, Doherty, Garvey, and Gass (2000) define processing as a cognitive endeavor where people recapture their experience, think about it, mull it over, and evaluate it. Oftentimes, it is not possible to formally process every experience or, by intention, some experiences are left to the participant to make meaning from independently; this can be considered letting the experience speak for itself. In addition, debriefing without sufficient frontloading has been found to inadequately inform or assist participants in making meaning from experiences (Paisley, Sibthorp, & Jorgenson, 2006). These mechanisms leave the onus on the student to make sense of her experience, assess her competence, and develop self-efficacy beliefs with limited or potentially inaccurate information.

Some participants, in fact, come more equipped than others to accurately self-assess or process their experiences. Research findings have shown that individuals in the lower performing quartiles of ability ranges consistently overestimate their performance (Hodges, Regehr, & Martin, 2001; Kruger & Dunning, 1999). For example, average or below average debaters have been shown to consistently overestimate if they were winning a debate, and they were just as likely to

inaccurately evaluate who was winning a debate in which they were not participating. This phenomenon has been demonstrated in a variety of contexts, including test taking, medical skills, and laboratory technicians (for a review, see Erhlinger, et al., 2008). One hypothesis regarding the lower quartile's consistent inaccurate self-assessment is that persons in this range possess the least amount of ability, and correspondingly, lack the knowledge of what adequate performance is. Simply stated, these individuals are "unskilled and unaware" despite performance feedback amidst their experience (Kruger & Dunning, 1999).

In the context of outdoor leadership training, a student leader-in-training may be asked to facilitate the problem solving process for an important group decision (e.g., to set up camp rather than continue on late into the night to reach a food cache). The leader-in-training might meagerly facilitate a solution: He neglects to comprehensively gather information about the route, fails to see viable alternatives, and weights his own desires heavier than his peers'. Ultimately, he facilitates a decision to continue on towards the cache. Due to the lateness in the day, upon reaching the cache, the course instructor might direct attention towards other tasks, such as establishing camp. The following morning may be too hectic reorganizing food and gear to fully process the evening's events. By default, the leader-in-training is left to process the experience independently. As a novice, the leader-in-training lacks an understanding of the complexity and multiphasic nature of problem solving and decision-making (e.g., Priest & Gass, 2005), yet, based on what seemed to be the achievement of a decision, the student may assess himself as competent in problem solving and decision-making. The result may be a future outdoor leader with an inadequately informed self-assessment and overestimated self-efficacy beliefs.

Though accurate self-assessment is a desired goal of outdoor leadership training, programmatic efforts such as the provision of success, isolated instructional lessons, and poorly or unguided processing might contribute to inaccurate self-assessments and lead to inaccurate self-efficacy beliefs and inappropriate behaviors in outdoor leadership. Further, those who possess inflated self-efficacy beliefs pose a particular danger to themselves and those they lead in the outdoors.

Strategies to Develop Accurate Self-Efficacy Beliefs

There are several possible routes toward developing more accurate self-efficacy beliefs in outdoor leaders. In reviewing contemporary literature, the most promising paths include shifting learning opportunities to include a balance of success and failure, combining skills and imbedding them in more realistic contexts, and encouraging students to predict their performance and reflect on both their prediction and their actual performance afterward. We refer to this last approach as metacognitive monitoring.

Balanced Provision of Opportunity for Failure and Success

The intentional provision of opportunities for both failure and success may be a viable solution to limit the development of inaccurate outdoor leader self-efficacy beliefs. Nicolazzo's (2007) site management theory provides a concept for applying such an approach in outdoor leadership training: "stationary sites" (p. 12). Stationary sites are those which can be limited by physical boundaries (such as a top roped-climbing site or the bottom of a rapid), hazards can be identified and minimized by the instructors, instructors can stop all action at a moment's notice, and students can be "tested to failure" (p. 13). Although the original application of site management is intended to provide instructors with an opportunity to assess their students' skill, the use

of stationary sites also provides the student (i.e., an outdoor leader-in-training) an opportunity to experience the limits of his competence.

An example of providing a balance between opportunities for failure and success in a stationary site may be as simple as setting up a rock climbing site which contains routes that all students can climb, and also routes beyond their abilities. Additional examples might include allowing an outdoor leader-in-training to become 'lost' while attempting to lead a group of students in a simulated leadership experience, or allow the leader-in-training to fail in facilitating the decision-making process and experience the consequences (e.g., group frustration or conflict) without intervention from the instructor. The opportunity for natural consequences where risk can be managed is one of the assets of outdoor and adventure-based education; however, how often are they intentionally utilized? In exchange for developing confidence, opportunities for failure might be unnecessarily limited. Authentic experiences with consequences provide a genuine opportunity for failure and self-assessing one's competence. Although the concept of stationary sites is primarily applied to technical skills (e.g., paddling, route-finding) where risk and failure can be sufficiently managed, applying the concept to non-technical contexts (e.g., interpersonal or leadership) may be equally as beneficial.

Combining Skills to Accurately Represent Future Contexts

Training outdoor leaders in conditions which accurately represent the complexity of the context where skills will be transferred may also reduce the likelihood of inaccurate self-efficacy beliefs. In order for learners to gain an accurate sense of their competence in a particular skill, they must be subjected to the conditions in which they will later be required to perform (Simon & Bjork, 2001). Of course, this is not always possible in any outdoor leadership context for a variety of reasons, such as time constraints or risk management. However, in relation to skill development did the course end at an introductory level? Are their skills relatively advanced in relation to the challenges in the field? Regarding risk management, a responsible instructor would not find it appropriate to capsize an outdoor leader-in-training's canoe above a real, life threatening, unmanageable hazard in order to create a more accurate training environment. However, when possible, and after students have developed proficiency in basic skills, allowing them to integrate all of their skills may help to more adequately inform them of their competence.

Ensuring that risk can be managed (e.g., at stationary sites; Nicolazzo, 2004), an outdoor leadership course instructor may choose to combine several skills into a single practice session, rather than isolating previously taught skills. For example, students may be provided an opportunity to test their abilities in a gauntlet-style challenge. Utilizing a scouted section of whitewater with accessible eddies and rescuers positioned with throw bags, a student could be allowed to paddle the rapid, intentionally capsize, attempt a "combat roll," wet exit the kayak, aggressively swim towards the river bank, and conclude with attempting to surmount a partially submerged log (which is set up on a quick-release in the event of failure to vault over the log). Combining these skills in a more controlled environment allows the outdoor leader-in-training to understand how difficult the individual tasks become when they are combined.

A non-technical illustration of combining skills could take place in the effort to teach leaders-in-training how to provide feedback. A common practice in outdoor leadership training is the leader-of-the-day (LOD) experience in which a student is asked to lead her peers throughout an entire day. Debriefing the LOD at the conclusion of the day is often a way for students to develop their skills at providing feedback (Gookin, 2003). However, providing feedback in an isolated instance at the conclusion of the day does not sufficiently represent the context in which students will provide feedback when they become leaders. An approach which more accurately represents the conditions in which leaders might operate could involve providing feedback throughout the

day. An instructor can assign two students to provide formative feedback to the LOD during the day in addition to summative feedback at the conclusion of their peer's LOD experience. This approach would require the students to employ interpersonal skills as they navigate their relationship with an LOD, select appropriate times to provide feedback, select the most salient pieces of information to provide, and structure the feedback in a manner which is accessible. Thus, combining skills and creating an integrated context can provide future outdoor leaders with a more accurate index upon which to base self-assessments of competence and self-efficacy beliefs in interpersonal skills.

Metacognitive Monitoring Interventions

By intention, the inadequate processing of experiences issue is the final solution addressed here because, even if the previous strategies are employed, some outdoor leaders-in-training may still fail to accurately self-assess their competence. For this reason, *Metacognitive Monitoring Interventions* (MMIs) have potential to more deeply and comprehensively develop accurate self-efficacy beliefs. MMIs are a strategy which can assist in the interpretation and processing of experiences through a series of actions focused on developing an awareness of performance and competence. These interventions can be considered highly structured forms of processing with lasting effects (cf., Nietfeld, Cao, & Osborn, 2006).

Paul Petzoldt, the founder of NOLS and the Wilderness Education Association (WEA), was well known for telling his students "know what you know and what you don't know" (Wagstaff, 2005, p. 6). The notion about the knowledge and skills an outdoor leader possesses is known to psychologists as metacognition (Flavell, 1979). It is the act of having a thought about one's own thinking or cognitive abilities. Metacognition has particular relevance in outdoor leadership contexts because leaders are required not only to perform physical tasks (e.g., climbing or paddling) but also cognitive tasks or metaskills such as problem solving, decision making, or teaching (Gookin, 2003; Priest & Gass, 2005). Metacognition also pertains to the cognitive processes required to accurately assess one's current state of knowledge and cognitive ability.

Metacognition can be developed through MMIs (Hacker, Bol, Bahbani, 2008). Furthermore, these interventions have been shown to successfully reduce inaccurate self-assessments, increase performance, and influence the development of accurate self-efficacy beliefs (Nietfeld et al., 2006). MMIs can effectively minimize the overestimation of ability in lower quartile performers (Kruger & Dunning, 1999). This evidence points to the utility of a monitoring intervention in outdoor leadership training where some experiences are allowed to "speak for themselves," or are insufficiently debriefed, and participants are left to make meaning and self-assessments with their own cognitive capacities (e.g. Sugarman, et. al., 2000).

Though typically conducted in the context of purely cognitive tasks, the application of MMIs components may improve the accuracy of self-efficacy beliefs in outdoor leadership skills containing both cognitive and physical tasks. In a sense, the following example is simply a monitoring intervention with metacognitive characteristics intending to influence various self-assessment domains (e.g., cognitive and physical) and ultimately, self-efficacy beliefs. Readers of this application might see similarities to current practices (e.g., Gookin, 2003); however, the process described next involves not only feedback after an individual's performance, but also involves feedback on the accuracy of a student's own performance prediction, accuracy of a student's post-performance evaluation (postdiction), provides a format for identifying areas needing further development, and provides an incentive for accurate self-assessment. Utilizing these components has been found to create durable changes in individuals' accuracy of self-assessments (Thiede, Anderson, & Therriault, 2003).

A monitoring intervention to increase outdoor leaders' self-assessment accuracy and resulting self-efficacy beliefs can take place during an outdoor leadership training course. Prior to beginning a specific leadership opportunity (e.g., teaching a skill or leading an activity), the leader-in-training is asked to predict her performance using a rubric for the task. Her performance prediction represents her self-efficacy belief in the task. At the conclusion of her leadership experience, she would evaluate her performance on the rubric again. In addition, the instructors would also evaluate her performance using the rubric. The leader-in-training would then compare her performance prediction and post-performance self-assessment with the instructors completed rubric evaluation form. The process of comparing predictions and self-assessments to objective assessments provides information for the participant to understand how well her self-efficacy beliefs are calibrated (i.e., over or underestimated), and provides information to help ensure that the student's self-assessment of the experience afterwards translates to accurate future self-efficacy beliefs. Lastly, an incentive to accurately self-assess her performance could be provided. If the students are not adequately motivated to accurately predict and postdict (i.e., self-assess) their performance by the desire to succeed or please their instructors, point systems that contribute to the student's final evaluation or grade for the course have been effective incentives in more traditional academic settings (Hacker, et al., 2008; Schraw, Potenza, & Nebelsick-Gullet, 1993).

The crux in the application of these interventions from traditional settings to outdoor leadership is the provision of objective evaluation. Previous interventions have provided performance feedback on knowledge tests in which performance assessment was unambiguous, that is, whether or not she provided the correct response to a question. A two-pronged solution to this issue is the development of a valid performance evaluation and the creation of a composite score from several sources, such as each of the course instructors. Example prediction and self-assessment forms are provided (Figure 1) as well as a sample instructor form (Figure 2).

In addition to the information on the accuracy of her prediction and self-assessment, a guided reflective process supplements the leader's understanding of areas of strength and those needing improvement. Using the instructor completed assessment, the participant could be guided through a reflection (via journaling prompts) to identify areas where her skill performance is strong or needs further development, identify specific strategies for improvement and, importantly, take note of discrepancies between her self-assessments and the instructor's observations. An instructor could help debrief/process this journal reflection with the student to clarify or assist in the monitoring process.

This process should be repeated throughout an outdoor leadership course allowing time for the intervention to have a durable influence on the participant (Hacker, Bol, Horgan, & Rakow, 2000). The current practice of debriefing participants and allowing feedback from their peers can, and should, still occur as these practices have value for the group process.

The above monitoring intervention has the potential to create durable changes in the participant's ability to accurately self-assess (Nietfeld, et al., 2006). Over time, the participant would be able to observe how well his self-assessment is calibrated, make appropriate adjustments, and apply this new knowledge in future outdoor leadership experiences. The result is an outdoor leader who can more accurately judge his likelihood of success in facilitating delicate discussion or teaching a difficult technical skill. Further, based on a new understanding of his competencies, he may more effectively manage his time and chose to practice the skills needing further development (Tobias & Everson, 2009).

Conclusion

The importance of accurate self-efficacy beliefs in outdoor leadership cannot be overstated. Perceptions of one's likelihood of success influence the challenges he or she chooses to approach or avoid (Bandura, 1986, 1977). At times, self-efficacy beliefs can be inflated or inaccurate and result in decreases in motivation and performance. However, the research in adventure-based education and outdoor leadership training has neglected to recognize the importance of accurate self-efficacy beliefs. Instead, outdoor leadership and adventure-based literature contains a consistently positive view towards participants increasing self-efficacy beliefs. Yet, due to physical and psychological consequences, self-efficacy-enhancement in an outdoor leadership is a setting should be approached with caution.

The most influential source of efficacy belief development is self-assessments. The accuracy of outdoor leaders' self-assessments influences the accuracy of the subsequent self-efficacy beliefs. Unfortunately, inaccurate self-assessment is prevalent in society and likely present in outdoor leaders. Several programmatic aspects of outdoor leadership training, such as the provision of success, isolated skill instruction, and inadequate processing may further contribute to self-assessment inaccuracies and in turn, inaccurate self-efficacy beliefs.

Several solutions to minimize inaccurate self-efficacy beliefs in outdoor leadership training exist. Applying the stationary site concept (Nicolazzo, 2004) is a possible strategy to balance the provision of opportunities for success and failure. By combining these experiences, students are able to gain valuable information regarding the limits of their abilities. Secondly, combining skills to more accurately represent the later contexts of skill application may provide students with a more complete index for self-efficacy belief development. Lastly, an intentionally designed monitoring intervention which informs outdoor leaders on the accuracy of their self-efficacy beliefs and self-assessments may be a useful strategy for training outdoor leaders. Ultimately, implementing these strategies may help to avoid inaccurate increases in self-efficacy beliefs, and thereby reduce outdoor leaders' illusions of competence and allow them to more fully and safely lead others in the outdoors.

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Part 1- Predict your performance

An instructor's *accuracy* in their self-assessment is crucial. Being able to know where your strengths and weakness are will help you become a more effective educator. This worksheet focuses on teaching abilities in five areas. Predict your level of performance in your upcoming teaching topic in each area by circling a score from the scale below and then, write a note explaining why you think you will perform to that level in each area. Remember you're shooting for accuracy, do not over or underestimate. (Circle NA if you feel the topic is not applicable to your present lesson)

1	2	3	4	5	6	7	8	9
Novice below a basic level of proficiency				Acceptable comparable to a first year in- structor				Excellent comparable to a seasoned instructor

Instruction and Assessment   Predicted Performance: 1   2   3   4   5   6   7   8   9   N/A

(For example: How well will your strategies address different learning preferences? How well will you effectively facilitate discussion? Etc…)

Outdoor Classroom Management   Predicted Performance: 1   2   3   4   5   6   7   8   9   N/A

(For example: How well will you monitor your students' protection from the environment? How well will you select an appropriate instructional site to manage student challenge while managing risk? Etc…)

Interpersonal Skill   Predicted Performance: 1   2   3   4   5   6   7   8   9   N/A

(How well will you communicate empathy for your students? How well will you communicate sensitivity for gender differences? Etc…)

Technical Skill   Predicted Performance: 1   2   3   4   5   6   7   8   9   N/A

(If your topic involves technical skills, how well will you demonstrate those skills? Etc…)

Environmental Integration   Predicted Performance: 1   2   3   4   5   6   7   8   9   N/A

(If appropriate, how well will you inform the students of local flora or fauna? How well will you integrate land management issues into your lesson? Etc…)

Figure 1. Teaching Self-Assessment Worksheet

Figure 1 cont.

Part 2- Assess your performance

Now, reflect on your performance and evaluate yourself. Remember we don't want to see humility; we're looking for <u>accuracy</u> in your self-assessment. We want to see if you know how well (or poorly) you did. Give yourself a score and write a note to explain why you think your performance was to that level in each teaching area.

1	2	3	4	5	6	7	8	9
Novice below a basic level of proficiency				Acceptable comparable to a first year instructor				Excellent comparable to a seasoned instructor

Instruction and Assessment   Self- Assessed Performance: 1   2   3   4   5   6   7   8   9 N/A

(For example: How well did your strategies address different learning preferences? How well will did you facilitate discussion? Etc…)

Outdoor Classroom Management   Self- Assessed Performance: 1   2   3   4   5   6   7   8   9 N/A

(For example: How well did you monitor your students' protection from the environment? How well did you select an appropriate instructional site to manage student challenge while managing risk? Etc…)

Interpersonal Skill   Self- Assessed Performance: 1   2   3   4   5   6   7   8   9 N/A

(How well did you communicate empathy for your students? How well did you communicate sensitivity for gender differences? Etc…)

Technical Skill   Self- Assessed Performance: 1   2   3   4   5   6   7   8   9 N/A

(If your topic involved technical skills, how well did you demonstrate those skills? Etc…)

Environmental Integration   Self- Assessed Performance: 1   2   3   4   5   6   7   8   9 N/A

(If appropriate, how well did you inform the students of local flora or fauna? How well did you integrate land management issues into your lesson? Etc…)

Instructor Form

Your instructor(s) have completed the evaluation below based on their observation of your recent teaching performance. You are encouraged to compare their scores and comments in each teaching domain with your own predictions (Part 1) and your self-assessment (Part 2). (i.e., How accurate was your self-assessment? Was it over-estimated or under-estimated compared to your instructor observations? Why? What can you do to improve the accuracy of your self-assessment in the future?)

1	2	3	4	5	6	7	8	9
Novice below a basic level of proficiency				Acceptable comparable to a first year NOLS instructor				Excellent comparable to a seasoned NOLS instructor

Instruction and Assessment   Observed Performance: 1   2   3   4   5   6   7   8   9   N/A

(For example: Did his or her strategies address students' different learning preferences? How well will did he or she facilitate discussion? Etc…)

Outdoor Classroom Management   Observed Performance: 1   2   3   4   5   6   7   8   9   N/A

(For example: How well did he or she monitor students' protection from the environment? How well did he or she select appropriate instructional sites to manage student challenge while managing risk? Etc…)

Interpersonal Skill   Observed Performance: 1   2   3   4   5   6   7   8   9   N/A

(How well did he or she communicate empathy for the students? How well did he or she communicate sensitivity for gender differences? Etc…)

Technical Skill   Observed Performance: 1   2   3   4   5   6   7   8   9   N/A

(If his or her topic involved technical skills, how well did the teacher demonstrate those skills? Etc…)

Environmental Integration   Observed Performance: 1   2   3   4   5   6   7   8   9   N/A

(If appropriate, how well did he or she inform the students of local flora or fauna? How well did he or she integrate land management issues into the lesson? Etc…)

Figure 2. Teaching Assessment Worksheet