Measurement of Challenge (Stress) Type and Intensity in Wilderness Education Students
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This project identified and measured self-perceived challenges on expedition-based educational programs at the National Outdoor Leadership School (NOLS).

Purpose
Kumpfer (1999) noted a research gap in identification of appropriate levels of challenge for positive development. No scales exist to measure self-perceived challenge level, hence there is a broad need for a challenge survey, well beyond the borders of wilderness education.

Within the field of wilderness education, identification of programmatic mechanisms helps clarify what goes on in the “black box” alluded to in the literature about experiential programs (Ewert, 1989). Describing benefits and their mechanisms can help preserve important aspects of programs that may have been less tangible, and further supports intentional programming. Scientific inquiry of the patterns of challenge and growth may appear to merely affirm folk wisdom, but documentation establishes baselines for future experimental studies. This new tool can help assess developmentally appropriate challenges in wilderness education.

A broader aim of this project was to shift a base metaphor about stress in wilderness education from fear (Ewert, 1986) to challenge. Stress scientists generally made this clarification with Selye (1974), but common language implies that stress and fear are both “bad” and primarily psychological constructs; while challenge is more open to being either positive or negative, as well as either a physical or mental test of abilities. This shifts educators’ attitudes away from conventional psychology focused on treatment of pathology and towards positive psychology, which refocuses on productive, healthy, and enjoyable lifestyles (Seligman & Csikszentmihalyi, 2000) and optimism (Seligman, 2006). This epistemological shift theoretically transforms wilderness education by using a conceptualization for challenge that is more open to eustress and other positive life experiences.

Methods
A psychometric scale development methodology (DeVellis, 2003) was used over two primary phases. In the first phase, a pilot group of 72 participants from the sampling frame generated contemporary language to describe the research concepts of interest, using Selye’s (1974) precise definition of stress. Students were asked at completion of their field experience what their greatest challenges were. Responses were sorted in a dichotomous tree (explained below) and condensed via constant comparison (Maykut & Morehouse, 1994).

During the second phase, the condensed responses from the first phase were formulated into rating scale item stems. A pilot group of 49 members of the sample population gave feedback that the language for the root question that best aligned with Selye’s (1974) definition of stress was:

*How difficult were these challenges for you on your recent NOLS course?*

The pilot group also encouraged the use of KEYWORDS and (examples) like:

2) *Learning new INTERPERSONAL SKILLS* (communication, decision making, etc.)
6) *The NEW environment* (meeting new people, pooping in the woods, living outdoors, being dirty, etc.)
15) *Staying MOTIVATED* (to stay present in the moment, not be lazy, etc.)
This rating scale was then administered to a second sample of 296 students post-experience. In addition to descriptive statistics and scale internal consistency, exploratory factor analysis was used to examine the multi-dimensional nature of the data. The Outdoor Situational Fear Inventory (Young et al, 1995) was co-administered to a subsample to test for discriminant and criterion validity of the challenge scale.

Results

Student pilot groups clearly stated that they used the word *challenge* to describe what Selye (1974) called *stress*. The word *challenge* then became the primary name used for the stress construct. During phase one, 648 potentially challenging descriptors were pro-offered. Through constant comparison, which is an inductive approach to data management, these descriptors were reduced to 19 more general challenge descriptors that were subsequently converted to rating scale items. A dichotomous tree was used, splitting the responses into smaller and smaller branches. The first split in the tree was physical and mental branches. The next sorting split the mental branch into intrapersonal and interpersonal sub-branches, and the physical branch into program and environment sub-branches.

During phase 2, the rating scale for the 19 challenge items was completed by a second sample of 296 participants. Initial descriptive statistics showed that the items and scale exhibited relatively normal distributions. As a one-dimensional scale, the items were internally consistent (*α*=. 851). However, given the apriori division of challenges into four factors (intrapersonal, interpersonal, environmental, and program), a multi-dimensional model was assessed through the use of factor analysis. Despite the rationale for four factors, the results indicated a three factor model. The retained factors were labeled intrapersonal (*α* = .908), interpersonal (*α* =.763), and program and environment (*α* =.814). The challenge scale overlapped with some but not all of the facets of the OSFI, indicating a similarity, but not redundancy in the two scales.

Discussion

This new scale offers a tool to wilderness educators to measure programmatic challenges that are developmentally appropriate. The scale also opens a window into measuring and comparing self-perceived mental, physical, and social stressors.

Measuring challenge types and intensities on wilderness education expeditions allows more precise exploration of program factors and their influence on outcomes, opening a window to the processes that are important to wilderness education. The scale supports the values of positive psychology and positive youth development, providing a philosophy that capitalizes on student strengths and empowers them to use the significant life experiences from wilderness education (Kellert, 1998) to perform at higher levels in all future endeavors.

Quantification of challenges sets the stage for a follow-up project that aims to identify and measure specific coping strategies that are related to challenge type and level. This connects this work to performance under stress (Hancock & Szalma, 2008) which has been identified by NOLS alumni as the leading skill they associate with their wilderness education experience then use for their entire lives (Sibthorp, et al, 2008).
References


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