

VALIDATING LEVEL OF DEVELOPMENT THROUGH SELF-ASSESSMENTS OF ADVENTURE RECREATIONISTS

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Abstract

The purpose of this study was to validate and extend the use of a self-selected single measure of level of development to adventure recreationists in a college course format. A second objective was to discover if a two-week experience could positively change participants' perceived levels of development. Therefore, changes in levels of development were examined over time by identifying which aspects changed significantly from pre- to posttest. Results showed that a single measure of level of development can be used to represent corresponding levels of experience, participation, skill, equipment, knowledge, and commitment for beginner, intermediate, and advanced adventure recreationists. Furthermore, a 2-week course does affect their growth and development in terms of all six factors. Those at the earliest stages of development are more likely to perceive these changes as strong enough to warrant a change in developmental stage, and are more cognizant of changes in knowledge and participation levels.

1.0 Introduction

Studies focusing on developmental levels of outdoor adventure (or risk) recreation behavior often incorporate Ewert's (1989) Adventure Recreation Model (ARM) (Ewert & Hollenhorst 1989; Anderson et al. 2000), where development is characterized by three variables: level of engagement/experience, frequency of participation, and skill level (see Fig. 1). Other studies

of growth and development in leisure activities rely on Bryan's theory of specialization (1977, 1979) or Stebbins' theory of serious leisure and amateur/professional growth (1979, 1992). Todd combined both theories, providing evidence that a single self-selected measure of "level of development" was significantly related to indices measuring not only experience, participation, and skill (the three items identified in the ARM), but also indices measuring equipment, knowledge, amateur/professional development, and commitment. For both quiltmakers (Todd 1997) and SCUBA divers (Todd 2000), these factors tended to increase from beginner to expert and then decrease for post-experts.

In a subsequent longitudinal study, Todd (1999) tracked changes in level of development for 230 quiltmakers. While two-thirds of the quiltmakers remained at the same level of development over a 2-year period (1996 to 1998), one-fourth of the respondents actually progressed to a higher level of development, and some (13%) even retrogressed to a previous stage. When changes in related factors were examined in relationship to change in developmental level, the percentage of quiltmakers who perceived a positive change in perceived skill, knowledge,

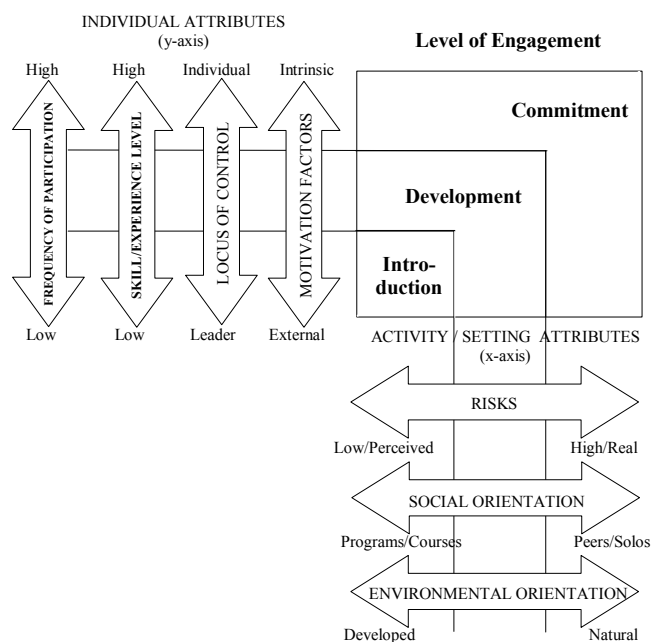


Figure 1.—The Adventure Recreation Model (Ewert & Hollenhorst 1989).

and experience level was highest for those who progressed to a higher level of development, followed by those who stayed at the same level and those who had retrogressed, respectively. On the other hand, the percentage of quiltmakers who perceived no change or a decrease in these factors was greatest for those who had retrogressed to a previous stage of development, followed by those who remained at the same stage and those who had progressed, respectively.

The purposes of this study were three-fold: 1) to validate and extend the use of the self-selected "level of development" measure beyond quiltmakers and SCUBA divers, by applying the construct to outdoor adventure recreationists in a college course format; 2) to document changes in level of development over a shorter period of time (i.e., a 2-week period between the administration of pre- and posttests, instead of the 2-year gap between data collection points used in the 1999 Todd study); and 3) to identify which aspects of level of development changed significantly over time (from pre- to post-test).

2.0 Methods

Subjects were 76 undergraduate recreation majors from two separate, but similar, summer session Outdoor Education Practicum courses, one held in 2002 (n=36) and the other in 2003 (n=40). Fifty-three percent of the subjects were female, and ages ranged from 18 to 43, with an average age of 22. The 13-day course included 7 days in a camp-like resident outdoor education setting, with amenities, dining facilities, and a structured program. The course also included a 6-day wilderness canoe trip in New York's Adirondack Park. Subjects completed a written questionnaire prior to the start of the course and again on the last full day of the course.

Replicating Todd's measure (2000), respondents characterized their current stages of development in outdoor adventure recreation as either beginner, intermediate, advanced, expert, or "post-expert" – not the expert I once was. As shown in Table 1, the following six factors predicted to be related to or encompassed by level of development were operationalized by a total of 19 scaled items: experience level (3 scaled measures), perceived skill (2), frequency of participation (5), knowledge (1), equipment (2), and commitment (6). Three of these 19 items (engagement, skill, and participation) were measured by Ewert & Hollenhorst's

1989 Adventure Recreation Model Instrument. For commitment, five items (central life interest, self-identity, image, importance, and self-esteem) were modeled after measures used by McIntyre & Pigram (1992) in their study of campers' enduring involvement. The remaining items were based on measures used by Todd to reflect factors related to quiltmakers' (1997) and divers' (2000) levels of development. However, each successive study winnowed down the number of items used, based on the strength of prior results: while 144 individual items assessed factors related to quiltmakers' levels of development, approximately 60 items were used in the diver study, and only 19 were employed in the current study.

3.0 Results

As expected, given the nature of the study design, the sample was positively skewed on the pretest in terms of level of development with 16 beginners, 38 intermediates, 22 advanced, and no experts or post-experts. These three groups were subsequently compared on the factors hypothesized to be positively related to level of development. When mean scores of each of the 19 measures were compared among adventure recreationists using one-way analysis of variance followed by Tukey's HSD post hoc test, 15 of the 19 items significantly increased ($p < .05$) from beginner through intermediate and advanced in a linear fashion (Table 2).

Chi-square analysis showed that although two-thirds of the respondents remained at the same level of development by the end of the 2-week course (Table 3), one-third perceived a change in status. By the post-test, 10 of 15 beginners progressed to an intermediate stage of development, 10 of 36 intermediates changed their ratings to advanced, and 1 of 22 advanced respondents subsequently became an expert. Interestingly, three respondents actually recorded that they had regressed to a lower stage of development, perhaps due to a tendency to over-estimate level of development at the start of the project. Due to low numbers, the three respondents who had retrogressed were dropped from the remaining analyses.

When pretest scores were compared to posttest scores of all respondents using dependent t-tests, 9 of the 19 individual items significantly increased over time ($p < .05$), with all six areas of development represented

Table 1.—Operational measures of indicator factors.

INDICATOR FACTOR Measures	Survey questions scales
EXPERIENCE	
Engagement (9-pt. scale)	As an outdoor adventurer, I would consider myself to have had...
Experience (4-pt. scale)	(1) <i>little or no experience to (9) a great deal of experience</i> How would you describe yourself in regards to your degree of outdoor adventure experience? (1) <i>low, (2) moderate, (3) moderately high, or (4) extremely high</i> How many years during your lifetime have you been involved in outdoor adventure recreation? (1) <i>less than a year, (2) 1 to 2 years, (3) 3 to 5 years, (4) 6 to 10 years, (5) 11 to 15 years, or (6) more than 15 years</i>
Lifetime years (6-pt. scale)	
SKILL	
Skill (9-pt. scale)	As an outdoor adventurer, I would consider myself to be a(n)...
Skill level (4-pt. scale)	(1) <i>beginner with little or no skills to (9) expert, highly skilled</i> How would you describe yourself in regards to your skill level as an outdoor adventure recreationist? (1) <i>low, (2) moderate, (3) moderately high, or (4) extremely high</i>
PARTICIPATION	
Frequency (5-pt. scale)	How many adventure experiences have you had in the last two years? (0) <i>none, (1) 1-2, (2) 3-6, (3) 7-10, or (4) more than 10</i>
Participation (4-pt. scale)	How would you describe yourself in regards to your frequency of participation in outdoor adventure recreation? (1) <i>low, (2) moderate, (3) moderately high, or (4) extremely high</i>
COOP interest (6-pt. scale)	Which of the following best describes your interest in enrolling in or attending Cortland Outdoor Opportunities Program (COOP) courses or activities in the future? (0) <i>N/A, (1) No interest at all, (2) low interest, (3) moderate interest, (4) moderately high interest, or (5) extremely high interest</i>
COOP activities (4-pt. scale)	How many COOP courses or activities have you enrolled in or attended? (1) <i>none, (2) 1-2, (3) 3-5, or (4) 6 or more</i>
Desired future level (4-pt. scale)	Which of the following best describes your desired level of participation in outdoor adventure recreation in the future? (1) <i>I want to increase my level, (2) I want to maintain my level, (3) I want to decrease my level, or (4) I do not plan to participate in the future</i>
KNOWLEDGE	
Knowledge (4-pt. scale)	How would you describe yourself in regards to your level of outdoor adventure-related knowledge? (1) <i>low, (2) moderate, (3) moderately high, or (4) extremely high</i>
EQUIPMENT	
Equipment inventory (4-pt. scale)	How would you describe yourself in regards to your inventory of outdoor adventure equipment? (1) <i>low, (2) moderate, (3) moderately high, or (4) extremely high</i>
Plan to buy (5-pt. scale)	How much outdoor adventure-related equipment do you plan to buy in the next 12 months? (1) <i>none, (2) some/a few items, (3) a moderate amount, (4) many, or (5) a high number of items</i>
COMMITMENT	
Commitment (4-pt. scale)	How would you describe yourself in regards to your commitment to outdoor adventure recreation? (1) <i>low, (2) moderate, (3) moderately high, or (4) extremely high</i>
Central life interest (9-pt. scale)	I find that a lot of my life is organized around outdoor adventure recreation. (1) <i>strongly disagree to (9) strongly agree</i>
Self-identity (9-pt. scale)	Outdoor adventure recreation says a lot about who I am. (1) <i>strongly disagree to (9) strongly agree</i>
Image (9-pt. scale)	Many people think of me in terms of being an outdoor adventure recreationist. (1) <i>strongly disagree to (9) strongly agree</i>
Importance (9-pt. scale)	Outdoor adventure recreation is very important to me. (1) <i>strongly disagree to (9) strongly agree</i>
Self-esteem (9-pt. scale)	Participation in outdoor adventure recreation contributes to my self-esteem. (1) <i>strongly disagree to (9) strongly agree</i>

Table 2.—One-way analysis of variance results: Indicator items by level of development.

INDICATOR FACTOR Measures	Stage of Development				F-value ¹	p-value	# of differences detected
	Total (n=76)	Beginner (n=16)	Intermediate (n=38)	Advanced (n=22)			
EXPERIENCE							
Engagement (9-pt. scale)	4.76	2.06a	4.87b	6.55c	52.21	.000	3
Experience (4-pt. scale)	2.11	1.19a	2.05b	2.86c	35.57	.000	3
Lifetime years (6-pt. scale)	3.66	1.88a	3.74b	4.82c	22.59	.000	3
SKILL							
Skill (9-pt. scale)	4.74	2.13a	4.79b	6.55c	67.83	.000	3
Skill level (4-pt. scale)	2.18	1.38a	2.11b	2.91c	38.44	.000	3
PARTICIPATION							
Frequency (5-pt. scale)	2.08	0.75a	2.03b	3.14c	30.90	.000	3
Participation (4-pt. scale)	2.18	1.25a	2.11b	3.00c	20.81	.000	3
COOP interest (6-pt. scale)	3.58	2.44a	3.82b	4.11b	9.37	.001	2
COOP activities (4-pt. scale)	1.70	1.22a	1.64ab	2.33b	5.16	.011	1
Desired future level (4-pt. scale)	1.16	1.40	1.14	1.05	1.50	.231	n.s.
KNOWLEDGE							
Knowledge (4-pt. scale)	2.15	1.06a	2.16b	2.91c	41.48	.000	3
EQUIPMENT							
Equipment inventory (4-pt. scale)	2.01	1.25a	1.79a	2.95b	26.52	.000	2
Plan to buy (5-pt. scale)	2.76	2.44	2.89	2.77	1.74	.182	n.s.
COMMITMENT							
Commitment (4-pt. scale)	2.35	1.38a	2.29b	3.19c	22.26	.000	3
Central life interest (9-pt. scale)	3.34	1.56a	3.34b	4.64b	9.52	.000	2
Self-identity (9-pt. scale)	3.71	2.00a	3.55a	5.23b	8.03	.001	2
Image (9-pt. scale)	3.26	1.44a	3.21b	4.32b	7.75	.001	2
Importance (9-pt. scale)	4.66	3.57	4.63	5.50	2.46	.092	n.s.
Self-esteem (9-pt. scale)	5.11	5.20	5.00	5.24	0.06	.941	n.s.

Values are mean scores on various scales (see Table 1).

¹F-values are a result of one-way analysis of variance; means with different superscripts are significantly different at the .05 level using Tukey- HSD post hoc test.

Table 3.—Chi-square results: Pretest level of development by posttest level of development.

Count Column %	Pretest <i>Stage of Development</i>			Row Total
	Beginner	Intermediate	Advanced	
Beginner	5 (33.3)	1 (2.8)		6 (8.2)
Intermediate	10 (66.7)	25 (69.4)	2 (9.1)	37 (50.7)
Advanced		10 (27.8)	19 (86.4)	29 (39.7)
Expert			1 (4.5)	1 (1.4)
Column Total	15 (20.5)	36 (49.3)	22 (30.1)	73 (100.0)

Chi-square = 47.00 (p<.001)

(see Table 4). Interestingly, one item (self-identity) significantly decreased over time, again perhaps due to students' initial tendency to over-estimate this item.

Splitting the sample into those who stayed at the same level of development and those who increased their levels of development resulted in some variation. Measures of engagement, experience, skill, equipment inventory, and image increased from pre- to posttest for both groups, but frequency, COOP interest, knowledge, and central life interest increased only for those who identified a perceived change in stage of development. Interestingly, this group also recorded a significant decrease in self-identity, so the two-week course provided a "reality check" for this group in particular. For those who remained at the same level of development, eight items still increased over time, but apparently not enough for them to perceive an actual change in stage of development. The Outdoor Education Practicum particularly impacted them in terms of commitment, desired future level, and participation; these three items did not increase significantly for students who progressed to a higher level of development. Incidentally, independent t-tests revealed that only changes in skill and frequency from pre- to post-test were significantly greater for those who changed levels of development compared to those who stayed at the same stage.

4.0 Conclusions and Implications

Although limitations of the sample restrict generalizations of the results of this study, several conclusions may be drawn. First, a single measure of level of development can be used with confidence to represent corresponding

levels of experience, participation, skill, equipment, knowledge, and commitment for beginner, intermediate, and advanced adventure recreationists. Although a more diverse sample could verify if experts' and post-experts' characteristics follow the pattern established by Todd for quiltmakers (1997) and SCUBA divers (2000), once again, this study reinforced that level of development adequately represents a holistic view of participants' growth. Secondly, an intense, two-week course does affect these adventure recreationists' growth and development in terms of all six factors. Those at the earliest stages of development are more likely to perceive these changes as strong enough to warrant a change in developmental stage (e.g., beginner to intermediate; and intermediate to advanced, to a lesser degree); they are also more cognizant of changes in knowledge and frequency of participation.

It is hoped that resource managers, tourism professionals, camp administrators, instructors, and club organizers may improve their understanding of how adventure recreationists differ by developmental levels in order to better facilitate their needs, experiences, and growth. As suggested by Todd & Graefe (2002), particularly in the beginning and post-expert stages of development when participants are most vulnerable to dropping out of the activity, possible strategies and solutions to adapt or overcome various structural, interpersonal, and intrapersonal constraints could be employed. Future research in this area could thus link adventure recreationists' growth and development to constraints and discontinuance behavior, be designed as extended longitudinal studies (e.g., 2 years instead of 2 weeks), and include experts and post-experts.

Table 4.—Dependent t-test results: Pre/posttest indicator factors by change in level of development.

INDICATOR FACTOR	ALL (n = 70)			Did not change level of development from pre- to posttest (n = 49)			Increased level of development from pre- to posttest (n = 21)		
	Pretest Mean (sd)	Posttest Mean (sd)	t- value	Pretest Mean (sd)	Posttest Mean (sd)	t- value	Pretest Mean (sd)	Posttest Mean (sd)	t- value
Measures									
EXPERIENCE									
Engagement (9-pt. scale)	4.81 (2.07)	6.26 (1.59)	7.00**	5.06 (1.92)	6.45 (1.49)	6.10**	4.24 (2.32)	5.81 (1.75)	3.53**
Experience (4-pt. scale)	2.11 (0.84)	2.36 (0.76)	3.14**	2.20 (0.84)	2.43 (0.74)	2.29*	1.90 (0.83)	2.19 (0.81)	2.34*
Lifetime years (6-pt. scale)	3.74 (1.68)	3.67 (1.71)	0.57	4.02 (1.65)	3.94 (1.65)	0.54	3.10 (1.61)	3.05 (1.72)	0.20
SKILL									
Skill ¹ (9-pt. scale)	4.83 (1.94)	5.91 (1.33)	6.44**	5.14 (1.81)	5.96 (1.37)	4.44**	4.10 (2.07)	5.81 (1.25)	5.16**
Skill level (4-pt. scale)	2.34 (0.72)	2.21 (0.75)	1.83	2.39 (0.73)	2.31 (0.80)	0.94	2.24 (0.70)	2.00 (0.63)	2.02
PARTICIPATION									
Frequency ² (5-pt. scale)	2.05 (1.22)	2.17 (1.04)	1.47	2.29 (1.24)	2.29 (1.04)	0.00	1.57 (1.08)	1.95 (1.02)	2.61*
Participation (4-pt. scale)	2.21 (1.04)	2.43 (0.93)	2.30*	2.27 (1.10)	2.53 (0.94)	2.37*	2.10 (0.94)	2.19 (0.87)	0.57
COOP interest (6-pt. scale)	3.55 (1.08)	3.74 (1.11)	0.98	3.84 (1.03)	3.84 (1.18)	0.00	3.00 (1.00)	3.54 (0.97)	2.50*
COOP activities (4-pt. scale)	1.69 (0.83)	1.77 (0.78)	0.68	1.80 (0.82)	1.80 (0.71)	0.00	1.50 (0.86)	1.71 (0.91)	1.15
Desired future level (4-pt. scale)	1.12 (0.55)	1.17 (0.49)	0.77	1.11 (0.49)	1.23 (0.57)	2.35*	1.14 (0.66)	1.05 (0.22)	0.62
KNOWLEDGE									
Knowledge (4-pt. scale)	2.16 (0.90)	2.40 (0.67)	2.86**	2.31 (0.87)	2.49 (0.65)	1.84	1.81 (0.87)	2.19 (0.68)	2.36*
EQUIPMENT									
Equipment inventory (4-pt. scale)	2.01 (1.00)	2.51 (0.88)	5.27**	2.12 (1.05)	2.57 (0.87)	3.73**	1.76 (0.83)	2.38 (0.92)	4.24**
Plan to buy (5-pt. scale)	2.75 (0.86)	2.77 (0.81)	0.13	2.79 (0.92)	2.79 (0.87)	0.00	2.67 (0.73)	2.71 (0.64)	0.29
COMMITMENT									
Commitment (4-pt. scale)	2.36 (1.04)	2.68 (0.93)	3.26**	2.42 (1.07)	2.75 (0.93)	2.77**	2.24 (1.00)	2.52 (0.93)	1.67
Central life interest (9-pt. scale)	5.69 (2.42)	4.76 (2.43)	2.54**	3.51 (2.38)	4.29 (2.48)	1.61	2.86 (2.50)	4.14 (2.37)	2.69**
Self-identity (9-pt. scale)	4.27 (2.71)	5.36 (2.72)	2.91**	5.06 (2.70)	4.12 (2.73)	1.92	3.95 (2.62)	2.52 (2.42)	2.80**
Image (9-pt. scale)	5.91 (2.45)	4.71 (2.64)	3.41**	3.20 (2.54)	4.29 (2.72)	2.47*	2.81 (2.25)	4.29 (2.49)	2.53*
Importance (9-pt. scale)	4.38 (2.75)	3.90 (2.72)	1.16	4.94 (2.79)	5.40 (2.76)	0.85	3.90 (2.57)	4.43 (2.58)	0.92
Self-esteem (9-pt. scale)	3.84 (2.74)	3.49 (2.57)	0.84	5.15 (2.85)	5.81 (2.47)	1.29	5.20 (2.53)	4.80 (2.73)	0.56

Values are mean scores on various scales (see Table 1). Means that are highlighted are significantly different (*p < .05, **p < .01).

¹Independent t-tests revealed that changes in skill from pre- to posttest were significantly greater for those who changed levels of development (1.71 mean gain score) compared to those who stayed at the same stage (.82 mean gain score) (t=2.53, p<.01).

²Independent t-tests revealed that changes in frequency from pre- to posttest were significantly greater for those who changed levels of development (.38 mean gain score) compared to those who stayed at the same stage (.00 mean gain score) (t=2.14, p<.05).

5.0 Citations

- 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.
- Ewert, A. (1989). *Outdoor adventure pursuits: Foundations, models, and theories*. Columbus, OH: Publishing Horizons.
- 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.
- McIntyre, N., & Pigram, J. J. (1992). Recreation specialization reexamined: The case of vehicle-based campers. *Leisure Sciences* 14(1), 3-15.
- 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. (1999). *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*. Ashburn, VA: National Recreation & Park Association, p. 11.
- 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., & Graefe, A. R. (2002). *The relationship of continuance/discontinuance behavior to SCUBA divers' perceived constraints and levels of development*. In M. F. Floyd & S. I. Stewart (Comps.), *Abstracts from the Leisure Research Symposium*. Ashburn, VA: National Recreation & Park Association, p. 18.