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Outdoor Recreation Self-Efficacy: Scale Development, Reliability and Validity

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Outdoor Recreation Self-Efficacy: Scale Development and Reliability
Bandura's theory of self-efficacy holds much promise for understanding the value of participation in outdoor recreation. This study evaluated the factor structure and internal consistency of a new outdoor recreation self-efficacy measure. Factor analysis revealed two subscales; Enjoyment/Accomplishment (61.84%) and Skills/Competence (12.71%) accounting for 74.54% of the explained variance in outdoor recreation self-efficacy. Reliabilities for the Enjoyment / Accomplishment ($\alpha=.95$) and Skills/Competence ($\alpha=.94$) subscales, and 17-item scale ($\alpha=.96$) show a high degree of internal consistency. A significant relationship exists between ORSE scores and participation in outdoor recreation ($r = .52$; $p < .001$). Results indicated having fun and enjoying oneself during outdoor recreation activities contributed more to a woman's self-efficacy than feeling skilled or competent, confirming Bandura's thoughts about the nature of self-efficacy. Researchers can use this instrument with confidence; it provides a reliable and valid measure for assessing the self-efficacy of women who participate in outdoor recreation activities.

KEYWORDS: outdoor recreation, measurement, reliability, scale, self-efficacy, validity

Introduction

Self-efficacy theory has been widely used for over three decades to determine how an individual's beliefs in their competence and abilities affect engagement in specific activities and life in general. It has also been measured in order to determine how various experiences can influence efficacy. More specifically, self-efficacy has been utilized to understand behavior, to explain success and even continued participation. "Self-efficacy theory provides a rich body of knowledge for social applications to varied spheres of life. The broad scope and variety of applications attests to the explanatory and operative generality of this approach" (Bandura, 1997, p. viii).

This conceptual framework is salient to a variety of behavioral domains including achievement (Bandura, 1977a, 1977b, 1997; Schunk, 1984), career development (Hackett & Betz, 1981), physical education and sports (Feltz, 1982; Feltz & Mugno, 1983; McAuley & Gill, 1983), health behavior (Bandura, 2003), and high-risk sports (Brody, Hatfield & Spalding, 1988) just to name a few, and indicates that self efficacy has a positive impact on confidence, individual success, and personal development.

This study documents the development, reliability and validity of an outdoor recreation specific self-efficacy scale. As its name implies, the Outdoor Recreation Self-Efficacy (ORSE) scale attempts to evaluate "one of the most heavily subscribed-to theories of human behavior in outdoor adventure pursuits" (Ewert, 1989, p. 91). To date, no instrument exists which can effectively capture the notions that are central to self-efficacy associated with outdoor recreation activities. Instruments are either too broad and general in nature (such as the Perceived Competence of Functioning Inventory (PCFI) and the General Self-Efficacy scale (GSE), or too specific (such as the Self Efficacy Scale of Wilderness Skills) which measures how confident or certain a person perceives they can perform 20 wilderness skills or tasks. A more thorough discussion about each of these three instruments is included in a review of the literature salient to this study.

Hence, development of the ORSE scale is a critically important endeavor that represents a significant and valuable contribution as a measurement tool for use by recreation researchers and practitioners in a variety of settings. The ORSE scale is a much-needed instrument providing a reliable method for documenting the considerable impact of outdoor recreation-based programs, classes, workshops, and activities.

In a climate where all concerned must justify programs and compete for funding and sponsorships, the ORSE provides a vital avenue through which impressive anecdotal stories can now be backed up with

“cold hard numbers” and can document the positive changes taking place in people’s lives and hearts by becoming more physically active through their involvement in outdoor recreation endeavors. The development of such instruments and measurement tools must be a top priority if the field of outdoor recreation, education and leadership is to gain and keep a foothold in the world of social, psychological, social-psychological, educational, and leadership development research.

Background

Structured Outdoor Recreation Programs

“Structured outdoor programs are those that have a stated purpose and an organized curriculum aimed at providing participants with opportunities to develop outdoor skills, knowledge and experience” (Propst & Koesler, 1998; p. 319). However, to date, almost no research has been conducted focusing on outdoor recreation based programs that target women. Structured outdoor activities such as the Becoming an Outdoors Woman (BOW) program offer participants the opportunity to learn specific outdoor recreation skills and knowledge in a nurturing environment.

Becoming an Outdoors Woman (BOW) Programs

BOW workshop components vary somewhat by state but commonly include the following types of outdoor recreation activities and skills: fishing [fly-fishing, and/or spin-casting], orienteering using a map and compass and/or global positioning system (GPS), basics of survival in the outdoors, camping, hiking, canoeing, kayaking, rock-climbing, rappelling, archery [traditional bow, cross-bow, compound bow], bird and wildlife viewing, nature photography, wild edibles, dutch oven cooking, firearm safety, hunting, shooting, use of a shotgun and/or rifle, including skeet-shooting and rifle markswoman classes; in Alaska workshops also include survival on land and sea, proper use of a chainsaw, bow hunting, field dressing a deer or other game, skiff and boat handling, and salmon fishing.

Self-Efficacy Studies in Outdoor Recreation

Programs like BOW have had a positive influence on future outdoor recreation participation (Lueck, 1995; Ensign, 1999). In addition, re-

search shows that outdoor recreation programs improve the self-efficacy of persons with disabilities (Lin, 2003; Sutherland, 2001) and persons with mental illnesses (Davis-Berman & Berman, 1989; Ferguson & Jones, 2001; Kelly, Coursey, & Selby, 1997; Richardson, 2003). Others have used self-efficacy as an effective theoretical basis for investigating leisure socialization (Hoff & Ellis, 1992), college orientation and retention (Gass, Garvey & Sugerman, 2003), physical activity (McAuley et al., 2006; Sylvia-Bobiak & Caldwell, 2006), and adventure education (Ewert, 1989; Sibthorp, 2003; Walsh & Golins, 1976).

Paxton and McAvoy (1998) studied the impact of Outward Bound, documenting an immediate and sustained increase in self-efficacy. Likewise, Propst and Koesler (1998) found that outdoor leadership programs had short-term and long-term effects on self-efficacy. A freshman orientation wilderness program also had a positive impact; rich anecdotal evidence identified many improvements in perceived self-efficacy (Hinton, Twilley & Mittelstaedt, 2007; Jones & Hinton, 2007). Recently, Kimbrough (2007) provided a research update about promoting self-efficacy through play.

Placed in the context of a structured outdoor recreation program, through Ohio’s Department of Natural Resources “Becoming an Outdoors Woman” (BOW) activities, the purpose of this study was twofold: to determine the factor structure, reliability and validity of the newly-developed Outdoor Recreation Self-Efficacy (ORSE) scale; and to investigate the relationship between self-efficacy and outdoor recreation participation levels.

Review of the Literature

General Self-Efficacy

Bandura’s theory of self-efficacy holds much promise for better understanding the value of participation in outdoor recreation endeavors. He defines perceived self-efficacy as beliefs in one’s capabilities to accomplish courses of action required to produce given attainments, or to execute certain types of performances (Bandura, 1997, p. 21). Self-efficacy influences a person’s choice of activities and motivation level; it is an important component that contributes to the acquisition of the knowledge structures upon which skills are founded (1997, p. 35). Bandura notes that there is a difference between the sub-skills one possesses and the ability to use those sub-skills in various situations. Moreover, perceived self-efficacy is not concerned with the number of skills a person possesses, but what s/he believes s/he can do with those skills under a variety of circumstances (Bandura, 1997, p. 37).

According to Bandura, an individual's expectation of personal efficacy is derived from four major sources of information: performance accomplishments, vicarious experiences, verbal persuasion, and emotional arousal. Performance accomplishments are particularly germane to this study, as this source of efficacy is especially influential because it is based on personal mastery experiences (Bandura, 1977b, p. 195). Thus, when a person succeeds in a given endeavor or activity, such as an outdoor recreation activity, mastery expectations can increase. The converse is also true; if a person fails at an activity, mastery expectations can diminish especially if the failure occurs early on in the learning process. Further, one would expect a positive relationship between an individual's self-efficacy and participation level. According to Bandura (1997), one can expect increasingly higher levels of participation in outdoor recreation activities - and sustained participation, as well - for individuals who have increasingly higher levels of perceived self-efficacy.

Self-Efficacy and Outdoor Recreation

General self-efficacy has direct applications to the acquisition of skills and knowledge pertaining to outdoor recreation activities. "Once established, enhanced self-efficacy tends to generalize to other situations in which performance was self-debilitated by preoccupation with personal inadequacies" (Bandura, 1977a, p. 195). Furthermore, "beliefs of personal efficacy also regulate motivation by shaping aspirations and the outcomes expected for one's efforts" (1997, p. 35). Hence, a program that teaches women skills in a variety of outdoor recreation activities has the potential of helping women to become more efficacious and to believe in their capabilities.

Overview of Selected Self-Efficacy Measurement Tools

Each of the following instruments were designed to measure self-efficacy but had one or more major shortcomings or limitations and were deemed as not appropriate for selection as an effective tool for assessing an individual's overall outdoor recreation self-efficacy.

Perceived competence of functioning inventory (PCF). The Perceived Competence of Functioning Inventory (PCFI) is comprised of 16 items (statements) on a 5-point scale, including "poor," "fair," "good," "very good," and "excellent." Reported reliability is high, with an alpha coefficient of .92 (Hays & Williams, 2000). The instrument is very broad and general in nature and does not address notions that are cen-

tral to self-efficacy associated with outdoor recreation activities. For example, a person indicates his or her ability to be assertive, to perform activities of daily living, to cope with problems without using alcohol and/or drugs, to control anger, and to feel close to others. While valuable as a tool to measure perceived level of functioning in one's daily life, as such, it was not deemed as a valid instrument for use in this study.

The general self-efficacy scale. A General Self-Efficacy Scale (GSE) was developed by Schwarzer and Jerusalem (1995) and consists of 10 items on a 4-point scale ("not at all true," "hardly true," "moderately true," "exactly true"). It was designed for use with an adult population and has been used in over 1,000 studies in over 25 countries. The scale is available in 29 languages (Scholz, Gutierrez-Dona, Sud & Schwarzer, 2002). Reported reliability has been high (e.g., Kimbrough, 2007). This instrument was created to assess a general sense of perceived self-efficacy with the goal of predicting how well people cope with daily hassles, or how well they adapt after stressful life events. The authors indicate that it is also suitable as an indicator of quality of life. The General Self-Efficacy scale was not deemed as an appropriate measure of self-efficacy as it relates to outdoor recreation activities; it focuses on notions salient to coping with the difficulties of daily life, such as the item "If someone opposes me, I can find the means and ways to get what I want." Other items focus on solving problems, dealing with unexpected events or unforeseen situations, and remaining calm when facing difficulties.

Self efficacy scale of wilderness skills. The Self-Efficacy Scale of Wilderness Skills was developed by Propst and Koesler (1998). A person reports how confident they are in their ability to perform 20 specific wilderness skills or tasks such as, "rappelling off of a rock face," "using an ice axe to protect yourself from falling on snow/ice," "identifying flora and fauna in a wilderness area," "administering basic first aid," or "organizing an emergency evacuation procedure." These 20 tasks are rated on an 11-point scale, on a continuum from 0% to 100% (which includes three headings, ranging from "very uncertain," to "somewhat certain," to "very certain"). While the reported reliability is high (0.91), this instrument was too specific for the purposes of the current research endeavor, which was to measure overall outdoor recreation self-efficacy.

Participation in Outdoor Recreation

Research shows that structured outdoor recreation programs like BOW significantly increase participation and positively impact the attitudes of attendees toward most recreational activities after attending (Ensign, 1999; Goodman, 2003; Lueck, 1995, 2005; Schnell, 2000). Research also indicates that gender-specific wilderness and non-wilderness recreational programming has enabled some women to transcend traditional barriers; women have been able to overcome barriers that previously prevented them from active participation in outdoor related activities of their choice (Auster, 2001; Henderson, Bialeschki, Shaw & Freysinger, 1996; Henderson, Stalnaker & Taylor, 1988; Lueck, 1995; McDermott, 2004). Programs like BOW provide participants an active, friendly, woman-centered environment that enables them to gain mastery experiences that promote and enable future participation.

Henderson et al., (1988) have suggested that the theory of self-efficacy can shed further insight into the process of how women may negotiate their way into active or further participation in recreation activities. This represents a somewhat under-researched line of study. In the literature to date, only a limited number of studies have compiled research about how structured programs like BOW impact women's participation. Therefore, one purpose of this study was to investigate whether or not an outdoor specific self-efficacy scale would shed additional insight into the relationship between self-efficacy and outdoor recreation participation.

Methods

Becoming an Outdoors Woman

The researchers were engaged in a study to determine if participation in a program entitled, "Becoming an Outdoors Woman" (BOW) had an impact on the perceived self-efficacy of women who participated in one or more weekend workshops. While BOW is a nation-wide program in the United States (that began in 1991), the population for this study was limited to women who attended a BOW workshop in central Ohio between the years 2000-2006. This study provided both the challenge and the opportunity to develop an instrument that would provide a reliable measure of self-efficacy as it relates to participation in a variety of outdoor recreation activities. The aims of the present research were to: (a) develop a scale to measure Outdoor Recreation Self-Efficacy (ORSE); (b) test the reliability of the overall scale; (c) provide initial evidence for any sub-scales, based on factor analytic statistical procedures, and the reliability of those sub-scales; and (d) ex-

plore the relationship between ORSE scores and level of participation, in order to establish concurrent validity.

Development of the Outdoor Recreation Self-Efficacy (ORSE) Scale

Experts in the field of self-efficacy were consulted, including Dr. Jeffery Vancouver, a professor in the Department of Psychology at Ohio University and Dr. Albert Bandura from the Psychology Department at Stanford University. Dr. Vancouver advised the authors to develop an original self-efficacy scale, specifically with the outdoor recreation context in mind. Dr. Bandura's text entitled, *Self-efficacy: The exercise of control* provided a number of specific suggestions. He is a strong proponent of a scale on a continuum from 0 to 100, in order to represent a value of zero, or a perception of no self-efficacy on the low end, to an absolute or complete perception of self-efficacy (100%) at the extreme high end of the continuum (1997, pp. 43-44).

After a review of the literature, approximately 35 items were included in the first version of the ORSE scale, as a list of meaningful statements that might possibly capture and represent self-efficacy within an outdoor recreation context. These 35 items were more carefully considered and reviewed by colleagues and peers familiar with and well-read on the topic of self-efficacy and who had researched and published findings related to some aspect of outdoor recreation self-efficacy, representing an "informal panel of experts" to ensure both face and content validity. Since the ORSE scale was developed with the outdoor recreation context in mind only 19 items believed to be truly salient to outdoor recreation activities were retained.

Bandura explains that "efficacy scales are unipolar, ranging from 0 to a maximum strength" (1997, pg. 44) and that some researchers opt to use single unit intervals ranging from 0 to 10. Following Bandura's guidelines and the advice of Dr. Vancouver, a 19-item instrument was designed that incorporated 11 response intervals ranging from 0-10 where 0 = "not at all true" and 10 = "very true" using concepts and notions thought to be central to one's experiences when participating in outdoor recreation activities.

Administration of the ORSE Scale with the BOW Women

A survey was sent to women who were registered on a mailing list kept current by the Becoming an Outdoors Woman (BOW) program in central Ohio. This survey included the 19-item ORSE scale, along with a section where each woman indicated the outdoor recreation activities in which she had participated during the previous 12 months. Selections

included the following outdoor recreation activities: rod/reel fishing, fly-fishing, archery/cross-bow, shooting, hunting, canoeing, kayaking, rafting, orienteering, hiking, backpacking, rock-climbing, rappelling, tent camping, outdoor cooking, wildlife watching, wild edibles, and outdoor photography. The selection "other" was also included as a response; three blank spaces were provided in which other activity choice(s) could be identified.

Each woman indicated the strength or level of her perceived self-efficacy for the following 19 items about her feelings or beliefs that she was: capable, competent, skilled, intimidated, confident, adequate, successful, challenged, energized, excited; or had a sense of achievement, a sense of enjoyment, a sense of accomplishment, had a good time, had fun, had the support needed, got really involved in what she was doing, was able to choose the activity, or believed she could succeed or be successful when doing outdoor recreation activities.

Pilot test of the ORSE scale

A survey including the 19-item ORSE scale was pilot-tested with approximately 30 individuals. Based on feedback from those 30 persons, minor changes were made to the wording of a few items in the scale.

Study Sample and Participants

The population for this investigation targeted members affiliated with the BOW-Ohio mailing list which included approximately 3,000 women. Since its inception in the year 2000, about 600 women had participated in a BOW-Ohio 3-day weekend workshop by the year 2005; enrollment for each workshop is limited to 100. Therefore, approximately 2,400 women on the mailing list had not participated in a BOW workshop, but had expressed an interest in being included on the BOW mailing list in order to receive news and announcements about future BOW events. Due to computer error, only 2,500 of the possible 3,000 participants and nonparticipants were mailed a survey from the BOW-Ohio office in Columbus, Ohio.

Results

Response Rate

A total of 542 surveys were returned: 297 women (59%) had attended a BOW workshop and 245 (41%) had not participated, as of 2006. Since approximately 600 women had attended a BOW-Ohio workshop during the years 2000-2005, the response rate for attendees was almost 50% (297 out of 600, or 49.5%). The low response rate for nonattendees was most likely due to the fact that the majority of the women on this mailing list had never attended a BOW event. This list was comprised of women who had visited a BOW booth at a state or county fair, and had completed a card requesting information about BOW events, or women who had actually attended a workshop.

Respondents

Women who had attended one or more BOW workshops ranged in age from 22-78, with an average age of about 48 years ($M=47.9$; $SD=10.8$). The women who had not participated in a BOW event were from 18-74, with an average age of about 47 ($M=46.6$; $SD=10.6$).

A majority of BOW attendees were Caucasian (291, or 97%) and the remaining 9 (3%) were African American, American Indian, Asian, an Alaskan Native, Native Hawaiian or other Pacific Islander, or other race/ethnicity. For the most part, women who had not attended BOW were also Caucasian (230 of 246, or about 93.9%). The remaining 16 women were African American, American Indian, Alaskan Native, Asian, or other race/ethnicity.

Testing for Univariate and Multivariate Normality

All data analyses were completed using the Statistical Package for the Social Sciences (SPSS 16.0). Before conducting any factor analysis procedures, responses to each item in the ORSE scale were examined for univariate normality, which can be assessed by either statistical or graphical methods, or both.

Graphical Assessment to Check Normality of the Data

A frequency histogram of the 19 ORSE items each displayed univariate normality and homogeneity of variance and appeared to be well-suited for factor analytic procedures. All items showed sufficient variability. No item elicited a limited range of values; participants marked

responses using the full range of values included in the 11 intervals from 0-10 provided in the ORSE instrument.

Multivariate Normality and Linearity

All subsets of the 19 ORSE variables were checked for bivariate normality by examining 171 different scatterplots; one for each of the pairwise combinations in this data set. Each scatterplot was examined to see if a linear relationship was apparent (straight line) and not one that was curvilinear (curved) in nature. A visual inspection of scatterplots indicated that the assumption of linearity was adequately met.

A number of women did not provide a response to the items labeled “Intimidated,” and “I have the support I need.” The wording of these two items is somewhat vague and unclear which is one reason survey respondents will leave an item blank. For those reasons, these two items were deleted from the scale.

Internal Consistency and Reliability

An analysis using Cronbach’s alpha indicated that the overall internal consistency for the 17-item scale is quite high ($\alpha = .96$, $p < .001$) and for each of the subscales, as well (Enjoyment/Accomplishment ($\alpha = .95$, $p < .001$); and Skills/Competence ($\alpha = .94$, $p < .001$). The ORSE scale is a reliable instrument for measuring self-efficacy within an outdoor recreation context. The authors also conducted a split-half reliability analysis, which assesses the reliability of half the items in the instrument, in two separate groupings. Results indicated that a group of 9 of the 17 items have a high degree of reliability ($\alpha = 0.943$, $p < .001$) as do the remaining 8 items in a second group ($\alpha = 0.937$, $p < .001$).

Exploratory Factor Analysis Results

A Principal Components factor analysis was conducted on the seventeen remaining items using Varimax rotation and Kaiser Normalization. Varimax rotation was utilized because it is an orthogonal method that minimizes the number of variables that have high loadings on more than one factor; this method generates a parsimonious solution which simplifies the interpretation of the factors. Further, based on “...the views of some psychometricians, more weight should be given to re-

sults of varimax rotations (e.g. Nunnally, 1978)” (cited in Vodanovich, 2003, p. 572). Missing data was treated pairwise. The inter-item correlation matrix was examined, and no correlations had a negative value.

Kaiser-Meyer-Olkin (KMO) and Bartlett’s tests were conducted to check further for normality and sampling adequacy, and to determine if the ORSE items were adequate for a factor analysis (George & Mallery, 2006). Bartlett’s test indicated these items were more than adequate [$X^2 = 9312.64$ (df=136), $p < .001$], and KMO test results (.95) indicated these data were well-suited for conducting a factor analysis ($> .90 =$ “marvelous”) (George & Mallery, 2006, p. 252).

A factor analysis (eigenvalue > 1) returned a two-factor solution and converged in 3 iterations. Results indicated that the unidimensional ORSE scale is comprised of two factors, or sub-scales, labeled as Enjoyment/Accomplishment and Skills/Competence. An inspection of the scree plot (see Figure 1) led the researchers to accept the two resulting factors which were rotated in the final solution. The rotated, two-factor solution is the focus of the remainder of the discussions that follow.

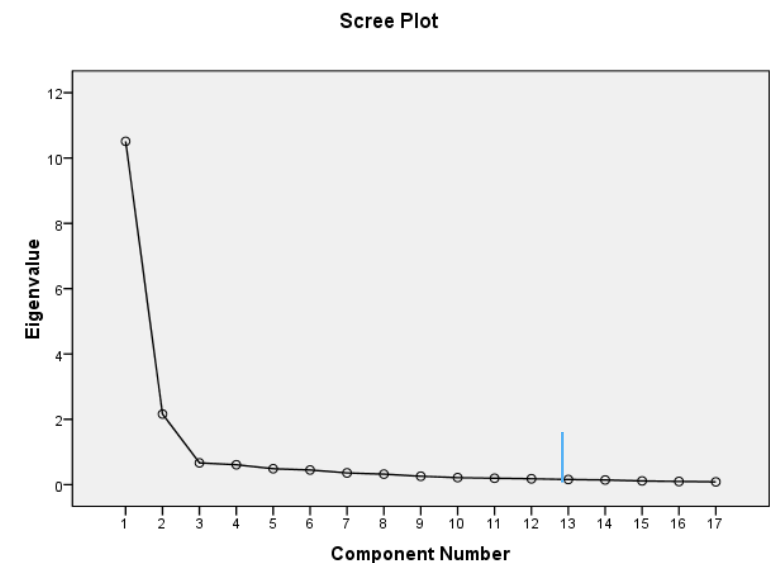


Figure 1. Scree plot with eigenvalues for two-factor, rotated solution

Factor One was comprised of a 10-item Enjoyment - Accomplishment subscale, which accounted for 61.84% of the explained variance (see Table 1). Item loadings ranged from .888 to .622 and 6 of the 10 loadings were at a value of .82 or higher. In addition, 9 of 10 items

loaded cleanly on this factor, alone. Only one item, "I feel a sense of achievement," loaded on Factor Two at a value greater than the criterion value of .40. The researchers opted to not delete this item from the ORSE scale until it can be administered to additional populations, including college-age and mixed gender groups in order to conduct a Confirmatory Factor Analysis to further assess the psychometric properties of the scale.

Factor Two, a Skills-Competence subscale included 7 items which accounted for an additional 12.71% of the variance. Loadings ranged from .879 to .640, with 4 of the 7 loadings at a value of .85 or higher. Further, 8 of these 9 items loaded cleanly on only this factor. Only one item, "I believe I can succeed," also loaded on Factor One at a value of .40 or higher (actual value=.493). These two factors explain 74.54% of the variance in outdoor recreation self-efficacy.

Confidence in Factor Analysis Procedures and Results

Some researchers believe that a sample size is adequate if there are at least 6 people per item. According to Vodanovich (2003) and Nunnally (1978) one can place greater confidence in factor analysis studies that have a sample size that provides for a minimum of 10 people per item because those results are not likely to be affected by chance (Vodanovich, 2003, p. 572). This study had a minimum data requirement of 190 respondents. The actual sample size of 546 was much larger, providing greater assurance the ORSE scale can be used with a high degree of confidence.

Level of Participation and Concurrent Validity

One item in the BOW survey asked respondents to indicate their current level of participation in outdoor recreation activities by circling a number from 0-10 where 0 = "no participation" and 10 = "very high level of participation." A significant positive correlation ($r = .52$; $p < .001$; $n = 252$) indicated that women who had lower levels of self-efficacy also had lower levels of participation in outdoor recreation. Conversely, those with higher levels of outdoor recreation self-efficacy had higher levels of participation. This moderately strong, positive relationship indicates that level of participation in outdoor recreation activities explains 27% of the variability in self-efficacy scores. Results provided an important measure of concurrent validity and corroborative evidence for the ORSE scale.

Table 1
ORSE Scale Items^a

When I do outdoor recreation activities ...	Factor 1	Factor 2
Factor 1: Enjoyment / Accomplishment - 10 Items		
I have a good time	.888	.240
I get excited	.872	.238
I have fun	.860	.284
I feel energized	.845	.216
I am really involved in what I am doing	.835	.291
I have a sense of enjoyment	.822	.346
I feel a sense of accomplishment	.783	.392
I feel a sense of achievement	.695	.497
I feel a sense of challenge	.636	.206
I am able to choose the activity	.622	.360
Factor 2: Skills / Competence – 7 Items		
I feel competent	.275	.879
I feel skilled	.218	.877
I feel confident	.263	.873
I feel capable	.330	.856
I feel that I am successful	.383	.787
I feel adequate	.231	.753
I believe I can succeed	.493	.640
Number of items	10	7
Eigen Value	10.512	2.160
Percentage of variance explained	61.84%	12.71%
Cumulative variance explained	61.84%	74.54%
Alpha reliability	$\alpha=.95$	$\alpha=.94$

Note. ^aItems coded on 11-pt scale from *not at all true* (0) to *very true* (10).

Discussion and Recommendations

Overall, the exploratory factor analysis results indicated that the main variables that impact a person's self-efficacy in relation to their outdoor recreation activities – the most important contributors – are that the person has a good time and has fun, feels excited and energized

and feels really involved in what s/he is doing, and has a sense of enjoyment. Feeling a sense of accomplishment, achievement, and a sense of challenge, and believing or feeling that s/he is able to choose the outdoor recreation activity or activities in which s/he participates are also important contributors to feelings of self-efficacy. These notions explained almost two-thirds (62%) of the variance in perceived level of outdoor recreation self-efficacy. Results indicated that feelings of fun and enjoyment, and accomplishment and achievement were more important than how skilled or competent a person feels. Six of the seven items in the second sub-scale have to do with feelings of being skilled and competent, being able to succeed, and feelings of being capable, confident, adequate and successful while doing outdoor recreation activities. These seven items accounted for less than 13% (12.71%) of additional explained variance when it comes to one's level of self-efficacy.

Because a convenience sample was used the results of this study must be interpreted with some caution and not generalized beyond the parameters of the population studied. There may be some confounding variable(s) introduced, because the women respondents in this study might have been similar in some way(s) (i.e. all resided in a state in the Midwest; a majority were Caucasian; all lived fairly close to the same metropolitan city). The influence of various other factors is also possible - including socioeconomic variables such as level of education and/or income level, race and/or ethnicity - and other measurement challenges such as respondents misunderstanding survey instructions, or not understanding the wording or meaning of one or more items in the scale, and so on.

This research does indicate that such elements as having fun, having a good time and enjoying oneself while participating in outdoor recreation activities contribute more to the self-efficacy of these women participants than feelings of being skilled and/or competent, which may lead us to rethink some of the theoretical models and conceptualizations that focus so strongly upon competence, skills, and capabilities when attempting to expound upon and to elucidate the recreation/leisure experience.

For example, Witt and Ellis developed the 25-item Short Form--Version B of the Perceived Freedom in Leisure Scale, comprised of four sub-scales. It can be utilized to assess an adult's overall level of leisure functioning (Witt & Ellis, 1985, 1987). This instrument relies on the notion of perceived competence as an important contributor to an adult's perception of his or her ability to be successful in leisure or recreation endeavors. Conceptually, Witt and Ellis believed that perceived competence was a central part of a person's perceived freedom

in leisure, which has been a foundational theoretical "anchor" for many leisure theories, concepts, and models.

Perceived competence describes an individual's beliefs about his or her ability to avoid failure and to control outcomes. Therefore, perceived competence is a belief that an individual holds about his or her ability to also determine what happens in the course of an activity. This concept directly implies that individuals who perceive that success or a positive outcome is likely because of their personal skills and abilities will feel freer, and will be more likely to be involved in leisure pursuits and to participate in outdoor recreation activities. The central assumption associated with the perceived competence sub-scale was that people have a basic need to demonstrate competence (Harter, 1979), and that a perception of personal ability to be successful during recreation (or leisure) activities provides an individual with a feeling of being "free to" participate and be involved in those chosen activities.

Since foundational theories and philosophies of leisure from the 1970s and early 1980s relied heavily on the notion of perceived freedom (Iso-Ahola, 1980; Murphy, 1981; Neulinger, 1974), which included perceived competence, perceived control, and intrinsic motivation, there might be reason to reconsider the extent to which fun, a sense of accomplishment or achievement, or enjoyment might be more central to recreation satisfaction or "success" than we might have ever imagined. Quite simply, professionals and practitioners, and providers of programs and services should consider ways in which we can create non-threatening, non-competitive, supportive environments in which men, women, and children can just have fun and enjoy themselves. Perhaps we should focus less on skill development and competency as the sole or main ways through which people build personal self-efficacy. Personal feelings, beliefs, and perceptions that contribute to one's leisure or recreation satisfaction, "perceived success" and perceived outcomes are subjective, and might be deceptively simple. Having a good time, feeling excited, or just enjoying oneself during recreation activities might have very little to do with how good a person is at an activity, or how well s/he performs.

Csikszentmihalyi's theory of flow has led to the general perception that a balance between level of skill and challenge is the most influential and important characteristic, and is most central to flow experiences during recreation (1975, 1990). By 1986, Martin and Priest developed the Adventure Experience Paradigm (as cited in Priest & Gass, 2005), based chiefly upon the work of Csikszentmihalyi (1975) and Ellis (1973) and explained that experiencing a peak recreation adventure was most influenced by a person's level of competence and risk. Newer explanations of flow, including the eight channel (Ellis, et al, 1994) and four channel models (Jones, Hollenhorst, Perna, & Selin,

2000), have been developed in an attempt to better understand flow. All models of flow rely heavily on skills and a perception of competence when explaining whether or not it is likely that a person will have an optimal or peak experience while participating in outdoor recreation activities.

More recent findings indicate that the balance between skill and challenge - or competence and risk - is much less predictive of flow than other conditions or variables (Csikszentmihalyi, 2000; Ellis, 2003; Voelkl & Ellis, 1998, 2002;) and that such a narrow focus may have resulted in an inappropriate overemphasis on the importance of skill and challenge and the impact or influence they have on a person's ability to experience peak, or quality recreation experiences (Voelkl, Ellis, & Walker, 2003). "Despite research suggesting weak effects on flow, the balance between perceived challenge and perceived skill continues to be the most-often-cited condition of flow" (Voelkl, Ellis, & Walker, 2003, p. 22).

Clearly, the time has come for leisure researchers to try to explore and understand outdoor recreation experiences and the conditions, variables, and factors that lead to satisfying activities and meaningful moments in people's lives. We must put on different lenses, adopt fresh perspectives, and realize that it really might be much more simple than we ever thought. People just want to have fun and enjoy themselves in the outdoors during their recreation activities and they do not necessarily need to possess more than just minimal skills and competencies. Sometimes just trying leads to a deep sense of achievement and accomplishment! The ORSE scale is pointing in that direction. Let us consider that in an age of constant change and high-tech fabrics, gear, and equipment - that it is still the simple things that can matter most to people - things like fun and enjoyment, the simple accomplishment of just trying a new activity, or experiencing something never done before, of getting really involved, or feeling energized when paddling a kayak for the first time on a calm lake.

Based on this study, 27% of a person's level of participation can be explained by one's level of perceived self-efficacy (Pearson's $r = 0.52$). While higher values on self-efficacy are associated with higher levels of participation in outdoor recreation activities, one must be cautious about making too strong of a statement about the relationship between these two variables. The reality is that many, many factors are associated with a person's level of participation in outdoor recreation activities (including transportation, finances, freedom from obligations and responsibilities, freedom to feel entitled to leisure, and so on). This complex scenario must be remembered and acknowledged - including the impact of the context and situations present in each person's life - and not just one's perceived level of self-efficacy in outdoor recreation

activities. However, concurrent validity has been established by this positive relationship, which one would expect, conceptually.

In summary, the overall internal consistency of the 17-item ORSE scale and for each of the two sub-scales is quite high. These findings support the conclusion that researchers can use this instrument with confidence and that it can provide an accurate and true measure for assessing overall outdoor recreation self-efficacy. There is also evidence for a measure of concurrent validity as documented by a significant positive relationship between ORSE scores and level of participation in outdoor recreation activities for the group of women studied.

Future Research

The researchers are continuing efforts to develop a meaningful and valuable research tool and will be collecting more data by administering the scale to diverse groups who are more varied with regard to race and/or ethnicity, with mixed-gender groups, and with other ages, populations, and settings. Because the sample used in the exploratory factor analysis procedures consisted primarily of middle-aged Caucasian women, it would be beneficial to perform confirmatory factor analyses on other large data sets with various groups, such as a large group of college students (or other more diverse groups with regard to age, culture, race, and/or economic status) to continue to determine the scale's factor composition and other psychometric properties.

Future research endeavors have already begun including: (a) continuing development and refinement of items in the ORSE scale; (b) incorporating a pre-test post-test research design; (c) assessing the test-retest reliability of the ORSE scale; and (d) including multiple measurements to assess incremental changes in self-efficacy over time (using a repeated measures design) with college students. Further testing and development of the ORSE will likely include administering the scale to Outward Bound course participants, young pre-teen girls who attend camp programs, and college recreation majors who participate in a wilderness leadership training course. In addition, the ability of the ORSE scale to capture changes in perceived self-efficacy with regard to a single skill learned over a 10-week period will be assessed. Assessing perceived self-efficacy with regard to a single activity or skill at the beginning of the quarter, in the middle of the quarter, and right before and after each weekend trip could provide valuable insights as to the effectiveness of field-based college skills courses which incorporate 1-2 weekend trips. Most recently, a Ph.D. candidate at Stanford University has asked for and received permission to use the ORSE scale in his Dissertation research. He is interested in measuring the self-efficacy of

college students who are trained as wilderness trip leaders through a co-curricular university outdoor education program.

It will also be important to provide additional evidence of validity by examining the relationship between the ORSE scale and other related theoretical constructs and scales. Efforts at establishing concurrent validity could include assessing the relationship between the ORSE scale and measures such as the Leisure Satisfaction Scale (Beard & Ragheb, 1980), and the General Self-Efficacy Scale (Schwarzer & Jerusalem, 1995). Convergent validity could be explored by comparing the ORSE scale with other reliable instruments, as well.

Future researcher should also focus on assessing the criterion-related validity of self-efficacy measures. Investigations using overt behavioral measures, as opposed to self-report data would be useful in the psychometric evaluation of self-efficacy scales. It would also be beneficial to perform a meta-analysis on studies that have used existing self-efficacy scales. Such an effort could help to better understand the various relationships that have been reported in a variety of studies in both the recreation and leisure literature, and in the social, psychology, and social-psychology literature.

In closing, the authors would like to reiterate the important notion coined by Bandura that, "perceived self-efficacy is concerned not with the number of skills you have, but with what you believe you can do with what you have under a variety of circumstances" (1997, p. 37). As educators of future leaders in outdoor recreation settings, it is exciting to think that we have the potential to enhance and promote self-efficacy through outdoor recreation activities and skills courses. One of the challenges will be to strive to provide venues and processes through which participants can have fun, experience a sense of enjoyment, accomplishment, and personal achievement. As experiential educators, we see the growth that occurs in the field, and the ORSE scale provides a powerful way through which we can document the important differences we are making in peoples' lives.

References

- Auster, C. J. (2001). Transcending potential antecedent leisure constraints: The case of women motorcycle operators. *Journal of Leisure Research*, 33, 272-298.
- Bandura, A. (1977a). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84, 191-215.
- Bandura, A. (1977b). *Social learning theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1997). *Self-Efficacy: The exercise of control*. New York: W. H. Freeman.

- Bandura, A. (2003). Health promotion for the perspective of social cognitive theory. In P. Norman, C. Abraham, & M. Connors (Eds.), *Understanding and changing health behavior: From health beliefs to self-regulation* (pp. 299-339). Amsterdam: Hardwood.
- Beard, J. G., & Ragheb, M. B. (1980). Measuring leisure satisfaction. *Journal of Leisure Research*, 1, 20-33.
- Brody, E., Hatfield, B., & Spalding, T. (1988). Generalizations of self-efficacy to a continuum of stressors upon mastery of a high-risk sport skill. *Journal of Sport Psychology*, 10, 32-44.
- Csikszentmihalyi, M. (1975). *Beyond boredom and anxiety*. San Francisco: Jossey-Bass.
- Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York: Harper and Row.
- Csikszentmihalyi, M. (2000). The contribution of flow to positive psychology: Scientific essays in honor of Martin E.P. Seligman. In J.E. Gillham, (Ed.). *The science of optimism and hope*. (pp. 387-395). Philadelphia: Templeton Foundation Press.
- Davis-Berman, J., & Berman, D. (1989). The wilderness therapy program: An empirical study of its effects with adolescents in an outpatient setting. *Journal of Contemporary Psychotherapy*, 19(4), 271-281.
- Ellis, M. J. (1973). *Why people play*. Englewood Cliffs, NJ: Prentice-Hall.
- Ellis, G. D., Voelkl, J. E., & Morris, C. (1994). Measurement and analysis issues with explanation of variance in daily experience using the flow model. *Journal of Leisure Research*, 26(4), 337-356.
- Ewert, A.W. (1989). *Outdoor adventure pursuits: Foundations, models and theories*. Scottsdale, AZ: Publishing Horizons.
- Ensign, J. D. (1999). *Becoming an outdoors-woman: Factors that enhance or inhibit the participation of women in fish and wildlife-based recreation*. Unpublished master's thesis, University of Wisconsin Stevens Point.
- Farmer, R., & Sundberg, N. D. (1986). Boredom proneness: The development and correlates of a new scale. *Journal of Personality Assessment*, 50, 4-17.
- Feltz, D. (1982). Path analysis of the causal elements in Bandura's theory of self-efficacy and an anxiety-based model of avoidance behavior. *Journal of Personality and Social Psychology*, 62, 764-781.
- Feltz, D., & Mugno, D. (1983). A replication of the path analysis of the causal elements in Bandura's theory of self-efficacy and the influence of autonomic perception. *Journal of Sport Psychology*, 5, 263-277.
- Ferguson, D. D., & Jones, K. (2001). Cross-country skiing as a self-efficacy intervention with an adolescent female: An innovative application of Bandura's theory to therapeutic recreation. *Therapeutic Recreation Journal*, 35(4), 357-364.

- Gass, M. A., Garvey, D. E., & Sugerman, D. A. (2003). The long-term effect of a first year student wilderness orientation program. *The Journal of Experiential Education*, 26(1), 34-40.
- George, D., & Mallery, P. (2006). *SPSS for Windows step by step: A simple guide and reference*. (6th ed.). Boston: Allyn & Bacon.
- Goodman, L. F. (2003). *Assessing the educational needs of women who own non-industrial private forestland in Wisconsin*. Unpublished master's thesis, University of Wisconsin Stevens Point.
- Hackett, G., & Betz, N.E. (1981). A self-efficacy approach to the career development of women. *Journal of Vocational Behavior*, 18, 326-339.
- Harter, S. (1979). *Perceived competence scale for children manual: Form O*. Denver, CO: University of Denver.
- Hayes, L. W., & Williams, I. S. (2000). *Perceived Competence of Functioning Inventory*. Newton, KS: Prairie View.
- Henderson, K.A., Bialeschki, M. D., Shaw, S. M., & Freysinger, V. J. (1996). *Both gains and gaps: Feminist perspectives on women's leisure*. State College, PA: Venture.
- Henderson, K. A., Stalnaker, D., & Taylor, G. (1988). The relationship between barriers to recreation and gender-role personality traits for women. *Journal of Leisure Research*, 20, 69-80.
- Hinton, J. L., Twilley, D. L., & Mittelstaedt, R. D. (2007). An investigation of self-efficacy in a freshman wilderness experience program. *Research in Outdoor Education*, 8, 105-118.
- Hoff, A., & Ellis, G. (1992). Influence of agents of leisure socialization on leisure self-efficacy of university students. *Journal of Leisure Research*, 24(2), 114-126.
- Iso-Ahola, S.E. (1980). *The social psychology of leisure and recreation*. Dubuque, IA: William C. Brown.
- Iso-Ahola, S. E., & Weissinger, E. (1990). Perceptions of boredom in leisure: Conceptualization reliability, and validity of the Leisure Boredom Scale. *Journal of Leisure Research*, 22, 1-17.
- Jones, J. J., & Hinton, J. L. (2007). Study of self-efficacy in freshman wilderness experience program: Measuring general versus specific gains. [Abstract]. *Journal of Experiential Education, Symposium on Experiential Education Research Abstracts*, 29(3), 382-385.
- Jones, C. D., Hollenhorst, S. J., Perna, F., & Selin, S. (2000). Validation of the flow theory in an on-site whitewater kayaking setting. *Journal of Leisure Research*, 32(2), 247-261.
- Kelly, M. P., Coursey, R. D., & Selby, P. M. (1997). Therapeutic adventures outdoors: A demonstration of benefits for people with mental illness. *Psychiatric Rehabilitation Journal*, 20(4), 61-73.
- Kimbrough, S. (2007, October). Research update on self-efficacy. *Parks & Recreation*, 42(10), 24-29.

- Lin, C. J. (2003). The effect of recreational therapy on self-efficacy and leisure awareness for adolescents with disabilities. *Dissertation Abstracts International*, 64(2-B), 680 (UMI No. AA13080122)
- Lueck, D. H. (1995). *Becoming an outdoor woman: Effect on activities and attitudes*. Unpublished master's thesis, University of Wisconsin, Stevens Point, Wisconsin.
- Lueck, D. H. (2005). *Women with physical disabilities. Experiences at becoming an outdoors woman-an-workshops*. Unpublished doctoral dissertation, University of Wisconsin, Stevens Point, Wisconsin.
- McAuley, E., & Gill, D. (1983). Reliability and validity of the physical self-efficacy scale in a competitive sport setting. *Journal of Sport Psychology*, 5, 410-418.
- McDermott, L. (2004). Exploring the intersections of physicality and female-only canoeing experiences. *Leisure Studies*, 23, 283-301.
- Mertler, C. A., & Vannatta, R. A. (2002). *Advanced and multivariate statistical methods: Practical application and interpretation* (2nd ed.). Los Angeles: Pyrczak.
- Mittelstaedt, R. D. (2002). Measuring leisure in the second Millennium: The relative strengths and limitations of three techniques. *Leisure/Loisir: Journal of the Canadian Association for Leisure Studies*, 26(3/4), 147-189.
- Murphy, J.F. (1981). *Concepts of leisure* (2nd ed.). Englewood Cliffs, NJ: Prentice-Hall.
- Nadirova, A., & Jackson, E. L. (2001). Alternative criterion variables against which to assess the impacts of constraints to leisure. *Journal of Leisure Research*, 32(4), 396-405.
- Neulinger, J. (1974). *The psychology of leisure*. Springfield, IL: Charles C. Thomas.
- Norusis, M. J. *SPSS 8.0: Guide to data analysis*. Upper Saddle River, NJ: Prentice-Hall.
- Nunnally, J. (1978). *Psychometric theory* (2nd ed.). New York: McGraw Hill.
- Paxton, T., & McAvoy, L. (1998). Self-efficacy and adventure programs: Transferring outcomes to everyday life. *Coalition for Education in the Outdoors Research Symposium Proceedings*: 4th (pp. 32-39).
- Priest, S., & Gass, M.A. (2005). *Effective leadership in adventure programming*. Champaign, IL: Human Kinetics.
- Propst, D. B., & Koesler, R. A. (1998). Bandura goes outdoors: Role of self-efficacy in the outdoor leadership development process. *Leisure Sciences*, 20, 319-344.
- Ragheb, M. G., & Merydith, S. P. (2001). Development and validation of a unidimensional scale measuring free time boredom. *Leisure Studies*, 20, 41-59.
- Richardson, E. D. (2003). *Adventure-based therapy and self-efficacy theory: Test of a treatment model for late adolescents with depressive symptomatology*. *Dissertation Abstracts International*, 63(9-B), 4384. (UMI No. AA13065456)

- Scholz, U., Gutierrez-Dona, B., Sud, S., & Schwarzer, R. (2002). Is general self-efficacy a universal construct? Psychometric findings from 25 countries. *European Journal of Psychological Assessment, 18*(3), 242-251.
- Schnell, M. J. (2000). *Becoming an outdoors-woman: Barriers and strategies to minority women's participation in natural resource-based recreation*. Unpublished master's thesis, University of Wisconsin, Stevens Point, Wisconsin.
- Schunk, D. (1984). Self-efficacy perspective on achievement behavior. *Educational Psychology, 19*(1), 48-58.
- Schwarzer, R., & Jerusalem, M. (1995). Generalized Self-Efficacy scale. In J. Weinman, S. Wright, & M. Johnston, *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 25-37). Windsor, UK: NFER-NELSON.
- Sibthorp, J. (2003). An empirical look at Walsh and Golins' adventure education process model: Relationships between antecedent factors, perceptions of characteristics of an adventure education experience, and changes in self-efficacy. *Journal of Leisure Research, 35*(1), 80-106.
- Stevens, J. (1992). *Applied multivariate statistics for the social sciences* (3rd ed.). Hillsdale, NJ: Lawrence Erlbaum.
- Streiner, D. L., & Norman, G. R. (1989). *Health measurement scales: A practical guide to their development and use*. Oxford: Oxford University Press.
- Sutherland, S. L. (2001). Don't judge a book by its cover: A closer look at inclusive adventure education. *Dissertation Abstracts International, 61*(8-B), 3058. (UMI No. AA19982987)
- Sylvia-Bobiak, S., & Caldwell, L. L. (2006). Factors related to physically active leisure among college students. *Leisure Sciences, 28*, 73-89.
- Tabachnick, B. G., & Fidell, L. S. (1989). *Using multivariate statistics*. (2nd ed.). New York: Harper & Row.
- Vodanovich, S. J. (2003). Psychometric measures of boredom: A review of the literature. *The Journal of Psychology, 137*(6), 569-595.
- Voelkl, J. E., & Ellis, G.D. (1998). Measuring flow experiences in daily life: An examination of the items used to measure challenge and skill. *Journal of Leisure Research, 30*(3), 380-389.
- Voelkl, J.E., & Ellis, G.D. (2002). *Optimal experience in daily life: Examination of the predictors, dimensions and outcomes*. In Abstracts from the 2002 Leisure Research Symposium, Ashburn, VA: National Recreation and Park Association.
- Voelkl, J.E., Ellis, G.D., & Walker, J. (2003). Go with the flow. *Parks and Recreation, 38*(8), 20-29.
- Walsh, V., & Golins, G. (1976). *The exploration of the Outward Bound process*. Denver, CO: Colorado Outward Bound Publications.
- Witt, P.A., & Ellis, G.D. (1985). Development of a short form to assess perceived freedom in leisure. *Journal of Leisure Research, 17*(3), 225-233.

- Witt, P.A., & Ellis, G.D. (1987). *The leisure diagnostic battery: User's manual*. State College, PA: Venture.