

DIFFERENCES IN MOTIVATIONS OVER TIME BY LEVEL OF DEVELOPMENT: AN EXAMINATION OF PRE/POST ADVENTURE RECREATION EXPERIENCES

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Abstract: The purpose of this study was to examine changes in motivations for outdoor adventure recreation pursuits over a short period of time (pre- to posttest) for participants with different levels of development. Subjects were 100 undergraduate recreation majors from separate similar summer session Outdoor Education Practicum courses, each of which included 7 days in a camp-like resident outdoor education setting plus a 6-day wilderness canoe trip in New York's Adirondack Park. Prior to the start of the course and again on the last full day of the course, respondents completed the Adventure Recreation Model Instrument (Ewert & Hollenhorst, 1989). Besides ranking 19 motives on a 9-point Likert importance scale, participants also provided self-reports on three variables related to level of development in adventure recreation (experience level, perceived skill, and frequency of participation). After these three items were combined to yield one scale, each respondent was then assigned to one of four categories (beginner, intermediate, advanced, or expert). When pretest scores were compared to posttest scores for all respondents using dependent t-tests, 7 motives increased significantly over time ($p < .05$). However, when mean motive scores were compared for each level of development, the pattern of change differed. Although beginners' scores increased for *achievement*, they decreased for *fun* and *competition*. Intermediates' scores increased for four different motives: *excitement*, *self-enhancement*, *risk-taking*, and *career*. A third set of motives became significantly more important for advanced participants: *challenge*, *skill development*, and *creativity*. Finally, experts' scores increased for *novelty*, *achievement* (like beginners), and *risk-taking* (like intermediates). Based on this study, adventure recreationists' motives change differently over a short period of time as follows:

while beginners struggle to achieve, intermediates are drawn more by excitement and risk, advanced participants focus on self-actualization, and experts seek new challenges to stay involved.

Introduction

Expectancy-value theory (Fishbein & Ajzen, 1975) states that individuals may have a variety of motives for participating in an activity. Furthermore, persons within that activity may seek totally different outcomes (Ditton, Fedler, & Graefe, 1982). In order to understand motivational differences more clearly, some studies have focused on describing relationships between level of past experience and motives. For instance, Schreyer, Lime, and Williams (1984) discovered that novice river recreationists ranked motives such as "to develop my skills" and "to test my abilities" much lower than veterans. Going beyond experience use history, Kauffman (1984) noted that highly specialized canoeists were found to canoe for exercise, recognized the importance of their equipment to their experience, and received a sense of achievement from their experience.

Since motives have been shown to be influenced by level of past experience, it seems likely that motives would differ by participants' level of development. Growth and development in leisure activities are often characterized by Bryan's theory of specialization (1977, 1979) or Stebbins' theory of serious leisure and amateur/professional development (1979, 1992). Bryan (1979) created typologies of various outdoor activities (e.g., fly fishing, photography, hiking and backpacking, mountain climbing, skiing, canoeing, birdwatching, and hunting), where participants could be placed on continua ranging from novices to specialists based on time, money, equipment, skill, and psychic commitment associated with the activities. Stebbins' (1992) study of "serious leisure" and amateurism in art, entertainment, science, and sport characterized participants' progress from dabblers to novices, amateur participants/devotees, or even paid professionals. Five stages of a career history were highlighted (beginning, development, establishment, maintenance, and decline) based on descriptions of corresponding changes in knowledge, skill, ability, participation, experience, and dedication.

Combining both theories of specialization and serious leisure, Todd showed that a single measure – "level of development" – was significantly related to indices measuring equipment, knowledge, skill, participation, amateur/professional development, commitment, and experience for both quiltmakers (1997, 1999a, 1999b) and SCUBA divers (2000). With the exception of diving experience (which linearly increased from beginners to post-experts), all factors increased from beginner to expert and then decreased for post-experts.

Similar studies have focused on understanding developmental levels of outdoor adventure (or risk) recreation behavior, primarily using Ewert's (1989) Adventure Recreation Model (ARM) (Ewert &

Hollenhorst, 1989; Anderson, Anderson, & Young, 2000). As shown in Figure 1, the ARM is based on development-related personal attributes (shown in the dark shaded portions): level of engagement or experience, frequency of participation, and skill level. These attributes are thought to be related in predictable ways to variables such as locus of control, social orientation, preferred level of risk, environmental orientation, and motivation.

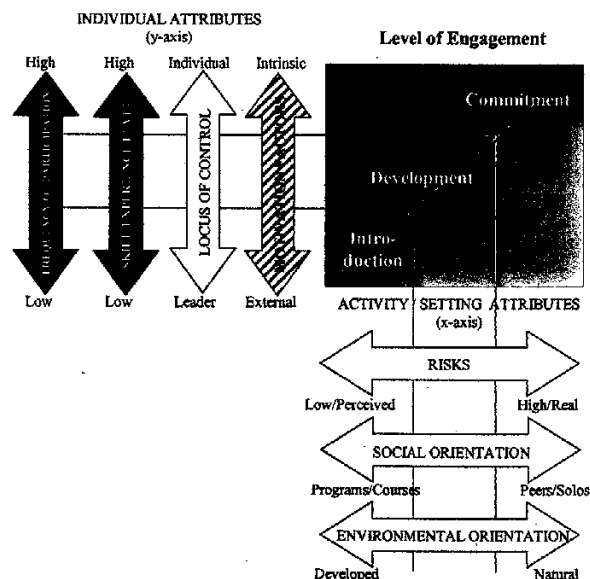


Figure 1. The Adventure Recreation Model (Ewert & Hollenhorst, 1989)

As shown graphically by the gray arrow in the ARM (Figure 1), all of the previously discussed developmental theories suggest that individuals at different stages of development tend to focus on different outcomes, with *intrinsic* rewards of involvement and competence becoming more important as participants become more experienced, specialized, or serious. Findings, however, have varied.

In the original conceptualization of the ARM, Ewert (1989) examined participant development based solely on one variable: level of experience or engagement. If participants marked responses of 1 to 3 on a 9-point Likert scale ranging from "little or no experience" (1) to "a great deal of experience" (9), they were labeled "introductory." Scores of 4 to 6 resulted in being assigned to the "development" category, and 7 to 9 became "committed" participants. Ewert & Hollenhorst (1989) found that just two of 19 motives (skill development and competition) were weakly but significantly correlated to level of engagement ($r = .19$ for both), and subsequently recommended eliminating motivation from the model.

However, further testing by Anderson et al. (2000) countered that finding. Their study of adventure recreationists showed stronger significant relationships

between level of engagement and eight motives: risk-taking ($r = .50$), skill development ($r = .45$), experiencing nature ($r = .42$), excitement ($r = .39$), creativity ($r = .39$), fun ($r = .38$), challenge ($r = .31$), and competition ($r = .25$). Providing further support, Todd, Anderson, Young, and Anderson (in press) found that mean motive scores for adventure recreationists tended to linearly increase from beginners to experts for factors related to intrinsic motives (i.e., challenge, self-efficacy, learning, and fun); those related to extrinsic motives of image and social interaction tended to peak in the beginner or intermediate stages and decline through the advanced and expert stages. In this case, stage of development was operationalized more broadly by combining the level of engagement or experience with measures of skill level and frequency of participation.

Similarly, Todd, Graefe, and Mann (2002) found that SCUBA divers' intrinsic motives of adventure and learning followed a predicted curvilinear pattern of increasing importance from beginner to expert stages and decreasing for post-experts. Extrinsic social interaction displayed the predicted mirror image of that curve. However, the intrinsic motive personal challenge unexpectedly decreased, and extrinsic motives of stature and escape actually increased with development. One explanation offered by the authors was that diving may simply be a unique type of leisure activity in terms of motivation. Although beginners are initially drawn to the activity to challenge themselves, once the skills and abilities are developed, divers seem to be motivated by the stature of and visible outcomes associated with the activity itself. (The authors note, however, that when many of the study's subjects began their diving careers, the television show *Sea Hunt* was popularizing this activity. Additionally, there was a strong emphasis on "trophy hunting" or collection and display of artifacts at that time, which may have contributed to a strong foundation for the importance of the stature factor.)

Finally, in a rare example of a longitudinal study of motivation, Todd and Graefe (2001) discussed three important findings. First, some motives were found to differ by level of development. Specifically, four motives varied by level of development in both 1996 and 2000, two other motives differed only in 1996, and three additional motives varied only in 2000. The patterns, however, were all generally curvilinear in shape, with scores increasing from beginners to experts and decreasing for post-experts. Second, some motives actually changed over time, with all scores decreasing in importance. Third, some motives changed over time as level of development changed. That is, after four years, quiltmakers who had progressed to a higher level of development were able to keep their motives at a consistent level, relying significantly less on quiltmaking to help them work through grief or problems. Quiltmakers who stayed at the same level or even retrogressed, however, seemed to have significantly less "drive" and "control" in their lives.

The purpose of the current study was to examine changes in motivations for outdoor adventure recreation pursuits over

a short period of time (pre- to posttest) for subjects with different levels of development. Between the points of data collection, participants were exposed to a two-week outdoor education course.

Methods

Subjects for this study were 100 undergraduate recreation majors from several separate sections of a required summer session Outdoor Education Practicum course. The primary difference among sections involved the timing of the course, which varied from late May to late June of 1999, 2000, or 2001. Otherwise, each section enrolled eligible recreation majors from all concentrations (outdoor recreation and education management, therapeutic recreation, recreation and leisure program delivery, management of leisure services, or no concentration); was staffed at a 1:7 ratio from a pool of similarly seasoned and trained leaders; and shared a common syllabus, format, and schedule. The 13-day course included 7 days in a camp-like resident outdoor education setting with dining facilities, amenities, and a structured program, and 6 days on a wilderness canoe trip in New York State's Adirondack Park. Participants ranged in age from 19 to 50, averaging 23, with slightly more females (54%) than males (46%).

Respondents completed the ARM Instrument (Ewert & Hollenhorst, 1989) two times: once at the start of the course, and again on the last full day of the course. Although the instrument measured a variety of user and setting attributes, only items pertaining to motivation and level of development were pertinent to this study.

Nineteen motives for participating in adventure experiences were measured using a 9-point Likert scale anchored by "not at all important" (1) and "very important" (9). Three items were used to measure development-related variables. The first two, experience and perceived skill, were measured by separate 9-point Likert scales, with 1 representing "little or no experience" or "beginner with little or no skills" and 9 being "a great deal of experience" or "expert, highly skilled," respectively. The third item, frequency of participation, was measured with five categories ranging from no adventure experiences within the last two years to 1-2, 3-6, 7-10, or more than 10 experiences. Supporting a broader conceptualization of level of development, these three items were positively correlated with each other ($p < .01$): $r = .91$ for experience and perceived skill, $.52$ for frequency of participation and experience, and $.50$ for frequency of participation and perceived skill.

Since these three variables (experience, perceived skill and frequency of participation) used two different scales of measurement, the items were converted to z-scores before being combined into a "level of development" scale, which yielded an acceptably high Cronbach's alpha reliability coefficient of .84. In order to compare results to motivational studies that used a categorical measure of level of development (Todd & Graefe, 2001; Todd et al., 2002), each respondent was then assigned to one of four categories based on his/her average scale score, with

cutoffs approximating the percentage breakdown of developmental levels established in the previous adventure recreation study of SCUBA divers (Todd, 2000): beginner (22%), intermediate (36%), advanced (31%), and expert (11%). Dependent t-tests were then used to compare pretest mean scores for each motive with corresponding posttest scores, both for the overall sample and for each category of level of development. A significance level of .05 was used in all cases.

Results

Overall, respondents rated "for fun and enjoyment" as their most important pretest motive for participating in adventure recreation experiences (mean = 8.27), followed by "to do something new/different" (7.47), "for excitement and stimulation" (7.44), and "for the personal challenge" (7.31). At the other end, respondents rated "for my image in society" (3.10), "for status among my peers" (3.38), and "because of requests by others" (3.84) as being least important (see Table 1). Posttest scores followed the same relative ranking of motives, shifting one or two-places at most from the pretest order.

In almost all cases (15 out of 19), mean scores increased from pre- to posttest, differing significantly over time for 7 items. The following motives yielded significantly higher posttest scores: "to take risks," $t(99) = 3.15, p < .01$ (two-tailed); "for my career/job" ($t = 3.12, p < .01$); "for feelings of achievement" ($t = 2.90, p < .01$); "for the personal challenge" ($t = 2.78, p < .01$); "to develop skills" ($t = 2.51, p < .01$); "to experience nature" ($t = 2.41, p < .05$); and "for physical fitness" ($t = 1.98, p < .05$).

When broken down by level of development, however, patterns of change differed (Table 1). For beginners, three motives changed significantly over time. While scores for "for feelings of achievement" significantly increased from pre- to posttest (6.64 to 7.36, $t(21) = 2.59, p < .05$ [two-tailed]), means for two other motives significantly decreased in importance. "For fun and enjoyment" scores declined from 8.36 to 7.64 ($t = 2.05, p < .05$), and "for the competition (with others or environment)" fell from 5.09 to 3.86 ($t = 2.39, p < .05$). Although not statistically significant, beginners recorded declines for six other motives, more than any other group.

For intermediates, a different set of motives changed significantly over time. In all four cases, motives were more important at the posttest than during the pretest. (In fact, scores for all but one of the 19 motives showed positive gains from pre- to posttest.) Scores for "to enhance feelings of myself" significantly increased from 6.36 to 6.94 ($t(35) = 2.61, t = .01$ [two-tailed]); "for my career/job" went from 5.11 to 5.89 ($t = 2.50, p = .05$); "to take risks" increased from 5.97 to 6.53 ($t = 2.34, p = .05$); and "for excitement and stimulation" changed from 7.14 to 7.56 ($t = 2.08, p = .05$).

For those in the advanced category, a third set of motives changed significantly over time. Mean scores increased in importance for the following three motives: "for the

Table 1. Dependent t-test results: Pre/posttest motives by level of development.

Motive	ALL (n = 100)			LEVEL OF DEVELOPMENT											
	Pretest	Posttest	t-value	BEGINNER (n = 22)			INTERMEDIATE (n = 36)			ADVANCED (n = 31)			EXPERT (n = 11)		
	0 (sd)	0 (sd)		0 (sd)	0 (sd)	value	0 (sd)	0 (sd)	value	0 (sd)	0 (sd)	value	0 (sd)	0 (sd)	value
For fun and enjoyment	8.27 (0.94)	8.08 (1.16)	1.42	8.36 (0.85)	7.64 (1.62)	2.05*	8.19 (0.92)	8.11 (1.06)	0.46	8.06 (1.09)	8.29 (0.74)	1.00	8.91 (0.30)	8.27 (1.27)	1.64
To do something new/different	7.47 (1.34)	7.64 (1.16)	1.26	7.36 (1.40)	7.32 (1.36)	0.13	7.75 (1.16)	7.78 (1.10)	0.15	7.29 (1.47)	7.58 (0.96)	1.12	7.27 (1.49)	8.00 (1.41)	2.19*
For excitement and stimulation	7.44 (1.27)	7.53 (1.22)	0.80	7.23 (1.60)	6.95 (1.59)	1.37	7.14 (1.15)	7.56 (1.13)	2.08*	7.61 (1.17)	7.61 (0.95)	0.00	8.36 (0.67)	8.36 (0.81)	0.00
For the personal challenge	7.31 (1.45)	7.73 (1.33)	2.78**	6.86 (1.55)	7.41 (1.68)	1.67	7.36 (1.38)	7.61 (1.25)	0.96	7.29 (1.55)	7.94 (1.12)	2.30*	8.09 (0.94)	8.18 (1.33)	0.25
For feelings of achievement	7.15 (1.40)	7.59 (1.27)	2.90**	6.64 (1.43)	7.36 (1.50)	2.59*	7.11 (1.39)	7.36 (1.29)	0.85	7.32 (1.40)	7.71 (1.16)	1.40	7.82 (1.08)	8.45 (0.52)	2.28*
To experience nature	7.10 (1.73)	7.40 (1.44)	2.41*	6.68 (1.89)	6.95 (1.86)	0.97	6.86 (1.74)	7.28 (1.30)	1.93	7.39 (1.67)	7.48 (1.21)	0.46	7.91 (1.22)	8.45 (1.04)	1.49
To develop skills	6.91 (1.72)	7.34 (1.55)	2.51**	6.23 (2.22)	6.91 (2.16)	1.91	6.92 (1.56)	7.31 (1.19)	1.45	7.13 (1.41)	7.58 (1.18)	2.04*	7.64 (1.69)	7.64 (2.06)	0.00
For physical fitness	6.64 (1.88)	6.97 (1.65)	1.98*	6.41 (2.11)	6.77 (1.82)	1.16	6.78 (1.82)	6.83 (1.63)	0.25	6.55 (1.73)	7.03 (1.66)	1.29	6.91 (2.17)	7.64 (1.36)	1.39
To enhance my feelings of myself	6.42 (1.76)	6.62 (2.00)	1.09	5.91 (2.09)	5.86 (2.49)	0.10	6.36 (1.74)	6.94 (1.80)	2.61**	6.71 (1.55)	6.48 (1.86)	.65	6.82 (1.60)	7.45 (1.57)	1.00
To make friends	6.36 (2.04)	6.71 (1.97)	1.85	6.50 (2.15)	6.82 (2.24)	0.98	6.14 (2.18)	6.53 (1.75)	1.13	6.58 (1.82)	7.00 (1.95)	1.37	6.18 (2.14)	6.27 (2.28)	0.12
To take risks	6.04 (1.64)	6.54 (1.71)	3.15**	4.91 (1.87)	5.36 (2.34)	1.10	5.97 (1.13)	6.53 (1.32)	2.34*	6.52 (1.59)	6.94 (1.29)	1.35	7.18 (1.17)	7.82 (1.08)	2.28*
To socialize	6.00 (2.03)	5.93 (2.05)	0.38	6.23 (2.18)	5.86 (2.34)	1.07	5.97 (2.04)	6.17 (1.73)	0.59	5.97 (2.04)	5.71 (2.07)	0.73	5.73 (1.90)	5.91 (2.51)	0.38
To express my creativity	5.93 (1.96)	6.31 (1.95)	1.75	5.32 (2.19)	5.36 (2.17)	0.08	5.89 (1.82)	6.33 (1.84)	1.49	6.23 (1.86)	6.87 (1.61)	2.02*	6.45 (2.16)	6.55 (2.25)	0.09
To experience a sense of control	5.79 (1.77)	5.92 (1.81)	0.67	5.14 (1.52)	5.55 (1.71)	1.04	5.61 (1.74)	5.61 (1.78)	0.00	6.00 (1.74)	6.17 (1.93)	0.56	7.09 (1.81)	7.00 (1.41)	0.12
For my career/job	5.50 (2.33)	6.09 (2.27)	3.12**	4.86 (2.47)	5.41 (2.30)	1.30	5.11 (2.09)	5.89 (2.29)	2.50*	6.13 (2.33)	6.52 (2.06)	1.17	6.27 (2.41)	6.91 (2.55)	0.98
For the competition (with others Or environment)	5.21 (2.36)	4.80 (2.43)	1.58	5.09 (2.39)	3.86 (2.01)	2.39*	4.69 (2.16)	4.81 (2.38)	0.29	5.71 (2.22)	5.00 (2.35)	1.46	5.73 (3.13)	6.09 (3.11)	0.36
Because of requests by others	3.84 (1.89)	3.94 (1.93)	0.54	3.10 (1.67)	3.81 (2.09)	1.95	4.08 (1.83)	4.28 (2.06)	0.69	4.26 (1.95)	3.94 (1.53)	0.86	3.27 (2.05)	3.09 (2.17)	0.34
For status among my peers	3.38 (2.08)	3.27 (1.91)	0.67	3.14 (1.93)	2.86 (1.49)	0.70	3.50 (2.26)	3.58 (2.12)	0.30	3.61 (1.91)	3.48 (1.98)	0.56	2.82 (2.36)	2.45 (1.57)	0.56
For my image in society	3.10 (2.12)	3.38 (2.04)	1.43	2.68 (2.42)	2.64 (1.68)	0.10	3.17 (2.08)	3.53 (1.96)	1.28	3.68 (1.99)	3.94 (2.42)	0.68	2.09 (1.64)	2.82 (1.25)	1.12

Means that are highlighted are significantly different (*p < .05, **p < .01). Values are mean scores on a 9-point scale ranging from *not at all important* (1) to *very important* (9).

personal challenge" (7.29 to 7.94, $t[30] = 2.30, p < .05$ [two-tailed]); "to develop skills" (7.13 to 7.58, $t = 2.04, p < .05$); and "to express my creativity" (6.23 to 6.87, $t = 2.02, p < .05$).

Finally, exclusive to experts, the motive "to do something new/different" significantly increased over time (7.27 to 8.00, $t[10] = 2.19, p < .05$ [two-tailed]). Additionally, like beginners, experts had higher posttest scores for "for feelings of achievement" (7.82 to 8.45, $t = 2.28, p < .05$), and, like intermediates, recorded higher means for "to take risks" (7.18 to 7.82, $t = 2.28, p < .05$).

It should be noted that, due to the small sample sizes of the beginner and expert classes, appropriate nonparametric tests were also performed. However, since results mirrored those found above, dependent t-test findings were reported for ease of comparison and understanding.

Discussion and Implications

This study showed that, as a result of a two-week outdoor education course, some motives for participating in adventure recreation do change over time. Like White and Pennington-Gray's (2002) study of pre- and post-trip motives for skiers, the pattern of change was an increase in participants' motives over a relatively short period.

Results from both of these studies differ from Todd and Graefe's (2001) longitudinal examination of quiltmaker motives, where actual mean scores tended to decrease over time. This implies that quiltmakers may have been lowering their expectations that their activity would help achieve desired outcomes. However, it is important to note that the time lapse in this study was much greater than the other two: four years vs. a few weeks. Thus, the timing of data collection may be a critical factor when studying the dynamics of motivation, and different threats to validity should be considered. For instance, the longer the period, the more probable that extraneous effects of history, maturation, and experimental mortality could be biasing results. On the other hand, the shorter the time lapse, the greater the likelihood that pretest procedures may be influencing posttest outcomes.

In this study, the latter threat appears to be minimal. Using the ARM Instrument, Young, Anderson, and Anderson (2002) specifically examined the effects of exposure to the pretest. They found little evidence for a pretest effect, with the exception of four out of 30 variables. One of these items, however, was the motive "to develop skills," for which the posttest only group recorded significantly lower mean scores than the pretest/posttest group. As a precaution, readers should thus note that scores for this particular motive may be inflated in this study.

Second, the outcomes of the current study displayed that level of development is an important way to segment participants: different sets of motives become increasingly important to different user groups. A progression of change seems to occur where beginners focus on struggling

to achieve, intermediates become more drawn by excitement and risk, advanced tend to focus on self-actualization, and experts seek new ways to challenge themselves to stay involved in the activity.

To that end, the pattern of shaded t-test results in Table 1 is a clear reminder that averages often mask underlying variations in the data. For instance, although seven motives significantly increased in importance for the entire sample, *six additional motives* differed significantly for a lone subgroup of that population, resulting in a total of 13 out of 19 motives (nearly 70%) changing significantly over time. As previously noted, differences for "for fun and enjoyment" and "for the competition with others or environment" were only registered for beginners, "for excitement and stimulation" and "to enhance feelings of myself" changed for just intermediates, "to express my creativity" only increased for advanced, and changes in "to do something new/different" solely affected experts. Furthermore, when a motive did differ for the entire sample, that difference varied significantly for just one or two subgroups, not all levels of development. For instance, only advanced participants' scores increased significantly for "for the personal challenge" and "to develop skills," and beginners and experts were the only segments for which "for feelings of achievement" increased. Finally, even though scores statistically increased for the entire sample for some motives ("to experience nature" and "for physical fitness"), that increase was not pronounced enough in any one subgroup to emerge as a significant change by level of development.

Examining motives that did *not* change significantly over time, either for any one subgroup or for the sample as a whole, is also important. In particular, motives related to social interaction ("to make friends" and "to socialize") and image ("because of requests by others," "for status among my peers," and "for my image in society") remained constant over time regardless of level of development. Thus, while social interaction remains moderately important to adventure recreationists (averaging 6 on a 9-point scale), image remains relatively unimportant (averaging 3). The former finding implies that, based on the results of this and previous studies (Anderson et al., 2000; Todd et al., in press), social interaction, operationalized in the ARM (Ewert & Hollenhorst, 1989) as social orientation, could be removed from the model since it does not appear to change with level of development. Furthermore, the "unimportant image" result reinforces one of two things: either image is truly of little concern to adventure recreationists, or societal pressures and norms often discourage individuals from openly admitting that seeking social recognition is a notable motive. As previously mentioned, SCUBA divers seem to be one group that has overcome that tendency: prestige became significantly more important as level of diving development increased (Todd et al., 2002).

The results of this study have important implications to theory and practice. If it is known how motives differ by level of development as well as which ones change over

time for each stage, two groups in particular can make great use of that data. Those at the regional or community planning level, such as resource managers, tourism professional, and community developers, could adjust their promotion strategies, site designs, and agency plans to reflect a better understanding of their constituents. Likewise, camp administrators, club organizers, and instructors could more effectively facilitate their participants' needs and experiences.

From a research perspective, even more light could be shed on how motives change over time by linking that information to perceived constraints and discontinuance behavior. For instance, Ewert (1993) found that novice climbers who failed to reach the summit (i.e., who were unable to negotiate various constraints) consistently reported lower levels of importance for all motives.

Another important issue would involve expansion of sampling techniques to include *post-experts*, a group that has been shown to differ not only in development-related factors (Todd, 1997, 2000) and motives for participation (Todd et al., 2002), but also in terms of their vulnerability to perceiving constraints (Todd & Graefe, 2000) and subsequently dropping out of an activity (Todd & Graefe, 2002). Ultimately, tracking subjects over longer periods of time could give a more valid picture of how (and at what rate) changes in development and motivation occur.

References

- Anderson, L., Anderson, D., & Young, A. (2000). Testing the adventure recreation model: A replication with subjects involved in a required outdoor experience. In L. A. Stringer, L. H. McAvoy, & A. B. Young, (Eds.), *Coalition for Education in the Outdoors Fifth Biennial Research Symposium Proceedings* (pp. 24-30). Cortland: Coalition for Education in the Outdoors, SUNY Cortland.
- Bryan, H. (1977). Leisure value system and recreational specialization: The case of trout-fishermen. *Journal of Leisure Research*, 9, 174-187.
- Bryan, H. (1979). *Conflict in the great outdoors* (Bureau of Public Administration Sociological Studies No. 4). Tuscaloosa: University of Alabama.
- Ditton, R. B., Fedler, A. J., & Graefe, A. R. (1982). Assessing recreational satisfaction among diverse participant groups. In D. W. Lime (Ed.), *Forest and river recreation: Research update* (Misc. Pub. 18, pp. 134-139). St. Paul: University of Minnesota Agricultural Experiment Station.
- Ewert, A. (1989). *Outdoor adventure pursuits: Foundations, models, and theories*. Columbus, OH: Publishing Horizons.
- Ewert, A. (1993). Differences in the level of motive importance based on trip outcome, experience level and group type. *Journal of Leisure Research*, 25, 335-349.
- Ewert, A., & Hollenhorst, S. (1989). Testing the adventure recreation model: Empirical support for a model of risk recreation participation. *Journal of Leisure Research*, 21, 124-139.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- Kauffman, R. B. (1984). *The relationship between activity specialization and resource related attitudes and expected rewards for canoeists*. Unpublished doctoral dissertation, University of Maryland, College Park.
- Schreyer, R., Lime, D. W., & Williams, D. R. (1984). Characterizing the influence of past experience on recreation behavior. *Journal of Leisure Research*, 16, 34-50.
- Stebbins, R. A. (1979). *Amateurs - On the margin between work and leisure*. Beverly Hills: Sage.
- Stebbins, R. A. (1992). *Amateurs, professionals, and serious leisure*. Montreal: McGill-Queen's University Press.
- Todd, S. L. (1997). *Means or ends? An expanded model of competitiveness based on quiltmakers' perceptions of success and constraints to continued progress*. Unpublished doctoral dissertation, The Pennsylvania State University, University Park.
- Todd, S. L. (1999a). Quiltmakers' level of development over time: A longitudinal examination of factors leading to progression or retrogression. In *Abstracts from the 1999 Symposium on Leisure Research*. National Recreation & Park Association, p. 11.
- Todd, S. L. (1999b). Recreation specialization, amateur/professional leisure, and level of development: Applying outdoor recreation and sport concepts to quiltmakers. In H. G. Vogelsong (Comp., Ed.), *Proceedings of the 1998 Northeastern Recreation Research Symposium* (Gen. Tech. Rep. NE-255, pp. 57-62). Radnor, PA: USDA, Forest Service, Northeastern Research Station.
- Todd, S. L. (2000). *SCUBA diving in New York's Great Lakes: From novice to professional* (New York Sea Grant Institute Completion Report). Cortland: Department of Recreation & Leisure Studies, SUNY Cortland.
- Todd, S. L., Anderson, L., Young, A., & Anderson, D. (in press). The relationship of motivation factors to level of development in outdoor adventure recreationists. In M. D. Bialeschki (Ed.), *Coalition for Education in the Outdoors Sixth Biennial Research Symposium Proceedings*. Cortland, NY: The Coalition for Education in the Outdoors.

Todd, S. L., & Graefe, A. R. (2000). SCUBA diving in New York's Great Lakes: The relationship between level of development and perceived constraints. In *Book of abstracts: 8th International Symposium on Society and Resource Management* (Gen. Tech. Rep. PNW-GTR-497, p. 315). Portland, OR: USDA, Forest Service, Pacific Northwest Research Station.

Todd, S. L., & Graefe, A. R. (2001). A longitudinal examination of changes in quilters' motives and levels of development over a four-year period. In *Abstracts from the 2001 Symposium on Leisure Research*. National Recreation & Park Association, p. 34.

Todd, S. L., & Graefe, A. R. (2002). The relationship of continuance/discontinuance behavior to SCUBA divers' perceived constraints and levels of development. Abstract submitted to 2002 National Recreation & Park Association Leisure Research Symposium.

Todd, S. L., Graefe, A. R., & Mann, W. (2002). Differences in SCUBA diver motivations based on level of development. In S. L. Todd (Comp., Ed.), *Proceedings of the 2001 Northeastern Recreation Research Symposium* (Gen. Tech. Rep. NE-289, pp. 107-114). Newtown Square, PA: USDA, Forest Service, Northeastern Research Station.

White, E., & Pennington-Gray, L. (2002). Skier motivations: Do they change over time? In S. L. Todd (Comp., Ed.), *Proceedings of the 2001 Northeastern Recreation Research Symposium* (Gen. Tech. Rep. NE-289, pp. 115-117). Newtown Square, PA: USDA, Forest Service, Northeastern Research Station.

Young, A., Anderson, L., & Anderson, D. (2002). Effects of pretesting with the Adventure Recreation Model Instrument. In S. L. Todd (Comp., Ed.), *Proceedings of the 2001 Northeastern Recreation Research Symposium* (Gen. Tech. Rep. NE-289, pp. 269-274). Newtown Square, PA: USDA, Forest Service, Northeastern Research Station.