The Effects of Adventure Activities on an Objective Measure of Self-Concept

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THE EFFECTS OF ADVENTURE ACTIVITIES ON AN OBJECTIVE MEASURE OF SELF-CONCEPT

by

Marjorie Ellen Bethke

A Project Report
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the requirements for the
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THE EFFECTS OF ADVENTURE ACTIVITIES ON AN OBJECTIVE MEASURE OF SELF-CONCEPT

Marjorie Ellen Bethke, Ed.S.
Western Michigan University, 1986

Although a plethora of studies have linked experiences in adventure education to the enhancement of self-concept, virtually all have been faulted on methodological grounds. In this study the inferential leap from test performance to actual behavior was narrowed, if not eliminated, by utilizing systematic direct observation as an alternative to self-reports. A single behavior, hugs, was isolated as an indicator of self-concept. Eighth grade Outdoor Education students were observed over a baseline period, then engaged in a short-term, intense, adventure education experience. A second baseline revealed an appreciable increase in the rate of hug behavior under select circumstances. The data also hint at the influence activity sequence can have on producing overt affective behavior. These results support the hypothesis that adventure activities can positively impact self-concept.
ACKNOWLEDGEMENTS

A specialist project is a unique kind of initiative. True to initiatives, it teaches us the value of support by others. For being there for me and believing in me, I extend my heartfelt gratitude to Kenneth Larson, Diane Veneklasen, and Howard Farris.

Marjorie Ellen Bethke
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CHAPTER I

INTRODUCTION AND RATIONALE

The past 12 years have witnessed an explosion in the growth of adventure education programs. Hundreds were influenced, if not directly modelled after, the granddaddy of them all, Outward Bound (see Appendix D). The first Outward Bound course was organized in Wales in 1941 for the purpose of, in founder, Kurt Hahn's words, "study and progressive physical and mental word" (Miner & Boldt, 1981, p. 24). Today there are 35 Outward Bound schools around the world and more in the planning stages. The first goal of each is enhanced self-concept, the most frequently examined psychological construct in the Outward Bound literature (Marsh, Richards, & Barnes, 1984).

Has Outward Bound achieved its primary goal? A plethora of studies would suggest so (Clifford & Clifford, 1967; Kelly & Baer, 1969; Marsh et al., 1984; O'Connor, 1983; Richards & Richards, 1981; Stich & Gaylor, 1983; Svobodny, 1979). Based on these findings, it is not difficult to account for the phenomenal growth of adventure education in an era when improvement of a student's self-concept seems to be valued as an educational outcome in its own right (Shavelson, Hubner, & Stanton, 1976). However, Shore (1977) noted that most of the Outward Bound research is unpublished and methodologically flawed, leading him to argue that, "One must conclude, overall, that the research literature on Outward Bound is weak" (p. 5). None of the over 80 studies he reviewed
used a true experimental design, and few systematically examined threats to validity of interpretations based on pretest-posttest difference scores on self-report scales of self-concept.

Despite considerable research in the area of self-concept, assessments today may be criticized in the same way that Crandall (1973) and Wylie (Vol. I, 1974) did more than a decade ago, in that self-concept measures, and therefore interpretations, may not be valid. First, a review of the literature reveals no clear, concise, and universally accepted operational definition of self-concept (Byrne, 1984). Further complicating the issue is the fact that the terms self-concept, self-esteem, self-confidence, self-regard, self-appraisal, self-acceptance, and ego strength are often used interchangeably in the literature and in the field. Researchers have long called for a standardized definition of self-concept, yet acceptable language has neither been proposed nor found to date.

Variability and imprecision in the definition of self-concept leads to a second problem suggesting that measurement techniques are not equivalent. The lack of empirically demonstrated equivalence among self-concept measurements makes it impossible to generalize across studies using different instruments, or to confidently generalize construct interpretations across different populations (Shavelson et al., 1976). The problem is fueled when numerous researchers studying self-concept develop their own assessment instruments for use with varied populations. Clifford and Clifford (1967) and Nowicki and Barnes (1970) did so in their studies of Outward Bound using elementary school children and black,
disadvantaged adolescents, respectively. The number of measuring
techniques continues to rise.

In a further attempt to clarify the construct validity of self-concept, Moran, Michael, and Dembo (1978), using a sample of 280 seventh grade lower middle class students with predominately Spanish names, factor analyzed three self-report measures: the Barksdale Self-Esteem Test (Barksdale, 1973), the Piers-Harris Children's Self-Concept Scale (1964), and the Tennessee Self-Concept Scale (Fitts, 1964). Their findings revealed six factor dimensions that were invariant across the three groups. Evidence of convergent and discriminant validity of the three measures, however, was lacking. Using a sample of fourth grade students, Cowan, Altmann, and Pysh (1978) used exploratory factor analysis to investigate the construct validity of four self-concept measures: The Bledsoe Self-Concept Scale (Bledsoe, 1964), the Purdue Self-Concept Scale (Cicirelli, Coward, Crabill, & Stultz, 1973), the Piers-Harris Children's Self-Concept Scale (1964), and the Coopersmith Self-Esteem Inventory (Coopersmith, 1967). These researchers found the underlying factors of the selected instruments to be less clear than the developers originally claimed. Following the initial factor analysis of the instruments, Cowan et al. (1978) used a multitrait-multimethod matrix procedure to validate the four instruments. All four failed to meet the total criteria for convergent and discriminant validity. At least three of these instruments have been used repeatedly in Outward Bound studies of self-concept. They are the Piers-Harris CSCS (Danziger, 1982; Lieberman & DeVos, 1982), the Coopersmith SEI
(Richards & Richards, 1981), and the Tennessee SCS (Fersch, 1973; Lieberman & DeVos, 1982).

The final problem in measuring self-concept is one inherent to all self-report instruments. The self-concept interpretation may be challenged on the grounds that respondents may (a) provide only that information which is socially desirable rather than self-descriptive or (b) be unable or unwilling to divulge their "private" self-concepts (Shavelson et al., 1976).

Despite substantive problems in the definition, measurement, and interpretation of self-concept, there is widespread use and acceptance of the term within the educational community. No mere fad or creation of "pop" education, the notion and importance of self-concept is deeply rooted in educational philosophy and practice. Therefore, until the definition of self-concept can be operationalized and more reliable and valid assessments can be developed, ambiguous data will continue to be used and accepted in making decisions affecting programs and students. This study was an attempt to learn more about the relationship between adventure education and self-concept. Its purpose is also to determine the relationship between the adventure activity sequence and self-concept. Toward that end, this study consciously attempted to (a) avoid those difficulties inherent in self-report scales and (b) move toward a more operationalized definition of self-concept.

The self-report measures traditionally used in adventure education studies were, in this study, substituted with direct observation. Kazdin (1981) states that, "Assessment of overt behavior has
been considered a distinct methodological advance because behavior is measured directly. If overt behaviors are sampled directly, the inferential leap from test performance to actual behavior is narrowed or even eliminated" (p. 41). Kazdin's view supports earlier claims made Foster and Richey (1979) and Bellack (1979). Bellack referred to direct observation of the target behavior in the natural setting as the "penultimate assessment strategy" (p. 87). Although not without its critics (Asher, Singleton, Tinsey, & Hymel, 1979; Gottman, 1977; Gresham, 1981), direct observation appears to be the most reliable and valid method of assessment currently available to researchers. Platt (1978) is among the few, if not the only, experimenter to employ direct observation in his study of self-concept and adventure education. He concluded that, with the use of direct observation, "a valid and reliable rating scale could be developed to measure affective (self-esteem) behavior" (p. 2729).

The need to operationalize self-concept presented greater problems. As a construct, self-concept has been resistant to concise, operational definitions. One approach was to break the construct into its smallest component parts, and to provide operational definitions for individual components. The question then became, which clearly observable behaviors are indicative of self-concept? Which would suggest a positive self-concept and which would suggest a negative self-concept? The first step in answering these questions was to review what is known about self-concept in general. Although much is debatable, researchers generally agree that (a) interaction with "significant others"/peers strongly influences the development
of self-concept and (b) self-concept comprises at least three differentiable facets (social, physical, and emotional) corresponding to how individuals view themselves (Winne & Marz, 1981). These two factors were used as criteria in isolating, for purposes of this study, a single behavior that would demonstrate self-concept. This researcher then added a third criterion. To avoid the social desirability problems that plague self-report scales, all verbal behavior or written responses were eliminated from consideration as evidence of self-concept. Only nonverbal, observable behaviors were considered.

In as much as this study involves student peers by design, the first criterion appeared to be met. The next step was to list nonverbal, observable behaviors that satisfied all three dimensions of self-concept: social, physical, and emotional. The list was endless. To narrow the possibilities, only those behaviors involving touch were included since touching behavior, although not in its smallest component form, did clearly satisfy all three dimensions of self-concept. To further narrow the choices, only forms of touch within the reasonable repertoire of eighth grade students were listed (i.e., forms of touch that were blatantly sexual or blatantly hostile were eliminated). With these limitations in mind, a single behavior was isolated. In summary, that behavior is characterized as being nonverbal, clearly observable, easily and concisely operationalized, within an adolescent's repertoire, and has social, physical, and emotional dimensions.

Although many behaviors satisfied the criteria, and therefore might be indicative of self-concept, the behavior isolated for this
study was hug (see Appendix D) behavior. A hug necessarily involves another person(s) and is, therefore, social. A hug by nature of the act involves physical touch. And finally, a hug satisfies the emotional criterion on several counts. As a hug initiator or hug object one risks: (a) rejection, (b) body consciousness, (c) self-consciousness about one's ability as a hugger or huggee (i.e., "Am I doing this right?"), (d) elevating the relationship and assuming the responsibilities that go with a more intimate relationship, and (e) having your intentions misinterpreted whether hugs are between or among sexes. Risk generates emotion. One might also argue that risk-taking, particularly that which is entered into voluntarily, is indicative of self-concept. Unfortunately, studies done in this area are inconclusive. Equally unfortunate is that each typically used self-report measures in assessing self-concept. We seem to have come full circle.
CHAPTER II

METHODOLOGY

Subjects

The subjects in this study were 28, eighth grade, caucasian students attending Grand Haven Junior High School, Grand Haven, MI. There was an equal number of males and females. All were enrolled in the fall semester of Outdoor Education (see Appendix D). None of the students had an experimental history in adventure education activities.

Setting

The baseline setting was the students' Outdoor Education classroom. Measuring 30' x 40', it is primarily used for science courses. Students sit on plastic chairs at eight, 10 foot long laboratory tables. The front of the room was dominated by a 30 foot expanse of blackboard and a 15 foot demonstration table. All tables were equipped with a sink, running water, and a gas jet. Further evidence of scientific study was apparent about the room: mounted animal specimens, jars of preserved sea creatures, electronic paraphernalia, safety equipment, and two, live, caged gerbils. Competing for wall space was a faded bulletin board featuring a pictorial introduction to Outward Bound and the instructors' experiences in that program. Posted randomly on walls about the room were inspirational messages. Some examples read, "I have learned that there are no limits to my
efforts, unless I limit myself;" "Hugs not drugs;" "You have only failed when you have failed to try;" and "Where you come from is not nearly as important as where you are going."

At the rear of the classroom were three smaller rooms measuring 10' x 12' each. The first stored science equipment. The middle room served as the teachers' office and warehouse for Outdoor Education gear. Systematically stacked were tents, backpacks, sleeping bags, mats, woolen jackets, mittens, overmitts, compression sacks, gaitors, cook kits, compasses, climbing ropes, harnesses, and one rubber chicken. The third space was labelled "CREW ROOM." Posters were evenly spaced on walls around the room, each numbered in sequence, one through eight. Each depicted a wilderness scene and carried a message, for example, "Never regret the things you've done, only regret the things you haven't tried;" "I am not an ordinary person;" "Obstacles are what you see when you take you eyes off the goal;" "You only live once, but if you live right, once is enough."

A four foot diameter spool table occupied the center of the room. In one corner shelves overflowed with used woolen garments. This room appeared messy.

The experimental setting was Pretty Lake Adventure Centre. This 310 acre facility is located in a rural, wooded area in Texas Township west of Kalamazoo, MI. It has four ropes courses designated as "Maze," "Oaks," "Pines," and "Executive," ranging in heights from 15 to 40 feet. In addition to a 50 foot climbing tower, the Centre also has initiative structures (see Appendix D) for wild wooscy, trust fall, electric fence, all aboard, group wall, balance beam,
incline log, and swinging tires. The facility is bordered on the east by Pretty Lake.

Materials and Equipment

For observers, a kit composed of:

1. Clipboard
2. Pencils
3. Response Record Sheets for Baseline and Experimental Phases (see Appendices B and C)
4. 1 Copy of the Glossary (see Appendix D)

Observers of the baseline sessions were provided with a stopwatch. Observers of the experimental session were instructed to wear a watch.

For ropes course climbers:

1. Climbing Helmet (#R471-273)
2. Sling Line (#R474-095)
3. Aluminum Locking "D" Carabiner (#R471-030)
4. Steel Carabiner (#R471-041)
5. Climbing Harness (#R474-080)

(REI Catalog, Fall/Winter 1986)

For belayers (see Appendix D):

1. Climbing Helmet (see above)
2. Pair Cowhide Gloves

Apparatus

Four initiative structures were used in this study. They were
the wild woosey, trust fall, all aboard, and group wall. Each is best described in diagram form (see Appendix A).

In addition to the four initiatives, students completed select portions of the "Pines" ropes course. The "Pines" is a complex series of initiative structures built 20 feet above the forest floor. As the diagrams in Appendix A indicate, initiatives are "strung" between trees. At the beginning and end of each initiative is a platform constructed to the specifications of a trust fall structure, linking initiatives in a chain of activities. Although the "Pines" ropes course includes more initiatives, students were minimally required to complete the balance beam, flea jump, bosun's chairs, two line bridge, kitten's crawl, wild woosey, Burma bridge, and fidget ladder.

Procedure

In this study data were collected in three phases: baseline 1, experimental phase, and baseline 2. These phases spanned nine consecutive school days. The target behavior was hugs. A hug(s) was counted when two or more students were in a standing, sitting, or prone position and at least one participant had his/her arm(s) about the neck, shoulder(s), and/or waist of a receptive other in a demonstration of affection or friendship. The definition included front to front hugs, side to side hugs, and front to back hugs. The definition did not include any hug given or initiated between students by the teachers, nor did it include hug-like behavior (i.e., physical support) demanded by the nature of the activity. Data
were recorded by four primary observers. Two were mothers of former Outdoor Education students. They had general knowledge of the program's goals and methods, but were strangers to students currently enrolled in the class. During the experimental phase of the study, these two were joined by two additional observers who were graduate level psychology students from Western Michigan University. Neither had prior knowledge of the Outdoor Education program or students in it. A fifth observer acted as an alternate in the event a primary observer was unable to participate. Since the four primary observers were able to fulfill their commitment, the services of the alternate were not used. All observers attended a training session prior to baseline 1 (see Appendix E). On the first day of data collection an Outdoor Education teacher told students, "These people (observers) wish to learn more about adventure education. They will be observing and taking a few notes for about two weeks." Observers were privately instructed not to initiate conversation with students and to maintain a "low profile" in both dress and behavior. Should a student initiate conversation or inquiry, observers were advised to repeat the teacher's statement of purpose or provide a polite, but brief, response to questions unrelated to the study. These guidelines were followed successfully without incident.

During baseline 1 students were observed during their Outdoor Education class period for four, 5-minute intervals over four consecutive school days for a total of 16 response intervals. Each response interval was followed by a recording interval of at least 2 minutes' duration. Data were collected only during those class
times when students were engaged in interactive tasks affording them physical access to each other. The number of responses per interval and two observer’s comments were recorded on a standard form (see Appendix B). The same procedure was followed in collecting data during baseline 2.

For the experimental phase of the study students were bused to Pretty Lake Adventure Centre. Formal observations began with the onset of an orientation session conducted by the two Outdoor Education teachers. The session provided students with information on general rules of conduct, guidelines for food storage and consumption, sanitation, and safety procedures. At the completion of orientation students were asked to make a verbal commitment to:

1. Spend 100% effort as determined by the instructors.
2. Follow all safety rules in effect at the Centre.
3. Try everything asked of them (students were not allowed to pick and choose activities for participation).
4. Stay as a group.
5. Relinquish all alcohol, cigarettes, drugs, drug paraphernalia, knives, radios, tapeplayers, watches, or contraband of any type.

All students verbalized a commitment to comply with these rules. Had an individual(s) been unable or unwilling to do so, he/she would have been required to remain on the bus for the balance of the day under the supervision of the driver.

Upon completion of orientation students were divided into two groups of 14, each having an equal number of males and females. Group 1 participated in the following sequence of INITIATIVE
ACTIVITIES: trust fall, all aboard, wild woosy, and group wall. Each of the initiatives was facilitated by an Outdoor Education teacher and/or guest teacher, both certified in BACSTOP (see Appendix D) procedures (see Appendix F). Instructions and safety precautions for each activity strictly followed BACSTOP guidelines. Processing (see Appendix D) was consistent with the philosophy and recommendations specified in Kneer's "Processing Manual for Beginning Instructors".

Meanwhile, students in Group 2 were assigned to the ROPES COURSE where they were minimally required to complete the following challenges: balance beam, flea jump, bosun's chairs, kitten's crawl, wild woosy, Burma bridge, and fidget ladder. These activities strictly followed the guidelines outlined in the "Adventure Centre at Pretty Lake, Ropes Course Certification Checklist" (see Appendix G).

Each group was accompanied by two observers at all times. Data were collected continuously for 30-minute intervals over a 9-hour period one day after baseline 1. At mid-day the two groups switched activities. Group 1 moved to the ropes course while Group 2 progressed to initiative activities. To further facilitate objectivity in reliability, observer pairs were rotated at this time (instructors remained in their original locations so that all students worked with each instructor for the same amount of time). In addition to recording the number of responses per interval, observers also coded the specific activity being monitored. A standard form detailing observer assignments per interval and response recording procedures

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was used (see Appendix C). Observation ended when all students were on the bus for the return trip home. The experimental phase was followed by a weekend break. Baseline 2 data were then collected over the next four consecutive school days.
CHAPTER III

RESULTS

In this study behavior was observed in three phases: baseline 1, experimental, and baseline 2. During four day baseline 1, only two hugs were reported (see Figure 1). The total represents a shared hug between two female students who had just completed a classroom activity. In contrast, 202 hugs were observed during the experimental phase (see Figure 2). Eighty-nine occurred between students engaged in ropes course activities whereas 113 were counted while students participated in initiative activities. In the final phase of the study 66.5 hugs were recorded (see Figure 1). A total of 270.5 bigs were observed over the nine day research period.

Interobserver Reliability

During baseline 1 and baseline 2 interobserver reliability was estimated for each five-minute response interval. To compare how closely observers agreed, their interval totals were derived and the smaller total was divided by the larger total. This figure was then multiplied by 100 to yield the percent of agreement:

\[
R = \frac{\text{the number of agreements and disagreements}}{\text{the number of agreements}} \times 100
\]

The larger the product, the greater the agreement. Interobserver reliability for baseline 1 and baseline 2 averaged 95.8% and 97%, respectively.
Figure 1. Average Number of Responses Per Five-Minute Intervals for Baselines 1 and 2.
Thirty-Minute Continuous Intervals

EXPANIMENT PHASE

*Average Number of Responses During Reliability Checks

Figure 2. Number of Responses Per Thirty-Minute Continuous Intervals During the Experimental Phase.
During the experimental phase interobserver reliability checks were made on five occasions evenly spaced over the 9-hour phase. The formula used in baseline 1 and baseline 2 was applied in the experimental phase as well. The reliability of observations made on the ropes course averaged 79.7% agreement. Interobserver agreement for responses occurring during initiative activities averaged somewhat lower at 65.1%. This average was greatly affected when during the third reliability check, one observer recorded four responses while the second observed none. Prior to the reliability check, this observer complained of discomfort from the sun's glare, long periods of standing and hunger. The resulting rate of reliability for that interval was 0%, lowering the overall estimate of reliability considerably. Reliability of initiative activities data is therefore believed higher than these data reflect.
CHAPTER IV

DISCUSSION

What was once a trickle of Outward Bound influence in the educational mainstream has swollen to a strong, steady current. Howard Green, a leading educational consultant, has been monitoring the progress. He observed that,

The manner in which the Outward Bound movement—labelled and unlabelled—has impacted schools in recent years is simply extraordinary. Whereas even a dozen years ago Outward Bound adaptive programs were more the exception than the rule, today it would be difficult to put together a list of schools that have not instituted some form of outdoor pursuit activity as a highly acceptable, positive educational force. It's happening in both the independent and the public schools, and increasingly it's spreading downward from the senior to the junior high and elementary levels. It is quite clear that Outward Bound is directly responsible for much of this, and that it is a principle catalyst in a movement that has considerable significance for education in the future (Miner & Boldt, 1981, p. 369).

As Outward Bound techniques gained greater acceptance in the mainstream, educators and clinicians began to appreciate its potential use with special populations as well. A host of experimental programs sprang up over the ensuing decade focusing on three primary target populations: special education, alternative education, and adjudicated youth. Derek Pritchard, the third director of the Minnesota Outward Bound School, was a pioneer in adapting courses to handicapped populations (Miner & Boldt, 1981). By the late 1970s courses for the blind, physically disabled, and hearing impaired were firmly integrated into the school's standard curriculum. Following Pritchard's lead, Mike Stratton of the Hurricane Island Outward
Bound School started Bounders, a modification designed to build confidence in learning disabled students (Miner & Boldt, 1981). Another group needing a boost in self-confidence were those at risk of quitting school. When the message "you can" fell on deaf ears, alternative education programs turned to Outward Bound for help. Early adaptations included Action Bound, Upward Bound, and Dare to Care. Success with potential dropouts inspired greater effort in working with those kids who had already "dropped out" of school, of their families, of society. A forerunner in this field was the Dartmouth-Hitchcock Mental Health Center, a residential treatment facility for psychiatric adolescents. What started as a five-week experimental project with seven disturbed youth has blossomed into a year-round operation that thrives today. Not all adaptations do. Lyman School for Boys is considered an honorable failure. Plagued by political entanglements and poor funding, this program brought the Outward Bound dynamic to bear in society's attempts to deal with adjudicated youth and their antisocial behavior. Closer to home, the Lyman model influenced the development of "Michigan Expeditions," a Department of Social Services program offered to juvenile delinquents as an alternative to long-term institutionalization. Since the early 1960s Michigan has been fertile ground for the growth of adventure education programs serving mainstream and special populations. The staff at Pretty Lake Adventure Centre alone routinely works with alternative education and special education students from school districts throughout Western Michigan, and in 1985 the centre added a treatment division to serve residents in programs such as Starr.
Commonwealth for adjudicated youth. On this foundation the number of Outward Bound adaptive courses continues to grow and become even more specialized. There now exist exclusive courses for couples, families, executives, managers, women over 30, and those challenged by mid-life or career changes.

As the popularity of these programs increases, so too our responsibility for providing valid and reliable data reflecting their effectiveness. Though a multitude of studies have attempted to measure the relationship between adventure education activities and its primary objective, self-concept, all have been faulted on methodological grounds. After reviewing the theoretical and empirical basis for the impact of Outward Bound on self-concept, Richards (1977) concluded that, "The observations of so many tens of thousands of students throughout the world who have completed an Outward Bound course or adaptation thereof clearly support the influence Outward Bound has on the individual's concept of self" (p. 164). Significant problems in the definition and measurement of self-concept may mean that it is difficult to disentangle measurement problems from impact of the program.

In an attempt to unravel some of the problems inherent to defining and measuring self-concept, this study took a more behavioral approach than historically was the case. A single behavior (although there could be others), indicative of self-concept, was isolated and observed directly. Although not taught, reinforced, nor prompted, hugs occurring from baseline 1 to the experimental phase increased by 200, and by another 66.5 in baseline 2. Increases in hug behavior were interpreted as increases or
"enhancement" of self-concept. For purposes of discussion, the increase, particularly during baseline 2, is most vividly seen in the average number of hugs per 5-minute interval. These are by phase sequence, .125, .935, and 4.168.

Although eighth grade Outdoor Education students did increasingly engage in hug behavior, they appear quite discriminating in their choice of settings for hugs. Of the 270.5 hugs observed over the course of the study, all but ONE was observed to occur out-of-doors while engaged in a physically challenging activity, i.e., timed run, ropes course, initiatives, group problem-solving activities. If the willingness to give and receive hugs can be regarded as a measure of social self-concept, then educational institutions with an eye on effective objectives may want to assess the environment and involvement demands for achieving those objectives. Traditional school settings may be inhibiting, if not punishing, hug behavior. Might this also be then negatively affecting social self-concept? Ironically, schools also typically punish students for hitting one another, yet this behavior continues to be commonly observed in junior high settings. Further study of hug vs. hit behavior may prove enlightening. It may also prove more valid and reliable if systematic, direct observation techniques are employed.

In addition to learning more about the relationship between adventure education and self-concept, this study also was to determine the relationship between the adventure education sequence and self-concept as measured by hugs. Prior to the study the Outdoor Education teachers, Pretty Lake Adventure Centre staff, and this
researcher hypothesized that students who first experienced initiative activities, then the ropes course, would hug more on the ropes course than students who had experienced the reversed sequence. The data reveal almost a 20% higher rate of responding on the ropes course among those who had first participated in initiative activities. Although this rate is lower than predicted, it is not surprising. The nature of each initiative activity requires physical contact. This requirement may inadvertently give participants "permission" to touch, acting as an icebreaker for voluntary contact later.

Whereas, physical support is not in as high demand for participation in ropes course activities. If positive and appropriate touch is a goal of adventure education, then facilitators may want to consider sequencing initiative activities before the ropes course. However, in this researcher's opinion, a simple, "warm-up" activity necessitating touch may suffice for an initiatives regiment prior to ropes course participation.

Conclusion

The first goal of adventure education is to enhance self-concept. This study, like dozens before it and despite methodological obstacles, supports a positive correlation between the two. Adventure education, however, is not easy for students, is not conveniently taught by instructors, and is not comfortable for anyone "out there." Life's greatest lessons seldom are accommodating. Confronting our fears and emotions, our feelings of self-worth, our motivations, our relationships with other people, challenge traditional curricula
and traditional methods. Those dedicated teachers who have the wherewithal to try are truly heroes in the business of educating human beings.
APPENDICES
APPENDIX A

APPARATUS CONSTRUCTION GUIDELINES FOR INITIATIVE AND ROPE COURSE STRUCTURES*

Initiative #1 - Wild Woosey

Construction Materials:
A. support tree or placed telephone pole
B. 3/4" x 4" SLEB (placed perpendicular to the line of pull)
C. 3/8" diameter wire rope
D. two 3/8" U-bolts

Additional Guidelines for Assembly:
Be sure that the 3/4" SLEBs are placed in the tree perpendicular to the pull of the wire. Repeated hard direct jerking pulls on the SLEB (as with students jumping up and down on the wire) will cause it to pull out after a period of time. If a soft wood tree must be used, try to drill all the way through the trunk and use thimble eye bolts as anchor points. Use a come-along to get the wire good and tight.

*Note: The following illustrations were done by Robert Nilson with assembly guidelines by Karl Rohnke in Cowtails and Cobras, Project Adventure, 1977.
Initiative #2 - Trust Fall

Construction Materials:

A. 1/2' x 6' lag bolts to be screwed through predrilled supports and into the tree. Use washers.
B. Two 41/2" x 1/4" carriage bolts. Insert through predrilled supports. Use washers.
C. 2" x 4" x 4" wooden support planks
D. 1 dozen 16 penny nails

Additional Guidelines for Assembly:

The 2" x 4" planks can be bolted together on the ground and then hoisted separately up to the proposed platform site and bolted to either side of the tree. Nail the 2x4's to the tree trunk with a single 16 penny nail in each board in order to get the placement right, then drill the holes necessary for the lag bolting. The horizontal planks that provide the platform can then be nailed into place with 10 penny nails.
Initiative #3 – All Aboard

Construction Materials:

A. an eighteen foot length of 4" x 4" posts of wolmanized wood
B. 2' x 2' x 3/4" exterior grade plywood
C. nails

Additional Guidelines for Assembly:

Use high quality, sturdy materials for this platform, as collapse could result in injury. Plane and sand all edges smooth.
Initiative #4 - Group Wall

Construction Materials:

A. boards measuring 2" x 10" x 12'
B. ½" x 8" lag bolts with washers. Predrill the 4" x 4" boards with a ¼" drill and the tree with a 3/8" drill before attempting to screw the lags.
C. 5/8" or 3/4" manila rope to be used as an aid in descending.
(Note: The descension side of the wall at PLAC is a slight modification of this plan. A wooden ladder is attached to the platform to aid descending students.)

Additional Guidelines for Assembly:

Leave at least 4" of board protruding above the top horizontal 4" x 4". This allows greater leverage in getting over.
Ropes Course Structures - Balance Beam

**Construction Materials:**

A. 3/8" U-bolts (wire rope clips)
B. 3/8" wire rope
C. a square lashing with 1/4" diameter manila rope
D. 5/8" thimble eye bolt

**Additional Guidelines for Assembly:**

Beam logs can vary in diameters, lengths, shapes, and angles, but must be solidly anchored. The belay point wire should be installed 9'-10' above and parallel to the beam.
Ropes Course Structures - Flea Jump

The flea jump structure is created by constructing two trust fall platforms (see above) on separate trees approximately six feet from each other. Platforms are built so that they face each other and allow about two feet between platforms. A belay point wire is strung between the trees 9' above the platforms. To construct the belay use materials A, B, and D from the balance beam.

Ropes Course Structures - Bosun's Chairs

Construction Materials:

A. thimble eye bolt
B. cow hitch or lark's head with attached U-bolt to prevent slipping. The rope can be U-bolted right to the wire, or two U-bolts can be attached with threaded end up and a carabiner can be clipped between the two for easy removal of the bosun's chairs.
C. 3/8" diameter cable
D. 7/16" diameter nylon rope or 1/8" diameter manila
E. an overhand stopper knot
F. predrilled wooden block measuring 2" x 4" x 12"
G. two 3/8" U-bolts
Ropes Course Structures - Two Line Bridge

Construction Materials:

A. two U-bolts used in securing cable
B. 3/8" diameter cable. This cable must be tightened with the aid of a come-along to secure proper tension. Cables cannot be pulled taut by hand.
C. 5/8" thimble eye bolt
D. 3/8" goldline sling with bowline knots used on both ends
Ropes Course Structures - Kitten's Crawl

Construction Materials:

A. The parallel rope arrangement of the kitten's crawl is accomplished by first tying one end of the rope to a support tree using a round turn with a bowline, continuing with the working end to the other tree and arranging a clove hitch and finally returning to the original tree and finishing off with a turn about the tree followed by handoverhand and two half-hitches (make sure the two half-hitches form a clove hitch rather than a lark's head). Use 2-3 pegs on each tree to keep the rope from working down the tree.

B. 1" to 1½" diameter manila rope
C. clove hitch
D. 5/8" thimble eye bolt
Ropes Course Structures - Wild Woosey

Construction and assembly of the ropes course wild woosey is identical to the specifications for the wild woosey initiative structure except the ropes course version is built 20' above the ground.

Ropes Course Structures - Burma Bridge
and Fidget Ladder

Construction Materials:

A. support platform (see trust fall, page 28)
B. 3/8" diameter cable around the support
C. 3/8" diameter cable. Use a come-along to tighten the cable.
D. 7/16" goldline belay rope
E. 3/8" diameter manila rope
F. clove hitch. The clove hitches on the upper support wires will have a few inches of loose working end; this can be taped to the wire rope to prevent fraying.
G. ring hitch, cow hitch, lark's head
H. U-bolts. The U section of the U-bolts should go over the working end of the wire rope.
I. thimble eye bolt
J. wooden-rung ladder rope (a belay for the participant while climbing this ladder should be mandatory).
K. two carabiners
L. zip wire
M. heel-toe method of climbing a rope ladder

(See diagram on next page.)
Ropes Course Structure – Burma Bridge and Fidget Ladder

Illustration
### APPENDIX B

RESPONSE RECORD SHEET/BASELINE PHASE

Classroom Observations During Interactive Tasks

Observer's Name: ______________________________

Observer's Letter Code: A or B

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APPENDIX C

RESPONSE RECORD SHEET/EXPERIMENTAL PHASE

Observer Assignments:  Observer's Name _______________________
Observer's Code Letter:  A or B or C or D

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* Reliability Check
** Rotate Observers/Reliability Check

Observer's Assignment Interval Activity Code(s) Responses Per Interval Comments

Activity Codes:

O: Orientation/Total Group
E/B: Enroute or Between Activities
I1: Initiatives, Group 1 (includes instructions and processing)
   A. trust fall
   B. all aboard
   C. wild woosey
   D. group wall
R1: Ropes Course, Group 1 (includes instructions and processing)
L: Lunch or Rotation of Students (rotate observers)
I2: Initiatives, Group 2 (includes instructions and processing)
   A. trust fall
   B. all aboard
   C. wild woosey
   D. group wall
R2: Ropes Course, Group 2 (includes instructions and processing)
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APPENDIX D

GLOSSARY

BACSTOP: an acronym for Better Acquisition of Cognitive Skills Through Outdoor Programming. BACSTOP was established in 1971 as a pilot program in the Battle Creek Public Schools. Adventure activities were used to generate personal and social issues, the resolution of which had applications for the improvement of classroom performance and the quality of life in general. In 1976 BACSTOP became a Title IV-C program certified by the State of Michigan's Department of Education. Two years later the program relocated at Pretty Lake Adventure Centre.

belayer: a person who protects and supports a climber by means of a rope-friction arrangement.

hug: For purposes of this study, a hug occurs when two or more students are in a standing, sitting, or prone position and at least one participant has his/her arm(s) about the neck, shoulder(s), and/or waist of a receptive other in a demonstration of affection or friendship. The definition includes front to front hugs, side to side hugs, and back to front hugs. The definition does not include any hug given by or initiated between students by the teachers, nor does it include hug-like behavior that is demanded by the nature of the initiative activity (example: all aboard).

initiative: a problem whose solution depends upon mental and physical effort from all group members. Success is clearly defined and ways to achieve it are many.

Outdoor Education: a one semester, elective course and alternative to traditional physical education offered to eighth grade students at Grand Haven Junior High. Course objectives are affective, cognitive, and psychomotor in content, and are achieved through classroom instruction and a variety of field experiences. Outdoor Education is being taught for the fifteenth year by two certified teachers having special training in adventure programming.

Outward Bound: a pioneer program in adventure education, Outward Bound is an international, nonprofit organization whose goal is to enhance personal growth and development through outdoor adventure experiences.

processing: a verbal technique wherein the dynamics and issues emerging from participation in a contrived risk experience are defined and applied to real life experiences in order to facilitate better understanding and resolution of those real life issues.
APPENDIX E

TRAINING SESSION FOR OBSERVERS

Length: 60 minutes

Objectives:

1. Given five samples of contact behavior, observers will differentiate between hug and non-hug behavior based on its operational definition and 100% accuracy.

2. Given a scenario and five-minute group behavior sample, observers will count the number of hugs consistent with its operational definition with 100% accuracy.

3. Given a scenario and five-minute group behavior sample, observers will demonstrate their ability to record the activity code and the number of responses per interval on the Response Record Sheet with 100% accuracy.

Materials: Four observation kits, each including:

1 clipboard
2 pencils
3 Response Record Sheets for Baseline and Experimental Phases
1 stopwatch (for Observers A and B)
1 copy of the Glossary

Outline of Procedure:

I. Welcome / Provide an introduction to the study, but in very general terms as to not bias observers.

II. Distribute and review the contents of the observation kit.

III. Review the operational definition of a hug.

A. Qualities of a hug

1. involves receptive other

2. is a demonstration of affection and/or friendship

B. Four characteristics of a hug (see chart).
IV. Review and demonstrate non-examples of hugs

A. Teacher-initiated hugs

B. Hug-like behavior demanded by the nature of the activity (example: all aboard)

C. "Resisted hugs" and/or "hostile hugs"

V. Recording hug behavior

A. Length of observation

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<th>Baseline Phase</th>
<th>Experimental Phase</th>
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<td>1. Observations will be made on 9/8-11 and 9/15-18 between 8:45 and 9:35 A.M.</td>
<td>1. Observations will be made on 9/12 from approximately 10:45 A.M. to 7:45 P.M.</td>
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<tr>
<td>2. Observations will only be made during that portion of class scheduled for interactive tasks, when students have physical access to each other.</td>
<td>2. Observation will begin with the start of the orientation session.</td>
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<tr>
<td>3. Observations will be made during four, five-minute intervals each day. Each five-minute interval will be followed by a two-minute recording interval.</td>
<td>3. Observations are continuous at thirty-minute intervals (see Appendix B for a detailed schedule).</td>
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<tr>
<td>4. Observation ends when all students are on the bus home, or 7:45 P.M., whichever occurs first.</td>
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B. Counting hugs

1. Count "giving a hug" as ONE event when one student has his/her arm(s) about the neck, shoulder(s), and/or
waist of another student. (Example: Two students are standing side by side. One has her arm about the waist of the other who is standing with both arms folded.)

2. Count "giving a hug" as TWO events when one student has his/her arms about the neck, shoulder, and/or waist of two other students. (Example: One student is standing between two others shoulder to shoulder. The center student has his arms about the shoulders of the other two.)

3. Count "sharing a hug" as TWO events when two participants simultaneously reciprocate "giving a hug". If more than two participants are involved, as in a group hug or "Texas hug", count TWO events per participant.

4. A hug begins when contact as described above is initiated or "giving a hug" progresses to "sharing a hug". A hug ends when contact in hug form is discontinued or "sharing a hug" regresses to "giving a hug".

C. Reliability: Totals of observer pairs will be compared by dividing the smaller total by the larger total. The larger the quotient, the better the agreement.

D. Review use of the Response Record Sheet

E. Review use of the stopwatch

F. Observer behavior

1. maintain low profile / do not initiate conversation with anyone

2. standard response to inquiries:

"I'm here to learn more about adventure activites. I'm observing and taking a few notes."

G. Assign observation partners

1. two for the baseline phase

2. four for the experimental phase

3. explain rotation of experimental observers to avoid development of an erroneous pattern of agreement

VI. Practice in defining and recording
A. Provide novel examples and demonstrations of hugs, non-hugs, and counting

B. Measure satisfactory completion of the lesson objectives by applying the test for interobserver reliability above.

VII. What to wear

A. During baseline observers should dress as they would expect a typical junior high teacher to dress.

B. During the experimental phase observers should wear old, cotton pants or jeans, a short-sleeved shirt, sweater or light jacket, and sneakers with socks.

C. Avoid any clothing or accessory that might draw attention.

VIII. What to bring

A. During baseline, bring only the observation kit.

B. During the experimental phase, bring the observation kit, a sack lunch and dinner, one quart of water, and rain gear.

IX. Provide directions to PLAC and GHJH

X. Follow-Up: results of the study will be sent to observers with a thank you letter.
APPENDIX F

BACSTOP GUIDELINES FOR INITIATIVES

Trust Fall Procedures and Safety:

1. Use trust fall platforms if available
2. Check site area for sharp or dangerous objects
3. Nothing in the mouth or pockets; remove jewelry, glasses
4. No fall higher than chest height of average group member
5. Minimum 7 spotters, maximum 9 spotters (depending on objectives)
6. Show participants how to spot
   a. face each other - 2 rows - hands alternating, zipper effect (never lock arms or hands)
   b. palms up, elbows bent, hands halfway between opposing person's wrist and elbow
   c. feet planted, knees bent, one foot forward
   d. heads back - facing falling person
   e. one person at end in charge of lining up group with faller; catching head and shoulders of faller
   f. demonstrate dynamics of "butt fudge" and throwing out arms
   g. explain dangers of allowing faller to go through
7. Commands clear and precise (if not, stop and process)
   a. F. "Spotters?" (Faller has responsibility to see that group members are spotting before ascending platform)
      S. no response - group members spott faller - around platform with both hands up
      F. "Set!" (After faller climbs up on platform and feels secure)
      S. Spotters lower hands - get in position to catch
      F. "Ready?"
      S. "Ready!"
      F. "Falling!"
      S. "Fall on!"
   b. establish "STOP!" as a command which means freeze - something is not safe
8. Spotters must be ready at all times - anytime that someone is off the ground
9. Keep spotters close together (no need to string a line of spotters 8 feet for a 5 foot participant)

10. May need to use discretion of who is spotting whom
   a. physical weight
   b. those that may "bail out"

11. Position of falling participant
   a. hands in pockets, elbows close to body
   b. back straight, slightly arched
   c. legs locked
   d. no "butt fudges"

12. After fall, lower participant gently to the ground, feet first

13. Responsibilities of facilitator
   a. focus attention on catchers as well as faller
   b. recognize an inept catcher, stop and process
   c. position yourself between middle catchers (with younger groups, you may want to have a hand in on the catch)
   d. be consistent with spotting
      (1) if even one participant is not spotting and ready, stop and process
      (2) generalize spotting to caring
   e. facilitator is responsible for half of the faller's safety

14. REMEMBER – the trust fall (if done first) sets the stage for the rest of your experience; where the responsibility for safety lies! DON'T be afraid to stop, process, and generalize at any time

15. The facilitator's responsibility is safety, therefore he/she should never be in the role of faller

All Aboard Procedures and Safety:

1. Check site for sharp objects

2. Nothing in mouth, pockets, take off watches and glasses

3. In order to be counted as on the platform, a participant must have both feet off the ground

4. Participants must count together as a group to five when they are aboard

5. Class of 12-15 participants will have little trouble with the 2' x 2' platform, larger groups (16-32) use the 3' x 3' platform, Although theoretically, a much larger number is possible
6. The "Pig Pile" of stacking people on the platform in cordwood fashion is dangerous and not allowed - watch for other dangerous methods as well.

**Wild Woosley Procedures and Safety:**

1. Check site for sharp or dangerous objects
2. Check overhead for possible dead fall
3. Check wire cable, thimble, and blocks for breaks, tightness, rot, and vandalism
4. Nothing in mouth, pockets, remove jewelry and glasses
5. Two participants at a time, one on each wire, may not use spotters or trees for support - only each other
6. Minimum of two spotters on the outside, one spotter for each participant on the inside; as wires get further apart, spotter moves right under participant

**Group Wall Procedures and Safety:**

1. Check ladder and platform
2. Check site for sharp or dangerous objects
3. Check overhead for possible dead fall
4. Nothing in mouth, pockets, remove jewelry and glasses
5. Climbers must be spotted at all times
   a. by the entire group
   b. until both feet are on platform (may need to structure commands depending on group and objectives)
6. Climbers
   a. no fingers in cracks or holes
   b. stay inside of lag bolts
   c. head higher than knees or feet at all times, no hanging upside-down
   d. always instruct climber to use outside leg when going over the top of wall
   e. no walking or running up face of wall (demonstrate "spring" effect of climber and helpers at top when using feet on the wall)
f. only one participant climbing at a time

g. maximum four participants on wall at one time (two helpers at top, one participant hanging, and one climbing at the end)

7. Maximum of two participants helping at the top of the wall
   a. feet must be on the platform
   b. head must not go lower than their kneew
   c. people on the platform must take care of their own safety - they are not spotted

8. No props, i.e., belts, ropes, pants, human pyramids

9. Demonstrate three types of falls - straight down, left and right pendulum
   a. spot corners for pendulum falls
   b. spot 180 degrees tight to the wall
   c. no spotter more than two feet from the wall

10. Participants coming down the back side of the wall must be spotted by the entire group

11. Facilitator must watch spotting on backside of wall as well as the front

12. Once a person is up and over the wall, they cannot physically assist, however, they must spot

13. All participants not climbing or on the top of the platform must be spotting
   a. spotters must keep one hand in front of their own face to protect against kicking feet
   b. instruct the participants who are lifting to spot as soon as climber is out of their reach with hands up
   c. if one participant is not spotting, group must start over from the beginning (call a "tilt") emphasis is on safety first - hands must be up and participant spotted at all times when off the ground

14. Instructor should be close to wall at all times in case back up spotting is needed (especially with younger groups)

15. Structure can be added to meet specific objectives
APPENDIX G

ADVENTURE CENTRE AT PRETTY LAKE
CERTIFICATION

Name ____________________________ Date ________________________

Agency __________________________

Orientation
Pre & Post Test;
Written Objectives;
Attitude;

Speech; (Slow, Clear, Understandable, Voice tones, Accents)

Consequences;
1) Establish parameters of what you expect from participants ...
2) Spell out consequences so participants can make a choice ...
3) Utilization of tougher disciplinary consequences with sever problems ...

Reinforcement;
1) Take opportunities to reinforce participants ....
2) Consistent reinforcement of students who do follow directions ...
3) Utilization of additional positive reinforcers to motivate your problem participants ...
4) With a difficult group, utilization of a group reinforcement program ...

* Made a clear contract: (Effort, Try everything, Group, Safety Paraphenalia, Goal setting) ...

* Talked over philosophy: (Risk taking, No competition, No judgements) ...

Covered rules: (Stay on paths, Don't disturb plants and animals, No littering, etc.) ...

ACTIVITY ORIENTATION
Noted weather: ...........

Explained equipment and use: ...........

Correct equipment terminology: ...........

* Checked all equipment: ...........

Discussed care of equipment: ...........

* Fit harnesses, helmets, sling lines: ...........

Precount all equipment: ...........

50
**checked the activity, looked for dead fall:**

**String belays and set anchors:**
Began by re-emphasizing philosophy:

**Walk through activity, explain spotting and objectives:**
Explained commands, spotting, rules:

**Explained belay and commands:**

**Demonstrated transfer procedures:**
Maintained double checks:
Demanding attention of group:

**Started activity with specific objectives and structure:**
Demanding continual safe spotting:

**Watched transfers through completion:**
Demanding proper use of commands:

**Correctly completed belays:**

**Kept participants involved at all times:**
Discussed on site:

**Closure of activity:**

---

**Essential Items**

**PROCESSING**

<table>
<thead>
<tr>
<th>Has an understanding of the growth process</th>
<th>Ex</th>
<th>Vg</th>
<th>G</th>
<th>Fr</th>
<th>Pr</th>
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</thead>
<tbody>
<tr>
<td>(Objectives, Structure, Issues, Generalizations, Actualizations)</td>
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<thead>
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<th>Has an understanding of 'needs'</th>
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<tbody>
<tr>
<td>(Tissue, Safety, Love, Identity, Growth)</td>
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<thead>
<tr>
<th>Has an understanding of group issues</th>
<th>Ex</th>
<th>Vg</th>
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<tbody>
<tr>
<td>[Communication, Cooperation, Problem Solving, Unity/Support, Outcome related to responses toward the activity (Effort-Outcome)]</td>
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<th>Has an understanding of personal objectives</th>
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<tr>
<td>(Risking, Empathy, Ownership, Integration Actualization)</td>
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<th>Has an understanding of polarities</th>
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<tbody>
<tr>
<td>Risking. . . . . .versus. . .Avoidance</td>
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<td>Empathy . . . . .versus. . .Suspicion</td>
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<td>Cooperation. . . . .versus. . .Obstruction</td>
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<td>Authenticity . . . .versus. . .Role Playing</td>
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<td>Communication. . . . .versus. . .Hiding</td>
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<td>Problem Solving. . . . .versus. . .Reaction</td>
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<td>Group Effort . . . . .versus. . .Cliquel</td>
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<td>Self-supportive/Initiative . . .versus. . .Dependency</td>
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Providing supportive, safe, & non-judgmental permission to try beyond his/her expectations.

Turning activity over to the group.

Placed responsibility of solutions on participants.

Demanded ownership of feelings, thoughts, actions.
<table>
<thead>
<tr>
<th>Skill</th>
<th>Rating</th>
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<tbody>
<tr>
<td>Challenged rather than rescued</td>
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<tr>
<td>Initiated discussions</td>
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<td>Confrontation skills</td>
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<tr>
<td>Generalizations &amp; Images</td>
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<td>Understanding &amp; use of metaphors</td>
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<td>Use of silence</td>
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<td>Staying on topic</td>
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<tr>
<td>Patience</td>
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<td>Empathy</td>
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**PERSONAL ATTRIBUTES**

- Mechanical aptitude
- Perception of safety & potential hazards
- Leadership & authority toward group
- Observation skills

**COMMENTS:**

Please continue comments on back.

PIAC Staff
BIBLIOGRAPHY


Pretty Lake Adventure Centre, BACSTOP guidelines for initiatives. (Available from Pretty Lake Adventure Centre, 9310 West 'R' Avenue, Kalamazoo, MI 49009).

Pretty Lake Adventure Centre, Adventure Centre at Pretty Lake, Certification Checklist. (Available from Pretty Lake Adventure Centre, 9310 West 'R' Avenue, Kalamazoo, MI 49009).


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