DOCUMENT RESUME

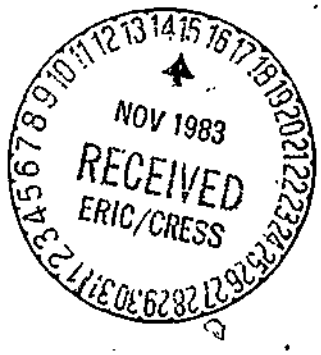
ED 238 625 RC 014 494

AUTHOR Jernstedt, G. Christian; Johnson, Bradley T.
TITLE The Effects of Long Term Experiential Learning Programs on Their Participants.
PUB DATE 1 Oct 83
NOTE 32p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Educational Research; Expectation; *Experiential Learning; Higher Education; Longitudinal Studies; *Measures (Individuals); *Outcomes of Education; *Outdoor Education; *Research Methodology; Standardized Tests; *Student Attitudes; Undergraduate Students
IDENTIFIERS Dartmouth College NH; *Outward Bound; Subjective Tests

ABSTRACT

Because previous research on long-term effects of Outward Bound programs has been contradictory, a study to analyze the impact of the Dartmouth College Outward Bound Center's Living/Learning Term program on undergraduate participants used a comprehensive battery of nine inventories to measure the effects of Outward Bound over time. The battery of standardized and specially constructed inventories measured the moods, personality, socialization, values, self-concepts, activities, and self-report indicators of 12 Outward Bound and 12 non-Outward-Bound undergraduates at the beginning and again at the end of a 3-month period. Results indicated no change over time nor difference between groups on personality, socialization, values, or self-concept inventories, but evident differences between groups in mood states. As the academic term progressed, all groups showed increased depression, dejection, and tension, and decreased self-acceptance and sense of well-being. The control group demonstrated increased anger and hostility while the Outward Bound group remained the same on these scales and also spent more time in recreation. Overall, the standardized tests showed fewer changes than the specially constructed inventories. Also, the more subjective the inventory, the greater the differences revealed. Recommendations include conducting studies of long-term effects over a longer period of time. (SB)



The Effects of Long Term Experiential Learning Programs on Their Participants

G. Christian Jernstedt

Bradley T. Johnson

Dartmouth College

October 1, 1983

Abstract

Twenty four college students participated in an experiment during one academic quarter to determine the effects of long term group experiential learning. Twelve students were members of a joint experiential learning and traditional academic program while twelve others were undergraduates selected at random from the same college population. Both groups were administered a comprehensive battery of psychological inventories at the outset of the quarter, and again just before the final examination period to determine impact of their respective experiences. Major changes were found in the groups' responses, particularly in mood states. The more subjective self-report measures revealed greater differences than the objective standardized inventories. A major variable in the groups' reactions to their experiences was found to lie with their expectations.

The Effects of Long Term Experiential Learning Programs on Their Participants

Over the years, numerous investigators have tried to determine the effects of long term experiential learning programs (more than just a few weeks) on individual growth. These studies have been concerned with group growth insofar as it is an outgrowth of and reflects individual growth. There are various characteristics of such groups. In some cases there is a selection procedure for subjects. In other cases the subjects may also have specific goals for their experience, may live together, may engage in various activities together, and may be reasonably homogenous.

An important theme in the long term group literature concerns the effects of Outward Bound experiences on its participants. There has been a real interest in determining precisely what Outward Bound does for its students, and the Outward Bound School setting itself has been ideal for collecting data from participants generally willing to take part in experimentation.

Yet compared with its more than thirty years of existence at numerous locations Outward Bound has available, relatively little comprehensive quantitative information on its impact. Outward Bound (OB) itself had its roots early during World War II, having been established in England to instruct British sailors in the techniques of survival at sea. It was soon noted that Outward Bound participants evidenced a higher survival rate than others

exposed to circumstances such as shipwrecks and other adverse situations. Since its inception, its purpose has been to develop character and stamina by introducing a training program with physically and psychologically challenging situations. Structured exercises have offered corresponding mental confrontation with inherent elements of danger. In short, numerous Outward Bound Schools have been established in Europe and North America since the Second World War to bring the experience to a wider range of people.

Efforts to determine the impact of Outward Bound on its participants have increased in the past decade, particularly at the schools within the United States. Numerous investigators have evaluated the effects of the experience on juvenile delinquents (Kelly & Baer, 1969), adolescent boys (Wetmore, 1972; Clifford & Clifford, 1967), adolescents and college students (Schulze, 1970), and public school administrators, teachers and pupils (Godfrey, 1972). Others have focused primarily on the program's effects for inner city youth (Smith, Gabriel, & Anderson, 1973; Smith, Gabriel, & Anderson, 1975).

Kelly and Baer (1969) found that a more positive social attitude and self-concept were evidenced in participants when before and after measures were taken. Wetmore (1972) demonstrated a distinct positive change as a result of the experience when measurements were taken before, after, and six months beyond the end of the course. Wetmore (1972) further noted that the intensity of positive change decreased after the

subjects' return to the home environment. Clifford and Clifford (1967) showed that overall, the self was viewed more positively after Outward Bound than before, apparently due to the experience. Schulze (1970) revealed changes in self-perception, self-confidence, and attitudes of Outward Bound participants, while Godfrey (1972) found significant personal growth and improved interpersonal relations with a lasting effect on participants. Smith, Gabriel, and Anderson (1975) discussed a positive impact of the experience on the subjects' sense of competence, leadership, and activity. Shore (1977) summarizes most of the work on Outward Bound. In these experiments as in others, effects have been measured through a variety of psychological inventories, self-report questionnaires, and other objective and subjective methods. Of the already completed studies, each attributes some positive change in the subjects' self-confidence, self-perceptions, and attitudes to the Outward Bound experiences. However, as Shore (1977) suggests, these results can be questioned since the studies typically feature a rather limited battery of psychological inventories and fail adequately to account for long term effects. There are additional problems as well. For example, Schulze (1970) analyzed Outward Bound participants only after their experiences have been completed, while many of the other studies failed to include control group comparisons.

In addition researching Outward Bound specifically, various investigators have evaluated the impact of long term group

processes similar to those encountered in an Outward Bound program. There is some difference in the results of these studies. For instance, much as was noted in the Outward Bound literature, Young (1972) demonstrated that university students who took an experiential group process course showed a change towards increased awareness and sensitivity in the areas of need perception and ability to interact with others in a group. Similarly, Frankenberg (1972) found a gain among undergraduates in measures of self-actualization over a year's experience in a living-learning community. Somewhat differently, Magnussen's (1972) study of undergraduates and graduates revealed that there was no significant self-concept change as a result of group process experience.

Discrepancies in findings of group process experiments have occurred particularly where long term effects have been accounted for. Poe (1971) discovered an increase in self-confidence in groups of students exposed to sensitivity sessions, but no lasting impact was measured at a later date. Serber (1972) showed that there were generally no significant long lasting effects on the behavior of participants in humanistic group process experiences.

Some research has been conducted to determine the impact of experiences modeled after Outward Bound. Kaplan (1974) studied an outdoor challenge program bearing many similarities to Outward Bound, demonstrating that it produced greater self-sufficiency and an improved and more realistic self-image for a group of high

school participants. Kaplan further noted that these results were suspected to be transient, and discussed the inherent problems in measuring something as stable as a self-concept over a brief period (cf. Wylie, 1968; Marans, Driver, & Scott, 1972; Torbert, 1972).

In view of the available literature, it becomes evident that research on long term groups aimed at individual growth has often been inadequate and contradictory. The present study was an analysis of the impact of the Dartmouth Outward Bound Center's Living/Learning Term program on undergraduate participants at Dartmouth College. It was designed to follow in the tradition of long term group evaluations as characterized by research on Outward Bound and group processes. The Living/Learning Term combines the Outward Bound curriculum with that of of the academic program at a major institution of higher education. It works specifically as a long term group experience directed at the individual growth of its participants. Its components include a selection procedure, specific goals, participants living together and engaging in activities together, and a reasonably homogenous pool of subjects (Johnson & Jernstedt, 1974). The study described surmounted the problems of the earlier research by using the first comprehensive battery of inventories to determine the impact of long term group experience. The inventories measured a variety of factors including moods, personality, socialization, values, self-concepts, activities, and self-report indicators for the

heretofore mentioned inventory topics. In addition, the study accounted for an experimental group and a carefully chosen control group.

Method

Subjects

All participants in the experiment were Dartmouth College undergraduates enrolled during the fall quarter of 1974. The experimental group was composed of the twelve participants in the Outward Bound Living/Learning Term. The Subjects were also all upperclassmen (sophomore, juniors, and seniors). The mean GPA for the group was 2.95 on a 4.00 scale. The control group subjects were chosen from the upperclass College population at large. Members of this group were matched according to sex so that the distribution of males and females equalled that of the experimental group. The subjects were randomly selected from dormitory residence lists with an effort made to choose students living in different areas of the campus. Some random subjects were found to be members of fraternities. The mean GPA for the control group was 3.07, representing a difference between that of the experimental group of .12 which was not significant $t(11)=2.20148$, $p=0.206$. The study also included a second control group, but the analysis does not treat it since it was matched along many variables with the experimental group and will represent a separate experiment at a later date.

All subjects had relatively homogenous backgrounds. The experiment itself was identified with the Dartmouth Department of

Psychology and the Dartmouth Outward Bound Center. Confidentiality was assured on all testing occasions and subjects generally seemed cooperative and interested while participating. Each subject was assigned an identification number for use with the inventories to insure further confidentiality. Subjects in the control group were remunerated for their participation in the experiment ($30.00 total for both sessions of testing) while the Living/Learning students participated as part of their program.

Procedure

Standardized and specially developed psychological and self-report inventories were administered to subjects of the experimental group when they first arrived at the Outward Bound Center and before embarkation on their first wilderness experience. This was ten days before the beginning of the regular fall quarter for other students. The control group subjects were administered the inventories just after their arrival on campus at the outset of their courses. Each group was administered the full battery of tests once again during the final days of the term just before exams began. A supervisor was present during all test administrations to minimize noise and interruptions. The order of administration for the tests was also monitored to maintain further a similar testing environment for all subjects at each testing session. No time limit was specified, and a set of instructions accompanied the tests at each administration stressing the importance of answering as accurately and candidly as possible. In addition, the control

subjects were not made aware of the experiment's focus on Outward Bound. They were instructed that the study was to determine the effects of one term's experience on students at Dartmouth.

The battery of psychological and self-report inventories for the experiment was carefully chosen to measure a wide range of variables including moods, personality, socialization, values, self-concepts, activities, and self-report on the scales derived from the standardized forms. The five standardized psychological inventories used were the Profile of Mood States (POMS) -- moods, The California Psychological Inventory (CPI) -- personality, the Eysenck Personality Inventory (EPI) -- personality, the Firo - B (FIRO) -- socialization, and the Alport, Vernon, and Lindzey Study of Values (SOV) -- values (Buros, 1972). Each of these forms produced various scales from the raw scores which determined the data for the analysis. The Profile of Mood States was implemented twice during each session, once referring to moods for "the past week including today" as printed, and again to ask how the subject "usually feels." Another inventory utilized was recently developed by the Colorado Outward Bound School to measure specifically the impact of Outward Bound experience. Called the Inventory of Outward Bound Effects (IOBE), it produces the four self-concept scales self-esteem, self-awareness, self-assertion, and acceptance of others (Smith, Gabriel, and Anderson, 1973). The Behavior Report Form (BRF) measures the number of documentable relationships and how the subjects spend their time, yielding the following scales: people

numbers, people time, intellectual time, physical time, hobby time, recreation time, drug time, and miscellaneous time. The Psychologial Test Awareness Form (PTAF) offers a more subjective measurement of the psychological scales which are treated by all the standardized tests. The inventory lists the names of the scales, and two measures are derived from each: the "score," or what percentage of the population would have more of a particular characteristic than the subject, and the "change," or whether the subject expected an increase, no change, or decrease for that characteristic as a function of the term's experience.

Design

The experiment was a nested design with two treatments (experimental group, control group), two time intervals (beginning of term, end of term), and various numbers of scales. The analyses took place with subjects nested within groups and time and scales being repeated measures. This design was replicated for each of the nine different tests and any additional analyses. Standardized inventories were scored according to the scales published by the tests themselves so that raw data for these inventories were always converted to the scale measure. For the specially constructed tests (Behavior Report Form, Psychological Test Awareness Form), various questions were grouped into categories to create "scales."

An analysis of variance was performed on each scaled test. Each test was treated independently. Individual means for the

tests which were found significant were further examined by a Newman-Keuls analysis (with $p<.05$).

Results

An analysis of variance of the scaled scores for the Profile of Mood States found a significant main effect for scales $F(10,165)=33.67$, $p<0.0001$, $w2=0.235$[1]; time $F(1,33)=9.84$, $p=0.004$, $w2=0.012$; groups $F(2,33)=5.258$, $p=0.010$, $w2=0.046$; and the interactions scales x time $F(5,165Z)=10.44$, $p<0.001$, $w2=0.035$; scales x group $F(10,165)=1.93$, $p=0.044$, $w2=0.013$; time x group $F(2,33)=4.04$, $p=0.026$, $w2=0.008$; and scales x time x groups $F(10,165)=1.90$, $p=0.048$, $w2=0.006$. A Newman-Keuls analysis of individual group means revealed significant differences for several scales on the scales x time interaction. Increases in scores were found on the depression-dejection, anger-hostility, and tension-anxiety scales, while a decrease was noted in the vigor-activity scale. No other scale differences were significant. A further analysis of variance for each scale of the scales x time x groups interaction found significant main effects for time in depression-dejection $F(1,35)=5.30$, $p=0.026$, $w2=0.023$; anger-hostility $F(1,33)=8.36$, $p=0.007$, $w2=0.129$; confusion-bewilderment $F(1,33)=12.54$, $p=0.001$, $w2=0.056$; tension-anxiety $F(1,33)=21.54$, $p=0.0001$, $w2=0.109$; significant main effects for groups in depression-dejection $F(2,33)=3.81$, $p=0.032$, $w2=0.104$; anger-hostility $F(2,33)=6.13$, $p=0.006$, $w2=0.106$; and significant time x groups interactions for anger-hostility $F(2,33)=3.10$, $p0.027$, $w2=0.05$; and

tension-anxiety $F(2,33)=5.36$, $p=0.009$, $w2=0.046$. A Newman-Keuls analysis found a significant increase in anger-hostility score over time for the control group, while the experimental group did not change significantly. The experimental group differed significantly in anger-hostility at the end of the term from the control group, but not at the beginning. A Newman-Keuls analysis also revealed a significant increase in tension-anxiety over time for the control group but not for the experimental group. The experimental group differed significantly at the end of the term, but not at the beginning of the term, from the control group.

An analysis of variance of the Profile of Mood States measuring how the subject "usually feels" found a significant main effect for scales $F(5,165)=82.60$, $p<0.001$, $w2=0.004$; time $F(1,33)=4.772$, $p=0.034$, $w2=0.002$; and for the interaction scale x time $F(5,165)=4.498$, $p=0.001$, $w2=0.004$. Newman-Keuls analysis of the scales x time interaction revealed a significant decrease across all groups in the measures of depression-dejection and vigor-activity over time.

An analysis of variance of the California Psychological Inventory found a significant main effect for scales $F(17,561)=164.942$, $p<0.0001$, $w2=0.735$, and for the interaction scales x time $F(17,561)=1.80$, $p=0.025$, $w2<0.001$. Newman-Keuls analyses of the individual group means for the scales x time interaction found that the scores on the self-acceptance, sense of well being, socialization, and good impression scales

decreased for all groups, and the other scales did not significantly change.

An analysis of variance of the Study of Values found a significant main effect for scales $F(5,165)=10.3752$, $p<0.001$, $w2=0.186$. An analysis of variance of the Eysenck Personality Inventory yielded a significant main effect for scales $F(2,66)=71.95$, $p<0.001$, $w2=0.533$. An analysis of variance for the Firo-B inventory found a significant main effect for scales $F(5,165)=10.3752$, $p<0.001$, $w2=0.186$. In addition, an analysis of variance of the Inventory of Outward Bound Effects revealed a main effect for scales $F(3,99)=566.32$, $p<0.001$, $w2=0.875$.

Separate analyses of variance were made of the categories of Behavior Report Form questions that produced each of the nine scales for the inventory. The analyses found a significant main effect for the people numbers, people time, intellectual time, recreation time, and miscellaneous time scales with F ranging from $F(3,99)44.4544$ to $F(3,99)=7.0187$ and p from $p=0.003$ to $p<0.001$. The analysis of variance of the recreation time scale found a significant interaction for scales x groups $F(4,66)=4.01$, $p=0.006$, $w2=0.045$. Newman-Keuls analyses of the individual group means found that the experimental group spent a significantly greater amount of time engaged in recreational activities than did the control group.

Separate analyses of variance were conducted for each grouping of questions on the Psychological Test Awareness Form which corresponded with a complete set of scales for a

standardized psychological inventory. As previously discussed, both the "score" and "change" were asked of subjects for each scale listed in the Psychological Test Awareness Form. The analyses of variance for the Profile of Mood States, California Psychological Inventory, Firo-B, Study of Values, and Eysenck Personality Inventory scores on the inventory all found a significant main effect for the scales with the F ranging from $F(5,165)=21.9464$ to $F(17,561)=6.917$ and p from $p=0.0003$ to $p<0.001$. With analysis of variance the Firo-B score also found a significant main effect for groups $F(2,33)=4.36$, $p=0.020$, $w2=0.047$, and the significant interaction time x groups $F(2,33)=4.25$, $p=0.022$, $w2=0.101$.

An analysis of variance on the Study of Values score measures also found a significant interaction for scales x time x groups $F(10,165)=2.45$, $p=0.010$, $w2=0.007$. A further analysis of variance for each scale of the interaction demonstrated for the aesthetic (value form and harmony) scale a significant interaction for time x groups $F(2,33)=6.10$, $p=0.003$, $w2=0.049$. Newman-Keuls analyses of individual group means found a significant increase over time for the experimental group in the percentage of the population thought to have more of the aesthetic characteristic than they. There was no significant change on this measure for the control group. A Newman-Keuls analysis also found that at the first testing period the experimental group subjects thought a significantly smaller proportion of the population would have more of the aesthetic

characteristic in relation to themselves than did the control group subjects. There was no significant difference in the two groups' perceptions on this scale at the end of the term. An analysis of variance for the political (value power) scale found a significant main effect for groups $F(2,33)=3.354$, $p=0.046$, $w2=0.097$. A Newman-Keuls analysis of the time x groups interaction revealed that at the outset of the term the experimental group subjects thought a significantly smaller percentage of the population would have more of the power characteristics in relation to themselves than did the control group subjects. There were no significant differences in the groups' perceptions at term's end.

The analysis of variance for the "change" measure of the Profile of Mood States, California Psychological Inventory, Firo-B, and Eysenck Personality Inventory scales listed in the Psychology Test Awareness Form found a significant main effect for scales with F ranging from $F(1,33)=9.3866$ to $F(5,165)=5.2311$ and p from $p=0.004$ to $p<0.001$. The analysis of variance for the Profile of Mood States scales on the Psychological Test Awareness Form also found a significant interaction for scales x groups $F(10,165)=2.27$, $p=0.016$, $w2=0.028$, and for scales x time x groups $F(10,165)=3.77$, $p<0.001$, $w2=0.035$. A further analysis of variance for each scale of the scale x time x groups interaction found a significant effect for the interaction time x groups $F(2,33)=3.34$, $p=0.047$, $w2=0.038$. A Newman-Keuls analysis of individual group means determined that the control group changed

significantly over time to think it would increase in the depression-dejection score as a function of the term's experience. The experimental groups evidenced no significant change. At the outset of the term, there was no significant difference between the two groups' scores on depression-dejection for the approaching experience, but the significant difference at the end of the term demonstrates that the control group scored higher on depression-dejection than did the experimental group. An analysis of variance of the fatigue-inertia scale found a significant main effect for time $F(1,33)=4.50$, $p=0.039$, $w2=0.033$. Newman-Keuls analysis of the differences between individual group means of the time x groups interaction found a significant decrease in the fatigue-inertia score over time for the control group, while the experimental group showed no significant change. At the outset of the term, the control group score was significantly different in the direction of an increase in fatigue-inertia. The final testing period showed no significant differences between the groups. An analysis of variance of the vigor-activity scale revealed a significant main effect for groups $F(2,33)=4.16$, $p=0.024$, $w2=0.086$, and a significant interaction for time x groups, $F(2,33)=7.79$, $p=0.002$, $w2=0.115$. A Newman-Keuls analysis of the time x groups interaction found that the experimental group score over time indicated a decrease in the extent to which the experience affected vigor-activity. The control group did not differ significantly over time. Also, at the outset of the term the experimental group differed

significantly from the control in that its score reflected a greater expected increase in vigor-activity due to the coming term's experiences. The end of term showed significant differences between groups.

Analysis of variance of the Firo-B scales listed on the Psychological Test Awareness Form further revealed a significant main effect for time $F(1,33)=4.74$, $p=0.034$, and significant interaction for scale x groups $F(10,165)=2.94$, $p=0.002$, $w2=0.043$. A Newman-Keuls analysis of individual group means for the scales x groups interaction found a significant difference at both times for the expressed inclusion scale where overall the experimental group expected a greater increase measure than did the control group. The experimental group evidenced a significantly greater expected decrease score for the wanted control scale than did the control group. In addition, the experimental group expected a significantly larger increase on the expressed affection scale than the control group.

An analysis of variance of the Eysenck Personality Inventory scales listed on the Psychological Test Awareness Form found a significant interaction for scales x groups $F(2,33)=3.56$, $p=0.039$, $w2=0.054$. A Newman-Keuls analysis of the interaction found that the experimental group expected a significantly larger increase than the control group on the extroversion scale.

Discussion

The interim period between the first test administration and the second was about three months, which represents a longer

pre-test/post-test period than used by most experiments previously discussed in the long term group literature, especially in the Outward Bound literature. These particular inventories were chosen to give as comprehensive a view of the psychological effects of the long term group experience as possible. However, with these precautions there were no significant changes over time or differences between groups on the personality, socialization, value, and self-concept measures represented by the Eysenck Personality Inventory, The Firo-B, Study of Values, and Inventory of Outward Bound Effects respectively. These results may be attributable to the nature of the tests themselves. The standardized forms are specifically designed to produce stable scores for subjects from one administration to the next. They are constructed for between-test score stability and would not accentuate the differences between groups (Buros, 1972). Also, some investigators have questioned the validity of using standardized inventories to measure possible changes due to Outward Bound effects (Smith, et al., 1973). The argument here is that the subject pools for test development may be significantly different, and the tests are not intended to account for many of the experiential components of Outward Bound. That no results were found from the Inventory of Outward Bound Effects may reflect this inventory's relatively untested nature. It had recently been created and had only been used once in experimental situations, evidencing a need for further adjustments (Smith, et.

al., 1973, 1975). Another factor why no changes were revealed may have been that even the three month interval between testing sessions which characterized this experiment was not great enough to evidence differences. Investigators have already called attention to the problems of small intervals between testing sessions for experiential groups, and the relative stability of self-concepts over short time spans (Kaplan, 1974; Wylie, 1972; Marans, et. al., 1972). There is also some reason to believe that subjects in group processes might need time away from the experience to attain perspective and thereby effect real change in these variables, despite evidence in the Outward Bound and group process literatures that long term effects are negligent (Wetmore, 1972; Poe, 1971; Serber, 1972).

There were evident differences in mood states between groups as measured by the Profile of Mood States. Similar differences are referred to by other investigators of the Outward Bound experience (Schulze, 1970). For all groups, the significantly increased score over time for the depression-dejection and the tension-anxiety scales suggests the effects of end of term experiences such as increased studying behavior and exam pressure. The decrease in the vigor-activity scale may reflect the greater amount of time spent studying at the end of term instead of engaged in athletics or other strenuous activities, and may also be an effect of the approaching winter weather which would tend to restrict subjects indoors.

The significant increase in anger-hostility and tension-anxiety over time for the control group, with the experimental group remaining the same on these scales, suggests a stabilizing effect on certain moods of the Outward Bound Living/Learning Term experience. It appears that the end of term academic pressure which affect regular college students do not figure as highly in the experience of a Living/Learning Term student. Furthermore, no significant difference was noted between groups on these scales at the outset of the term, indicating their initial similarity. The end of the term differences for these scales were significant with the experimental group scoring lower on both measures, suggesting an experiential effect due to the Living/Learning Term. It may also be the case that the marked changes in the control group's score and the relative stability of the experimental group over time was caused by the highly artificial environment set by a college academic schedule. Even though the experimental group subjects were taking classes, their living and working together at a site off campus may have sufficiently separated them from the normal academic setting to influence their mood reactions.

The Profile of Mood States referring to how the subject "usually feels" revealed a decrease in certain scales for all groups over time. The depression-dejection decrease for all groups suggests the approach of the end of the term when grades are realized and when the uncertainty of progress in courses has been overcome. The vigor-activity drop in scores may again

reflect, as in the regular Profile of Mood States, an increase in studying instead of outside energetic activities with the onset of exams, and the poorer weather at the end of term necessarily limiting movement outdoors.

One personality inventory, the California Psychological Inventory, yielded certain significant scale changes over time and across groups. All groups evidenced a decrease in self-acceptance scores over the term, showing lower factors such as sense of personal growth and capacity for independent thinking and action. Groups at both the beginning and end of term were in the mid-range on this scale, indicating a normal sense of self-acceptance. A significant decrease was noted in the sense of well being scale over the term. Groups scored relatively high on this measure at both times indicating a sense of being able to meet the time and energy demands required in daily social living and a feeling of good health. The socialization scale also dropped for all groups over time. At both the beginning and the end of the term, the scores were relatively high, reflecting the subjects' sensitivity to other people and concordance with interpersonal modes of relation. In addition, there was a decrease in the good impression scale over the term. Both groups rated low on this scale, indicating a diminished sense of concern for how others react to them[2]. The decreases in scores on these scales for all groups may reflect the influence of end of term effects such as the academic pressure associated with exam periods.

The Behavior Report Form was found to be a useful measure through the significant scale effects in the analyses of variance. The recreation scale revealed that the experimental group spent a greater amount of time engaged in recreation than did the control group over the term. It is likely that this measure reflects the Outward Bound related activities, such as the wilderness experiences, which the control group did not share.

Almost all the Psychological Test Awareness Form scales were also found useful in the analyses of variance. The variety of significances for different scales suggests that the self-report inventory, such as the Psychological Test Awareness Form is a more telling measure for Outward Bound long term experiences (three months or under) than the more objective measurements of the standardized psychological inventories.

There was a general tendency for experimental and control subjects to differ significantly at the outset of the term but not at the end of term on the "score" measures of the Profile of Mood States scales listed on the Psychological Test Awareness Form. Initially in the term, the experimental group subjects said that a significantly smaller percentage of the population would have more of the aesthetic (value form and harmony) characteristic in relation to themselves than the control group subjects. The significant increase in the percentage for the experimental group subjects over time resulted in their being no significant difference between groups at term's end. This

suggests that the experimental group thought they would become greatly different from the population at the outset, but saw themselves the same in relation to the population as the control groups at term's end. Similarly, on the political (value power) scale at the outset of the term, the experimental group subjects thought that a significantly smaller proportion of the population would have more of the characteristics in relation to themselves than the control group subjects. However, at the end of the term the two groups' differences on the scale were insignificant. For the "change" measures of the Profile of Mood States scales listed in the Psychological Test Awareness Form, both the experimental and control groups thought they would change due to the coming term's experiences on the depression-dejection scale, but at the end of term the control group felt it had increased in depression-dejection while the experimental group remained the same. On the fatigue-inertia scale, the experimental group at the outset expected to decrease significantly more than the control. However, at the end of term each of the groups saw its experience of fatigue-inertia to have been the same. The experimental group expected a significantly marked increase in vigor-activity at the outset than did the control group. At the end of term each saw their vigor-activity to have been similar. The self-report Profile of Mood States scales on the Psychological Test Awareness Form corroborated the anger-hostility and tension-anxiety measures seen on the regularly administered Profile of Mood States in several cases.

The Psychological Test Awareness Form "change" depression-dejection and fatigue-inertia scales evidenced a significant difference in control group response while the experimental group did not differ over time. However, the "score" aesthetic and "change" vigor-activity scales demonstrated significant differences for the experimental group and none for the control group over time. It is possible that the numerous differences between groups noted at the outset of the term on the Psychological Test Awareness Form may be due to a selection factor of the experimental subjects who chose to enroll in the Living/Learning Term. It may be that these subjects expected greater changes in themselves than did the control group subjects prior to enrolling in Outward Bound but not because they were entering the Living/Learning Term.

For measures at both times on the Firo-B expressed inclusion scale listed as a "change" measure on the Psychological Test Awareness Form, experimental subjects expected a greater increase in expressed inclusion than control subjects. This suggests a need on the part of the experimental subjects for satisfactory relationships as regards interaction and association, which may have resulted from the Outward Bound group living situation. A similar expected greater increase in the expressed affection scale for experimental subjects reflects an interpersonal need to maintain and establish satisfactory relations with others in respect to love and affection. It is possible to attribute this result to the strong group living and interactive component of

the experimental group's environment, which the control group did not share. The pronounced expected decrease on the Firo-B wanted control scale listed as a "change" measure on the Psychological Test Awareness Form for experimental group subjects suggests the lack of need for achieving power, dominance, and authority in relationships. This may indicate a greater respect for the freedom and integrity of other individuals as a result of the Living/Learning Term experience. On this scale as on the others in the "change" measure, the control group expected to remain approximately the same as a result of their experience.[3]

Finally, for the Eysenck Personality Inventory Scales found on the "change" measure of the Psychological Test Awareness Form, the experimental group subjects at both times thought they would become more extroverted as a result of their experience than did the control group.

Conclusions

Three different levels of analysis during the experiment suggest the same conclusion.

(1) The standardized tests evidenced fewer changes than the specially constructed inventories. Within the standardized forms, the Profile of Mood States found the greatest differences between groups and within groups over time. This reflects the fact that the standardized inventories are more objective measures than the constructed tests, and within this group, the Profile of Mood States is the most subjective.

(2) The Psychological Test Awareness Form revealed the greatest differences between and within groups over time of all the constructed inventories. It is the most subjective of the constructed tests, enabling measurement of what the subject says about his or her ratings on the scales, versus what the subject actually receives as a score.

(3) There were more significant differences on the "change" measure on the Psychological Test Awareness Form, asking subjects how they expected to differ due to coming experience, than on the "score" questions, asking what percentage of the population they thought would have more of a particular characteristic than they. Within the Psychological Test Awareness Form the "change" variable is the more subjective. It not only asks the subjects to predict what they will feel, but in a sense asks them what they feel at the moment.

As an overall trend, the more subjective the device used to measure impact of long term group processes, the more profound the difference that is revealed.

Thus, to extrapolate from the findings on the inventories, it appears that most of the changes obtained from the Living/Learning Term experience are due to expectations. This is not to say that nothing happens to the Outward Bound subjects, but rather that their expectations are very powerful in determining their perceptions of the experience. For the Living/Learning Term, then, and in a larger way for other long term groups aimed at individual growth, subjects will: (a)

expect changes in many kinds of psychological variables; (b) modify this original perception over time; and (c) still feel good about the experience at its end, despite lack of change in fundamental personality variables.

Future studies in this area should evaluate in a comprehensive manner longer range effects than were noted here. Extensive studies 6 and 12 months after the end of the long term group experience would be in order.

Footnotes

Requests for reprints of this article should be sent to G. C. Jernstedt, Department of Psychology, Dartmouth College, Hanover, New Hampshire, 03755.

[1]The statistic w2 is a measure of the proportion of the total variance accounted for by a particular factor in the analysis of variance (Fleiss, 1969). If w2 is in error for the particular design used in this experiment, the error is a tendency to underestimate the true proportion of the variance accounted for.

[2]Interpretations were based on Gough's "Interpreter's Syllabus" for the California Psychological Inventory. Cf. references.

[3]Interpretations were based on Schutz's The Firo Scales Manual. cf. references.

References

Buros, Oscar Krisen. The Seventh Mental Measurements Yearbook. Highland Park: Gryphon Press, 1972.

Clifford E. and Clifford M. "Self-concepts before and after survival training." British Journal of Social and Clinical Psychology. Volume 6, 1967, 241-248.

Fleiss, J.L. "Estimating the magnitude of experimental effects." Psychological Bulletin, 1969, 72, 273-276.

Frankenberg, Ellen L. "Self-actualization and environment: the personal orientation inventory as a measure of personal growth among undergraduates in a living-learning community." Dissertation Abstracts International. 1973 (May), Volume 33, (11-A), 6047.

Godfrey, Robert J. "Outward bound: A model for educational change and development." Dissertation Abstracts International. 1972 (Sept.), Volume 33 (3-B), 1267.

Gough, H.G. "An Interpreter's Syllabus: California Psychological Inventory." Palo Alto: Consulting Psychologist's Press, Inc., 1968.

Gough, H.G. Manual for the California Psychological Inventory. Palo Alto: Consulting Psychologist's Press, Inc., 1969.

Johnson, B.T., and G.C. Jernstedt. "Experiential Learning in College: The Impact of the Outward Bound Living/Learning Term; Project Description." Hanover: Dartmouth College, December, 1974.

Kaplan, R. "Some psychological benefits of an outdoor challenge program." Environment and Behavior, 1974. Volume 6, 1, March.

Kelly, Francis J., Daniel J. Baer. "Jessness inventory and self-concept measures for delinquents before and after participation in Outward Bound." Psychological Reports, 1969, 25, 179-724.

Magnussen, Christian E. "The relationship between self-concept change and group participation." Dissertation Abstracts International. 1973 (Jan), Volume 33 (7-A), 3390-3391.

Maràns, R.W., B.L. Driver, and J.C. Scott. "Youth and Environment: An Evaluation of the 1971 Youth Conservation Corps." Ann Arbor: University of Michigan Institute for Social Research, 1972.

Poe, Bobby J. "The effect of sensitivity training on the relationship between risk taking and other selected behavioral factors." Dissertation Abstracts International, 1972 (Apr), Volume 32, (10-B), 6037-6038.

Schulze, Joseph R. "Evaluation of the Effects of Outward Bound Training Upon Dartmouth College Students, and New Hampshire Secondary School Students." Amherst, Mass.: University of Massachusetts, 1970.

Schultz, William C. The Firo Scales Manual. Palo Alto: Consulting Psychologist's Press, Inc., 1967.

Serber, Michael. The experiential group as entertainment. In P.S. Houts & M. Serber (Eds.) "After the turn on, what?: Learning perspectives on humanistic groups." Champaign, Illinois: Research Press, 1972.

Shore, A. Outward Bound: A reference volume. Greenwich, CT: Outward Bound, Inc., 1977.

Smith, Mary Lee, Roy Gabriel, Ronald D. Anderson. "Final Report: Project to design an evaluation of Outward Bound." Boulder: School of Education Educational Field Services, University of Colorado, 1973.

Smith, Mary Lee, Roy Gabriel, James Schott, William L. Padia. "Evaluation of the Effects of Outward Bound." Boulder: School of Education, Educational Field Services, University of Colorado, 1975.

Torbert, William R. Learning From Experience Toward Consciousness. New York: Columbia University Press, 1972.

Wetmore, Reagh C. "The Influence of Outward Bound School Experience on the Self-Concept of Adolescent Boys." Dissertation Abstracts International. 1972 (Oct.), Volume 33 (4-A), 1498-1499.

Wylie, R. C. "The present status of self-theory". pp. 728-787. In E.F. Borgatta and W.W. Lambert (eds.). Handbook of Personality Theory and Research. Chicago: Rand-McNally, 1972.

Young, William B. "Group Process Experiences for Sixty University Students." Dissertation Abstracts International. 1973 (Apr), Volume 33, (10-A), 5506.