A Review of the Literature

Do Outdoor Education Experiences Contribute to Positive Development in the Affective Domain?

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Outdoor education is a generic term. Educators have at least three different, but related, interpretations of what the term implies (15). First, environment-oriented educators view the outdoors as a medium for learning. Second, there are those whose concerns are conservation oriented and who believe that outdoor education is a medium for developing increased conservation sensitivity and awareness. Finally, there is a group of educators who are activity oriented. Their orientation focuses upon the location where an activity occurs and is often related to the potential of the outdoor environment for stimulating physical types of activity.

Since the inception of outdoor education, many claims have been made regarding its effectiveness. This paper reviews the available empirical quantitative literature in an attempt to evaluate the legitimacy of such claims which pertain to the affective domain. The affective domain is concerned with an individual's interests, attitudes, moral and ethical values, and social skills. At the heart of affective behavior is emotion or feeling. It contrasts with the cognitive domain which is concerned with intellectual knowledge, skills, and abilities.

This review considers only those empirical studies which were concerned with "normal" populations and does not include research findings which focused upon the impact of outdoor recreation experiences on special populations. Subjects in all the studies reviewed were grade-school children ranging from the fourth to the twelfth grades.

For the purposes of this review, the affective domain was divided into three sections. Evaluative literature was sought which addressed the impact of outdoor education experiences on:

1. self-concept
2. socialization
3. attitude toward the out-of-doors as a learning environment and toward school.

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The Impact of Outdoor Education Experiences on Self-Concept

Eleven empirical studies were reviewed which attempted to evaluate the impact of outdoor education experiences on self-concept. Nine of the eleven studies reported positive findings. The researchers concerned with evaluating changes in self-concept have approached the problem from three different perspectives. First some researchers used instruments which attempted to measure self-concept directly. In most cases conclusions were derived by comparing the results of pre- and posttests with experimental and control groups. Beker (2), in a particularly well designed study with relatively large samples of sixth graders, found that in posttests conducted immediately after resident camp experiences, participants showed marked increases over members of control groups. When further posttests were administered ten to twelve weeks after the initial experience, the difference between the two groups was even more pronounced. Hence, it appeared that sixth graders who had gone to camp, as a group experienced increased feelings of competence to an extent that was not matched by children who had not gone. The effect was not transient, for it was evident in greater magnitude after a lapse of more than ten weeks.

Kruger (21), using the Lipsitt Self-Concept Scale for Children, examined the effect of a four-week summer camp experience on self-concept. His conclusions supported those of Beker. Like Beker he used a pretest/posttest design and experimental and control groups comprised of 110 and seventy-one student subjects respectively. A significantly positive increase (.01 level) in self-concept among those in the experimental group was reported.

Although she used a similar pretest/posttest design with experimental and control groups, Konle’s (18) findings did not support those of Beker and Kruger. She found no positive changes in self-concept emerged as a result of participation in her experimental reading program by freshman high-school students with reading problems. Konle developed a seven-week school and camp program which included one week and one weekend at a rural reading camp for students who had reading problems. The camp experiences included outdoor activities and reading instruction. She had hoped that offering the developmental reading program in the outdoor environment would improve participants’ self-concept and their attitude toward reading. The Piets-Harris Self-Concept Scale was used as the measuring instrument, and no significantly positive changes were recorded.

A second group of researchers have evaluated the impact of outdoor education experiences on self-concept by using discrepancy scores. A discrepancy score reflects the discrepancy or difference between a person’s assessment of ideal self and self-concept. Marks (22) measured the discrepancy scores of 243 seventh and eighth graders who participated in a camping experience designed to enhance self-understanding. She reported that participants’ discrepancy scores (concept of ideal self minus self-concept) were significantly lowered.

In 1967, in the United States, Clifford and Clifford (4) reported the effect on self-concept of thirty-six boys who went for a month to an Outward Bound School. They used the Self-Rating Scale, the Self-Description Scale, and the Ideal Description Scale developed by Dickey (8, 9). In the sumner of 1968 this study was replicated in England by Payne et al. (26) who examined the effect of an Arctic training expedition to Spitsbergen on thirty-five English boys. Payne et al. extended their research design by including a control group (unlike Clifford and Clifford) so that any change that occurred could reasonably be attributed to the experience undergone by the experimental group, rather than to the passage of time or to being on vacation. Both studies endorsed the potential of outdoor education experiences for enhancing self-concept. They both reported a reduction in discrepancy scores. Clifford and Clifford (4) found that it was the self-rating that changed and the ideal self-rating which remained constant. However, Payne et al. (26) reported that this reduction resulted from changes in both ratings. Participants described themselves more approvingly after the experience, but they also described the ideal self in more realistic and attainable terms. Hence, there was a convergent movement.

The third empirical approach which researchers have adopted to assess self-concept changes is concerned with locus of control orientation. The term locus of control refers to the degree to which an individual believes he or she controls the things which happen to himself or herself. People with a strong leaning toward internal controls believe they can control what happens to themselves. People who perceive themselves as being externally controlled believe that whatever happens to them is controlled by luck, fate, or the power of others.

Ulrey (34) hypothesized that mastering a variety of physical skills and applying them to various tasks would alter a student’s locus of control in the internal direction. To test this hypothesis he developed an outdoor education summer camp program which was designed to improve students’ physical competencies and problem-solving skills. Ulrey’s sample consisted of eighty-three third and fourth graders in the experimental group and fifty-seven in a control group. Using the Nowicki and Strickland Locus of Control Scale, which measures general locus of control, and the Intellectual Achievement Responsibility Questionnaire, which measures academic locus of control, Ulrey found that the experimental treatment significantly modified the students’ locus of control orientation in the internal direction.

A similar approach to that of Ulrey was adopted by Joynt (17). He evaluated the impact on locus of control of a resident outdoor education experience which focused on movement education and Outward Bound activities.
His subjects completed a series of movement activities and mildly anxiety producing tasks such as climbing, balancing, and problem solving. The activities and tasks were ordered sequentially so that subjects began with easy, low anxiety producing tasks and progressively advanced to more difficult situations. Using the same instruments as those adopted by Ulrey (34), Joynt reported that as a result of the outdoor education experience, there was a significant improvement in students' attitudes toward themselves.

The findings of Ulrey and Joynt were supported by those of Nowicki and Barnes (25) who also used the Nowicki-Strickland Locus of Control Scale. Their study involved a predominantly black sample of seventh, eighth, and ninth graders from Atlanta Title 1 schools who attended a five-and-a-half day outdoor education experience. A relatively small number of students were permitted to return for a second week of camp, and they showed an even greater overall improvement in internal locus of control orientation than did the students who attended camp for one week only. Nowicki and Barnes also found that the students who had an internal orientation were the more popular students among their peers.

Fletcher (10) reported that both the group of fifty advantaged and the group of fifty disadvantaged sixth-grade children who were randomly selected to participate in a five-day residential outdoor education program were more confident and self-reliant after the outdoor education experience. Using the Nowicki-Strickland Scale, Fletcher concluded that there was a significant difference (.01 level) between the pretest and posttest scores of both groups. Economically advantaged girls exhibited the greatest improvement between pre- and posttest scores. They were followed by advantaged boys and disadvantaged girls; the least improvement was recorded by disadvantaged boys.

The general nature of the forty questions which constitute the Nowicki-Strickland Locus of Control Scale suggests that it may be an appropriate evaluative tool in a wide variety of outdoor education contexts. It has demonstrated reasonably strong internal consistency ($r = 0.69$ to 0.82) and test-retest reliability ($r = 0.71$ to 0.88) when used with 1,739 students of different ages (third through twelfth grades) (25).

A second dissenting finding (accompanying that reported by Konly [18]) to the general consensus reporting favorable impact of outdoor education experiences on self-concept was reported by Gillette (11). He identified sixty statements concerned with attitudes that had been said to change as a result of Outward Bound programs. These were printed individually on cards, and the Q-Sort technique was employed with the thirty-four student subjects to identify the priorities given to the attitude statements by participants of the twenty-one day school using a pre- and posttest design. Nine of the sixty statements (fifteen percent) changed their placement between pre- and posttesting on the Q-Sort in a statistically significant manner (.10 level). Since eighty-five percent of the statements did not change their placement, Gillette concluded that the findings tended to refute those reported in the literature as demonstrating positive attitudinal change for this type of outdoor education experience.

The Impact of Outdoor Education Experiences on Socialization

It has been suggested that one of the primary reasons for encouraging the development of outdoor education programs is to facilitate the development of social skills.

The outdoor school environment provides countless opportunities for learning experiences designed to help elicit a strong appreciation for good human relations. Good human relations involve the development of understanding of one's self and consideration of other human beings. Ample opportunities to develop good manners and other considerate behaviors are evident in the many socially interactive occasions imminent in the total living situation of the resident outdoor experience (35).

Researchers have evaluated four different dimensions of the impact of outdoor education experiences on socialization. They are:
1. peer socialization and peer perception
2. racial integration
3. impacts on disadvantaged groups
4. teacher-student relationships

Conclusions from empirical evaluation relating to each of these categories are discussed in the following paragraphs.

Peer Socialization and Peer Perception

Kranzer (20) sought to measure objectively the effects of a five-day camping experience on social and democratic behavior among two sixth-grade classes. A control group was used and data were obtained from pre- and posttests. He concluded that the resident outdoor education experience effected desirable social and democratic behavioral changes among sixth graders more rapidly than were likely to take place in the regular classroom.

These findings were endorsed by Fletcher (10). She reported that about half of the students in her sample of 100 sixth graders felt that their classmates were more friendly after the camp experience. She further noted that all of the children seemed to fight less at camp than in school. Fletcher found that there was a moderate transfer of these positive trends back into the classroom situation after the outdoor education experience. Pieroth (28), working with sixth graders, similarly found socialization significantly improved over the period of the resident experience. However, she reported that little of this improvement transferred back into the school situation.
Coren (5) examined the effects of a six-week day camping experience on the social-personal adjustment of nine to twelve year olds. He used an experimental group of forty-eight students and a control group of seventy students. Analysis of the results from pre- and posttests undertaken on the California Test of Personality revealed that the experimental group was found to have experienced significantly greater social-personal adjustment growth than the control group.

Stack (33) conducted a study which was concerned with attitudes possessed by fifth and sixth graders toward classmates, school, teacher, school camping, self, and friends. Data were obtained from forty-four girls and forty-four boys who engaged in a one-week camping experience. Stack concluded that despite the limited duration of the camp, it provided greater freedom of choice of companions and led to the formation of many new friendships. Davis (7) found a similar broadening of friendships and reported that his eighth-grade students did not merely change friends but added to their existing friends. The basic friendship structure of the class was not fundamentally altered; rather it was extended. Unfortunately, in Davis's study the children were aware of the object of the experiment, and this knowledge may have influenced their responses.

Beker (2) and Carlson (3) reported the least supportive findings regarding the impact of outdoor education experiences on peer socialization and peer perception. Beker's results suggested that school camping did have some positive influence on social relationships, but he concluded that the differences between the experimental and the control groups were too tenuous to warrant definitive statements affirming the positive influence. Carlson (3), using an experimental group of nineteen and a control group of forty-five, comprised of fourth, fifth and sixth graders, found no significant differences in students' perceptions of their peers as a result of a five-day outdoor education experience.

In a particularly well designed and carefully controlled study, Shaw (32) evaluated the outcomes of a traveling school camp. The design of his study involved an experimental group and a control group, both comprised of thirty high-school students aged between sixteen and eighteen years old. The groups were matched in pairs on the basis of age, sex, grade average, personality, and socio-economic status. The study reported substantial improvement in personal and social adjustment scores on the California Test of Personality resulting from the traveling school camp experience.

Racial Integration

Five studies were found which investigated the impact of an outdoor education experience on racial integration. They provide encouraging, but not definitive, evidence to suggest that resident school camp and outdoor education experiences may make a substantive contribution to breaking down racial barriers among students. Surprisingly, little attention has been given to the potential of outdoor education experiences for facilitating racial integration, in view of contemporary society's concern with this issue and the early evidence alluding to the potential positive contribution of outdoor education experiences in this area.

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The Life Camps experiment (conducted in 1947 by the New York City Board of Education) probably represents the first real attempt to evaluate outcomes of outdoor education experiences. According to the Life Camp counselor's reports, pupils from different ethnic groups respected one another's backgrounds and exhibited friendly cooperation. The evaluation report went on to say that this togetherness was a living refutation of the bigots and was a powerful argument for camp as a positive democratic force. It suggested that this respect could not be supplied by going to school together or living nearby but could only be forthcoming in a living together situation (24). Similar observations were made by Roller (29) when commenting on the experience of outcomes of fourth-, fifth-, and sixth-grade students who participated in a one-week residential experience at Land Between the Lakes Center in Kentucky. The students were from two Nashville schools, one of which was all black while the other was all white. A study was made of the children's reactions to each other and Roller (29) reported:

They responded without any difference to the teachers of the opposite race. At meal times the boys sat with friends usually from their own school, but the girls mixed with the children they were living with. There were several interesting discussions on such race differences as how to fix your hair, using a straightener, etc. (girls). During the rest period (they were not supposed to talk) a note was passed from one of the white girls to one of the Negro girls: "To . . . I love you, too, because race, age, color, or anything like that doesn't matter, but true friendship does, and we have the true friendship. Love . . . P.S. May God Bless You."

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These evaluations are qualitative rather than quantitative; nevertheless, they suggest potential benefits. They were supported by Stack’s (33) more quantitative finding that school camping provided unique opportunities for effecting social change, particularly in relationship to racial cleavage.

Since these early studies, two dissertations have examined the outcomes from bringing together different racial groups in an outdoor education camp setting. In the first of these two studies, Senior (3) examined the acceptance and rejection processes among group members of different racial, religious, and socio-economic backgrounds. The study group consisted of 175 boys and girls aged eight through thirteen of Jewish, Negro, Anglo (non-Jews), and Cherokee Indian backgrounds, who camped together for two weeks in North Carolina. Sociometric instrument pretests and posttests were used to determine the degree of attitude change. It was found that a high level of acceptance between the groups prevailed. Each group tended to become less ethnocentric with more extended interaction periods. Minority group members experienced greater acceptance from dominant groups in the posttest than in the pretest. Acceptance and rejection of group members was not determined as much by race, religion, or ethnic category as it was by the role that the individual was perceived to perform. Females tended to be more ethnocentric and to establish earlier, more permanent social relationships than males. Senior reported that the greatest attitude change in the total sample was the more positive attitude shown toward Negro males.

The second, more recent study concerned with racial attitudes was that reported by Acuff (1). His investigation was concerned with the intercultural anxiety of white and black students and the effect which a five-day camping experience had on this anxiety. Pretests and posttests were undertaken using a modified version of the Children’s Manifest Anxiety Scale. Two experimental groups, one white and one black, each comprised of 113 students, attended a five-day camp. A third group of 113 white students which remained in schools was used as a control group. Acuff found that black sixth graders had a significantly greater general and intercultural anxiety than did whites. The camp program lowered the general and intercultural anxiety of most students, and posttest scores were significantly lower than those recorded by the control group of noncampers. The general anxiety of black students diminished more than that of white students. It is particularly encouraging that such positive results were recorded at a camp experience which was limited to five days.

These findings suggest that racial integration could emerge as a primary affective benefit from outdoor education experiences if further research confirms these tentative findings. Outdoor education, by furthering mutual respect and understanding, may contribute directly to reducing racial tensions among young people and to easing the traumas sometimes associated with school district desegregation plans.

Socialization Impacts on Disadvantaged Groups

Many jurisdictions in the United States have tried to develop programs which compensate for the disadvantages suffered by economically deprived children. Outdoor education programs have sometimes been justified on this basis. How legitimate is it to expect such programs to contribute positively toward this compensation in the affective domain? The reported research evaluations are mixed, and the answer to this question remains unclear.

Stack (33) reported that students receiving the lowest sociometric ratings gained more recognition from classmates following a resident outdoor education experience, but no appreciable improvement in the sociometric work-companion ratings of neglectees and isolates was reported. Davis (7) found that the school camp experience had the effect of reshuffling the relative order of the most popular children, but not radically. A similar result was reported with the isolates, that is, the least popular children. This endorses the findings of the Life Camp experiment (24) which reported few instances of change of social status and role, with outstanding children generally retaining their precamp social status and role in the group. Sprinkled through the Life Camp experiment report are a mélange of comments reiterating that camp does not work miracles in changing the social acceptance of some children.

The most definitive study in this area is that undertaken by Fletcher (10) who compared the effects of a five-day resident outdoor education program on economically disadvantaged sixth-grade students with the effects of the same program on advantaged students. The study compared differences on self-reliance, ability to cooperate in a group, and the transfer of positive values back to the classroom. In all three instances the economically advantaged students recorded higher gains than the disadvantaged group. However, the disadvantaged students did show statistically significant benefits from the experience. Fletcher concluded that the disadvantaged students moderately improved in their ability to cooperate with others as a result of camp and noted that there was also some transfer of positive values back to the classroom. This study reports some supportive evidence to suggest that outdoor education programs may offer compensatory benefits to disadvantaged children.

Teacher-Student Relationships

Hammerman and Hammerman (13) suggest that in the relaxed atmosphere inherent in the outdoor-education experience the student often views the teacher for the first time as an honest-to-goodness human being. They claim that an improved relationship invariably develops between teacher and pupils. Sharp (31:4) supported this view:
With the spirit of observing together and learning together comes a better relationship between student and teacher. ... In the outdoor classroom the student stands beside the teacher; they are facing the same direction, looking toward the object under observation; they are partners in learning. Teachers who have given outdoor education a trial are quite emphatic in saying that it improves the changes for mutual trust and confidence. And they say, further, that when they go back into the indoor classroom with these same students, much of the stiffness has gone out of the educational process, to be replaced by a new kind of eagerness never before seen within those four walls.

These qualitative statements do appear to be supported by the empirical evaluations of the impact of outdoor education on teacher-student relationships. Eight studies were reviewed which address this issue and seven reported findings which were supportive.

Both Kranzer (20) and Stack (33) reported favorable findings in teacher-pupil relationships. Stack reported that the curriculum innovation of school camping through its democratic atmosphere proved to be an important factor in strengthening rapport between teachers and students. Stack used sociometric methods while Kranzer used a ratings system. According to Kranzer's student counselor ratings, teacher effectiveness improved after a school camping experience. According to teacher and student counselor evaluation, school camping helped to improve group and teacher-pupil relationships, increased motivation for classroom work, and resulted in noticeable social gains for many children. These findings were endorsed by Davidson (6), who also found a positive change in teacher-pupil relationships.

The Life Camps experiment (24), using data from counselor records, indicated that the camping situation is one in which educators can learn much of value concerning pupils. The twenty-four-hour-day contact, together with the small size of the groups involved, provided a desirable situation for studying pupils and the problems they presented. The counselors felt that living in small groups of pupils enabled educators to analyze pupils' needs more fully. Such intensive analysis assisted educators in guiding pupils toward better physical, emotional, and social adjustments. Thus the educator had an ideal opportunity to discover the unique characteristics of each child in his or her care, and with this added insight the teacher could not fail to teach more successfully.

Hollenbeck (14) substantiated this viewpoint in concluding that the school camp was of value to the teacher in identifying new areas in which specific children could succeed and in which certain individuals needed help in meeting the problems of living. Similarly, Roller (29) reported that some of the comments from her teachers indicated: a positive change in the attitude toward them from their students; a closer relationship in personal problems; and a realization that the teacher did not seem so old.

In a more recent study by Jones and Carswell (16), the findings were less definitive. Their experimental and control groups each consisted of thirteen classes of sixth graders. The experimental classes participated in a five-day residential camp experience while the control group attended normal classes. Using Likert-type scale items, the researchers concluded that there was a significantly positive change in attitude toward their instructors by students in the experimental groups compared to those in control groups. However, the level of significance was only 0.3.

The only evidence contradictory to the consensus that an outdoor education experience produces improved student-teacher relationships was reported by Fletcher (10). She issued pre- and postquestionnaires to her sample of students at resident camp. She found that eighty-six percent of the boys and seventy percent of the girls said that they felt the same or had no opinion about their feelings toward their classroom teacher after the five-day experience.

The Impact of Outdoor Education Experiences on Attitudes toward the Out-of-Doors as a Learning Environment and toward School

**Attitude toward the Out-of-Doors as a Learning Environment**

Hammerman and Hammerman (13) suggest:

*One element lacking in many curriculums today is the sheer joy of discovery. The classroom when extended into the outdoors provides the setting in which students may enjoy the pure thrill of discovery along with the plain, down-to-earth fun of learning (13:13).*

Their statement implies that the out-of-doors provides a more stimulating learning environment for relevant fields of study than does the school classroom. The available empirical evidence appears to suggest that such claims are legitimate if the subject area of concern is closely associated with the out-of-doors and if the outdoor education experience is of sufficient duration.

Millward (23) investigated the effect that a five-day resident program had on sixth graders' attitudes toward outdoor concepts using two different teaching methods. He used the Millward-Ginter Outdoor Attitude Inventory. The students were given a pretest, a posttest one week after their camp experience ended, and a further posttest three months after the end of the camp. No differences were found between the teaching methods, but the groups of students assigned to each method both recorded significant changes in total attitude scores between the pretest and the posttest, and also between the first posttest and the second posttest.
The statements in the Millward-Ginter Outdoor Attitude Inventory measured students' attitudes in four different subcategories: environment, education, pollution, and socialization. Millward reported that attitudes toward the environment and socialization significantly improved immediately following the camp experience, while attitudes toward education and pollution improved significantly during the three-month period after the camp experience. When differences between the pretest scores and the second posttest scores were examined, it was found that long term improvements were achieved in the subcategories of environment, pollution, and education.

"The objective, evaluative research reviewed in this paper is generally supportive of claims that outdoor education experiences facilitate positive affective development."

Hackett (12) reported the results of a study of 244 ninth graders who participated in three-day camps at a site adjacent to Rocky Mountain National Park. Two instruments were administered two weeks after the experience during which the students examined environmental impact problems. One instrument was a Likert-type inventory of twenty statements relating to the outdoor camp experiences, while the second instrument was a semantic differential using paired adjectives such as useful/wasteful and exciting/boring. Student responses were generally very positive toward the experience. However, the weak design of the study limited its usefulness since it did not use control groups nor did it conduct pretests to ascertain student attitude scores before they participated in the camp experience.

In contrast to the findings reported by Millward (23) and Hackett (12), Carlson (3) found no significant differences in the perceptions of the out-of-doors among nineteen students who participated in a five-day outdoor education experience. Although others have reported positive results from a five-day experience, Carlson suggested that further investigators might consider the possibility that the resident outdoor experience was too brief to influence perceptions of the out-of-doors as measured by the assessment procedures.

Although most of the studies in the literature have been concerned with resident or day camp outdoor education experiences, Kostka (19) and Peck (27) reported on the outcomes of much shorter outdoor education programs. Kostka (19) examined the effects of six to seven hours of nature center related environmental education programs on the attitudes of sixth graders toward the environment. The study involved 600 students from two different school districts, one suburban and one inner city. The research design employed an experimental group and a control group which did not take part in the nature center program. Pre- and posttests were implemented using the Environmental Attitude Scale. Kostka reported that groups participating in up to six or seven hours of nature center related environmental education programs did not score significantly higher on the Environmental Attitude Scale than control groups which did not engage in environmental education programs.

Peck (27) investigated the impact of outdoor education experiences on the attitudes toward the environment of tenth-grade high school biology students. He used the Environmental Attitude Inventory Grade B which is a self-report inventory designed to measure the extent to which an individual has positive or negative feelings toward the environment and environmental protection. His sample was comprised of a control group and three experimental groups. The experimental groups consisted of an outdoor group which was taught for five consecutive school days entirely out-of-doors, an indoor group which received instruction for fifty minutes on each of ten successive school days totally inside the classroom, and a combination group which was taught for fifty minutes on each of five consecutive school days in the classroom and, in addition, participated in a three-day outdoor experience similar to that of the outdoor group.

The results of Peck's study were inconclusive. Although the three experimental groups' posttest scores were significantly better (.01 level) than those of the control group, this may have been a function of their having superior attitudes before the experiment commenced since no attempt was made to match control group and experimental group attitudes at the outset. This interpretation is suggested by the finding that the indoor and outdoor groups' posttest scores improved slightly over their pretest scores, but the combination group's scores decreased.

Attitude toward School

Another of the more tangible results that classroom teachers observe is an increased interest in what-is-in-the-book. After having captured an insect, or having found a rock specimen, or finally, after much searching, having located a single constellation in the night sky, a pupil is often motivated to turn eagerly and voluntarily to his textbooks in an effort to learn more about his discoveries (13).

The limited empirical literature provides little support for the hypothesis that there is transfer of positive attitude toward school and the classroom after an outdoor education experience.

The most positive findings were those reported by Shaw (32) in his evaluation of a traveling school camp. His results indicated substantial student growth in attitude
toward school work as a result of the experience. The findings from other studies have not been so positive.

Jones and Carswell (16) reported no significant change in attitudes toward learning experiences at camp and at regular school after participation in a five-and-a-half-day resident camp. Kriger (21) studied the effects of a four-week summer day camp program, involving planned reading experiences, on the attitude toward school of forty-eight fifth and sixth graders. Results indicated that the students who had attended the summer camp did not significantly differ from the students in the control group when their attitudes toward school were tested six months after the camp experience. However, responses to a questionnaire which classroom teachers completed indicated that school behavior and attendance levels among those who had been to the camp were significantly better than among those in the control group, who had not been to camp.

Conclusions

The objective, evaluative research reviewed in this paper is generally supportive of claims that outdoor education experiences facilitate positive affective development. The cumulative reported findings suggest that students' self-concept is enhanced; peer socialization and racial integration are facilitated; and teacher-student relationships are improved. The claims of advocates that the out-of-doors provides a more stimulating learning environment for relevant fields of study than the school classroom appear to be legitimate if the subject area is closely associated with the out-of-doors and if the outdoor education experience is of a sufficient threshold duration. The research studies report contradictory findings on the potential of outdoor education programs to compensate for the affective disadvantages suffered by economically deprived children. Little support was found for the hypothesis that there is a transfer of positive attitude toward school and the classroom after an outdoor education experience.

These general conclusions remain very tentative for at least two reasons. First, the cumulative body of evaluative literature from which they are derived is relatively sparse. Indeed, the majority of this literature is found in master's theses and doctoral dissertations rather than in scientific or professional journals. Most studies of outdoor education have been concerned with organization and administration, leadership preparation and teacher education, historical evolution, program development, or philosophical issues. Scientific studies concerned with objective evaluation and accountability have not emerged in the number which might be expected, given the extent to which outdoor education has been adopted in school curricula.

The second caveat limiting the strength of these conclusions is the inferior quality of many of the research studies reviewed. They exhibit four primary weaknesses. First, many of them use simple designs with inadequate control or randomization procedures. In most cases, post-tests were conducted only immediately after the experience so few assessments of longer term impact are available. Second, the samples used frequently were small and unrepresentative even of the specific populations from which they were chosen. Third, the reliability and validity of the measuring instruments were sometimes untested. Peck (27) noted that until more sophisticated instruments are developed, the test data required to convince some people of the effectiveness of outdoor education will be difficult to generate. Finally, because of these weaknesses the possibility must be recognized that the advocacy perspective which initially aroused some of the researchers to investigate outdoor education outcomes may have emerged in their interpretation of their findings.

REFERENCES


18. Konle, M. C. "The Effects of a Short-Term, Reading-Study Program Involving some Camp-Style Living on Reading Achievement, Self-Concept and Attitudes toward Reading." Doctoral dissertation, Marquette University, 1976.


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to members within its own structure the need and possible techniques for evaluation and research.

The focus here has been on the national and federal levels; scant attention has been directed toward non-formal environmental education, institutions of higher education, and activities at the state and local levels. In many ways, the real strengths of environmental education are in those areas and at those levels and deserve much greater consideration than is afforded here. It should be pointed out that the U.S. Constitution clearly labels education as a responsibility of the states; it is not difficult to argue that the only appropriate federal role in education is none. Many states will, and should, point with pride to their accomplishments, as state education agencies work cooperatively with state resource management agencies, institutions of higher education, and all manner of state and local agencies, local units of national organizations, local organizations, coalitions, and individuals. The same pattern is repeated, sometimes magnificently so, at local levels. Ohio, for example, has an Ohio Interagency Committee for Environmental Education (somewhat on the FICE/SEE model), an Ohio Alliance for Environmental Education, and an Ohio Conservation and Outdoor Education Association; mounting evidence of increasing cooperation is apparent. Other states and localities can claim as much, perhaps more.

Where it has been tried, cooperative effort has worked—though far from perfectly. The clearest need is for purposeful joint activity; environmental educators must find out what, if anything, they do agree on, then work in concert toward its accomplishment. We must come to an understanding of what is really worth disagreement, then decide how to handle that. Some commonality of purpose must be established, objectives must be identified and organized in a pursuable manner. For example: Is it the purpose of environmental education to save the world from environmental degradation? Or to learn about contour plowing? Or to stop littering? Or to learn to make wise resource management decisions? Or to meet the challenges of hostile environments? Or . . .

If these are purposes, are they translatable into objectives? If so, do they represent all the appropriate objectives? If not, what other purposes and objectives demand inclusion? Then, how might all of this be organized for teaching and learning? Finally, how will we know what, if anything, has been learned?

Communication among disparate segments of the self-identified environmental education community will not in itself resolve these issues, but it is a necessary first step. It is time for more of us to take that step seriously, though with great caution. It may just be possible for us to learn from and with each other—and to find out what environmental education really can do.