

The Influence of Forest Experience on the Self-Actualization¹

Won Sop Shin²

森林內 經驗이 自我實現에 미치는 影響¹

申元燮²

ABSTRACT

Self-actualization has been suggested as one of the psychological or health benefits of forest experience. This study was designed to determine to what extent participation on five-week National Outdoor Leadership School (NOLS) courses increased the self-actualization of participants and whether individual characteristics were correlated with the change. Data were collected at NOLS during the summer of 1987 using pretest-posttest control group design. Significant positive increases in self-actualization were found. However, individual characteristics such as sex, age, previous forest experience, place of residence and education level showed no significant effect on self-actualization change.

Key Words : *Self-actualization ; forest experience ; individual characteristics*

要 約

森林內 經驗이 Maslow가 主張한 自我實現 慾求에 肯定的인 影響을 끼친다는 設이 대두되고 있다. 本研究은 5週間の 林間學校 과정이 參加者의 自我實現에 대한 어떠한 役割을 하는가 조사하기 위해 실시되었다.

1987년 미국 Wyoming주의 Rocky산에 있는 林間學校(NOLS)에서 301명의 參加者를 대상으로 '前後 統制集團 比較'를 통하여 資料가 수집되었다. 5주간의 林間 教育 後에 自我實現 수준의 增加가 뚜렷이 發見되었다. 그러나 參加者의 個人的 特性들은 그 變化에 影響을 주지 못하였다.

INTRODUCTION

Many social scientists in forestry have recently mentioned that the psychological or health benefits can be realized by forest use (Driver and Brown, 1986; Ewert, 1986; Roggenbuck, 1984; Young and Crandall, 1984; 1986). Among those, self-actualization has been attracted as the ultimate

psychological benefit of forest experience since Scott (1974) suggested a positive connection between wilderness experience and self-actualization.

Maslow (1943), known as a leading proponent of self-actualization, proposed the need hierarchy theory of motivation arguing that human needs can be classified into five different categories (e. i., physiological, safety, belonging and love,

¹ 接受 : 1989年 5月 25日 Received on May 25, 1989.

² 캐나다 토론토대학교 임과대학 Faculty of Forestry, Earth Science Centre, University of Toronto, 33 Willcocks Street, Toronto, Ontario, Canada M5S 3B3.

esteem, and self-actualization). According to the theory of motivation, these human basic needs are arranged in the shape of a pyramid. Those at the bottom are the most urgent and must be satisfied before those at the next highest level begin to operate.

Self actualization, the highest of the human needs, refers to the desire for self-fulfilment, that is, the tendency for a person to become actualized in what he perceives to be his own potential. Rogers (1963) identified self-actualizing person as an individual who is dependable in being realistic, self-enhancing, socialized and appropriate in his behaviour; a creative individual, whose specific formings of behaviour are not easily predictable; an individual who is ever-changing, ever developing, always discovering himself and the newness in himself in each succeeding moment of time.

Scott (1974) speculated that the gains in self-actualization can occur to an individual during his experience with a pure natural setting such as deep forest. His speculation was based on analyzing the writings and lives of men such as George Gatlin, John Muir, Henry Thoreau, and Aldo Leopold who used wilderness frequently for their lives.

Although recent studies (Leiwke, 1976; Papatones, 1977; Voge, 1979; Young and Crandall, 1984; 1986) have reported the results supporting Scott's speculation, still more valid evidences are needed. In addition, the previous studies leave a number of questions relating to how and what attributes influence the gain in self-actualization unanswered. Perhaps chief among these is whether or not forest users' personal characteristics such as sex, age, education level, place of residence and previous forest experiences influence in enhancing self-actualization level.

How might the forest experience become beneficial in shaping and developing self actualization? "Forest stimuli" might be possible answer of this question that "how" and "why" forest experience promotes psychological well being. Forest stimuli include a low density of human population, low level of noise and movement, and

a slow rate of change. Therefore, it offers a high degree of predictability and little that is conflicting or ambiguous. This stimuli constitute a "behaviour setting" which evokes certain kinds of responses (Bechtel, 1970). During the time spent in the forest, results of these stimuli can be felt. The deeper meaning and significance of nature seems to penetrate the person's mind. However, as Scott (1974) states, explanation of these powerful psychological phenomena are difficult at best.

Those kinds of experiences in a forest can also be substituted for Maslow's term "peak experience". According to Maslow (1959), the wholeness of the experiences is striking; the object of the perception is exclusively attended to, completely absorbing the participant who undergoes an egoless, self-forgetful state associated with disorientation to time and space.

More recently, Csikszentmihalyi's (1975) "flow" model has had the greatest influence on theorizing about these experiences (Tinsley and Tinsley, 1986). Csikszentmihalyi (1975) describes the flow experience as "one of complete involvement of the actor with his activity" and "a major intrinsic reward for participation of an activity."

The main objectives of this paper were to investigate following research questions:

1. Does the level of self-actualization increase as a result of participation in forest based activities?
2. If any, do individual characteristics such as sex, age, education level, place of residence and previous forest experience influence the level of increase in self-actualization?

METHODOLOGY

Subjects

The subjects for this study consisted of 301 students (172 males and 129 females) who enrolled in the 19 basic five-week NOLS courses in the summer of 1987. Of those, 138 participants (84 males and 54 females) were randomly assigned as control group subjects. Others, 163 participants

(79 males and 84 females) were assigned as treatment group subjects. The mean age of all subjects was 19 years.

Programs

The National Outdoor Leadership School (NOLS) in Lander, Wyoming, offers many courses to train leaders capable of conducting all-around forest and wilderness programs in a safe and rewarding manner. Length of the courses varies from 14 to 95 days. Of particular interest

to this study was the effect of the five-week forest expeditions, Wild River Wilderness and Wind River Mountaineering courses, had on the participants. Both courses are basic NOLS courses, and take place in the Wind River Range of the Rocky Mountains.

Instrument

The instrument used in this study was the Short Index of Self Actualization (Table 1) (Jones, 1980; Jones and Crandall, 1986). The index

Table 1. The Short Index of Self-Actualization

(Please indicate whether you agree or disagree with each of the following statements.)

	Agree	Somewhat agree	Somewhat disagree	Disagree
1. I do not feel ashamed of any of my emotions.	X*	_____	_____	_____
2. I feel I must do what others expect me to do.	_____	_____	_____	X
3. I believe that people are essentially good and can be trusted.	X	_____	_____	_____
4. I feel free to be angry at those I love.	X	_____	_____	_____
5. It is always necessary that others approve of what I do.	_____	_____	_____	X
6. I do not accept my own weaknesses.	_____	_____	_____	X
7. I can like people without having to approve of them.	X	_____	_____	_____
8. I fear failure.	_____	_____	_____	X
9. I avoid attempts to analyze and simplify complex domains.	_____	_____	_____	X
10. It is better to be yourself than to be popular.	X	_____	_____	_____
11. I have no mission in life to which I feel especially dedicated.	_____	_____	_____	X
12. I can express my feelings even when they may result in undesirable consequences.	X	_____	_____	_____
13. I do not feel responsible to help anybody.	_____	_____	_____	X
14. I am bothered by fears of being inadequate.	_____	_____	_____	X
15. I am loved because I give love.	X	_____	_____	_____

* The self-actualizing response is marked by an "X" and receives 4 points, the non-self-actualizing responses receives 1 point.

includes 15 questions with four choices from "Agree" to "Disagree". The index is based primarily on modified items from the most widely accepted measures of self-actualization, the Personal Orientation Inventory (POI) (Shostrom, 1964) and the Personal Orientation Dimensions (POD) (Shostrom, 1975). The validity and reliability of the index have already been discussed in the previous studies (Castellow and Hsyies, 1983; Jones, 1980; Jones and Crandall, 1986; Young, 1978; Young and Crandall, 1984).

Procedure

For the purpose of this study, the pretest-posttest control group design (Campbell and Stanley, 1966) was employed. It is extremely difficult to choose an equivalent control population to compare to a self-selecting population such as NOLS participants. It was therefore decided that the control group should be selected from among the courses at NOLS which were already "hooked". Nine courses were so selected systematically and designated as control courses.

A pretest questionnaire including the Short Index of Self-Actualization was sent to each control group participant five weeks prior to the scheduled departure date of his or her course. The response rate for the pretest was 73 percent. The major reason for loss of control subjects was that some participants enrolled in control courses cancelled out. On the first day of their courses, participants in both control and treatment groups were introduced briefly to this study. They were then asked to fill out the questionnaire concerning individual characteristics during precourse briefing and asked to answer the Short Index of Self-Actualization as a posttest for the control group participants and a pretest for treatment group participants. At the last day of his or her course, each of the treatment group participants was asked to complete the instrument as a posttest.

RESULTS

Prior to investigating the research questions

listed above, some preliminary examinations were carried out. A t-test revealed that there were no significant differences in self actualization between males and females in either treatment group [t=1.529, p=0.128 (pretest); t=1.008 p=0.316 (posttest)] or control group [t=1.272, p=0.206 (pretest); t=0.420, p=0.675 (posttest)].

Table 2 reports the pretest and posttest means and standard deviations of the self actualization scores for each group. The scores indicate that the treatment group means increased from 46.718 to 48.432 while the control group means decreased slightly from 46.940 to 46.799. The t-test results of the posttest scores for control and treatment groups are presented in Table 3. The value of t=2.368 was found to be statistically significant (p=0.019). Those analyses indicate that NOLS program indeed increased participants self-actualization level.

To test whether participants' individual characteristics such as sex, age, previous forest experience, place of residence and education level were correlated with the change of self-actualization, a Analysis of Variance (ANOVA) was performed. F-values from the ANOVA are shown in Table 4. The F-values indicate that there were no significant individual characteristics effects on the change of the self-actualization scores resulting from the treatment.

Table 2. T-tests of pretest and posttest mean scores of the Short Index for the treatment and control groups.

Group	Test	N	Mean	S.D.	t	Prob.
Control	Pretest	100	46.94	4.81	0.213	0.831
	Posttest	134	46.80	5.23		
Treatment	Pretest	163	46.72	4.60	2.941	0.004
	Posttest	111	48.43	4.84		

Table 3. T-test on posttest mean scores of the Short Index for the control group to posttest mean scores of the Short Index for the treatment group.

Group	N	Mean	S.D.	t	d.f.	Prob.
Control	135	46.89	5.38	2.368	244	0.019
Treatment	111	48.43	4.80			

Table 4. F-Value for ANOVA to determine effects of individual characteristics on the gain scores of the Short Index for the treatment group.

Source of effect*	d.f.	N	F	Prob.
Sex	1	123	0.02	0.889
Age	15	123	0.69	0.776
No. of visits to deep forest area per year	4	123	1.68	0.161
Place of residence	4	123	0.61	0.656
Education level	8	123	1.42	0.197

* Age ranges 19 to 34 years [mean=19.15 (SD=3.34)]

No. of visits to deep forest area per year :
None=41 (33%) ; 1-2=56 (46%) ; 3-5=17 (14%) ; 6-10=5 (4%) ; Over 10=4 (3%)

Place of residence : Large city (over 250,000 pop.)=54 (44%) ; Small city (50,000-250,000 pop.)=18 (15%) ; Large town (10,000-50,000 pop.)=29 (23%) ; Small town (under 10,000 pop.)=16 (13%) ; Farm or rural area=6 (5%)

Years of education range 9 to 18 years [mean=12.855 (SD=2.36)]

DISCUSSION AND CONCLUSION

The overall purpose of this study was to determine whether self-actualization was significantly increased by the five-week NOLS courses in the forest. Furthermore, this study was designed to determine whether participants' individual characteristics would moderate the degree of self-actualization change.

The results indicated that there were significant increases for the participants under study during the NOLS courses. However, participants' individual characteristics of sex, age, previous forest experience, place of residence and education levels showed no significant effect on the change.

The NOLS approach stresses individual competency in forest skills and the development of leadership skills, while Outward Bound and other survival programs stress "personal growth through challenge". The NOLS explanation for a gain in psychological benefits from a NOLS course is that "while a NOLS experience will enhance self-confidence and motivation, this takes place

individually and naturally, rather than deliberately as the primary focus of the curriculum" (NOLS, 1987). This study supports the argument that positive changes in self-actualization scores can be attributed to forest experience.

LITERATURE CITED

1. Bechtel, 1970. A behavioral comparison of urban and small town environment. *Cited in* Bernstein, A. 1972. Wilderness as a therapeutic behavior setting. *Therapeutic Research Journal*, Fourth Quarter : 160-161, 185.
2. Campbell, D.T. and J.C. Stanley, 1966. *Experimental and Quasi-experimental designs for research*. Chicago : Rand McNally and Co., 84 pp.
3. Castellow, W.A. and M. Hayes, 1983. Are self-actualization internals more satisfied and happier with college than externals? Paper presented at the annual meeting of the Southeastern Psychological Association, Atlanta.
4. Csikszentmihalyi, M. 1975. *Beyond Boredom and Anxiety*. Jossey-Bass, San Francisco, 231 pp.
5. Driver, B.L. and P. Brown, 1986. Probable personal benefits of outdoor recreation. Pp. Value 63-70 *In* A Literature Review : President's Commission on American Outdoor, Washington, DC.
6. Ewert, A. 1986. Values, benefits and consequences in outdoor adventure recreation. Pp. Value 71-80 *In* A Literature Review : President's Commission on American Outdoor, Washington, DC.
7. Jones, A. 1980. The development of a short measure of self-actualization. Unpublished Ph. D. dissertation, Texas Christian University, Ft. Worth, TX., 130 pp.
8. Jones, A. and R. Crandall, 1986. Validation of a Short Index of Self-Actualization. *Personality and Social Psychology Bulletin* 12(1) : 63-73.

9. Leiweke, J.T. 1976. The influence of the twenty-day Outward Bound experience on self-actualization. Unpublished Ph.D. dissertation, St. Louis University, St. Louis, MO., 148 pp.
10. Maslow, A.H. 1943. A theory of human motivation. *Psychological Review* 50 : 370-396.
11. Maslow, A.H. 1959. Cognition of being in the peak experience. *The Journal of Genetic Psychology* 94 : 43-66.
12. National Outdoor Leadership School. 1987. Catalog of courses. Lander, WY.
13. Papantones, M. 1977. A transactional analysis group program designed to increase the self-actualization of adolescent males in a resident camping setting as measured by the POI. Unpublished Ph.D. dissertation, George Washington University, Washington, DC. 103 pp.
14. Rogers, C. 1963. The concept of fully functioning person. *Psychotherapy* 1 : 17-26.
15. Roggenbuck, J.W. 1984. Health benefits of wilderness use. Paper prepared for Dr. Hendee, Assistant Director, Southeastern Forest Experiment Station, Asheville, NC.
15. Scott, N. 1974. Toward a psychology of wilderness experience. *Natural Resources Journal* 14 : 231-237.
17. Shostrom, E.L. 1964. An inventory for the measurement of self-actualization. *Educational and Psychological Measurement* 24 : 207-218.
18. Shostrom, E.L. 1975. Personal Orientation Dimensions. San Diego : EdITS/Educational and Industrial Testing Service.
19. Vogel, R.M. 1979. The effects of Project USE Training. Unpublished Ph.D. dissertation, Temple University, Philadelphia, PA., 143 pp.
20. Young, R.A. 1978. An analysis of wilderness concept and values. Unpublished Ph.D. dissertation, University of Illinois, Urbana, IL., 197 pp.
21. Young, R.A. and R. Crandall. 1984. Wilderness use and Self-actualization. *Journal of Leisure Research* 16(2) : 149-160.
22. Young, R.A. and R. Crandall. 1986. Self-actualization and wilderness use : a panel study. Pp. 385-388 *In* Lucas, R.C. ed. Proceedings, National Wilderness Research Conference : Current Research. Ft. Collins, CO. July 23-26, 1985, 533 pp.