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冒険キャンプにおける小中学生の自己概念と不安の変容

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THE IMPACT OF SHORT-TERM ADVENTURE CAMP ON SELF-COMCEPT AND ANXIETY IN JAPANESE EARLY ADOLESCENTS*

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野外教育における最近の動向の一つとして，冒険教育をあげることができる。冒険教育は，自然環境の中で行われる冒険的活動を通じて，参加者が不安やストレスに直面し，これを克服することによって成功体験を与え，自己概念の向上をはかることを目的としている。また，発達心理学では，自己概念は小学校高学年から中学生の時期に，最も顕著な発達がみられると指摘している。

本研究は，8日間の冒険キャンプに参加した小中学生の自己概念と不安の変容，さらに，両変数の関係を検証することを目的とする。

被験者は，小学校6年生から中学校2年生までの男女155人（男子＝114，女子＝41）で，平均年齢は12：6歳であった。

キャンプ前後における参加者の自己概念の変容を測定するために，梶田（1980）が作成した自己成長性検査を用いた。この検査は，自己形成及び自己実現に関する態度や意欲を測定するもので，4因子から成っている。サバイバルを含む3日間の登山中の不安については，中学生に対しては清水（1977）のSTAIを，また，小学生に対しては曽我（1981）のSTAICを採用し，状態不安についてのみ測定した。登山中の状況不安は，筆者らが作成したAPAS（Adventure Program Anxiety Scale）によって測定された。

本研究の結果は，次のとおりである。

1）冒険キャンプ経験は，参加者の自己概念，特に達成動機と努力主義を向上させるうえで効果があった。男女の比較では，女子により顕著な効果が認められた。

2）参加者は，3日間の登山に対して高い状態不安と状況不安を示したが，登山後は不安が解消された。従って，サバイバルを含む登山は，参加者にとって心理的ストレス要因となっていた。

3）状態不安の解消が著しい参加者は，努力主義についての自己概念の向上に効果がみられた。

本研究の結果は，ストレス体験と成功体験を通じて自己概念の向上をはかるという冒険教育の理論的枠組を支持するものであり，キャンプ・プログラムの一部分として，冒険的活動を導入することの妥当性と重要性を示唆しているものと思われる。

INTRODUCTION

Since the late 1960s, interest in wilderness adventure has accelerated and many such programs have been developed across the United States. Among these programs, Outward Bound is most notable. A review of literature

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indicates that as adventure programs have been implemented in schools, camps, and public and private agencies, increasingly more research has been conducted on the effects of adventure programs upon both normal and special population participants. (Iida[10], 1975; Shore[23], 1977; Gibson[6], 1979; Golins[7], 1980)

Theoretically, adventure programs are developed within a framework of self-theory. This theory suggests that the basic drive of the individual is the maintenance and enhancement of self and that behavior is dependent upon the individual's personal frame of reference or self-concept; the self-concept is the most important aspect of human behavior. It is generally agreed that the common denominator of adventure programs is activities in the natural environment which produce stress. In the process of confronting and coping with stress situations, an individual is provided the opportunity to reevaluate oneself, to discover oneself and one's potentials, and to improve one's self-concept.

Much of the research on adventure programs has focused upon the effect of the experience on the self-concept of the participants. Only a few empirical studies, however, have been done on the relationship between self-concept and stress in adventure programs (Davis[4], 1972; Koepke[16], 1973; Imura[11,12], 1979, 1982 ; Chestnutt[1,2], 1980, 1982). More studies need to be conducted which explore anxiety, fear, or stress of the participants in adventure programs.

In comparison with camping research, one differing characteristic of these adventure program studies is the age group of the participant subjects. The majority of them, both males and females, come from the late teens (high school students) to early twenties, while camping research focuses upon mainly elementary and junior high school students. Very few studies have been done on the effects of adventure programs upon the self-concept of the early adolescent participants. Are adventure programs more effective to improve the self-concept of middle or late adolescents than early adolescents?

From his research data, Rosenburg[21] (1979) reported on the critical period of self-concept change. In general, the differences between early and late adolescence are not large; the primary difference is almost always between 8-11 year old children and 12-14 year old children. It appears that it is at this age that changes in these self-concept dimensions appear and that they are of a distressing variety. The data suggest that during their twelfth year (that is, between their twelfth and thirteenth birthdays), children tend to experience marked increases in self-concept disturbance (pp. 229-230).

The purpose of this study was to examine the effects of self-concept and anxiety in Japanese early adolescents who participated in an 8-day adventure camp conducted in 1982 and 1983.

The following hypotheses were tested:

1. Adventure camp participants show improvement in self-concept between before and after camp.
2. Adventure camp participants show higher anxiety before a 3-day mountain climb than after it.
3. The participants who show high-reduced anxiety level between before and after the 3-day mountain climb have greater positive change in self-concept than the participants who show low-reduced anxiety level.

METHOD

Subjects

The subjects for the study were 155 (114 males and 41 females) sixth through eighth graders who volunteered to participate in a 8-day Adventure Camp held in 1982 and 1983. About 60% (N=90) of them participated in 1983. The age of the subjects ranged from 11:5 to 14:4 with a mean of 12:6. Most of them (N=142, 91.6%) had prior experience in an earlier year. All participants lived in Tokyo

metropolitan area and the families could generally be described as being primarily middle class.

Program

Table 1 GRADE AND SEX PERCENTAGE DISTRIBUTION OF CAMPERS

Grade	Male		Female		Totals	
	(N=114)	%	(N=41)	%	(N=155)	%
Sixth	61	53.5	17	41.5	78	50.3
Seventh	37	32.5	14	34.1	51	32.9
Eighth	16	14.0	10	24.4	26	16.8

The objectives of the camp program were to 1) enhance the self, 2) improve socialization, 3) appereciate nature, and 4) develop outdoor living skills. To attain these objectives the daily schedule was set forth as in Table 2.

Although the camp emphasized adventure programs, other activities, such as choice activity, individual planning, outdoor party and camp-fire, and daily routine, were an integral part of the camp program.

The main activity of the camp program was a 3-day mountain climb.

The mountain climb for the sixth graders consisted of 16.5 km (10.3 miles) walking distance, 1,083m (3,552 ft.) altitude difference with the highest peak of 2,332m (7,649 ft.), partially rapid and trailless descent, and no stream or fountain to drink. The junior high school participants took another mountain route which was 20 km (12.5 miles) walking distance, with about two-thirds in a deep and trailless canyon, which had a stream, 360m (1, 188 ft.) altitude difference on the descent and 660m (2,078 ft.) on the ascent, and four waterfalls with 15 to 20m (495 to 550 ft.) altitude difference.

The overnight solo experience was conducted on the fourth day. Each person made one's own shelter using a 1.8 to 2m (about 6 ft.) square nylon cloth. The shelter was erected with a minimum distance of 10 to 30m (33 to 99 ft.), depending upon the grade, from others. The camper, then, spent overnight alone in the dense forest.

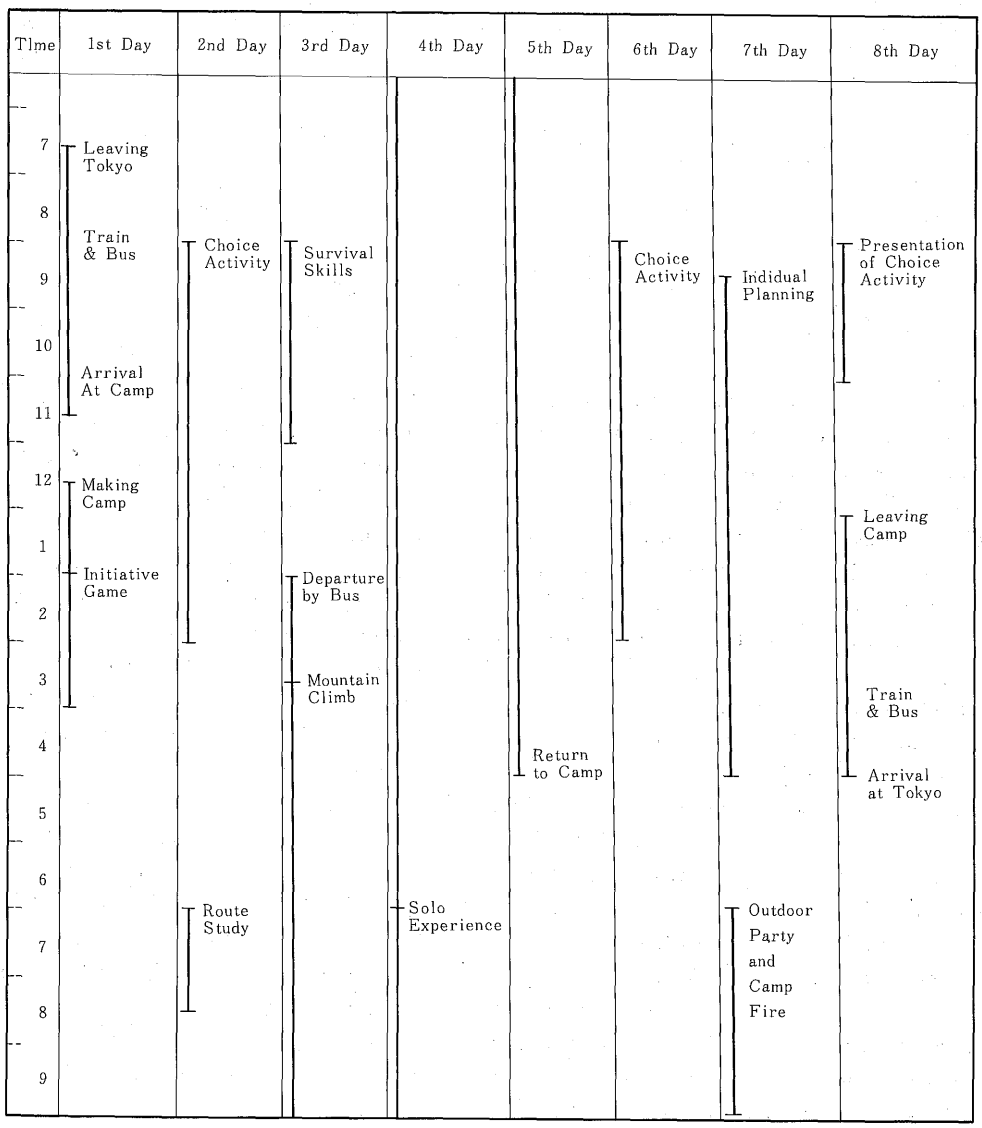
The participants carried an average weight of 13 to 15 kg (28.3 to 33 pounds) backpack, which contained warm clothing, shelter, sleeping bag, rain gear, food, cooking and eating utensils, water in the canteen, etc. Only two matches, in the case of no rain, were allowed for each group to use for cooking breakfast or dinner. During the mountain climbing, there was a thunder storm with heavy rain both years, which resulted in the late return, seven to nine o'clock in the evening, of the campers to the campsite, while the junior high school participants got up at three o'clock and departed at five o'clock.

Instruments

Self-concept was measured with the Children's Self-Actualization Scale (CSAS), developed by Kajita[14] (1980). The CSAS was designed to measure the attitudes and motives toward self-enhancement or self-actualization of children in grades five through eleven. The Scale consists of 31 self-description statements with a five-point response scale (5=completely true to 1=completely false). The Scale is comprised of four subscales: Perceived self, Achievement motivation, Self-confidence, and Self-effort. This instrument was slected because it measures specific facet of self-enhancement, rather than general or global self-concept.

The State Anxiery Inventory (SAI) and State Anxiety Inventory for Children (SAIC) were employed as an index of self-reported state anxiety. Both of the inventories were originally developed by Spielberger et al.[26,27]

Table 2 CAMP SCHEDULE



(1970, 1973) and modified by Shimizu[22] (1981) and Soga[25] (1983), respectively, into Japanese. This study investigated only state anxiety (A-state), a transitory emotional response to a stressing situation, and did not include trait anxiety (A-trait), representing individual differences in the tendency to react to stressing circumstances. The SAI, which was administered to seventh and eighth graders, consists of 20 descriptive statements that require subjects to individually endorse on a 4-point scale (1=not at all, 4=very much so) the degree to which each statement characterized their feeling at a point in time.

The sixth grade children responded to the SAIC consisting of 20 statements with a 3-point scale (1=no, 2=sometimes, 3=yes). The SAIC can be applied to children in fourth through sixth grades. For the two scales, high values of validity and reliability were obtained by the researchers.

In addition to the SAI and the SAIC, the Adventure Program Anxiety Scale (APAS) was developed and used to measure the level of anxiety specific to the adventure program experience. For the development of the Scale, the content of anxiety relating to 3-day mountain climb was examined through referring to McHattie's[19] (1978) study and through reviewing the Children's Camp Report, in which most of participants mentioned a variety of anxiety, fear, or stress relating to health and safety, physical fitness, nature, human relations as a result of the adventure program experience. The original APAS was composed of 23 descriptive statements with a 5-point scale (5-very nervous, 1=very confident). It was administered to 37 (18 males, 19 females) junior high school participants in the Adventure Camp in 1981. After item analysis, 19 of the 23 statements were retained and used for this study. Correlation coefficient showed $r=.57$ ($p<.001$) between the APAS and the SAI.

Collection of Data

The CSAS was administered to all participants twice in the train, while riding to and from Camp on the first and last day. Both the SAI and SAIC were administered twice in the tent at night, immediately before and after a 3-day mountain climb. The APAS, also, was administered twice to all participants and in same way as the SAI and SAIC.

Treatment of Data

The data were analyzed using t-test to determine if a significant difference existed between the pre-post test mean scores of CSAS, SAI, SAIC, and the APAS. Two-way analysis of variance (ANOVA) was used to assess the main effect of sex and grade (sixth graders vs combination of seventh and eighth graders), and the interaction between these two variables with mean gain scores of CSAS and APAS.

To analyze the relationship between the participants' self-concept and anxiety, the APAS measure (situational anxiety) was employed as the index of anxiety. Twenty-five percent of the participants who showed either highest or lowest reduced anxiety on the APAS were classified as high-and low-reduced anxiety groups. These two groups were compared on means gain scores for CSAS, using t-test. The relationship between SAI and SAIC, and APAS was determined by Pearson produce-moment correlation coefficient.

ANYLYSIS OF DATA

Self-Concept

The participants, as a whole, showed a statistically significant difference in a positive direction in overall self-concept between the beginning and the end of the Adventure Camp ($P<.05$). The total score reflects the overall level of self-concept about the attitudes and motives toward self-enhancement or self-actualization. The results of the t-test on the CSAS scores are presented in Table 3.

An analysis of the subscales of the CSAS indicates that there was significant positive change in the category of achievement motivation ($P<.01$) and of self-effort ($P<.05$), but there was no significant change in self-confidence and percieved self. (See Table 3).

When differences were assessed by gender, female participants showed significantly positive change in overall self-concept ($P<.05$) and in achievement motivation ($P<.05$). However, for male participants there was no significant change in overall self-concept or any of the subscales, although positive tendencies were found in overall self-concept and in the categories of achievement motivation and self-effort ($P<.10$).

Table 3 DIFFERENCES IN SELF-CONCEPT SCORES BEFORE AND AFTER CAMP

Scale / Campers	N	Before Camp M	Before Camp SD	After Camp M	After Camp SD	t
Overall Self-Concept						
Male	114	103.09	7.63	104.41	8.36	1.79
Female	41	99.58	7.13	101.83	6.75	2.15 *
All	155	102.09	7.63	103.68	7.99	2.62 **
Perceived Self						
Male	114	23.90	3.81	24.19	4.27	0.88
Female	41	24.19	4.87	24.89	4.39	1.44
All	155	23.98	4.01	24.37	4.30	1.45
Achievement Motivation						
Male	114	29.08	3.33	29.60	3.83	1.91
Female	41	27.50	3.29	28.29	3.20	2.15 *
All	155	28.66	3.38	29.24	3.70	2.69 **
Self-Confidence						
Male	114	24.84	4.43	24.30	4.92	1.78
Female	41	22.61	3.90	23.05	4.16	1.12
All	155	24.24	4.40	23.96	4.75	1.11
Self-Effort						
Male	114	31.36	3.22	31.90	3.47	1.73
Female	41	30.69	3.64	30.97	2.88	1.32
All	155	31.10	3.35	31.65	3.33	2.14 *

In analyzing the individual statements of the CSAS, only one statement showed a statistically significant difference for both male and females. This statement was "I would not be discouraged even in the face of miserable happenings" (male: $t=2.56$, $df=113$, $P<.01$, female: $t=2.32$, $df=40$, $P<.05$). For males, two additional statements were found of significant difference: "I want to do what nobody might be able to accomplish ($P<.05$), and "I try to reach my goal even though nobody would value it". ($P<.01$).

For females, there was a significance difference on three statements: "I try to accomplish whatever I decided even if I lost interest in it on the way" ($P<.05$), "I would like to become a person who earns the respect of other people" ($P<.001$), and "I am satisfied with myself" ($P<.05$).

The analysis of variance upon the CSAS mean gain scores indicated no significant main effect or interaction for sex and grade.

Anxiety

The state anxiety of both sixth graders and junior high school campers was found higher before the mountain climb than after it ($P<.001$). Both males and females showed a significant decrease in state anxiety. Junior high school females had a significantly higher anxiety than the males ($t=2.22$, $df=76$, $P<.05$); while sixth grade females showed a tendency to have higher anxiety than the males ($t=1.92$, $df=77$, $P<.10$). No significant difference was found in mean state anxiety change scores during the mountain climb between male and female. The results of changes in state anxiety after the 3-day mountain climb are presented in Tables 4 and 5.

The participants showed higher situational anxiety before the mountain climb than after it ($P<.001$). While both male ($P<.001$) and female ($P<.05$) participants showed decrease in anxiety level, females had higher anxiety than males both before ($t=4.35$, $df=154$, $P<.001$) and after ($t=4.30$, $df=154$, $P<.001$) the mountain climb.

Table 4 DIFFERENCES IN BEFORE CLIMB AND AFTER CLIMB STATE ANXIETY SCORES FOR SIXTH GRADERS

Sex	N	Before Climb		After Climb		t
		M	SD	M	SD	
Male	61	32.41	8.86	23.61	3.97	7.96 ***
Female	17	37.12	9.13	23.75	5.84	5.95 ***
All	78	33.13	8.72	23.64	4.38	9.69 ***

Table 5 DIFFERENCES IN BEFORE CLIMB AND AFTER CLIMB STATE ANXIETY SCORES FOR SEVENTH AND EI GHTH GRADERS

Sex	N	Before Climb		After Climb		t
		M	SD	M	SD	
Male	53	39.04	9.60	29.46	8.32	6.71 ***
Female	24	44.22	8.49	31.45	8.48	4.70 ***
All	77	40.53	9.51	30.07	8.36	8.18 ***

The female participants indicated the highest anxiety in the following situations: to pass narrow and steep mountain path (M=3.88, SD=.90), to suffer heavy rain or thunder storm (M=3.85, SD=.90), and to get lost with my group (M=3.85, SD=.91). The highest

beween APAS and SAIC; and r=.68 (P <.001) for the before climb scores and r=.59 (P <.001) after climb scores for the junior high students.

Relationship Between Self-Concept and Anxiety

The high-reduced anxiety group (39 campers,

Table 6 DIFFERENCES IN BEFORE CLIMB AND AFTER CLIMB SITUATIONAL ANXIETY SCORES

Sex	N	Before Climb		After Climb		t
		M	SD	M	SD	
Male	114	55.82	10.98	51.51	12.09	6.26 ***
Female	41	64.20	9.24	60.88	11.60	2.24 *
All	155	58.04	11.16	53.99	12.62	6.34 ***

statements for the males were the same as for females; however, the scores were lower, for example, "getting lost" had a M=3.40, SD=1.06.

There was no significant main effect and interaction for sex and grade when analysis of variance was applied to before and after climb scores on the APAS.

The relationships between APAS and, SAIC and SAI was not strong, particularly for elementary school children. The results were r=.49 (P <.001) for the before climb scores and r=.30 (P <.10) for the after climb scores for the sixth graders regarding the relationshiop

29 males and 10 females) with a mean reduced anxiety score of M=8.2, SD=2.26, while the low-reduced anxiety group of (37 campers, 26 males and 11 females) with a mean reduced anxiety score of M=2.1, SD=1.34. The high-reduced anxiety group had significantly greater self-concept change in self-effort subscale (P <.05) than the low-reduced anxiety group. No significant differences between the two groups were found in overall self-concept and the other three subscales.

DISCUSSION

The participants in the Adventure Camp showed positive change between before and

after the camp overall self-concept. The results supported the findings of those researchers who found positive effects of the adventure programs upon participants' self-concept (Koepke[16], 1973; Matthai[18], 1973; Dickey[5], 1974; Smith, et al[24], 1975; Nye[20], 1975; Vogel, 1979; Imura[12], 1982).

All studies cited found some subscale changes and Matthai[18] (1973) found significance on all three of his subscales. The examination of the subscales in this study indicated positive change in subscales of achievement motivation and self-effort, but no significant change in self-confidence (the anticipation of successfully mastering challenges or overcoming obstracles) and perceived self (the individual's concept of how others judge and evaluate him). One statement evidencing a negative direction for males was in the self-confidence subscale: "I sometimes feel myself awful" ($t=3.27$, $df=113$, $P<.001$). Five of six statements showing significantly positive changes were related to the subscales of achievement motivation and self-effort. The remaining statement, "I am satisfied with myself," referred to the self-confidence subscale.

Differences between gender on self-concept were found in this study. Although any significant difference was not demonstrated with regard to positive self-concept change between male and female as a result of participating in the camp, females showed more salient positive changes in overall self-concept and in achievement motivation subscales than males. When the self-concept scores before camp were compared between both sexes, females had significantly lower scores in overall self-concept ($F=5.67$, $P<.05$), in the subscales of achievement motivation ($F=5.54$, $p<.05$), and self-confidence ($F=2.8$, $P<.05$) than males. Consequently, it appears that the Adventure Camp is more beneficial to females with low initial self-concept than males. This finding is consistant with other research results by Imura[11,12] (1979, 1982). Clifford and Clifford[3] (1967) and Harris[8] (1975) also indicated that individuals with low initial self-concept generally made greater gains than individuals with the high self-concept and participating in adventure programs. McCoby and Jacklin[17] (1974) in their careful and extensive summary of research on sex differences suggested that girls appear to have lower self-confidence than boys; and, that it is not the girls' self-confidence that is unrealistically low, but the boys' self-confidence that is unrealistically high.

Table 7 DEFFERENCES IN SELF-EFFORT BETWEEN HIGH- AND LOW-REDUCED ANXIETY GROUPS

		Before Climb		After Climb		
Group	N	M	SD	M	SD	t
High-redued Anxiety	39	30.84	3.56	32.11	3.91	2.04 *
Low-reduced Anxiety	37	31.17	3.61	30.47	3.00	

It was presented from the data both state anxiety and situational anxiety scores were significantly higher before the 3-day mountain climb experience than after it, indicating that the participants perceived psychologically the mountain climb as stressful and threatening. It should be noted that the both state and situational anxiety level after completion of the adventure experience were extremely low, close to no anxiety. This might be explained by the state of satisfaction and well-being after coping with high stress situations.

A review of other studies using the SAI showed consistent state anxiety decreases (Koepke[16], 1973; Imura[11,12], 1979, 1982), with the exception of Chesnutt[2] (1982). In situational anxiety, Kaplan and Talbot[15]

(1983) reported that all worries (6 items) significantly decreased before the beginning of the second week. McHattie[19] (1978) found two of ten items changed. Differences between males and females were found in both state anxiety and situational anxiety in the adventure research conducted by Imura[11,12] (1979, 1982). Many research indicated high anxiety for female (i.e., Hodges and Felling[9], 1970; Soga[25], 1983).

It was found on the relation between self-concept and anxiety that the participants who showed high-reduced anxiety had greater positive change in self-effort than the participants who showed low-reduced anxiety level. This result appears to validate the effect of stress as a determining element of adventure program upon participant's self-concept. It suggests that the impact of stress and its accompanying coping process upon the individual result in enhancement of self-concept. Through the process of confronting a high stress situation, challenging the situation, and coping with it, the participants realizes their potentials. According to self-concept theory, people seek, and hedonically and rationally, to maintain and increase self-esteem regardless of their current level of self-concept (Jones[13], 1973). The effort to attain and improve one's potential reflects in the enhancement of self-effort. Therefore, significant progress in self-effort identified as a result of the Adventure Camp might be interpreted as the effect of the 3-day climb, that is, stress experience. In addition to stress experience in the mountain climb, other activities and camp environment as total camp program must have contributed to improvement of overall self-concept and achievement motivation. This supports the concept that an adventure program alone is not enough to change overall self-concept and that it should be adopted as a part of the total camp program.

Chesnutt[1,2] 1980, 1982) examined separately the effects of a three-week adventure-oriented counselor-in-training program upon self-concept and anxiety, although the data were collected at the same time. No significant difference was found in self-concept and anxiety change between two control groups. Kaplan and Talbot[15] (1983) reported that the elements of fear, of physical challenges, and of interpersonal interpersonal difficulties may be characteristic of many wilderness experiences, yet they do not appear to be the critical antecedents of the individual changes that occur. Differences between the findings of this study and other srudies on the relationship between self-concept and anxiety may be due to the subjects, the instrument being used, or/and program component.

CONCLUSIONS

Based on the findings and within the limitations of the study the following conclusions were made regarding the hypotheses:

1. Participants in an adventure camp improve in self-concept between the beginning and end of camp.
2. The adventure program participants have psychologically streesful and threatening experiences before a three-day mountain climb.
3. The adventure program participants who experienced high-reduced anxiety level have greater improvement in self-effort than do those participants who have a low-reduced anxiety level.

Implications

This study presented the effect of adventure program upon self-concept of early adolescent participants, the age ranging from 11 to 14 year olds. This age appears to be the critical period of self-concept change and behavior modification. The organized camp in this country has served mainly upper elementary and junior high school children. The camp directors should devote much more attention in

their camp objectives to improving the self-concept in early adolescent campers by means of adventure programs.

One of the most important implications of this study is the inference related to a comprehensive camp program. It is true that an adventure program is effective to develop the participants' self-concept and behavior. However, when adventure programs are implemented as a part of a total camp program, more effective results can be obtained. The camp director should not overestimate the effects of the adventure program, but rather should recognize the contribution of a comprehensive camp program, which includes a variety of intellectual, spiritual, social, and artistic activities.

Further Study

This study employed the one-group pre-and post-test design. For the generalization of the findings, future studies need to be conducted on a true experimental design using a control group. The APAS, which was developed by the investigator, did not show a strong relationship to the SAS. This measure should be modified to get higher validity and reliability.

REFERENCES

1) Chesnutt, Thomas J.: The effects of a three week adventure-oriented program and a five week leadership experience program upon the self-concepts of counselors-in-training. Doctoral dissertation, University of Georgia, 1980.
2) Chesnutt, Thomas J.: The effects of an adventure program and leadership experience upon anxiety. Paper presented at the Symposium on Leisure Research, held in NRPA Congress for Recreation and Parks, Louisville, Kentucky, October 1982.
3) Clifford, E. and Clifford M.: Self-concepts before and after survival training, British Journal of Social and Clinical Psychology, 1967, **6**, 241-248.
4) Davis, Robert W.: The fear experience in rock climbing and its influence upon future self-actualization. Doctoral dissertation, University of Southern California, 1972.
5) Dickey, H. L.: The influence of an outdoor survival experience upon the self-concept of adolescent boys and girls. Master's thesis, University of Montana, 1974.
6) Gibson, P. M.: Therapeutic aspects of wilderness programs: A comprehensive literature review. Therapeutic Recreation Journal, 1979, **13** (2), 21-33.
7) Golins, Gerald L.: Utilizing adventure education to rehabilitate juvenile delinquents. Eric/Cress, New Mexico State University, 1980.
8) Harris, D. V.: Perceptions of self, research camping and environmental education, in B. van der Smissen (ed.) Research camping and environmental education, The Pennsylvania State University, 1975.
9) Hodges, W. F. and Felling, J. P.: Types of stressful situations and their relation to trait anxiety and sex. Journal of Consulting and Clinical Psychology, 1970, **34**(3), 333-337.
10) Iida, Minoru,: Adventure-oriented programs-A review of research. In B. van der Smissen (ed.), Research camping and environmental education. The Pennsylvania State University, 1975, pp. 219-241.
11) Imura, H.: The psychological effects of adventure camp experience upon junior high school students. Master's thesis, The University of Tsukuba, 1979.
12) Imura, H.: The influence of adventure camp on the self-concept and state anxiety of seventh to tenth graders. Research Bulliten of Health and Sports Science: The University of Tsukuba, 1982, **5**, 59-70.
13) Jones, S.: Self and interpersonal evaluations: Esteem theories versus consistency theories. Psychological Bulletin, 1973, **79**, 185-199.
14) Kajita, E.: Psychology of Self-perception. Tokyo University Press, 1980.
15) Kaplan, S. and Talbot J. F.: Psychological benefits of a wilderness experience. In I. Altman and J. F. Wohlwill (eds), Behavior and the natural environment. New York: Plenum Publishing Conpany. 1983, Pp 163-204.
16) Koepke, Sharon.: The effect of Outward Bound participation upon anxiety and self-concept. Master's thesis. Pennsylvania State University, 1973.

17) McCoby, E. E., and Jacklin, C. N.: The psychology of sex differences. Stanford, California: Stanford University Press, 1974.
18) Matthai, R. A.: The effect of Outward Bound on sense of competence. Doctoral dissertation, Harvard University, 1973.
19) McHattie, Garth S.: A descriptive analysis of selected teacher/student behaviors during adventure--The program of outdoor pursuits. Doctoral dissertation, Ohio State University, 1978.
20) Nye, R. P.: The influence of an Outward Bound program on the self-concept of the participants. Doctoral dissertation, Temple University, 1975.
21) Rosenburg, Morris.: Conceiving the Self, New York: Basic Books, Inc., 1979.
22) Shimizu, H.: Development of Japanese edition of state-trait anxiety inventory. Japanese Journal of Educational Psychology, 1981,**29**(4), 62-67.
23) Shore, A. Outward Bound: A reference volume. Greenwich, Conn.: Outward Bound Inc., 1977.
24) Smith, M. L., Gabriel, R., Schott, J., and Padia, W. Evaluation of the effects of Outward Bound. Boulder: University of Colorado Press, 1975.
25) Soga, S.: A study on standardization of Japanese version of the STAIC. Japanese Journal of Psychology, 1983, 54(4), 215-221.
26) Spielberger, C. D., Gorsuch, R. L., and Lushine, R. E.: STEI Manual for the State-Trait Anxiety Inventory ("Self-Evaluation Questionnaire"). California: Cousulting Psychologists Press Inc., 1970.
27) Spielberger, C. D., Edward, C. D., Lushene, R. E., Montuori, J., and Platzek, D.: STAIC Preliminary Manual for the State-Trait Anxiety Inventory for Children ("How I feel questionnaire"). California: Consulting Psychologists Press, Inc., 1973.
28) Vogel, R. M.: The effects of Project USE training (Adventure Training) on the participants' self-actualization and self-perception of personal change. Doctoral dissertation, Temple University, 1979.