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INTERNAL LOCUS OF CONTROL AS A PREREQUISITE TO ENVIRONMENTAL ACTION TAKING: AN ASSESSMENT OF THE YOUTH CONSERVATION CORPS

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INTERNAL LOCUS OF CONTROL AS A PREREQUISITE TO ENVIRONMENTAL ACTION TAKING: AN ASSESSMENT OF THE YOUTH CONSERVATION CORPS

By

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ABSTRACT

INTERNAL LOCUS OF CONTROL
AS A PREREQUISITE TO ENVIRONMENTAL ACTION TAKING:
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The locus of control (L of C) theory suggests that citizens with an internal L of C may be expected to be more autonomous and better informed problem solvers than externals, and to more frequently participate in environmental action. The L of C theory is reviewed and is used as a basis for a paradigm of environmental action.

Some dimensions of the environmental action paradigm were tested. The study involved 318 Michigan youth in a paper and pencil assessment of their L of C, concern for environmental issues, and involvement in environmental action. A key objective was to determine the influence of the Youth Conservation Corps (YCC) experience on participants' L of C and to identify relationships among the dependent variables.

Findings indicated that YCC had no influence on L of C as measured in the study. However, internal L of C and the relative importance participants attribute to environmental issues, are positively correlated with the extent to which participants engage in environmental action. This relationship supports a basic premise of the proposed paradigm. Further, females in the study were significantly more internal than males.

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DEVELOPING AN INTERNAL LOCUS OF CONTROL AS A PREREQUISITE TO ENVIRONMENTAL ACTION TAKING

Abstract. Principles of the locus of control theory (L of C) and supportive research findings are reviewed. A citizen's L of C may have important implications for environmental education in promoting the ultimate goal of responsible environmental action. A paradigm of environmental behavior is proposed.

Introduction

It is generally accepted by educators that the major goal of environmental education (EE) should be to produce "an environmentally literate citizenry that is both competent to take action on critical environmental issues and willing to take that action" (Hungerford and Peyton, 1976, p. 11). Many writers have stressed the importance of extending EE beyond the awareness level to the citizen participation level (Balzar, 1971; Childress and Wert, 1976; Ginzbarg, 1971; Harvey, 1977; Hawkins and Vinton, 1973; Hungerford, et al., 1979; UNESCO, 1977).

Educational efforts to produce environmentally literate citizens have been largely based on the postulate that a

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linear relationship exists among cognitive (knowledge), affective (attitude), and conative (behavioral) domains. Accordingly, EE programs often present awareness and knowledge of ecology and/or environmental issues, and assume that this awareness and knowledge will lead to the desired attitude development and, ultimately, to the necessary environmentally ethical behaviors.

Findings of current research into the relationships that exist among the cognitive, affective, and conative domains indicate that these relationships are far more complex than previously assumed (Borden and Schettino, 1979; Burrus-Bammel, 1978; Heberlein, 1977; Ramsey and Rickson, 1977). Increased awareness and/or knowledge do not necessarily lead to positive attitude formation or to environmentally ethical behavior. Nor is there evidence to indicate the extent to which experiences such as values clarification, increased environmental sensitivity, or acclimatization, generate increased participation in environmental action taking. Indeed, little empirical research exists in EE which identifies the variables responsible for a specific environmental action, nor the relationships among these variables.

Certainly, a number of variables may interact in promoting environmental action taken by an individual, including the individual's knowledge (beliefs) about the issue, attitudes toward the components of the issue, and environmental action skills. An additional variable which has not been considered by environmental educators in this context is an individual's

perception of whether or not he/she has the ability to bring about change through his/her own behavior. This variable - locus of control - suggests that an individual with the necessary environmental knowledge, values, and skills, may not engage in environmental action taking if he/she perceives an individual inability to bring about change in such a situation. Evidence indicates that this perception may reflect more than a lack of confidence in the action itself. Some individuals do not attempt to bring about desired change because they attribute change to chance or powerful others (e.g. God, parents, government, "they", etc.) rather than to their own behaviors.

The theoretical construct of locus of control (L of C) has been frequently researched in the behavioral sciences. However, research exploring the role of L of C in EE is almost non-existent (Smith, 1979). The purpose of this paper will be to:

1. review the principles of the L of C theoretical construct;
2. describe the potential implications of the theory of L of C for EE; and,
3. propose a paradigm to guide further research into the variables impinging on environmental action taking.

Locus of Control Construct

Julian B. Rotter was one of the first to propose and define the theoretical construct known as locus of control (1966). His theory developed as a result of analysis of

patients in psychotherapy.

> ...clinical analysis of patients suggested that while some patients appear to gain from new experiences or to change their behavior as a result of new experiences, others seem to discount new experiences by attributing them to chance or to others and not to their own behavior or characteristics (Rotter, 1966, p. 2).

Rotter proposes that an individual's actions can be predicted on the basis of one's values, expectations, and the nature of the situation. Rotter's basic formula for predicting an individual's behavior <u>in a specific situation</u> is presented as:

the potential for behavior (X) to occur in relation to reinforcement (A)	is a function of	the expectancy of the occurrence of reinforcement (A) following behavior (X)	and	the value placed on reinforcement (A)

This approach to predicting behavioral outcomes places equal emphasis on expectancy, reinforcement value, and the psychological situation. It is the expectancy of reinforcement which reflects an individual's L of C. Rotter et al. (1972) define expectancy as the "probability held by the individual that a particular reinforcement will occur as a function of a specific behavior on his part in a specific situation ... (p. 12)." Reinforcement value is "the degree of the person's preference for that reinforcement to occur if the possibilities of occurrence of all alternatives were equal (p. 13)."

Rotter has identified two attitude positions which an individual may have with respect to expectancy for reinforcement (L of C).

> When a reinforcement is perceived by the subject as following some action of his own but not being entirely contingent upon his action, then, in our culture, it is typically perceived as the result of luck, chance, fate, as under the control of powerful others, or as unpredictable because of the great complexity of the forces surrounding him... [We] have labeled this a belief in external control. If the person perceives that the event is contingent upon his own behavior or his own relatively permanent characteristics, we have termed this a belief in internal control (Rotter, 1966, p. 1). (Emphasis added)

For purposes of clarification, Rotter's formula may be used to predict whether an individual will take a specific environmental action. If the desired action is writing a letter to a Senator with regard to an Alaskan land bill, the probability of the individual writing the letter may depend on: (a) his/her expectancy that the letter writing will indeed contribute to the preservation of Alaskan lands, and (b) the value which the individual places on preserving Alaskan lands. Given that the individual values Alaskan land preservation, an individual who perceives an internal L of C is more likely to write a letter expecting to gain the desired reinforcement. Alternatively, an external individual attributes change in the Alaskan land situation to chance or powerful others and fails to take action.

Rotter (1966) describes the L of C construct as a distribution of individuals on a continuum according to the degree to which they accept personal responsibility for what happens to them. Other writers have emphasized the importance of viewing L of C not as a trait or personality type, but as

an individual's more common tendencies to expect events to be contingent or noncontingent upon his/her actions (Lefcourt, 1976; Phares, 1976).

Locus of control has been shown to operate as both a generalized expectancy covering many diverse situations, and as a specific expectancy directed toward a class of situations. When an individual is confronted with a novel or ambiguous situation, the individual's behavior is more likely to reflect his generalized expectancy for control. If a familiar situation is encountered, behavior will predictably follow the individual's specific expectancy for control in that situation (Lefcourt, 1976; Phares, 1976).

Many paper and pencil instruments have been developed to measure an individual's L of C. Both generalized and specific expectancies have been assessed in a variety of age groups, populations, and topic areas (Crandall et al., 1965; Dean, 1969; James, 1957; Mischel et al., 1974; Nowicki and Strickland, 1973; Reid and Ware, 1974; Tomera, 1979). The L of C instrument which has received the most recognition in the field was developed by Rotter (1966). His Internal-External Control Scale includes 29 forced-choice items which measure generalized expectancy across a range of situations. Several researchers have developed instruments intended to distinguish between different types of external control (Crandall et al., 1965; Kleiber et al., 1973; Levenson, 1972). In their view, important differences exist between the individual who believes outcomes are in the control of other people,

and the individual who believes outcomes are a result of fate or chance. Levenson (1972) devised a L of C instrument which further distinguishes among externals as attributing control to either "powerful others" or "chance". Her Internal, Powerful Others, Chance Scale has been used with some success in supporting these factors as independent orientations.

Factors Influencing Locus of Control

There has been considerable research to identify the factors which influence the development of an individual's L of C. L of C appears to be influenced by familial origins, ethnicity, social class, and mental age.

Research pertaining to familial origins of L of C seem to indicate that family environment, consistency of parental reinforcement, and ordinal position in the family affect L of C. In general, a warm, supportive, nurturing environment encourages internality (Davis and Phares, 1969; Katkovsky et al., 1967; Shore, 1967). Earlier born children tend to be slightly more internal than later born children in large families (Chance, 1965; Crandall et al., 1965; Eisenman and Platt, 1968; MacDonald, 1971).

Studies on the social antecedents of L of C indicate expectancy of reinforcement is related to ethnicity and social class. Lefcourt (1976) reviewed the literature and reported a trend for blacks to be more external than whites, and showed lower socioeconomic status to be associated with externality. Gurin et al. (1969) question the benefits attributed to internality. They propose that internality may have negative

implications especially among minority groups and the economically deprived, and suggest that individuals in such groups are better adjusted when able to attribute failures to chance or powerful others. An internal individual who experiences repeated failure could suffer from self-derogation and self-blame.

Although an individual's L of C has been shown to be relatively consistent when measured over short durations, several researchers have been able to demonstrate shifts in L of C over longer periods. Bailer (1961) and Penk (1969) suggest a positive relationship between age and internality. However, Bailer's study indicates mental age rather than chronological age is the salient aspect with regard to increases in internality.

Abundant literature exists pertaining to L of C. Although not exhaustive, this review of the literature has outlined the L of C theoretical construct and identified some of the factors found to influence the development of an individual's L of C. In summary, L of C is the degree to which an individual perceives reinforcement to be contingent (internal) or noncontingent (external) upon his/her actions. L of C seems to operate as both a broad, generalized expectancy and as a situation specific expectancy. Further, an individual's perceived L of C appears to be stable over short durations, and may be influenced by familial origins, ethnicity, social class, and mental age.

Implications for Environmental Education

Several generalizations which may be inferred from research on L of C may have important implications for EE. These generalizations and their potential implications are presented in this section along with a brief review of the supporting research.

A word of caution is in order here concerning the nature of the supporting research. Many of the reported findings are based on correlational studies. Certainly these are legitimate methods of research; however, care must be taken not to infer causation between variables which show a significant correlation.

For example, a significant relationship has been reported between having an internal L of C and resistance to subtle manipulation. It follows that internals may tend to be more discriminating in accepting information for use in problem solving - a desirable trait in an environmentally literate citizen. However, it does not necessarily follow that making externals more internal would also make them more resistant to manipulation. This infers a causal relationship between the two variables which has not yet been substantiated by research.

In addition, the research reported here is limited by the problems of research design and population constraints which are commonly inherent in behavioral research. However, even with the recognized limitations of available research findings, it is proposed that sufficient evidence exists to warrant

consideration and further investigation of these potential implications by environmental educators.

1. Internals more frequently participate in productive action taking than externals.

Several researchers have reported evidence that internals are more often the initiators of social action and change, or participate more actively than externals in attempting to control their environment (Brown and Strickland, 1972; Rosen and Salling, 1971; Ryckman, Martens, Rodda, and Sherman, 1972). Gore and Rotter (1963) measured black college students' willingness to participate in various kinds of social actions at the height of a social protest movement. Internal blacks stated a greater willingness to become personally involved in a more active form of civil rights behavior. Strickland (1965) measured the degree of actual participation by blacks in the civil rights movement and reported a positive correlation between internality and participation.

Some discrepancies with regard to activism and L of C have been reported. Lao (1970) found that externals who blamed discrimination on the social system tended to participate and become more personally involved in civil rights activities than internals. Gurin et al. (1969) present a thorough review of L of C in blacks and propose that a more complex relationship exists between L of C and behavior. They report that when internal-external control refers to blacks' conceptions of their condition as blacks, it is the external rather than the internal orientation that is associated with more

effective behaviors. Internal blacks who tended to see the cause of blacks' problems in personal inadequacies of blacks, rather than in the social system, supported the view that individual self-betterment is the best approach to dealing with the problems. Thus, these internals did take action, but the actions were individual rather than group actions. Both studies by Lao and Gurin et al. reported a preference for collective action rather than individual action by externals who tended to blame the system.

The relationship between internality and individual action taking has strong implications for EE. Achieving the goals of EE depends on developing individuals willing to initiate positive, rational environmental action taking. In view of the generalizations reported here, this would seem to make internality desirable.

2. Internals differ from externals in their ability to recall relevant material, and in how actively they seek additional information.

In a study by Wolk and DuCette (1974), internals were found to demonstrate performance superior to externals on assigned tasks which involved recall of relevant information. Seeman (1963) presented prison inmates with three categories of information varying in relevancy to the parole process. Six weeks later he found that internals recalled significantly more of the relevant information than externals.

The relationships among L of C, knowledge, and information seeking behavior were investigated by Seeman and Evans

(1962). Results of their study involving 43 internal-external pairs of white male tuberculosis patients indicated that internals were more knowledgeable about their illness, were more inquisitive with the hospital personnel about the disease and their own condition, and expressed less satisfaction with the amount of information they were receiving. Research supporting these findings were reported by Davis and Phares (1967) and Williams and Stack (1972).

Having greater recall of relevant material and more actively seeking additional information are certainly important abilities for effective environmental problem solving. If it is accurate that becoming more internal leads to increases in the above characteristics (causal relationship), then developing an internal L of C among citizens may be an important goal of EE.

3. Internal individuals are superior to externals in their utilization of information.

Phares (1968) compared the utilization of information in decision making by internals and externals. Subjects were provided with information about four men and were asked to match each of the men with suitable occupations and mates. After the task was completed, internals provided over 50% more reasons to justify their matches than externals. When only correct reasons were counted, internals provided three times as many correct responses as externals.

Rational, objective problem solving would be enhanced by an increased ability to accurately apply information. If

the relationship between this characteristic and internality is a causal one (i.e., becoming more internal would cause a greater utilization of information), citizens' perception of L of C should be an important consideration of environmental educators.

4. Internal individuals are more resistant to subtle manipulation and are less influenced by high-prestige individuals than externals.

Studies concerning an individual's tendencies to conform indicate that internals are more trusting of their own judgment, and are less apt to conform to the influence of others (Biondo and MacDonald, 1971; Crowne and Liverant, 1963; Doctor, 1971; Getter, 1966; Gore, 1962; Hjelle and Clouser, 1970; Lefcourt, 1967; Odell, 1959; Strickland, 1970).

Further studies have revealed that internals are not simply resistant to influence, but are more discriminating in what influences they will accept. Ritchie and Phares (1969) reported that both internals and externals shifted their views as a result of a persuasive message. However, externals were found to shift their opinions more when the message was attributed to a high-prestige, rather than a low-prestige source. Prestige of the source was not as influential in shifting the attitudes of internals as the content of the message. Other studies with similar findings have been reported by Ryckman, Rodda, and Sherman (1972).

These findings also seem to have important implications for producing rational, objective environmental problem solvers.

It is essential that the value positions and credibility of informational sources be carefully assessed when investigating the dimensions of an environmental issue. It seems reasonable to expect internals to be more capable and/or willing to reject information which comes from biased or prestigious, but uninformed sources.

5. Internal individuals exhibit a superior capacity to delay gratification in order to attain greater, long-term gains.

Using normal and mentally retarded youth, Bailer (1961) found a significant positive correlation between internality and capacity to delay gratification. Strickland (1972) tested both black and white sixth graders and found that internals exhibited more delay behaviors than externals, but only among the white subjects. A later study (Strickland, 1973) reported internality was significantly and positively correlated with delayed, larger rewards in white, middle class youth. Mischel et al. (1974) reported that internality was positively correlated with an individual's ability to persist in a task to obtain greater rewards. These studies seem to substantiate the greater capacity of internals to delay gratification in order to attain more significant, long-term gains.

Solving environmental (and other social) problems, often requires behaviors that sacrifice short-term rewards for the attainment of greater, long-term gains. If EE is to produce citizens capable and willing to adopt behaviors to improve and/or maintain environmental quality, increased internality may be an important part of the process.

6. Internals respond differently to those tasks which they perceive to be skill-related, than to tasks they perceive to be chance-determined.

In studies which ignored L of C, Phares (1957) and James and Rotter (1958) demonstrated that if a task is perceived to be solvable through skill, individuals will seriously use experience and feedback as a basis for making future decisions. However, individuals will ignore feedback and tend to gamble on outcomes if the task is perceived to be chance-determined.

Other researchers who measured L of C have reported that internals devote more attention to decision making concerning skill-related matters, and less attention in chance-related situations than do externals (Julian and Katz, 1968; Lefcourt et al., 1968; Rotter and Mulry, 1965).

Davis and Phares (1967) presented each of three groups with a different reason for success or failure in an upcoming task (skill, chance, or no such instructions). Internals showed a decrease in participation in the chance-instructed group, whereas externals participated more. Internals participated significantly more than externals in the skill and no instruction situations.

In view of the above findings, it appears important for EE to present citizens with the perception that the outcomes of environmental actions are skill-related and not due entirely to chance events.

7. An individual's perceived L of C is susceptible to change.

Gorman (1968) and McArthur (1970) measured changes in L of C following contemporary political events relevant to control expectancies. In each study the experimental group had a vested interest in the outcome of the event. The failure of the desired outcome to materialize did not reinforce an internal L of C. In both studies, the experimental group showed a greater shift toward the external end of the continuum; however, no indication exists as to the permanence of this shift.

deCharms (1972) established a teacher training program specifically aimed at encouraging personal causation (internality) in the students involved. Evidence showed that the teachers' training did indeed increase the students' sense of personal causation. Further, deCharms was able to demonstrate that these shifts have persistence when measured over a period of up to two years, and that additional exposure to trained teachers has a cumulative effect in increasing the students' internality. Other researchers reported similar shifts toward internality following training and substantiated the cumulative effects of training reported by deCharms (Martin and Shepel, 1974; Nowicki and Barnes, 1973).

Rowe (1973) has investigated the impact science education methods may have on students' L of C. She suggests that:

> ...science appropriately taught may contribute to improving the sense of fate control and that this improvement, in turn, will increase the amount of voluntary learning and investigating that people will engage in (p. 300).

Rowe reports evidence that teaching techniques such as divergent questioning, sufficient wait time, and inquiry models shift students' perception of fate control (L of C) toward internality.

Given that an internal L of C in citizens is accepted as a desired perspective in an environmentally literate individual, it is significant that L of C is responsive to training and experience. The nature and extent of such training to be offered by EE are by no means defined clearly as yet. However, the implication seems evident that environmental educators should begin to examine EE curricula and teaching methods to determine how an internal L of C may be best developed in citizens.

In summary, the research reviewed here indicates that internals may be expected to be more autonomous and better informed problem solvers than externals, and to more frequently participate in environmental action taking. Given that Rotter's formula for predicting an individual's potential for behavior is viable, and that environmentally responsible behavior is the ultimate goal of EE, it follows that the L of C theory has important implications for EE.

Summary: A Paradigm of Environmental Behavior

The model in Figure 1 attempts to graphically relate the many variables and processes which impinge on environmental action taking by citizens (e.g., writing a letter about the Alaskan lands issue). The left side of the model includes

ANATOMY OF AN ENVIRONMENTAL BEHAVIOR

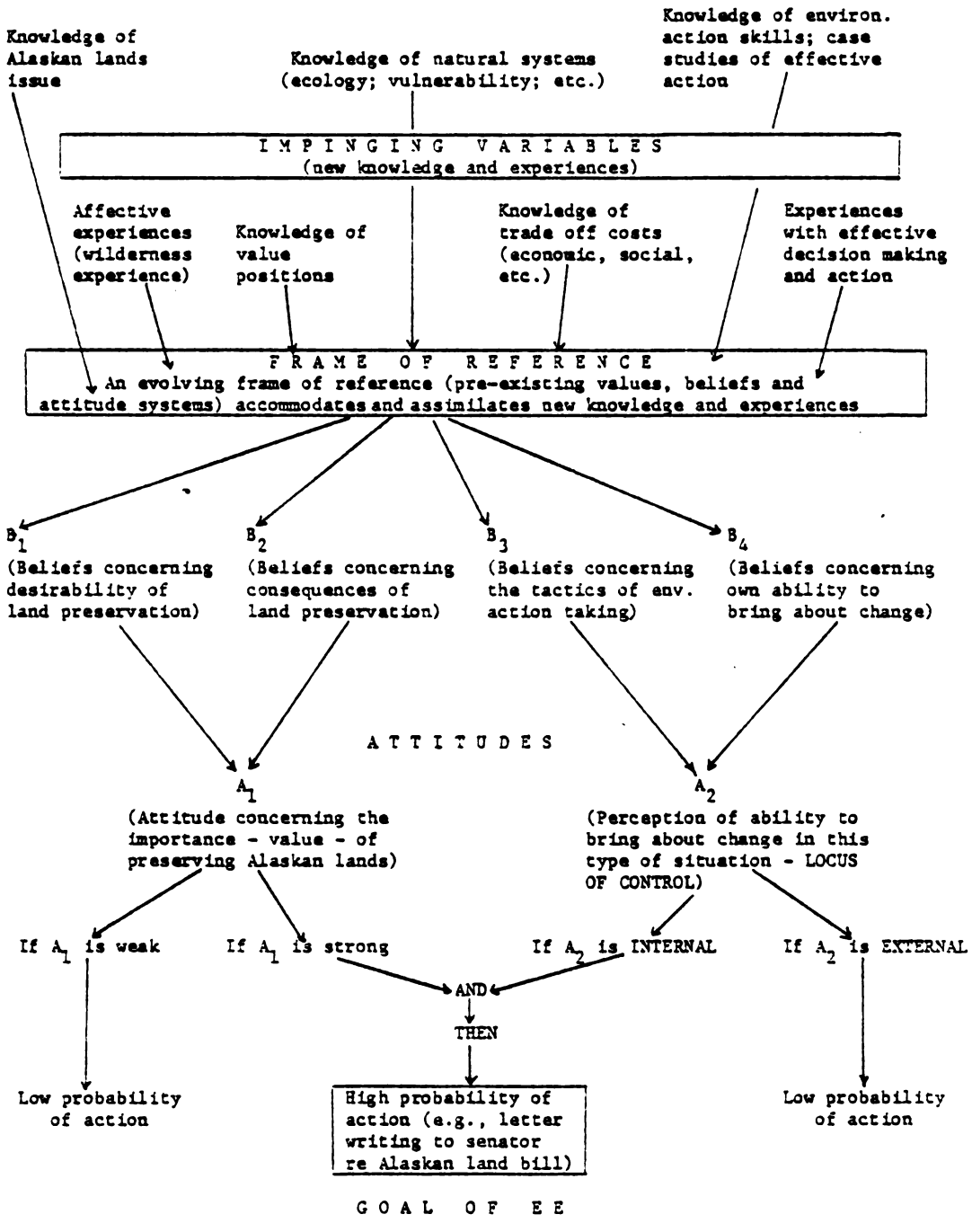

Figure 1

those impinging variables (knowledge and experiences), beliefs (B_1 and B_2), and attitudes (A_1) which EE has traditionally dealt with. More recently, EE literature has encouraged including a knowledge of, and experiences with, environmental problem solving as reflected by the impinging variables on the upper right side of the model. The review of the L of C theoretical construct presented in this paper, supports the inclusion of such recent trends in EE, and further suggests that citizens be given diverse, positive experiences with effective decision making and action. In addition, L of C implies that other beliefs (B_3 and B_4) and attitudes (A_2) are important considerations in bringing about a specific environmental action.

The processes involved as precursors to an environmental action are implied by the frame of reference component. The paradigm assumes that a citizen has a frame of reference which reflects all past learning experiences, values, beliefs, and attitudes, and which serves to process any new knowledge and/or experience. Some of this new input is modified to "fit" into the existing frame of reference (assimilation). In other cases, the frame of reference itself is adjusted to accept new perspectives (accomodation). The result is a constantly evolving frame of reference comprised of new beliefs and and attitude systems. The attitude systems prevailing at any given time will determine the types of behaviors, if any, that are engaged in.

The model in Figure 1 attempts to recognize many components which are necessary to achieve the desired environmental behavior by the citizen. An internal L of C is not proposed as the panacea to correct our past failures in EE, but rather as an additional component which may contribute to future successes. The relationships proposed by Figure 1 have been useful in suggesting a number of recommendations for EE curriculum development, teaching methods and research. For example, the needs for research suggested by the paradigm include the need to ...

1...develop valid and reliable instruments which measure situation specific (i.e., L of C in environmental problem solving) rather than generalized expectancy of reinforcement.

2...determine the types of experiences and knowledge needed to develop general and situation specific internal expectancies.

3...identify variables (knowledge, experiences) which impinge on environmental action taking and the extent to which each variable contributes to action.

4...determine the extent of causal relationships which may exist between internal L of C and various problem solving attributes.

The paradigm and literature reviewed further suggest that environmental educators should ...

5...provide citizens with experiences intended to develop or reinforce an internal L of C in environmental problem solving by: (1) using case study involvement which models effective action taking; (2) avoiding action taking experiences which reinforce externality in citizens because of unreasonable expectations or through lack of positive feedback; (3) using methods such as positive feedback, inquiry teaching, and student participation in decision making which enhance student self-image and confidence in problem solving abilities.

6...provide citizens with evidence that achieving results with environmental actions is skill-related rather than chance-determined.

7...consider the L of C of citizens when dealing with environmental action components so that the most productive teaching methods may be selected.

8...develop students' internal expectancies of control in specific classroom situations which will transfer to similar life style situations related to environmental quality.

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AN INVESTIGATION OF THE IMPACT OF THE YOUTH CONSERVATION CORPS ON THE LOCUS OF CONTROL OF PARTICIPANTS

Abstract. An assessment of the impact of the Youth Conservation Corps experience on participants' locus of control (L of C) indicated that YCC had no influence on L of C as measured in the study. However, the data suggest that internal L of C and the relative importance participants attribute to environmental issues, are positively correlated with the extent to which participants engage in environmental action taking. Further, females in the study were significantly more internal than males.

Introduction

Environmentally responsible behavior is the ultimate goal of environmental education (EE). If environmental educators are to achieve this goal, it is essential that the factors impinging on behavior be identified. J. B. Rotter (1966) has suggested two factors by which one can predict an individual's behavior in a given situation. One influencing factor is the value the individual places on the expected reinforcement. Equally important is the individual's expectancy that this reinforcement will actually occur as a result of his/her actions. The individual's expectancy of reinforcement reflects his/her locus of control (L of C).

An internal L of C is the degree to which an individual perceives reinforcement to be contingent upon his/her own actions. External L of C refers to those individuals who attribute outcomes to chance or to someone they perceive to be more powerful (powerful others). L of C operates as both a broad, generalized expectancy and as a situation specific expectancy (Lefcourt, 1976; Phares, 1976). In a novel situation, the individual would tend to rely on his/her generalized expectancy. Conversely, in familiar situations, the situation specific expectancy would prevail. Further, an individual's L of C appears to be stable over short durations, and may be influenced by familial origins, ethnicity, social class, and mental age (Bailer, 1961; Chance, 1965; Crandall, et al., 1965; Davis and Phares, 1969; Eisenman and Platt, 1968; Gurin et al., 1969; Katkovsky et al., 1967; MacDonald, 1971; Penk, 1969; Shore, 1967). L of C has also been shown to be susceptible to change due to experiences and training (deCharms, 1972; Gorman, 1968; Martin and Shepel, 1974; McArthur, 1970; Nowicki and Barnes, 1973).

The attributes of an internal L of C would appear to have important implications for the attainment of the goal of EE. Internals may be expected to be more autonomous and better informed problem solvers than externals, and to more frequently participate in environmental action taking. A more thorough review of the theoretical construct of L of C and its potential implications for EE have been presented by Peyton and Miller (1980).

In their review of L of C, Peyton and Miller introduce a paradigm (Figure 1) which reflects the implications of the L of C theory. The paradigm attempts to graphically relate many components which impinge on environmental action taking by citizens. Included in the paradigm are those variables (knowledge, experiences, beliefs, and attitudes) traditionally dealt with in EE to encourage effective environmental action taking.

The paradigm proposes that both of the attitudes described by Rotter must also exist to increase the probability that a citizen will exhibit an environmental behavior. The citizen must place a strong value on the expected outcome or reinforcement (e.g., preserving Alaskan lands) and must also have an expectancy that this outcome or reinforcement will result from his/her own behavior (e.g., writing a letter to a Senator). The task of environmental educators, therefore, is to identify and assess the variables necessary to achieve the development of these attitudes in citizens.

Among the variables which are proposed to influence an individual's perceived ability to bring about change (L of C) are knowledge of environmental action skills and experiences with effective decision making and action taking. The research reported here investigated the Youth Conservation Corps (YCC) to determine whether this type of experience would have an impact on the L of C of YCC participants. It was hypothesized that the YCC experience would make both the generalized and situation specific expectancies of participants more internal.

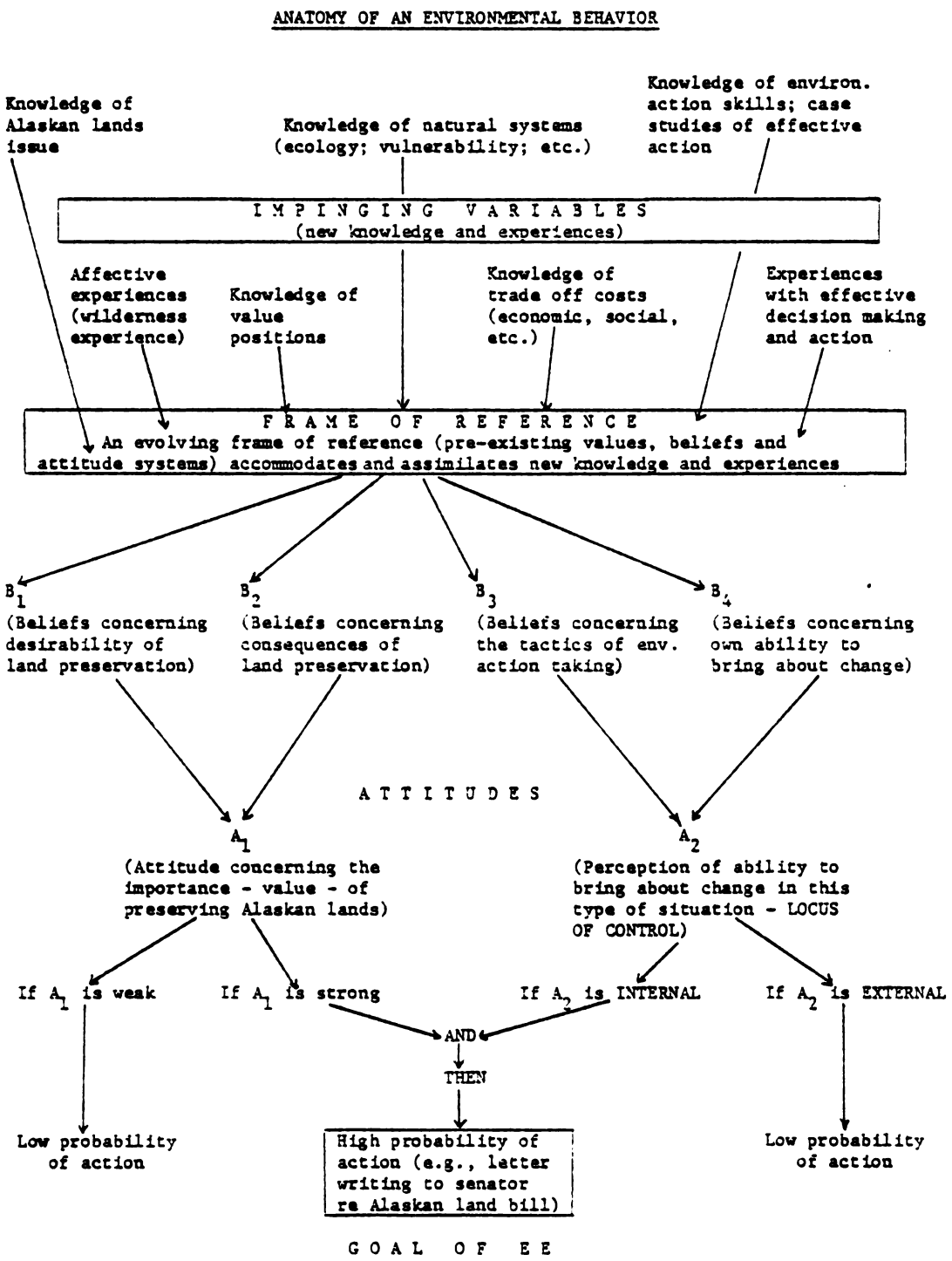
ANATOMY OF AN ENVIRONMENTAL BEHAVIOR
Knowledge of Alaskan lands issue
Knowledge of natural systems (ecology; vulnerability; etc.)
Knowledge of environ. action skills; case studies of effective action
IMPINGING VARIABLES (new knowledge and experiences)
Affective experiences (wilderness experience)
Knowledge of value positions
Knowledge of trade off costs (economic, social, etc.)
Experiences with effective decision making and action
FRAME OF REFERENCE
An evolving frame of reference (pre-existing values, beliefs and attitude systems) accommodates and assimilates new knowledge and experiences
B1 (Beliefs concerning desirability of land preservation)
B2 (Beliefs concerning consequences of land preservation)
B3 (Beliefs concerning the tactics of env. action taking)
B4 (Beliefs concerning own ability to bring about change)
ATTITUDES
A1 (Attitude concerning the importance - value - of preserving Alaskan lands)
A2 (Perception of ability to bring about change in this type of situation - LOCUS OF CONTROL)
If A1 is weak
If A1 is strong
If A2 is INTERNAL
If A2 is EXTERNAL
AND
THEN
Low probability of action
High probability of action (e.g., letter writing to senator re Alaskan land bill)
Low probability of action
GOAL OF EE

Figure 1

The prediction that YCC would shift participants' L of C was based on the nature of the YCC experience. In the YCC program, 15 through 18 year-old youths are involved in up to ten weeks of individual and group decision making, particularly on the work sites. In addition, participants in residential programs engage in decision making in the group living situation (e.g., in interpersonal relations, in camp government, and in recreational opportunities). It was anticipated that this exposure to personal decision making would alter the youths' generalized expectancy of reinforcement.

YCC participants are also exposed to environmental issues and actions which could potentially shift the individual's specific expectancy for reinforcement in environmental situations. Participants are required to engage in ten hours of environmental education experiences each week. Further, the work projects are usually ecomanagement actions aimed at maintaining and/or improving the environment (e.g., landscaping for erosion control, reforestation, clearing a nature trail, timber stand improvement). Thus, it was anticipated that participants' specific expectancy for reinforcement concerning environmental situations would be altered.

Research Design

The research involved paper and pencil testing of 15 through 18 year-old youths who were (1) participants in a Michigan YCC program during the summer of 1979, (2) non-selected YCC applicants, or (3) non-applicants to the YCC Program. The

testing instrument included items designed to measure the subject's L of C, degree of concern for environmental issues in comparison to other social issues, and extent of involvement in environmental action.

Research questions for the study were:

1. Does participation in YCC produce a more internal locus of control in participants?
2. Do 5-day residential, 7-day residential, and non-residential camps differ in their effects on participants' L of C?
3. Does involvement in YCC influence the importance attributed to environmental and other social issues by participants?
4. Do individuals who apply for YCC differ significantly from those who do not apply for YCC on the dependent variables?
5. What relationship exists between L of C and reported involvement in environmental action taking?
6. How are L of C and involvement in environmental action taking affected by sex and age of subjects?
7. What types of environmental actions are most frequently reported by YCC applicants?

The research design could be represented in the following manner:

	Pre-test	YCC Experience	Post-test
YCC Participants (N=149)	O_1	X	O_2
Non-Selected Applicants (N=36)	O_3		O_4
Non-Selected Applicants (N=38)			O_5
Non-Applicants (N=95)			O_6

In the above diagram, "O" represents an observation of the

dependent variable by means of the testing instrument, and "X" represents the treatment (the YCC experience).

The experimental subjects (YCC participants) completed the research instrument within the first two weeks of the program (O_1) and again during the final week (O_2). Pre/post control subjects (non-selected applicants) were mailed the instrument in mid-June (O_3) and again in mid-August (O_4). Post only control subjects (non-selected applicants) completed the instrument in mid-August only (O_5). All of the non-applicant subjects were tested in October (O_6).

Instrumentation

The first section of the testing instrument (see Appendix) collected data concerning age, sex, and extent of YCC experience. The other three sections assessed subjects' L of C, ranking of social issues, and involvement in environmental action which will be briefly described below. The instrument also contained several other measures not being reported here, which added to the length of the form. A preliminary version of the research instrument was administered to several local high school classes. Based on the findings of this pilot study, the instrument was revised to its present form.

Locus of Control: The L of C instrument employed in this study was adapted from Levenson (1972). Her scale is a combination of items from several L of C scales, with the addition of a set of statements written specifically for the new scale. This L of C instrument provides a more adequate measure of external control because it distinguishes external

control by powerful others as separate from external control by fate or chance. This 24-item IPC (Internal, Powerful Others, Chance) Scale allows the subjects to attribute causation to each of these factors. Items for the scale are divided equally among the three orientations (I, P, and C). The specific content areas tapped by the items appear equally for all three orientations and a high degree of parallelism exists within each triad of items.

To enhance its predictive capabilities, Levenson made a personal/ideological distinction so that all the statements refer to only the subject himself/herself. Pretesting the instrument indicated a high internal consistency within subscales and revealed it was not correlated with a measure of social desirability (Levenson, 1972). Levenson used her Likert-type, three factor measure with some success in supporting internal, powerful others, and chance as independent orientations.

In the research being reported here, the subjects used the same 6-point Likert scale to indicate the extent to which they agreed or disagreed with the 24 attitude statements. Subjects were given an individual score for the eight "internal" (I) items, a score for the eight "powerful others" (P) statements, and a score for the eight "chance" (C) items. A total internality score (INTSCR) was computed by a summation of the scores for all 24 items (P and C scores were transformed so that resulting high scores indicated an internal L of C).

Issues Ranking: This instrument assessed how important the subjects felt environmental issues were, relative to other social issues. Subjects were presented with six social issues (Crime Rate, Drug Abuse, U.S. and World Economy, Environmental Issues, Discrimination Against Race, Sex, Religion, Age, and Capital Punishment). Crime rate was assigned a score of 500. Subjects rated the other issues using crime rate as a point of reference (e.g., if the subject was twice as concerned about drug abuse as he/she was about crime rate, drug abuse was given a score of 1,000).

Environmental Action Checklist: This section assessed the extent to which subjects had been involved in environmental action. Subjects were presented with 16 statements of environmental action which reflected Hungerford and Peyton's (1976) categories of environmental action (persuasion, consumerism, political action, legal action, and ecomanagement). Additionally, statements concerning fund raising and information seeking were included. The statements varied in degree of commitment from passive actions ("I have read articles ... and/or listened to programs ... about environmental problems.") to more active actions ("I have helped to start and/or distribute a petition concerning an environmental problem."). This self-report measure indicated the subject's extent of voluntary participation (Never, Occasionally, Often, Regularly) for each action statement. A score was calculated for each statement with "Never" given a value of 0, up to "Regularly" which was

assigned a value of 3. The total environmental action score (ACTSC) was a summation of the individual's score for each statement.

Research Subjects

The subjects used in the study were 15 through 18 year-old males and females. Experimental subjects were participants in a Michigan YCC program during the summer of 1979. One control group (non-selected applicants) consisted of individuals who applied for a position in the 1979 YCC program but were not selected to participate. A second control group included individuals who had never applied for the YCC program (non-applicants).

YCC Participants: Participants for the 1979 YCC program were randomly selected by a computer. Only sex, zip code of residence, and type of camp preferred were used in the selection process to insure random distribution reflecting the applicant population. Recruitment for participation in the 7-day residential camp programs was state-wide; 5-day programs (both residential and non-residential) recruited from within commuting distance of the sponsoring agency (Ross Dodge, Office of Manpower Programs, Michigan Department of Natural Resources; personal communication).

The study involved 149 Michigan youth participating in six YCC programs. The demographic data are presented in Table 1.

Non-Selected Applicants: Seventy-four youth who were not selected by computer to participate in the 1979 YCC program

Table 1

Demographic Data of YCC Participants

CAMP	MALES 15	16	17	18	TOTAL MALES	FEMALES 15	16	17	18	TOTAL FEMALES	TOTAL/ CAMP
7-Day Residential											
Chittenden YCC	4	6	4	0	14	7	8	9	0	24	38
Fife Lake YCC*	5	4	3	1	13	7	5	2	2	16	29
Mill Lake YCC*	5	7	3	0	15	5	6	5	1	17	32
5-Day Residential											
Escanaba River YCC	3	4	4	0	11	4	1	4	1	10	21
Sleeping Bear Dunes YCC	5	2	0	1	8	3	4	1	0	8	16
5-Day Non-Residential											
Saginaw County YCC	2	1	1	1	5	1	5	2	0	8	13
Total by age and sex	24	24	15	3		27	29	23	4		
Total by sex				Males	66				Females	83	
Total by age	15 - 51			16 - 53		17 - 38			18 - 7		
Grand Total											149

*15 males and 16 females were randomly selected out of these two camps for a special environmental education treatment not reported here. These subjects were used only in the analyses involving pre-tests (O_1).

also completed the research instrument. Using a table of random numbers, these youth were selected from the computer list of non-selected applicants. A letter was sent to the applicant's parent or guardian requesting permission to send the instrument to the applicant. Subsequently, 36 non-applicants were randomly selected to serve as the pre-post control group. These subjects completed the research instrument in mid-June and again in mid-August. This pre-post control group controlled for the external validity factors of history and maturation. Thirty-eight non-selected applicants completed the research instrument in mid-August and thus served as the post-only control. This group controlled for the effects of the instrument, for history, and for maturation.

Non-Applicants: Ninety-five youth served as the non-applicant control group (Table 2). In order to duplicate the YCC population as closely as possible, students from urban, suburban, and rural high school in southern Michigan were asked to complete the research instrument. These schools were selected on the basis of availability. The classes used were heterogeneously grouped, required courses or study halls consisting of 15 through 18 year-old males and females. To approximate the proportion of males and females in each age grouping of the applicant population, completed instruments were randomly selected for use in the analysis from the non-applicant group. Subsequently, 45 males and 50 females were used in the analysis.

Table 2

Demographic Data of Control Groups

Group	MALES 15	16	17	18	TOTAL MALES	FEMALES 15	16	17	18	TOTAL FEMALES	TOTAL/ GROUP
Non-Selected Applicants											
Pre-post Control	2	9	2	4	17	3	6	9	1	19	36
Post Only Control	5	3	4	2	14	7	9	8	0	24	38
Non-Applicant Control	17	15	11	2	45	16	19	15	0	50	95
Total by age and sex	24	27	17	8		26	34	32	1		
Total by sex				Males	76				Females	93	
Total by age	15 - 50			16 - 61		17 - 49			18 - 9		
Grand Total											169

YCC Treatment

The Youth Conservation Corps is a conservation-oriented, summer work/earn/learn program for 15 through 18 year-old males and females. The objectives of YCC are to:

1. Accomplish needed conservation work on public lands.
2. Provide gainful employment for 15 through 18 year-old males and females from all social, economic, ethnic, and racial backgrounds.
3. Develop an understanding and appreciation of the Nation's environment and heritage in participating youth. (Federal Register, 1978).

Applicants had the option of working in a 7-day residential, 5-day residential, or 5-day non-residential program, and indicated a preference on the application form. It is noteworthy that although each YCC program adhered to the stated objectives, actual implementation varied from program to program depending on the location and type of program, sponsoring agency, personality and expertise of staff members, etc.

YCC afforded many unique experiences for the youth involved. Since participant selection for the Michigan YCC was purely random, youth from all social, economic, ethnic, and racial backgrounds participated together in the program. YCC was the first employment experience for many of the youth. In the residential program, many participants experienced their first extended period away from home. For a few individuals, this was the first time he/she had been more than twenty miles away from home.

Participants were divided into work crews, usually consisting of eight youth and one supervising Crew Leader. The youth were paid for 30 hours per week of conservation-oriented work. Projects were ususlly ecomanagement actions such as landscaping for erosion control, pruning trees, campground renovation and maintenance, wildlife habitat improvement, etc. The work assignment afforded youth decision making opportunities. Although the work projects were outlined by the Work Coordinator, the work crew and their Crew Leader often had the opportunity to decide how to best complete the project to arrive at the desired outcome.

If the work project was beyond commuting distance from the YCC camp, the youth and Crew Leader spent the week near the work-site, on "spike camp". The crew was essentially autonomous and participants were forced to be self-reliant. The intense living/working situation on spike camp required a great deal of team-work in individual and group decisions to insure smooth functioning.

In addition to the 30 hours per week of work assignments, 10 hours each week were spent in environmental education (EE) experiences. The coordination of the EE program was carried out by the EE Coordinator, with cooperation from the Crew Leaders in the implementation of the programs. Various techniques were used to execute the EE program, including informal discussions of an environmental issue, hands-on activities, and field trips. There was considerable variation in the implementation of the EE among the programs in the study. In at least one camp, the youth themselves prepared and presented a two-hour EE session to his/her crew.

An opportunity to live and recreate with youths from all over Michigan was an added dimension to the YCC experience offered by residential programs. Weekend (7-day residential only) and evening recreational activities included sports, canoeing and backpacking trips, in-camp movies, games, attending local festivals, etc., and free time to read, write, and cultivate new friendships. The recreational activities offered an added opportunity for personal interaction and personal growth.

Several residential programs established a camp council, consisting of staff and/or youth-elected representatives. The council acted as liaison between youth and staff and made recommendations to the Camp Director. Often the council was given decision making responsibilities such as establishing the smoking areas in camp, deciding disciplinary actions for minor infractions, and acting as a grievance review board.

Limitations

The research and recommendations reported here must be considered in light of the following limitations on the study:

1. Although selection of YCC applicants was random, application and program participation was voluntary, therefore, YCC participants represent a biased interest group. Completion of the research instrument was voluntary, which had a minimal impact on the experimental group since most of these subjects responded. However, its impact on the non-selected applicant control group may have been greater.

Individuals in this group were selected randomly, but actual participation of those selected was voluntary. The non-applicant group may not be a representative sample population, since final selection was not random, but rather, based on the individual's willingness to participate. However, attempts were made to insure that this group would be representative of applicant group age and sex distribution.

2. Some research subjects may have been intimidated by the length of the research instrument (six pages) or frustrated with the time involved to complete it (approx. 30 minutes). Data analysis suggests some uncertainty concerning the reliability of the L of C instrument. All inferences drawn from these results must be considered within the limitations of the L of C research instrument to accurately measure L of C.

3. The administration of the research instrument was not monitored by the researcher. However, instructions for completing each portion of the instrument directly preceeded each measurement.

4. Since selection of YCC participants was random, a range of academic abilities occurred in each program. Although the reading level of the research instrument was not formally assessed, administration indicated some subjects had difficulty because they were unable to read and/or comprehend the instrument.

Results

With the exception of the Issues Ranking results, all of the data collected were considered as ordinal and subjected to nonparametric statistical analysis using the supplemental Statistical Package for the Social Sciences in the Michigan State University computer system. The technique used in ranking the social issues has been suggested by Bammel (1979) as a means to obtain interval data which may be subjected to parametric analysis.

To check for internal validity threats due to effects of the instrument, ordinal variable post scores from the pre-post and post only control groups were compared (O_4 vs O_5) using the Mann-Whitney U - Wilcoxon Rank Sum W Test. Results (Table 3) indicate no significant differences exist in mean ranks (all probabilities > .25). A significant difference in the ranking of social issues was found only for U.S. and world economy (Table 4). Post only control (O_5) subjects ranked this social issue higher than pre-post controls (O_4).

As a further validity check and to serve as an indication of instrument reliability, pre and post scores of the pre-post control group were also compared (O_3 vs O_4). Results of the Wilcoxon Match-Pairs Signed-Ranks Test and the Matched Pairs T-Test (used for Issues Ranking) are presented in Tables 5 and 6. While differences in ranking the issue, U.S. and world economy, were found between pre-post (O_4) and post only (O_5) controls, these differences were not observed between pre (O_3) and post (O_4) tests of the former group. No significant

Table 3

Comparison of Ordinal Post Scores Between Pre-Post (O_4) and Post Only (O_5) Control Groups (Mann-Whitney U - Wilcoxon Rank Sum W Test)

Variable	Mean Post Score	Mean Rank	Z^1	2-Tailed Prob[1]
Internal Scale				
O_4	37.86	40.4		
O_5	35.92	37.4	1.15	.25
Powerful Others Scale				
O_4	24.72	37.5		
O_5	24.55	37.5	.01	.99
Chance Scale				
O_4	25.28	40.0		
O_5	23.61	35.1	.99	.32
Total Internality Score				
O_4	95.81	36.8		
O_5	95.68	38.2	-.29	.77
Total Action Score				
O_4	15.61	35.3		
O_5	16.97	39.6	-.88	.38

N (Pre-post control group) = 36
N (Post only control group) = 38
α = .05
[1]Corrected for ties

Table 4

Comparison of Environmental and Social Issues Ranking Between Pre-Post (O_4) and Post Only (O_5) Control Groups (Parametric T-Test)

Variable	Mean	Standard Deviation	T	DF	2-Tailed Prob
Drug Abuse					
O_4	543.1	352.6			
O_5	618.2	320.7	-.96	72	.34
U.S. and World Economy					
O_4	559.7	344.7			
O_5	726.7	319.9	-2.16	72	.03*
Environmental Issues					
O_4	586.1	365.6			
O_5	742.3	445.0	-1.64	72	.10
Discrimination Against Race, Sex, Religion, Age					
O_4	471.0	377.9			
O_5	616.6	318.3	-1.80	72	.08
Capital Punishment					
O_4	495.2	415.0			
O_5	421.7	301.9	.87	72	.39

N (Pre-Post Control) = 36
N (Post Only Control) = 38
$\alpha = .05$
*Significant

Table 5

Comparisons of Pre- and Post-Ordinal Scores of the Pre-Post Control Group (O_3 vs O_4) (Wilcoxon Matched-Pairs Signed-Ranks Test)

Variable	Mean	Mean Rank	Z [1]	2-Tailed Prob [1]
Internal Scale				
Pre	37.6	17.1		
Post	37.8	14.3	-.2160	.83
Powerful Others Scale				
Pre	25.4	16.0		
Post	24.7	20.7	-1.1968	.23
Chance Scale				
Pre	25.0	16.8		
Post	25.3	17.2	- .5092	.61
Total Internality Score				
Pre	99.2	19.7		
Post	95.8	14.7	-2.2685	.02*
Total Action Score				
Pre	16.0	18.0		
Post	15.6	14.1	-.4311	.66

N = 36
α = .05
*Significant
[1]Corrected for ties

Table 6

Comparison of Pre- and Post-Issues Ranking by the Pre-Post Control Group (O_3 vs O_4) (Matched Pairs T-Test)

Variable	Mean	Standard Deviation	T	DF	2-Tailed Prob
Drug Abuse					
Pre	602.7	266.7			
Post	543.	352.5	1.07	35	.29
U.S. and World Economy					
Pre	708.3	404.8			
Post	559.7	344.7	1.79	35	.08
Environmental Issues					
Pre	736.1	446.1			
Post	586.1	365.6	1.69	35	.10
Discrimination Against Race, Sex, Religion, Age					
Pre	595.8	422.8			
Post	470.9	377.8	1.45	35	.06
Capital Punishment					
Pre	413.2	299.0			
Post	495.2	414.9	-1.13	35	.26

N = 36
α = .05

differences were found between 0_3 and 0_4 with the exception of the total internality score (INTSCR). This variable shows a significant decrease in internal L of C which suggests some lack of instrument reliability when used under the conditions of this study. The decrease may also be due to effects of history or maturation. Since analysis of the internality (I), powerful other (P), and chance (C) scales individually show no significant change, it is also possible that the change in the INTSCR variable represents a Type I error. In spite of some evidence to the contrary, the findings of the analysis reported here are accepted as indication that internal validity threats due to instrument effect, history, or maturation do not exist.

Research Question 1: Does participation in YCC produce a more internal L of C in participants?

Gain scores on each of the three L of C scales (I, P, C) and the total internality score (INTSCR) were compared between participants in the YCC camps (0_2 - 0_1) and pre-post controls (0_4 - 0_3). Results are summarized in Table 7. No significant differences in gain scores were found indicating that the YCC camp experiences in this study did not have an effect on participants' L of C as measured by the research instrument.

Research Question 2: Do 5-day residential, 7-day residential, and non-residential camps differ in their effects on participants' L of C?

Gain scores on I, P, C and INTSCR were compared among the three types of camps and the pre-post control groups. Results

Table 7

Comparison of Gain Scores in I, P, and C Scales, and Total Internality Score (INTSCR) Between YCC Participants and Pre-Post Control Group (Mann-Whitney U - Wilcoxon Rank Sum W Test)

Variable	Mean Gain Score	Mean Rank	Z^1	2-Tailed Prob[1]
I				
YCC	-.06	92.8		
Control	.25	93.7	-.09	.93
P				
YCC	-.52	93.9		
Control	.72	89.4	.45	.65
C				
YCC	.05	91.8		
Control	.31	97.8	-.60	.55
INTSCR				
YCC	-3.67	93.2		
Control	-3.39	92.2	.10	.92

N (YCC) = 118
N (Control) = 36
α = .05
[1]Corrected for ties

(Table 8) indicate no significant differences exist in how each of the camp experiences influenced L of C as measured by the instrument. Nor are the results from any of the camps significantly different from the pre-post control group results.

Research Question 3: Does involvement in YCC influence the importance attributed to environmental and other social issues by participants?

Post scores on the Issues Ranking instrument were compared between YCC participants (0_2) and non-selected applicant controls (0_4, 0_5) using T-tests. Results (Table 9) indicate that the YCC experience did not alter how participants ranked the five categories of social issues.

Research Question 4: Do individuals who apply for YCC differ significantly from those who do not apply for YCC on the dependent variables?

For purposes of this analysis, pre-test data from each of the YCC camps (0_1) were collapsed with the pre-post (0_3) and post-only (0_5) control data to serve as the applicant variable. Applicants were compared with the non-applicant control group (0_6). Findings of this analysis are reported in Tables 10 and 11.

Applicants were found to be significantly more internal than non-applicants on the total internality score (INTSCR). Even though highly significant on the INTSCR variable, this difference did not appear on either the I, P, or C scales. Therefore, the inference that applicants are more internal than non-applicants must be viewed with caution.

Table 8

Comparison of Gain Scores in I, P, C, and INTSCR Variables Among 5-Day Residential, 7-Day Residential, Nonresidential Camps and Pre-Post Control (Mann-Whitney U - Wilcoxon Rank-Sum W Test)

Variable	Mean Gain Score	Mean Rank	N	Chi-Square[1]	Significance[1]
I					
5 day res.	- .35	58.8	37		
7 day res.	.10	68.3	68	1.54	.67
Non-resid.	- .46	59.6	13		
Control	.25	61.2	36		
P					
5 day res.	2.11	72.3	37		
7 day res.	-1.42	63.7	68	5.43	.14
Non-resid.	-1.07	53.2	13		
Control	.72	54.6	36		
C					
5 day res.	3.16	70.4	37		
7 day res.	-1.06	62.0	68	3.28	.35
Non-resid.	- .31	52.3	13		
Control	.31	58.6	36		
INTSCR					
5 day res.	-9.38	50.2	37		
7 day res.	-1.59	64.9	68	6.59	.09
Non-resid.	-3.31	70.4	13		
Control	-3.39	69.7	36		

$\alpha = .05$

[1]Corrected for ties

Table 9

Comparison of Issues Ranking by YCC Participants (O_2) and Non-Selected Applicant Controls (O_4, O_5) (T-Test)

Variable	Mean	Standard Deviation	DF	T	2-Tailed Prob
Drug Abuse					
YCC	636.9	950.3			
Control	581.6	336.4	190	.48	.63
U.S. and World Economy					
YCC	693.8	1281.0			
Control	645.5	340.5	190	.32	.75
Environmental Issues					
YCC	664.6	958.3			
Control	666.3	413.0	190	-.01	.99
Discrimination Against Race, Sex, Religion, Age					
YCC	600.3	935.8			
Control	545.7	353.8	190	.48	.63
Capital Punishment					
YCC	498.8	694.1			
Control	457.5	360.7	190	.47	.64

N (YCC) = 118
N (Control) = 74
α = .05

Table 10

Comparison of YCC Applicants (O_1, O_3, O_5) and Non-Applicants (O_6) on Locus of Control Measures (I, P, C, and INTSCR) and Total Action Score (ACTSC) (Mann-Whitney U - Wilcoxon Rank Sum W Test)

Variable	N	Mean	Mean Rank	Z^1	2-Tailed Prob
I					
Applicants	223	36.6	161.7		
Non-applicants	95	36.3	154.4	.64	.52
P					
Applicants	223	24.9	155.6		
Non-applicants	95	25.8	168.6	-1.16	.25
C					
Applicants	223	24.5	161.4		
Non-applicants	95	23.8	155.0	.57	.57
INTSCR					
Applicants	223	98.4	168.1		
Non-applicants	95	94.3	139.3	2.55	.01*
ACTSC					
Applicants	223	16.7	182.7		
Non-applicants	95	10.3	105.1	6.89	.00*

$\alpha = .05$

*Significant

[1]Corrected for ties

Table 11

Comparison of Issues Ranking by Applicants (O_1, O_3, O_5) and Non-Applicants (O_6) to the YCC Program (T-Test)

Variable	Mean	Standard Deviation	DF	T	2-Tailed Prob
Drug Abuse					
Applicants	591.7	313.2			
Non-applicants	606.5	345.6	316	- .37	.71
U.S. and World Economy					
Applicants	753.4	1021.8			
Non-applicants	811.7	1050.3	316	- .46	.65
Environmental Issues					
Applicants	737.1	808.6			
Non-applicants	630.8	553.1	316	1.17	.24
Discrimination Against Race, Sex, Religion, Age					
Applicants	711.3	1092.6			
Non-applicants	783.0	1450.8	316	- .48	.63
Capital Punishment					
Applicants	509.3	794.8			
Non-applicants	604.9	988.8	316	- .91	.36

N (Applicants) = 223
N (Non-applicants) = 95
α = .05

A highly significant difference in environmental actions reported were also found between YCC applicants and those who had not applied. This indicates that individuals interested in the YCC experience are more involved in environmental concerns. This is borne out by a comparison of social issues ranking. Applicants ranked environmental issues second only to economic concerns (U.S. and World Economy; Environmental Issues; Discrimination Against Race, Sex, Religion, Age; Drug Abuse; Capital Punishment). Non-applicants ranked the environment third among their list of issues (U.S. and World Economy; Discrimination...; Environmental Issues; Drug Abuse; and Capital Punishment). However, a statistical comparison of importance scores attributed to the issues by each group shows no significant difference.

Research Question 5: What relationship exists between L of C and reported involvement in environmental action taking?

Pre-test data from the YCC participants (O_1) and the pre-post controls (O_3) were combined and analyzed to determine Spearman Rank Order Correlation Coefficients (Spearman r). Findings (Table 12) indicate a positive correlation exists between the expressions of internality measured by the research instrument and the total action score (ACTSC).

A small but highly significant positive correlation was found between INTSCR and ACTSC (Spearman $r = .18$; $p < .01$). A significant positive correlation also exists between the I scale and ACTSC (Spearman $r = .21$; $p < .01$). Correlations between the P and C scales and ACTSC variable

Table 12

Correlations Between ACTSC and I, P, C, and INTSCR Variables (Spearman Rank Order Correlation Coefficients)

Variable	Spearman r	Significance Level
I	.21	.002*
P[1]	-.10	.08
C[1]	-.07	.16
INTSCR	.18	.006*

N = 185

α = .05

*Significant

[1]A high score on either of these scales indicates a low internal locus of control. Coding on the P and C scales was reversed to calculate the total internality score (INISCR).

were not statistically significant, but they were negative, and thus support the inference that individuals who are internal, may be more environmentally active.

It is important to note that for the YCC applicants, a positive and significant correlation was also found between the importance attributed to environmental issues (environmental issue ranking score) and reported actions (ACTSC). A Spearman r of .21 was found to be significant at the .00 level.

Research Question 6: How are L of C and involvement in environmental action taking affected by sex and age of subjects?

Pre-test data from both the YCC participants (O_1) and the applicant controls (O_3, O_5) were combined for this analysis (Tables 13 and 14). Significant differences in the P scale and INTSCR variable were found across age groups. A trend (Table 13) exists for internality to increase from ages 15 through 17 and then to decrease at age 18. The trend is supported in all four measures of L of C, but was significant only in the P and INTSCR variables. No significant difference exists among age groups in total action score.

Females were significantly more internal than males on the P, C, and INTSCR measures (Table 14). Females show higher, but statistically insignificant scores on the I scale also. There is also a slight, but statistically insignificant trend for females to report more environmental actions than males.

Table 13

Variance of I, P, C, INTSCR and ACTSC Variables Attributable to Age (Kruskal-Wallis 1-Way ANOVA)

Variable	Age	Mean	N	Mean Rank	Chi-Square[1]	Significance[1]
I	15	36.3	68	106	2.56	.46
	16	37.1	80	113.2		
	17	36.5	61	111.2		
	18	35.3	14	136		
P	15	27.2	68	130.6	11.98	.00*
	16	24.7	80	108.8		
	17	22.9	61	92.5		
	18	25.9	14	124.6		
C	15	25.4	68	120.1	4.08	.25
	16	24.1	80	106.5		
	17	24.2	61	105.0		
	18	27.3	14	134.5		
INTSCR	15	95.8	68	95.8	7.62	.05*
	16	100.3	80	116.5		
	17	101.4	61	125.7		
	18	97.0	14	105.1		
ACTSC	15	15.4	68	100.6	3.25	.35
	16	16.5	80	119.2		
	17	17.0	61	114.8		
	18	15.8	14	114.4		

$\alpha = .05$

*Significant

[1]Corrected for ties

Table 14

Differences in I, P, C, INTSCR and ACTSC Variables Attributable to Sex (Mann-Whitney U - Wilcoxon Rank Sum W Test)

Variable	Sex	Mean	Mean Rank	Z^1	2-Tailed Prob
I	Male	36.38	109.8	- .44	.66
	Female	37.05	113.7		
P	Male	26.88	129.5	3.5	.00*
	Female	23.55	99.0		
C	Male	26.58	127.2	3.04	.00*
	Female	23.27	100.7		
INTSCR	Male	94.92	94.6	-3.46	.00*
	Female	102.22	124.9		
ACTSC	Male	15.54	106.0	-1.18	.23
	Female	17.48	116.4		

N (Male) = 95
N (Female) = 128
α = .05
*Significant
[1]Corrected for ties

Research Question 7: What types of environmental actions are most frequently reported by YCC applicants?

Mean scores for each of the action categories were calculated for YCC participants (0_1) and applicant controls (0_3, 0_5). These means were used to rank the categories. The three most reported actions are picking up litter, seeking information about environmental problems, and conservative use of resources. The least reported action is persuasion of other individuals and/or agencies to take environmental action. Findings are summarized in Table 15.

Discussion

This study investigated the impact of the Youth Conservation Corps experience on participants' L of C. Additionally, the study probed the relationships among L of C, the extent of environmental action taking, and the relative importance of environmental issues (Issues Ranking).

The changes in INTSCR from 0_3 to 0_4 (pre-post control group) casts some doubt on the reliability of the instrument used to measure L of C. However, since no significant differences were observed between 0_4 and 0_5 (post comparisons of the two control groups), it may be that the increase in externality of the pre-post control group is a function of maturation, history, or a Type I error. Since no corresponding change exists in the individual I, P, and C scales for this group, and L of C results in other group comparisons are consistently that of no significant change, the instrument reliability and validity threats are viewed as minimal.

Table 15

Ranking of Categories of Environmental Action Participation Reported by YCC Applicants (N=223)

	Action Category	Mean Action Score
1.	I pick up litter.	1.800
2.	I have read articles (newspaper or magazine) and/or listened to programs (TV or radio) about environmental problems.	1.600
3.	I have made an effort to use some products as little as possible to conserve resources or avoid environmental damage (e.g. reduce consumption of electricity, reuse paper and/or plastic products, limit the use of a car, etc.).	1.500
4.	I have talked to my friends about environmental problems.	1.290
5.	I have participated in a litter clean-up drive.	1.270
6.	I recycle paper, glass, and/or metal.	1.250
7.	I have taken steps to improve the environment for plants and animals such as erosion control, improve wildlife food and shelter, stream improvement, etc.	1.233
8.	I have refused to buy a product because of the environmental problems it might cause.	1.170
9.	I have joined organizations which are concerned about environmental problems.	.700
10.	I have signed a petition which encourages a person/group/organization to take some action which I felt would improve environmental quality.	.616
11.	I have helped raise money to improve the environment.	.604
12.	I have reported a violation of an environmental law to appropriate officials (e.g. turned in someone for illegally dumping garbage, polluting, illegally burning, etc.).	.425
13.	I have helped to inform the public about an environmental problem (news release, distribution of literature, public talk/slide show, picketing, demonstrating, etc.)	.421
14.	I have acted to influence the passage of a law which I felt would have important environmental effects.	.406
15.	I have helped to start and/or distribute a petition concerning an environmental problem.	.380
16.	I have contacted persons/officials/groups/company/agency to encourage their action on an environmental issue.	.370

Findings generally indicate YCC had little impact on the dependent variables measured. The investigation indicates the YCC programs participating in the study, had no measurable impact on the L of C of participants. It had been predicted by the researcher that many policies of the YCC program would encourage the development of an internal L of C if fully implemented. However, results indicate that the YCC programs in the study may not have maximized the opportunities to encourage the development of internal expectancies of reinforcement.

That the above could indeed be true is supported by events observed by the researcher which actually could be viewed as encouraging externality. In one instance, poor communication between the local park work coordinator and park supervisor resulted in a (YCC) completed project being torn out and reconstructed by another YCC crew. Even though the park personnel later accepted full responsibility for the miscommunication, the observed impact on the YCC crew members was a feeling of control by powerful others and ineffective personal action.

In another instance, the YCC work crew members viewed their work assignment as destroying wildlife habitat, in opposition to the objectives of YCC. The central problem was that the crew members did not understand the role which their efforts played in the total management plan of the area. This experience seemed to have similar effects on crew members' feelings of lack of control. Both of the above experiences could have been avoided if more attention had been paid to the YCC directives concerning work project

communication and environmental impact assessments of the work projects by the appropriate YCC staff members.

Certainly there may be many factors or situations present in a YCC program which reinforce internality. However, the effects of these positive experiences may be neutralized by other situations which reinforce an external L of C. It is recommended that YCC staff members be made aware of the need to avoid and/or help participants deal with these latter types of experiences.

When compared with non-applicants, YCC applicants were more internal in the total internality score (INTSCR), but not on the I, P, or C scales individually. This provides some suggestion that the applicants to YCC may have already been somewhat more internal than those who did not apply. If this is the case, it may help to explain the lack of observed impact on L of C by the YCC experience. It may also be that changes in participants' L of C were situation specific, and therefore not detected by the generalized instrument used in this study.

Other studies on YCC have indicated the YCC participants and their parents personally perceive the experience did give the participant long-term benefits similar to traits attributed to an internal L of C (U.S. Dept. of the Interior and U.S. Dept. of Agriculture, 1979). For example, participants and their parents perceived that positive changes occurred as a result of the YCC experience such as "more

willing to take on challenges" (youth - 89%; parents - 90%), "greater confidence in personal opinions and decisions" (88%; 88%), "more self-confidence in ability to accomplish new tasks or overcome problems" (87%; 91%). It may be that such changes need time to develop and had not yet been assimilated into the participants' self-image when asked to complete the present researcher's post-test instrument during the final week of the YCC program.

The present investigation indicates that YCC had no measurable impact on participants' ranking of environmental issues relative to other social issues. It must be noted, however, that prior to the YCC experience, the applicant group rated environmental issues second among the list of issues used. It may not be reasonable, therefore, to expect YCC to significantly increase participants' ranking of environmental issues. The data do indicate that, as measured by the instruments, a positive correlation exists between expressions of internality and the total number of environmental actions reported. The findings also show a positive correlation between the number of actions reported by the participants, and the value given to environmental issues relative to other social issues. Thus, it may be inferred from the data that YCC applicants who placed a higher value on the environmental issues (Issues Ranking) and also had a higher expectancy of reinforcement (total internality score), were more likely to engage in actions to improve and/or

maintain environmental quality. If accurate, this inference supports Rotter's (1966) formula for predicting behavior in a particular situation.

Individuals who applied for the YCC program reported taking more environmental actions than non-applicants. The four actions most frequently reported by applicants reflected ecomanagement, information seeking, consumerism, and persuasion actions. Indeed, these four modes of action were reflected in the top nine reported actions.

Those actions reported most often are less demanding (e.g., "I pick up litter", "I have read articles ... and/or listened to programs ... about environmental problems", "I have made an effort to use some products as little as possible ..."). There was relatively little involvement reported in political or legal action which often connotes a higher level of commitment and/or knowledge. However, it is not possible to infer from the data whether the youth actually did not take actions which are more demanding because they: (a) did not have the necessary level of personal commitment; (b) were not aware of the different types of actions possible; or (c) did not possess the necessary environmental action skills. Further research is necessary to establish the relative importance of these factors.

Not only are the most frequently reported actions less demanding, but they are also individual actions rather than group actions. Hungerford and Peyton (1976) propose that

important differences exist between individual and group actions in terms of the scope of concern, effectiveness, and power base. The findings reported here suggest youth typical of those applying to the YCC program, are not making use of effective group environmental action taking. Again, it can only be speculated that this may be due to the lack of knowledge and appropriate action skills.

In an investigation of environmental action taking, Peyton (1976) found that in-service teachers reported taking few actions. Of those reported, most were individual, unsophisticated actions (ecomanagement). The teachers attributed their low level of environmental action taking to a lack of appropriate action skills. If these teachers are representative of the general public, it may be inferred that the YCC applicants do not take sophisticated or group actions for the same reasons.

The present research assessed the extent of environmental action taking prior to YCC and no attempt was made to assess the longitudinal effects of the YCC experience on participants' involvement in environmental issues once they returned to their home environment. In a longitudinal study, the USDI and USDA (1979) asked participants to rate the degree to which YCC influenced their increased involvement in environmental issues. Several action items used in the survey are similar to those used in the present study. Findings of the USDI and USDA study indicate YCC participants became more involved in environmental issues upon their return home. It

is noteworthy that participants reported that they are more involved in political actions and group actions. Even though political and group actions were notably lacking from the actions reported in the present study, it appears that YCC does have an impact on participants' environmental involvement.

Locus of control has been shown to be affected by age (Bailer, 1961; Penk, 1969). Results reported here support these findings. Internality increased from age 15 to age 17 and decreased at age 18. Crandall, et al. (1965) found similar decreases in internality for success in males. They suggest the decline may be due to uncertainties provoked in the 18 year-old by the impending transition of entering an adult world.

Results indicate that sex and internality are related. Females were significantly more internal than males on the P, C, and INTSCR scales, and, although not significant, a similar trend existed on the I scale. This finding has not been commonly reported in the literature. Levenson (1972) found a difference between males and females only on the P scale. Males had higher P scores (mean = 18.85) than did females (mean = 14.64). The relationships between sex (and age) and L of C may have some implications for program design in YCC and other EE efforts. Research should be initiated to confirm this relationship between sex and internality.

Summary

The study found no evidence that YCC experiences in general, influence L of C development in participants. Nor were differences in impact observed among the types of camp attended by the YCC participants.

Findings did support Rotter's model of behavior. Significant, positive correlations were found between the number of actions taken and both the internality of participants, and the importance they gave to environmental issues on the Issues Ranking task. This implies that the degree of environmental concern (value) and internality (expectancy of reinforcement) both contribute to action taking.

Some evidence was found that applicants to the YCC program were more internal than non-applicants. Applicants also reported taking more environmental actions. The types of actions most often reported involved action other than legal, political, or group actions.

Research findings showed a tendency for females to be more internal than males. A slight relationship between age and internality was also indicated.

The following recommendations are based on the study reported here.

1. A need exists to develop reliable and valid instruments to measure L of C, specific to environmental action situations.

2. YCC should be evaluated with situation-specific instruments to more accurately assess the impact of the experience on participants' L of C in environmental situations.

3. YCC staff members and other environmental educators should be made aware of the L of C theory, its implications for environmental action taking, and experiences which may impinge on the development of an internal L of C.

4. Further research should be initiated to determine the types and quantity of experiences necessary to encourage the development of an internal L of C and subsequent involvement in environmental concerns.

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APPENDICES

APPENDIX A

Research Instrument and Instructions for Administering

APPENDIX A

Research Instrument

MICHIGAN YOUTH CONSERVATION CORPS - Y.C.C.

1979 Survey

Following this page is a series of questionnaires designed to get your opinion on a number of important questions. Your cooperation is a necessary part of our research project to evaluate the effectiveness of the 1979 Michigan Y.C.C. program. We are not attempting to evaluate you personally. The information you provide us will be kept confidential and destroyed when the project is completed. It is hoped that you will give each item your serious consideration.

Once the research is completed, we will be happy to share more details of the procedure and our results with you. If you are interested in knowing more, provide your name and address in the space below. Results will probably be available in 1980.

Thank you for the considerable time and effort you are providing.

Barbara Ann Miller
Dr. R. Ben Peyton
Fisheries and Wildlife Dept.
Natural Resources Bldg.
Michigan State University
East Lansing, Michigan 48824

Name and Address:

BACKGROUND INFORMATION

Name _____

Age _____ Male _____ Female _____

Grade level in 1978-79 school year _____

Y.C.C. Experience:

Have you ever applied for the Y.C.C. program? Yes _____ No _____

Are you presently (summer 1979) a member of Y.C.C.? Yes _____ No _____

Have you been a member of Y.C.C. in the past? Yes _____ No _____

If you were or are now a Y.C.C. member, please check the type of camp:

_____ 7-day residential

_____ 5-day residential

_____ non-residential

Name of Y.C.C. camp _____

ATTITUDE STATEMENT SURVEY

Directions: Below is a series of attitude statements. Each represents a commonly held opinion and there are no right or wrong answers. You will probably disagree with some items and agree with others.

Read each statement carefully. Then indicate the extent to which you agree or disagree by circling the number in front of each statement. The numbers and their meaning are indicated below:

If you agree strongly, circle +3
If you agree somewhat, circle +2
If you agree slightly, circle +1

If you disagree slightly, circle -1
If you disagree somewhat, circle -2
If you disagree strongly, circle -3

First impressions are usually best in such matters. Read each statement, decide if you agree or disagree and the strength of your opinion, and then circle the appropriate number in front of the statement. Circle your opinion on every statement.

If you find that the numbers to be used in answering do not adequately indicate your own opinion, use the one which is closest to the way you feel.

Strongly Agree				Strongly Disagree		
+3	+2	+1	-1	-2	-3	1. Whether or not I get to be a leader in life depends mostly on my ability.
+3	+2	+1	-1	-2	-3	2. To a great extent my life is controlled by accidental happenings.
+3	+2	+1	-1	-2	-3	3. People in power mostly determine what will happen in the lives of people like me.
+3	+2	+1	-1	-2	-3	4. Whether or not I get into a car accident depends mostly on how good a driver I am.
+3	+2	+1	-1	-2	-3	5. When I make plans, I am almost certain to make them work.
+3	+2	+1	-1	-2	-3	6. Often there is no chance of protecting personal interests from bad luck happenings.

This survey continues on the back of this page.

Strongly Agree					Strongly Disagree		
+3	+2	+1	-1	-2	-3	7.	When I get what I want, it's usually because I'm lucky.
+3	+2	+1	-1	-2	-3	8.	Although I might have good ability, I will not be given leadership responsibility without appealing to those in positions of power.
+3	+2	+1	-1	-2	-3	9.	How many friends I have depends on how nice a person I am.
+3	+2	+1	-1	-2	-3	10.	I have often found that what is going to happen will happen.
+3	+2	+1	-1	-2	-3	11.	My life is chiefly controlled by powerful others.
+3	+2	+1	-1	-2	-3	12.	Whether or not I get into a car accident is mostly a matter of luck.
+3	+2	+1	-1	-2	-3	13.	Persons like myself have very little chance of protecting our personal interests when they conflict with those of strong pressure groups.
+3	+2	+1	-1	-2	-3	14.	It's not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune.
+3	+2	+1	-1	-2	-3	15.	Getting what I want requires pleasing those people above me.
+3	+2	+1	-1	-2	-3	16.	Whether or not I get to be a leader depends on whether I'm lucky enough to be in the right place at the right time.
+3	+2	+1	-1	-2	-3	17.	If important people were to decide they didn't like me, I probably wouldn't make many friends.
+3	+2	+1	-1	-2	-3	18.	I can pretty much determine what will happen in my life.
+3	+2	+1	-1	-2	-3	19.	I am usually able to protect my personal interests.
+3	+2	+1	-1	-2	-3	20.	Whether or not I get into a car accident depends mostly on the other driver.
+3	+2	+1	-1	-2	-3	21.	When I get what I want, it's usually because I worked hard for it.
+3	+2	+1	-1	-2	-3	22.	In order to have my plans work, I make sure that they fit in with the desires of people who have power over me.
+3	+2	+1	-1	-2	-3	23.	My life is determined by my own actions.
+3	+2	+1	-1	-2	-3	24.	It's chiefly a matter of fate whether or not I have a few friends or many friends.

ENVIRONMENTAL MODIFIABILITY

The next two pages present a list of 8 statements describing situations which might have an influence on solving our environmental problems. For each statement, we would like two opinions from you. First, if nothing is done about the situation, do you feel the situation described could be IMPORTANT in preventing our environmental problems from being solved? Circle the number which best represents your opinion. In the second column, circle the number that best describes whether or not you feel the problem could be SOLVED in order to improve or maintain environmental quality.

Below is an example to show how to use the scoring system on the next two pages. For this example, assume you are having a hard time starting your car.

	IS IT IMPORTANT? Ask yourself whether the situation described could prevent us from starting your car, if nothing is done about the situation.				CAN IT BE SOLVED? Now ask yourself whether we could solve this problem in order to start your car.			
	CANNOT PREVENT STARTING	SLIGHT INFLUENCE	STRONG INFLUENCE	CAN PREVENT STARTING	CANNOT BE SOLVED	SLIGHT IMPROVEMENT	CONSIDERABLE IMPROVEMENT	CAN BE SOLVED EFFECTIVELY
1. The gas tank is empty.	0	1	2	3	0	1	2	3

In the very simple example given, it is easy to see that the empty tank is an important fact which can prevent starting the car. The problem can be solved by adding gasoline. We would like your opinion on the eight statements which follow. They will not be as easy to answer as our "empty tank" example, but the methods for scoring are the same.

If you think any of the situations described in the eight statements ARE NOT TRUE, you can score them as "not important" (0), and as solvable problems (3).

	IS IT IMPORTANT? Ask yourself whether the situation described could prevent us from maintaining environmental quality (EQ), if nothing is done about the situation				CAN IT BE SOLVED? Now ask yourself whether we (society) could or could not solve this problem in order to improve or maintain environmental quality (EQ).			
	CANNOT PREVENT EQ	SLIGHT INFLUENCE	STRONG INFLUENCE	CAN PREVENT EQ	CANNOT BE SOLVED	SLIGHT IMPROVEMENT	CONSIDERABLE IMPROVEMENT	CAN BE SOLVED EFFECTIVELY
1. LACK OF KNOWLEDGE There are many environmental problems that we cannot solve yet. We simply do not know what to do.	0	1	2	3	0	1	2	3
2. LACK OF MONEY Maintaining and improving environmental quality will be very expensive. (e.g. Millions of dollars would be required for industry to install equipment which lowers air and water pollution.	0	1	2	3	0	1	2	2
3. CONFLICTING INTERESTS There are many conflicting interests and values in our society concerning how we should use and maintain our environment. (e.g. Mining and lumber industries want to use the resources in our national forests, while hikers, hunters, and fisherman want to preserve these resources.)	0	1	2	3	0	1	2	3
4. COMPLEX GOVERNMENT Our governmental systems are so big and complicated that it is difficult to get them to accept and enforce change which will improve environmental quality. (e.g. It may take years to get a law passed and put into effect to protect some part of our environment.)	0	1	2	3	0	1	2	3

	IS IT IMPORTANT? Ask yourself whether the situation described could prevent us from maintaining environmental quality (EQ), if nothing is done about the situation.				CAN IT BE SOLVED? Now ask yourself whether we (society) could or could not solve this problem in order to improve or maintain environmental quality (EQ).			
	CANNOT PREVENT EQ	SLIGHT INFLUENCE	STRONG INFLUENCE	CAN PREVENT EQ	CANNOT BE SOLVED	SLIGHT IMPROVEMENT	CONSIDERABLE IMPROVEMENT	CAN BE SOLVED EFFECTIVELY
5. GROWTH-ORIENTED ECONOMY The need to support the growth of our economy by using natural resources is in conflict with attempts to improve or maintain environmental quality.	0	1	2	3	0	1	2	3
6. LACK OF KNOWLEDGEABLE CITIZENS Many citizens do not know HOW to take actions (e.g. political, legal, consumer) to improve or maintain environmental quality.	0	1	2	3	0	1	2	3
7. LACK OF MOTIVATED CITIZENS Many citizens are not WILLING to take actions to improve or maintain environmental quality.	0	1	2	3	0	1	2	3
8. TECHNOLOGICAL PROBLEMS Using a new technology to solve an environmental problem may create additional environmental problems. (e.g. Using nuclear power to solve part of the energy problem then creates the problem of nuclear wastes in the environment.)	0	1	2	3	0	1	2	3

SOCIAL ISSUES OPINIONAIRE

Directions: A list of social issues is provided which you may be concerned about. "Crime rate" has been given a value of 500. Please consider the items, and using "crime rate" for a comparison, assign a value to each of the other issues. In other words, if you are twice as concerned about "drug abuse" as you are about "crime rate" you would give "drug abuse" a value of 1000. Other issues which you are less concerned about than crime rate would get values less than 500.

_500_ crime rate

_____ drug abuse

_____ U.S. and world economy

_____ environmental issues

_____ discrimination against race, sex, religion, age

_____ capital punishment

ENVIRONMENTAL QUALITY OPINIONAIRE

Now try these ...

Part A

These three statements refer to the quality of an environment. If the "present condition of the U.S. environment" is given a value of 500, how would you rate the other descriptions of environmental quality? In other words, if you think the quality of the environment 400 years ago was twice as good as the quality is today, you score the North American environment 400 years ago as "1000".

_500_ present condition of the U.S. Environment

_____ the quality of the North American environment 400 years ago, before European man settled here

_____ an environment which cannot support life of any kind

Part B

Using the scale you set up in the three statements above, give a value to the two statements below. In other words, if you PREFER an environment like the present condition of the U.S. environment, you would give the first statement a value of 500. Or you might PREFER an environmental quality somewhere between the present condition and the quality of 400 years ago, so the value you give the first statement below would be somewhere between the value given those qualities above.

_____ the quality you would PREFER our environment to have

_____ the environmental quality our society will most likely SETTLE FOR.

ENVIRONMENTAL ACTIVITIES CHECKLIST

Please check the appropriate box (Never, Occasionally, Often, Regularly) for those activities which you have done VOLUNTARILY (not as part of your job or a class assignment). "Environment" means any of your surroundings and would include such things as your neighborhood or community, as well as streams, lakes, forests, fields, air, etc.

Never	Occasionally	Often	Regularly	
				1. I have read articles (newspaper or magazine) and/or listened to programs (TV or radio) about environmental problems.
				2. I have joined organizations which are concerned about environmental problems.
				3. I have helped raise money to improve the environment.
				4. I have talked to my friends about environmental problems.
				5. I have helped to inform the public about an environmental problem (news release, distribution of literature, public talk/slide show, picketing, demonstrating, etc.)
				6. I have contacted persons/officials/groups/company/agency to encourage their action on an environmental issue.
				7. I have acted to influence the passage of a law which I felt would have important environmental effects.
				3. I have signed a petition which encourages a person/group/organization to take some action which I felt would improve environmental quality.
				9. I have helped to start and/or distribute a petition concerning an environmental problem.

Never

Never	Occasionally	Often	Regularly	
				10. I have reported a violation of an environmental law to appropriate officials (e.g. turned in someone for illegally dumping garbage, polluting, illegally burning, etc.).
				11. I have refused to buy a product because of the environmental problems it might cause.
				12. I have made an effort to use some products as little as possible to conserve resources or avoid environmental damage (e.g. reduce consumption of electricity, reuse paper and/or plastic products, limit the use of a car, etc.).
				13. I have taken steps to improve the environment for plants and animals such as erosion control, improve wildlife food and shelter, stream improvement, etc.
				14. I have participated in a litter clean-up drive.
				15. I pick up litter.
				16. I recycle paper, glass, and/or metal.

Please list any other environmental actions you have taken:

DIRECTIONS FOR ADMINISTERING THE MICHIGAN YOUTH CONSERVATION CORPS 1979 SURVEY

Please allow students 30+ minutes to complete the survey form. Directions are written at the beginning of each task and students should answer the items to the best of their ability. Either a pen or pencil may be used in filling out the form.

Please encourage the students to take this survey seriously, as the results generated may have implications for the Youth Conservation Corps and in the field of environmental education.

A sincere thank you to those teachers that have donated their class time for my research project.

APPENDIX B

Letters of Communication

MICHIGAN STATE UNIVERSITY

DEPARTMENT OF FISHERIES AND WILDLIFE
NATURAL RESOURCES BUILDING

EAST LANSING • MICHIGAN • 48824

June 29, 1979

Dear Y. C. C. Camp Director:

Thank you for cooperating in our research project. We appreciate the time, effort and inconvenience required of you.

Enclosed are the first forms we would like you to administer to your Y. C. C. participants. It should require 30-45 minutes for the forms to be filled out. The forms should be filled out at the earliest possible time, no later than July 6. A second set of the forms will be sent to be used during the last week of your Y. C. C. Camp.

Please encourage your Y. C. C. participants to take the forms seriously. We understand the demands placed on your campers' time and the temptation to dismiss such tasks as "busy work".

When the forms have been completed, please send them back to me at this address. If you have any questions concerning the use of the instrument please call me (517-355-4477).

Thank you.

Sincerely,

R. Ben Peyton

R. Ben Peyton
Environmental Conservation Education

RBP:faf

Enclosed

MICHIGAN STATE UNIVERSITY

DEPARTMENT OF FISHERIES AND WILDLIFE
NATURAL RESOURCES BUILDING

EAST LANSING • MICHIGAN • 48824

June 29, 1979

Dear Volunteer:

Thank you for agreeing to participate in our Y.C.C. evaluation project!

Your name has been selected as one of those volunteers who will receive the research opinionaire only once. It will be mailed to you sometime in August of this summer.

Again, we greatly appreciate your cooperation in this project. Have a nice summer.

Sincerely,

R. Ben Peyton

R. Ben Peyton
Environmental Conservation Education

RBP/dlb

MICHIGAN STATE UNIVERSITY

DEPARTMENT OF FISHERIES AND WILDLIFE
NATURAL RESOURCES BUILDING

EAST LANSING · MICHIGAN · 48824

August 1, 1979

Dear Y.C.C. Camp Director:

Thanks for your cooperation in this Y.C.C. research project!

Enclosed is the final set of instruments for your Y.C.C. campers to fill out. Please have your group complete these forms as late as possible during the 1979 Y.C.C. season (hopefully no sooner than 10 days before they leave camp). We realize the final week of camp is sometimes hectic, and you will have to select a time best suited to your schedule.

Again, please encourage the Y.C.C. campers to take the instrument seriously. The opinionaire is somewhat tedious to complete and we sincerely appreciate their efforts.

Once the instruments are completed, use the mailing label to return them at your earliest convenience.

Thank you.

Sincerely,

R. Ben Peyton

R. Ben Peyton
Environmental Conservation Education

RBP/jt

Enclosures

MICHIGAN STATE UNIVERSITY

DEPARTMENT OF FISHERIES AND WILDLIFE
NATURAL RESOURCES BUILDING

EAST LANSING • MICHIGAN • 48824

August 13, 1979

Dear Volunteer:

YOUR COOPERATION HAS BEEN WONDERFUL!

Nearly everyone promptly returned the first opinionaire completely filled out. Many thanks!

Now, here is the second copy. It may seem odd for us to ask you to fill out the same forms again, but if our research results are to be meaningful, it is absolutely necessary that you give this task the same close attention you did the first time. Again, when you have finished all sections, please put the opinionaire into the envelope provided and mail it back to us at your earliest convenience.

Thank you. Your patience and cooperation have meant a great deal to our project.

Sincerely,

R. Ben Peyton

R. Ben Peyton
Environmental Conservation Education

RBP/dlb

Enclosure

MICHIGAN STATE UNIVERSITY

DEPARTMENT OF FISHERIES AND WILDLIFE
NATURAL RESOURCES BUILDING

EAST LANSING • MICHIGAN • 48824

August 13, 1979

Dear Volunteer:

Earlier this summer, you volunteered to help in a Y.C.C. research project. The enclosed opinionaire is part of that research and we would like you to fill it out at your earliest convenience. We greatly appreciate the time, effort and thought you are giving to the project. Filling out the opinionaire is not always easy, but your opinions are very important to our research.

When you have finished all of the sections, please put the opinionaire into the envelope provided and mail it back to us at your earliest convenience.

Thank you.

Sincerely,

R. Ben Peyton

R. Ben Peyton
Environmental Conservation Education

RBP/dlb

Enclosure