AN EVALUATION OF WILDERNESS SURVIVAL PROGRAMS AS AN ALTERNATIVE TO JUVENILE INCARCERATION

by

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ABSTRACT

This study involved an evaluation of wilderness survival programs as an alternative to incarceration for young offenders. In particular, it sought to determine if such programs were more effective than a juvenile detention center in reducing the post-release recidivism of adjudicated young male offenders. Based on previous research it was argued that wilderness survival programs adapted from Outward Bound alter participants' attitudes and behaviors towards others and themselves, which in turn impedes further delinquent behavior. A quasi-experimental design with 35 male program participants and 35 incarcerated males in the experimental and control groups respectively was used. The groups were matched according to age, time of sentence, prior offenses and previous detainment(s). After their completion of the program or release from detention recidivism data were collected at 6, 12, and 18 months intervals. It was observed that the wilderness survival group had fewer recidivists and offenses committed at each interval, though the extent of these differences declined over time. Although the differences failed to reach statistical significance the favorable results were obtained at a much lower cost than incarceration at the juvenile detention center. The implications of these results are

discussed and recommendations suggested.

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Needless to say, I alone am responsible for the contents of this study.

I. WILDERNESS SURVIVAL PROGRAMS IN JUVENILE CORRECTIONS

Introduction. According to official criminal justice system data as well as self-reports of criminal involvement, juvenile delinquency has substantially increased in North America since World War Two (Radinowicz and King, 1977; Giffen, 1979; Rutter and Giller, 1983). Indeed, Le Blanc (1983) notes that today more than 90 percent of adolescents between 12 and 18 years of age annually commit acts that are legally proscribed. While there are a number of criticisms concerning the validity of such statistics (see e.g., Hindelang, Hirschi and Weiss, 1981; West, 1983) most researchers agree that juvenile delinquency is an important if not critical issue. As the Ministry of the Solicitor General of Canada has repeatedly stressed (1979; 1983) few social problems rival juvenile delinquency as a source of concern and urgency today.

One of the most serious and controversial issues in the field of corrections is how best to deal with young offenders (Corrado, Le Blanc and Trepanier, 1983). Correctional agencies and institutions have experimented with a wide variety of treatment programs. This array of methods has been extensively evaluated as indicated by the immense amount of literature in sociology, psychology,

psychiatry, social work and corrections (see e.g., Martinson, 1974; Lipton, Martinson and Wilks, 1975; Wright and Dixon, 1977; Sechrest, White and Brown, 1979; Ross and Gendreau, 1980; Rutter and Giller, 1983, for reviews of the research findings).

Yet despite this wealth of information there is little agreement as to "what works" in juvenile treatment strategies. This debate was initially instigated by Martinson's (1974) claim that "nothing works." Although Martinson (1976) later modified his stance when his study was challenged on a number of grounds, such as method, theory and statistical inference (Adams, 1975, 1977; Gendreau and Ross, 1979), most subsequent studies have come to similar negative conclusions: rehabilitative efforts have no appreciable effect on juvenile recidivism (Rutter and Giller, 1983). As a result, there is widespread opinion among the public and, indeed, justice system personnel that the primary purpose of juvenile intervention should be containment and control rather than treatment and rehabilitation (Le Blanc, 1983).

In a review of these studies, however, Rutter and Giller (1983) note that much of the research on delinquent intervention programs is of very poor quality, suffering from extensive conceptual and methodological problems.

Quoting Secherst et al. (1979), they conclude:

> ...the research methodology that has been brought to bear on the problem of finding ways to rehabilitate criminal offenders has been generally so poor that only a relatively few studies warrant any unequivocal interpretations.

They caution any possible optimism, however, by adding:

> Although a generous reviewer of the literature might discern some glimmer of hope, these glimmers are so few, so scattered, and so inconsistent that they do not serve as a basis for any recommendation other than continued research.

There is, however, evidence from recent studies that some treatment programs for young offenders are effective in reducing recidivism (Adams, 1977; Andrews, 1980; Peters, 1981; Gendreau and Ross, 1979, 1981, 1983; Haskell and Yablonski, 1982; Rutter and Giller, 1983). As Ross and Gendreau (1980) report:

> ...they provide convincing evidence that some treatment programs, when they are applied with integrity by competent practitioners to appropriate target populations, can be effective in preventing crime and reducing recidivism.

As the above suggests there is a growing concern in the application of intervention programs based upon characteristics of the offender such as the type of crime(s) committed, family background, recidivism, associated behavioral or social impairments and response to previous

forms of intervention. In other words, not all programs, even if they are effective with some individuals, are applicable to all offenders.

One such treatment program which is increasingly being utilized by correctional services is modeled after the Outward Bound school. Conducted in the natural environment, this school and the adapted correctional programs demand that participants overcome a series of stress-directed, moderate-risk and physically demanding challenges utilizing wilderness survival and outdoor skills. As such, it propels participants in their "struggle for survival" to excel beyond that of which they thought they were capable. In doing so it is believed that participants develop emotionally as well as physically and that this will impede criminogenic tendencies or influences.

While there is a considerable amount of literature on Outward Bound-type correctional programs most are plagued with design and methodological problems (Winterdyk, 1980). In particular, these studies tend to suffer from a lack of control group and of follow-ups on such variables as recidivism. Thus, while the majority of reports suggest that these programs are potentially effective in the treatment of young offenders the data from which this inference is made are questionable.

The present study is designed to address such problems. In general terms, its purpose is to assess the effectiveness of four correctional programs, modeled after the philosophy of the Outward Bound school, in reducing juvenile recidivism. Based on the methodological designs presented in Cook and Campbell (1976) and the problems noted above, a quasi-experimental design, that is a slightly modified non-equivalent control group design, was utilized to measure the effectiveness of these programs. In particular, it sought to determine if such programs were more effective in reducing the recidivism of adjudicated youths after 6, 12 and 18 months follow-up, compared to other young offenders who did not attend these programs but instead were incarcerated.

Before presenting the study an overview of the historical development of wilderness survival programs will be presented. Following this the theoretical basis of the programs's utility as a correctional intervention will be discussed. Finally, a general review of correctional wilderness survival programs will be examined.

Historical Development. The wilderness survival programs utilized today by correctional agencies in Canada and the U.S. are largely based upon the philosophy and structure of the Outward Bound school (Wilson, 1981).

Indeed, the potential benefits of outdoor programs for the emotional and behavioral growth of delinquent youths was largely unrecognized until the 1960s when Kurt Hahn brought Outward Bound from Britain to the U.S. and Canada.

Hahn was born in Germany in 1886. As Wilson (1981) and Templin and Baldwin (1976) note, Hahn was very concerned with physical health believing that it greatly influenced one's moral integrity, perception of one's self and others, and ultimately one's direction in life. Put simply, Hahn argued that if one was physically healthy one had a positive view and experience of life. Conversely, if one was physically unhealthy one's view and experiences of life tended to be negative. For Hahn, then, vigorous exercise was the key to physical and, hence, emotional and intellectual development.

Hahn attended Gottingen University and in 1910 went to England to continue his studies in philosophy and the classics at Oxford. In 1920 he was offered the position of headmaster of Salem, a private school in Germany. Over the next thirteen years Hahn structured it after his own philosophy and with elements drawn from those of Plato, the Boy Scouts, and the British public school system. Slow learners and children with learning disabilities were as welcomed as the academically gifted. The students at Salem

distinguished themselves both academically and physically and soon the school developed into one of the most famous and influential schools in Europe.

This all came to an abrupt end, however, when Hitler became chancellor of Germany in 1933. Hahn's principles of freedom of expression, justice and the rights of all individuals were incompatible with the new emerging social order and ideology. Hahn asked his present and former students to break any ties that they might have with the new regime and was consequently imprisoned for his public criticism of the Nazi state.

Through the influence of his friend, Neville Butler, then secretary to Britain's Prime Minister Ramsey MacDonald, Hahn was released from prison and emigrated to England. While staying with friends along the Moray coast of Scotland Hahn discovered the large, vacant but neglected Gordonstoun castle. Seeing its potential as a school similar to Salem, he began to promote his idea among friends and shortly afterwards took a lease on Gordonstoun. In 1934 the school opened and it soon gained the respect of educators throughout Britain.

When World War Two broke out in 1939 the Gordonstoun school was evacuated to Wales. Shortly afterwards Hahn was

asked by the Royal Navy to develop a survival program for its sailors. As Templin and Baldwin (1976) note, young sailors from torpedoed ships often drowned while their older, less physically-fit shipmates survived. Hahn surmised that the explanation of this paradox was a lack of survival experience and self-confidence on the part of the young sailors. In consultation with Lawrence Holt, a member of a major shipping firm, a survival program was initiated in Aberdovey, Wales in 1941. It was soon called "Outward Bound", an old seaman's term, because its students were outward bound for the high seas.

The school was successful for the loss of life dramatically decreased (Templin and Baldwin, 1976). After the war the peacetime application of the program seemed logical. Hahn argued that with certain modifications the program could be made to work for other young men and by 1947 the training of recruits from the armed forces, police and fire services usually included a month at the Outward Bound school. Indeed, in Britain today 90 percent of the students in Outward Bound programs are sent as part of their job training; only 10 percent come voluntarily (Wilson, 1981).

The school in Wales, however, could not accommodate all of the people who desired to come and in 1949 the school at

Gordonstoun was reopened. Soon afterwards another school was opened on the Moray coast. But it was the next school that opened at Eskdale in the Lake District which has exerted the most influence on current Outward Bound schools. Eskdale was in an alpine area with many lakes and mountains and, thus, the school programme was built around mountaineering and outdoor skills as well as water survival skills.

Throughout the 1950s Outward Bound continued to expand and evolve. As it gained international recognition some prominent American educators felt that the school would benefit young people in the U.S. Three individuals, Josh Miner, an American who taught at Gordonstoun; Joe Nold, a Canadian who had also taught at Gordonstoun; and Fred Fuller, the warden at Aberdovey in 1945, were instrumental in bringing Outward Bound to the U.S. (Wilson, 1981). In 1962 the first school opened in Colorado. Two years later the same school accepted its first adjudicated youths (see Kelly and Baer, 1968). It should be noted that unlike the British schools most students attend North American schools voluntarily; only 5 percent are sent or ordered, most frequently by correctional services (Wilson, 1981).

The first school in Canada was opened in 1969 near the small British Columbia town of Keremeos. This was in large

part due to the efforts of Art Rogers, a mountaineer who had worked at Eskdale for two years (Wilson, 1981). Five years later a second school was established in Ontario. Both schools are similar in content like their American and British sister organizations. Indeed, a new charter is only granted when the Outward Bound British Trust is assured that a new school is prepared to accept the basic principles of Outward Bound and run their program accordingly.

Essentially Outward Bound programs are led by skilled instructors who propel participants to overcome a series of physical challenges and obstacles such as rope climbing, scaling, kayaking or canoeing, mountaineering and "solo" camping/survival in the wilderness. Activities are progressive in terms of physical and mental challenge, stress and group cooperation. Structured as such, it is argued that the success of mastering lesser skills and challenges acts as a catalyst to "accept" more difficult ones. The result, then, is that in their "struggle for survival" participants excel beyond that which they thought they were capable of. In doing so they gain a new sense of their worth and potential as well as an appreciation of their social relationship with others (Outward Bound Brochure, 1979).

The intuitive appeal of wilderness programs is

reflected in attendance reports. Today nearly 10,000 people in Canada and the U.S. attend Outward Bound schools annually (Wilson, 1981). The school also has centers in Europe, Asia, Africa, New Zealand and Australia. As well as these officially recognized schools there are numerous universities, private organizations, social service and correctional agencies which offer Outward Bound-type programs. Indeed, as Wilson (1981) notes, the school has made a substantial impact in education, correctional and handicapped services. Thus, it would appear that Hahn's belief of personal growth through physical activity has met with considerable appeal and success.

Theoretical Basis. Most individuals who attend Outward Bound and similar adapted programs do so with the belief that how they view themselves and others will change in a "positive direction" as a result of their experience (Outward Bound Brochure, 1979). But just how and why the program "changes" participants is not clearly outlined by the school. Indeed, many directors and instructors of Outward Bound schools believe that it is difficult to analyze exactly how and why Outward Bound works. As Wilson (1981) concluded in her two year study of the school:

> Only one conclusion is constant in all the growing stack of research papers; virtually everyone who has taught an Outward Bound course can explain very well what he or she was doing, but not readily why. All they can say for

> certain is that, for whatever reason, it seems to work.

Winterdyk (1980) also noted similar findings stating that:

> ... those involved in wilderness adventure programs leave the assumptions upon which the programs are found unarticulated and the psychological/ therapeutic aspects to appear implicit ...

The vague therapeutic process is especially prevalent among the Outward Bound and adapted programs which deal with young offenders. Many correctional programs are conducted without concern for the theoretical basis and process of the program. To administrators these programs appear to reduce juvenile recidivism and, therefore, that is all that is required to know about the program's validity as a correctional treatment strategy.

Despite this problem, studies of Outward Bound and similar programs suggest that its experience affects participants in two ways: (1) how they view and feel about themselves, and (2) how they view and feel about others. Interestingly, these effects parallel the theoretical tenents of one particular school of thought regarding the cause and treatment of juvenile delinquency: control theory. In particular, Hirschi's (1969) delineation of control theory helps to best explain (2) above, while the postulations of Reckless (1961) are best applicable to (1). In this section, then, those aspects of control theory which

may help demonstrate how and why wilderness survival programs reduce juvenile recidivism will be explored.

There are many theories concerning the causation and, hence, correctional treatment of juvenile delinquency (see e.g., Kornhauser, 1978; Glaser, 1979; Haskell and Yablonski, 1982; Rutter and Giller, 1983). In nearly all of these schools of thought conformity or obedience to norms and laws is assumed to be non-problematic. Put simply, conformity is viewed as the "natural" order of society and, hence, needs no explanation. The central issue, then, is why do some people not conform and offend. Control theory, however, reverses this approach. Conformity or obedience to norms and laws is not seen as the "natural" order of society. Put simply, there is an assumption that everyone has a predisposition to commit criminal or delinquent acts, an assertion supported by LeBlanc's (1983) findings. The central issue, therefore, is why do people conform and not offend.

Control theory has its origins in the emphasis on social integration in the work of Durkheim (1960). Concerned with the nature of social order, he sought to explain how it was maintained in view of the increased division of labor and social differentiation which would appear to be more conducive to disorder. Durkheim argued

that "integration" and the "bond of commitment" that develops between the person and the larger social group was the key. As an example, he illustrated how certain suicide rates vary inversely with the degree of a person's social integration into society (Durkheim, 1951).

Similarly, control theorists today assert that deviance is simply caused by the fact that is not prevented in the first place. The focus of this prevention is social control, the most effective component, as with Durkheim, being the social bond between the individual and society. Hirschi (1969) has provided the most explicit statement of control theory identifying four components of the person's bond with society that tend to prevent deviance:

1. Attachment: the extent to which a person is bound to the norms, goals and values of society through the socialization process.

2. Commitment: the degree to which a person develops a "stake" in conforming behavior so that acts of deviance jeopardize other, more valued activities or conditions. Increased commitment leads to a strengthening of attachment and belief.

3. Involvement: physical activity of a non-deviant nature, e.g., baseball, so that little time is left for delinquency. Continued involvement in those activities leads to a strengthening of commitment.

4. Belief: a person's allegiance to the dominant norms, goals and values of society.

Recent research suggests that indeed much of youth crime may be a result of these offenders failing to have

sufficient "attachment" and "belief" to the traditional norms, goals, and values of society (Rutter and Giller, 1983). Correctional intervention strategies utilizing "involvement" as denoted by Hirschi (1969), then, would appear to be the appropriate method in dealing with a young offender. By developing and strengthening their "attachment" and "belief" to society through "involvement" activities this should impede further delinquent behavior.

Wilderness survival programs, such as Outward Bound, appear to foster such a change. Participants must depend upon one another in order to complete or "survive" many of the outdoor activities, e.g., mountain climbing, white water canoeing, etc. Even simpler tasks, such as setting up camp or organizing supplies, require cooperation between students. Quite simply, participants must depend upon one another for their physical and emotional well-being. This need to look after yourself as well as others promotes a sense of group identity, cohesiveness, cooperation and, hence, commitment. Further, as the level of risk in activities increases so too must the "stake" in conforming behavior so as not to jeopardize oneself and others. As a result of members "pulling together" to overcome obstacles and hardships their "attachment" and "belief" to the group is thereby increased. These newly acquired or strengthened pro-social attitudes would presumably dramatize the need for

such behaviors and attitudes in order to function effectively in society as a whole. Thus, a participant's "attachment" and "belief" towards the immediate program group would be generalized and, hence, transferred onto society.

Hirschi's formulations would appear to suggest how participation in wilderness survival programs affects a participant's perception of others and society and thereby impede recidivism. Experience of the program, however, affects more than simply one's view of social relationships. Indeed, most instructors and participants agree that one of the most dramatic changes occurs in how one views oneself. Like Hirschi, Reckless (1961) noted the importance of social bonds in preventing deviance, but considered pro-social attitudes only half of the social control mechanism. Reckless argued that how one felt or viewed oneself was also important in preventing individuals from engaging in criminal acts. His containment theory postulated that criminal behavior was influenced by:

1. Social pressures: adverse living and economic conditions, and delinquent associations which pressure or "pull" the individual away from the accepted norms.

2. Inner pressures: tensions, hostility, feelings of inadequacy and organic impairment which "push" the individual towards criminality.

3. External containment: family living and supportive groups which may be ineffective or effective.

4. Internal containment: self-esteem and pro-social attitudes which are a product of good or poor socialization.

Reckless asserted that when external containment is weak, inner containment must be strong to withstand the pushes from within and the pulls and pressures from without. For example, an individual in a high-delinquency area where outer containment (1. and 3. above) is weak may be nondelinquent if inner containment (2. and 4. above) is good. Conversely, an individual in a low-delinquency area with poor inner containment may be prone to delinquent behavior.

The importance of the self-concept in explaining and dealing with juvenile delinquency has received considerable support (Haskell and Yablonski, 1982), but is not without its detractors (see Tangri and Schwartz, 1967). Nevertheless, participants of wilderness survival programs continually attest to a new sense of self-worth and potential as they excel beyond that which they thought they were capable of (Winterdyk, 1980). According to Reckless this increased sense of self-worth should act as an internal barrier or containment of social and internal pressures to commit delinquent acts.

In summary, the structure of wilderness survival

programs would appear to produce the effects argued by control theorist to impede recidivism. The combined effects of pro-social attitudes (Hirschi, 1969) and increased self-worth (Reckless, 1961) is appealing as many theorists have argued for a merging of sociological and psychological viewpoints of delinquency causation and prevention (Haskell and Yablonski, 1982; Rutter and Giller, 1983). Wilderness survival programs would appear to provide such a combination in a therapeutic environment.

Review of Studies. Outward Bound and related programs have received considerable recognition amongst educators, helping professionals and correctional personnel. Indeed, since Kelly and Baer's (1968) study over 1,000 adaptive programs have been implemented and collectively have added to the face validity of the program (Winterdyk, 1980). The majority of these, however, have been exploratory rather than confirmatory evaluations. Most suffer from extensive design and methodological problems such as a lack of control group and attention paid to quantifying the effects attributed to the program, e.g., reducing juvenile recidivism. Such shortcomings call into question any interpretation of the data.

Yet a number of studies have been undertaken with these criticisms in mind in an attempt to more accurately assess

the effects of wilderness survival programs. The remainder of this section, then, will review such studies which have examined the program's effect on subsequent juvenile recidivism. Due to the number of studies only those which (1) employed a control group, and (2) measured post-release recidivism rates, will be examined.

As previously noted, shortly after Outward Bound appeared in the U.S. 60 adjudicated youths from the Division of Youth Services, Massachusetts, were sent to an Outward Bound school. Kelly and Baer (1968) were contracted to determine if the school was more effective than training institutions in reducing further delinquent behavior after release.

To assist the validity of their study a comparison group of 60 other adjudicated youths were selected from the same institutional population. These, of course, did not attend the Outward Bound program but were instead treated in the routine manner, i.e., institutionalized. Both the experimental and control groups were matched according to age, race, religion, type of offense and the number of previous offenses.

The study revealed that one year after completing the program the experimental group had a recidivism rate of 20

percent while the comparison group had a 42 percent recidivism rate. However, in a five-year follow-up Kelly (1974) found that "while the difference in recidivism still favors the Outward Bound group, it is no longer statistically significant (38% vs. 53%)."

For many researchers in this field Kelly and Baer's (1968) study has been the focal point in their review. Many have reported similar findings. Maynard (1969) and William and Chun (1973) both using a one year follow-up period had findings almost identical to Kelly and Baer (1968). Hileman (1979), likewise, found that after seven months 22.9 percent of the experimental group had reoffended compared to 39.6 percent of the comparison group.

Studies of young serious offenders have also supported the program's utility as a correctional treatment. Matheson (1969), for example, found that after one year of successfully completing the program only 32 percent of such youths were reincarcerated. Although this rate was higher then the above studies Matheson considered this a "promising" result given a 56 percent reincarceration rate for similar youths released from security institutions.

However, not all studies have reported such favorable results. Thorvaldson and Matheson (1973) examined the

recidivism rate of 111 program participants and a comparison group of 86 youths. Selection for the two groups was based on a random procedure with the control group sent to a medium security institution and the experimental group taking part in an adapted wilderness survival program.

While a three year follow-up showed a significant difference in violation rate in the first year, this difference had dissipated by the third year (51.4% vs. 69.0%). Interestingly, Thorvaldson and Matheson noted that the wilderness survival group had a lower percentage of "major" violations than the institutionalized group (23.4% vs. 39.5%), but this was not found to be statistically significant. Nevertheless, the researchers considered the program a viable alternative to the incarceration of young offenders due to its considerable cost effectiveness.

Winterdyk (1980), likewise, found similar results. In his study 60 adjudicated males between the ages of 13 - 16 were randomly divided into two groups of thirty. All participants were initially screened to control for age, sex, prior offenses, school and family background, as well as general emotional and physical stability.

The experimental group was then divided into three groups of ten which attended a wilderness survival program;

the control group was placed on probation. In a six month follow-up no statistically significant relationship was found between exposure to the program and subsequent recidivism. Again, as with Thorvaldson and Matheson (1973) a noticeable, but not significant difference was found in the severity of reoffenses: the experimental group's offenses tended to be less "severe" than the control group. Despite the study's "non-significant" findings Winterdyk supported the program as a viable alternative to probation for young male offenders.

Researchers have speculated on the reasons for these differing results. Fletcher (1970), Kaplan (1974), Smith and Gabriel (1975) and Krajick (1978) have suggested that the degree of staffing expertise in outdoor and relational skills may be a critical influence. Golins (1975) and Hopkins (1976) have suggested that the degrees of program intensity and adventure may influence the outcome of the program. Others such as Birkenmayer and Polonoski (1975) and Golins (1975) have argued that strict attention must be paid to entry criteria as the program is not a panacea for all young offenders. Finally, Winterdyk (1980) has argued the need for some form of post-release structure, e.g., counselling, community programs and even some form of residence, to counter "the onslaught of [any] negative environmental pressures." Winterdyk noted that all too

often treatment ended with the program's completion.

These concerns are not simple to resolve. The majority of correctional wilderness survival programs are adaptations of Outward Bound and, thus, there is no uniform standard regulating their content and methods. Unfortunately, standardizing these programs is not foreseeable in the near future.

In summary, the results of the research reviewed above suggest the potential of Outward Bound and adapted programs as a viable correctional strategy in dealing with young offenders. There are, however, unanswered questions regarding factors which may influence the program's outcome. Researchers, therefore, should attempt to improve their research design and methods in order to provide more definite conclusions and ways to increase the effectiveness of such programs.

The evaluation of the four correctional programs in the present study was conducted with many of these concerns in mind. Although it is not considered a definitive study, the research design employed should assist in the overall assessment of these programs' viability as an alternative to institutionalization for many young offenders.

II. THE STUDY

Main Theorem and Propositions. The purpose of this study was to assess the effectiveness of four Outward Bound-type correctional programs in reducing juvenile recidivism. In particular, it sought to determine if such programs were more effective than incarceration in reducing the recidivism of adjudicated young offenders. Based upon previously discussed research addressing the effects of such programs on juvenile recidivism the following main theorem is presented:

> Main Theorem: The Skywalk Wilderness Survival Programs are a viable alternative to incarceration at Lakeview Detention Center in reducing the post-release recidivism of adjudicated young male offenders.

Support for the main theorem will be assessed by the substantiation of the following propositions:

> Proposition 1: The proportion of recidivists in the experimental group will be significantly less than in the control group at each of the 6, 12, and 18 months intervals.
>
> Proposition 2: The experimental group compared to the control group will have a significantly lower increase in the proportion of recidivists over the entire time period.
>
> Proposition 3: The mean number of offenses committed by experimental group participants will be significantly less than control group participants at each of the 6, 12, and 18 months intervals.

Proposition 4: The experimental group compared to the control group will have a significantly lower increase in the mean number of offenses committed over the entire time period.

If the above propositions are supported by the data then this would lend support to the idea that wilderness survival programs, such as the ones discussed below, are a viable correctional treatment strategy for some young people in conflict with the law.

Skywalk Wilderness Survival Programs. The four programs evaluated in this study are: (1) Demikoss Creek Project 1983, (2) Demikoss Creek Project 1984, (3) Granite Bay Program 1984, and (4) Granite Bay Program 1985.

(1) Demikoss Creek Project 1983. This program began in the summer of 1983 as a joint venture between the Corrections Branch, Ministry of the Attorney General, B.C. and the Federal Ministry of Fisheries and Oceans. The object was to place ten young male offenders ordered by the court on Nootka Island to clear a log jam at the mouth of Demikoss Creek. The stream above the jam is a major spawning area for coho and chum salmon. A Fisheries assessment of the creek, however, concluded that the stream would be dead, that is salmon would not spawn in it, if the jam was not cleared. Thus, the activities of the project were split between clearing the stream and Outward Bound-

type recreational experiences such as canoeing and wilderness survival techniques. It was considered that such a structure provided participants with an opportunity to acquire knowledge and experience in the areas of: (1) environmental issues, (2) salmon enhancement, (3) outdoor living and survival skills, (4) setting goals, and (5) teamwork. Objective 2 was supervised by the local Fisheries officer, 3, 4, and 5 were the responsibility of the Skywalk staff and objective 1 was shared jointly between the two.

The project appeared to be successful for a number of reasons. First, the salmon enhancement objective of the project was achieved. The channel was cleared and a subsequent stream assessment indicated considerable numbers of returning salmon. Second, the staff felt that the recreational aspect was "very beneficial" to the participants; the boys appeared to have enjoyed the work and the outdoor experiences. Finally, the cost of running the program was very reasonable. The 14 days, including staff wages and equipment, amounted to approximately $52.00 per diem, substantially less than the $85.00 per diem cost of incarceration. Based on the positive Fisheries' report and the supportive feedback from the staff and involved probation personnel the project received funding for the following year.

(2) Demikoss Creek Project 1984. Based on the apparent success of the project in 1983 it was continued in the summer of 1984. Fisheries Canada was again involved in the project. They felt that a widening of the existing channel would ensure long-term access to the stream for returning salmon and future jamming would be avoided. Thus, as in the previous year, activities were divided between recreation in Outward Bound experiences and the work situation. The program participants again consisted of ten court-ordered young males and ran for 14 consecutive days.

In this project the goals and objectives were spelled out in more detail and consisted of:

1. To provide the youth a better understanding of the impact an individual can make on the environment.
2. Effect change in the youth's ability to constructively socialize with others.
3. To develop an increase in self-worth through outdoor living and work experiences.
4. To assist in the development of recreational activities as an alternative to the behavior that leads youth in conflict with the law.
5. To assist in the development of understanding with those living around the youth.

Once again the project was deemed a success by involved program personnel. The channel was widened and by all accounts the youths appeared to have benefited from the experience. As well, the program's cost was again

substantially less than incarcerating the youths at the detention center. The project was therefore slated to be funded the following year. However, spurred by its success, involved probation officers felt that a program was needed during the "high-risk" periods, i.e., October to December and March to May. Because many young offenders attend school, a weekend program was instituted composed of seven weekends (Friday P.M. to Sunday P.M.) with a final expedition of seven to ten days.

(3 and 4) Granite Bay Programs 1984 and 1985. These programs were located on northern Quadra Island, B.C. at the end of Kanish Bay in a sheltered harbor. Located on approximately 80 acres, the camp has approximately 650 feet of ocean frontage, two year-round creeks and numerous fresh water lakes nearby. The camp contained a 2,000 square foot dormitory with wash and kitchen facilities as well as numerous outside buildings, e.g., barn and garden facilities.

The youths (ten in each program) were picked up at various staging locations Fridays after school and were transported to the camp. Because of the weekend nature of the program it was more structured than the previous ones. A time and weekend schedule was formulated in order to organize time more effectively and camp rules were also

detailed. All participants were given a copy of these. Another addition to the program was a certificate stating the areas covered by the course which was presented to the youths upon successful completion of the program.

In these programs the local community took a more active role. Support came from the Strathcona Regional District Board, John Howard Society, Federal Ministry of Fisheries and Oceans, Campbell River School District No. 72, as well as local fishboat owners and logging contractors who provided tours of their businesses.

Again, as indicated by staff, probation officers, program youths, as well as three local judges, the program was an overwhelming success. The time and theme schedules were diligently followed by the youths. The wilderness survival skills introduced to the youths were utilized and enjoyed during the longer expeditions. Finally, the program was more cost-effective than incarceration. Due to the success of the program funding was obtained for another one in the following school year.

Participants and Staff. The participants were 70 adjudicated males between the ages of 13 - 17. 35 boys were referred to the programs by a probation officer through a condition imposed by the Court. Although a total of 40 boys

were sent, 5 were not included in the sample: 2 attended more than one program, 1 was expelled and the files of 2 others were not available. The remaining 35 boys had been sentenced to a youth detention center. The former group of boys represents the experimental group and the latter the control group.

Although it was not possible in this study to create "classic" or true experimental and control groups, that is by random selection and assignment from a common population (young offender) pool, it was possible to find a comparable control group already in existence. For purposes of this study the Lakeview Youth Detention Center north of Campbell River, B.C. provided an excellent source from which a control group was selected. Program subjects had exhausted all primary correctional alternatives such as community work service and probation. Thus, they would have been sentenced to a youth detention center such as Lakeview if it were not for the programs. Indeed, Lakeview has held young offenders who were considered for program attendance but could not because placements were full.

The actual comparability of these two groups was achieved through a matching process. First, possible control group members were collected based upon each of the four program time periods, i.e., young offenders who were

incarcerated in June/July 1983, June/July 1984, November/December 1984, and February/March 1985. This in effect created four sub-control populations. Next, only those youths who were first-time detainees at a juvenile correction center were considered; program participants had also not been previously incarcerated. Following this, only those detainees between the ages of 13 - 17 (similar to program individuals) were selected. The final selection from each of the four control group populations was based on a simple random selection (without replacement) so that they were equal in number to their respective experimental group, i.e., 8, 8, 10 and 9. The end result was a selection of 35 individuals for the control group matching the 35 members of the experimental group. This information, as well as a breakdown of participants' sentencing offense(s), is illustrated in Table 1 (on the following page).

The staffing for all four programs was the responsibility of Skywalk, a wilderness survival training organization, which was contracted by the Corrections Branch, Ministry of the Attorney General of B.C. to provide the services. Essentially the instructors' role were to provide leadership, wilderness survival skills, instruction, camp operation and resident evaluation. Given the nature of the program, that is working with young offenders in an "open containment" outdoor environment, certain traits were

TABLE 1

BACKGROUND CHARACTERISTICS FOR EXPERIMENTAL AND CONTROL GROUP

	Experimental Group		Control Group	
	Percentage Distribution	(N)a	Percentage Distribution	(N)a
1. Offense b				
alcohol offense	0	(0)	1	(1)
assault/harm/threaten	3	(2)	2	(2)
attempt to commit/accessory	3	(2)	2	(2)
take auto w/o consent	3	(2)	2	(2)
breach (JDA/YOA/Probation)	10	(8)	11	(9)
break and enter	27	(21)	31	(25)
disturbance	1	(1)	1	(1)
drugs/narcotics	3	(2)	1	(1)
forgery/fraud	1	(1)	1	(1)
indecent assault/act	1	(1)	1	(1)
mischief	4	(3)	2	(2)
motor vehicle offense	5	(4)	2	(2)
possession of stolen property	8	(6)	12	(10)
possession of weapon	3	(2)	0	(0)
robbery	1	(1)	1	(1)
theft under $200.00	19	(15)	17	(14)
theft over $200.00	8	(6)	11	(9)
trespassing	1	(11)	0	(0)
TOTAL	100	(78)	100	(83)
2. Age c	mean	range	mean	range
	15.2	13-17	15.6	14-17

a: number of offenses.

b: prior to participating in program or juvenile detention sentence.

c: upon completion of program/sentence.

considered prerequisite to the program's success. These included, "enthusiasm, training empathy, judgement, moral character ... resiliency and the ability to perform under pressure." As well, staff members were required to have experience in the outdoors and hold certifications in first aid, life guarding, outdoor survival, canoe/kayak proficiency, mountaineering and instruction of chainsaw use.

With the given number of ten youths in each program, Skywalk provided two staff members (one male, one female) giving an instructor/participant ratio of one to five. The instructors chosen expressed a high degree of motivation and a sincere interest in working with young offenders. Prior to the program's starting date instructors and Skywalk administrators spent time discussing the teaching and counselling methods to be used in the program, responsibilities, safety procedures and organizing the time and theme schedule. By the time the programs began the instructors were well prepared for the task before them.

Design, Measures and Testing Procedure. Based on the methodological designs presented in Cook and Campbell (1976) and the problems associated with many outdoor survival programs discussed earlier, a quasi-experimental design was considered the most appropriate in order to assess these programs' effectiveness in reducing recidivism. In

particular, the design for data analysis represents a slightly modified non-equivalent control group design with a 6, 12, and 18 months testing procedure.

The design is modified in the sense that the four experimental groups were combined and, likewise, the four control groups, for the purposes of analysis. This was done because the individual experimental and control groups were small in size, i.e., ten or less youths, and the programs were conducted at four different times over a two year period. Table 2 on the following page gives a breakdown and graphic illustration of the above.

By the inclusion of a control group in the design the ability to draw inferences from the results is vastly improved. In short, a control group provides essential protection against the possibility that factors other than the program may have affected subsequent recidivism rates (Seltiz, Wrightsman and Cook, 1976). While no design is faultproof according to Cook and Campbell (1976), the design used in this study is considered methodologically sounder than many previous studies of outdoor programs. Hopefully this allows for a more valid interpretation of the programs' effectiveness in reducing recidivism.

The testing procedure involved obtaining recidivism data

TABLE 2

RESEARCH DESIGN FOR WILDERNESS SURVIVAL PROGRAM ANALYSIS

Group	Treatment	Follow-Up Observations		
Experimental Group:	Program Participation	O1	O2	O3
Control Group:	Juvenile Detention Center	O1	O2	O3

PROGRAMS	1983						1984												1985												1986		
	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M
1. Demikoss Creek 1983 Experimental group (n=8)	T						O1						O2						O3														
Control group (n=8)	T						O1						O2						O3														
2. Demikoss Creek 1984 Experimental group (n=8)												T							O1						O2						O3		
Control group (n=8)												T							O1						O2						O3		
3. Granite Bay 1984 Experimental group (n=10)																	T					O1						O2				
Control group (n=10)																	T					O1						O2				
4. Granite Bay 1985 Experimental group (n=9)																			T					O1								O2	
Control group (n=9)																			T					O1								O2	

T: Completion of program/detention sentence.
O1: Recidivism data at 6 months
O2: Recidivism data at 12 months
O3: Recidivism data at 18 months

for each subject, that is whether they offended and how many times, during the specific intervals. For this study recidivism is defined as:

> The official recording by law enforcement agencies of the conviction of an individual who committed an unlawful act.

Recidivism data were gathered for all program and control group participants at the 6 and 12 months interval upon completion of the program/sentence. This information was available at the 18 month interval for the Demikoss Creek 1984 and 1985 experimental and control groups only. Therefore, due to the small sample size the results of this time period are more exploratory than explanatory. (See Appendix A for each case's data list).

The recidivism data were obtained from the Corrections Branch provincial case file. This data bank contains the histories of all juvenile offender activity within the Corrections Branch from 1972 to the present. Offense, court and dispositional information is provided. Once the data were collected for both experimental and control groups they were analyzed using the following statistical methods.

Data Analysis. The analysis of the data was conducted in order to assist in the decision to accept or reject the relations stated in the propositions. Differences between

the experimental and control groups, as defined in propositions 1, 2, 3 and 4, were determined through an analysis of variance. The proportional and mean scores implied by these propositions were calculated as well as their standard deviations. Their statistically significant differences were then determined by f-tests ($P < .05$). These analyses were computed in accordance with the Statistical Package for the Social Sciences/PC+ (Nie, Hull, Jenkins, Steinbrenner and Bent, 1986).

It should be noted that conventional tests of statistical significance are dependent upon the sample size (Kerlinger and Pedhazur, 1973). Small sample sizes may nullify any differences as a larger difference is needed to obtain any statistical significance with such samples. The present study's design has a relatively small sample size i.e., n=70. Therefore, certain apparently non-significant findings might be significant if two or three times as many cases had been studied.

III. DISCUSSION

Results. The four propositions put forward to assess the support for the study's main theorem and the results of the data analysis were as follows:

Proposition 1: The proportion of recidivists in the experimental group will be significantly less than in the control group at each of the 6, 12 and 18 months intervals.

As indicated in TABLE 3 below the proportion of recidivists in the experimental group is lower than the control group at each of the three intervals, i.e., .20 vs. .34 at six months, .31 vs. .49 at twelve months and .44 vs. .56 at eighteen months. This gave an overall cumulative difference of .29 for the experimental group vs. .44 for the control group.

TABLE 3 PROPORTION OF RECIDIVISTS AT SELECTED INTERVALS

Monthly Interval	Sample Size Exp/Con	Experimental Recidivists N	Prop	SD	Control Recidivists N	Prop	SD	F Value (DF)	Sig. Level
6	35/35	7	.20	.41	12	.34	.48	1.80 (68)	.184
12	35/35	11	.31	.47	17	.49	.51	2.15 (68)	.147
18	16/16	7	.44	.51	9	.56	.51	.476 (30)	.496

TABLE 3 (cont'd)

Cumula-tive Total	70	25	.29	.46	38	.44	.50	1.72 (68)	.230

Stated differently, the results indicate that overall the control group had 52 percent (.44 - .29 / .29 x 100) more cases of recidivism than the experimental group with the greatest difference at the first monthly interval, i.e., 70 percent (.34 - .20 / .20 x 100), decreasing slightly to 58 percent (.49 - .31 / .31 x 100) at twelve months, but declining by over a half again at eighteen months to 27 percent (.56 - .44 / .44 x 100).

Despite these differences, however, f-test results indicated no statistically significant difference between the experimental and control groups for any of the above, i.e., $p > .05$ at the six (.184), twelve (.147) and eighteen (.496) months intervals and, hence, overall (.230). Nevertheless, the effects of the relatively small sample size on the statistical significance results must be considered in light of the observed differences. As such, the results suggest that wilderness survival programs have a greater impact than incarceration in reducing the post-release recidivism of certain young offenders. Therefore, tentative support is accorded to Proposition 1.

Proposition 2: The experimental group compared to the control group will have a significantly lower increase in the proportion of recidivists over the entire time period.

As indicated in TABLE 4 below the experimental group's increase in the proportion of recidivists during each time period is greater than the control group's increase, i.e., 55 percent vs. 44 percent between six and twelve months, 42 percent vs. 14 percent between twelve and eighteen months and, hence, overall, i.e., 120 percent vs. 65 percent.

TABLE 4 PERCENTAGE INCREASE 1 IN PROPORTION OF RECIDIVISTS OVER TIME

Time Period	Experimental	Control
6 - 12 mos.	55%	44%
12 - 18 mos.	42%	14%
6 - 18 mos.	120%	65%

1 calculated as: the greater proportion of said time period minus the lesser proportion of said time period divided by the lesser proportion of said time period times 100. E.g., Time Period 6 - 12 mos., Experimental group: .31 - .20 / .20 x 100 = 55%.

Stated differently, the results indicate that overall the experimental group had an 85 percent (120% - 65% / 65 x 100) greater increase than the control group in the proportion of recidivists between the first and last monthly intervals, i.e., 6 - 18 months. When each time period is

examined individually the greatest difference occurs between twelve and eighteen months, i.e., 200 percent (42% - 14% / 14 x 100), with only a 25 percent (55% - 44% / 44 x 100) greater difference between six and twelve months.

Despite these differences, however, f-test results indicated no statistical significant differences overall between the experimental and control groups, i.e., p (.720) > .05, 30 d.f. Regardless of the effects of the relatively small sample size on the results' statistical significance, the observed differences do not support Proposition 2. Indeed, although the control group overall has more cases of recidivism, as noted in Proposition 1, the increase in the proportion of such cases over time is greater for the experimental group. Therefore, support is not accorded to Proposition 2.

Proposition 3: The mean number of offenses committed by experimental group participants will be significantly less than control group participants at each of the 6, 12 and 18 months intervals.

As indicated in TABLE 5 below the mean number of offenses committed by the experimental group was lower than the control group at each of the three intervals, i.e., .34 vs. .66 at six months, .66 vs. .89 at twelve months and .88

vs. 1.06 at eighteen months. This gave a cumulative mean number of offenses of .57 for the experimental group vs. .83 for the control group.

TABLE 5 MEAN NUMBER OF OFFENSES AT SELECTED INTERVALS

Monthly Interval	Experimental Offenses N	Mean	SD	Control Offenses N	Mean	SD	F Value (DF)	Sig. Level
6	12	.34	.84	23	.66	1.00	.158	.158
12	23	.66	1.08	31	.89	1.02	.367	.367
18	14	.88	1.15	17	1.06	1.06	.230	.635
Cumulative Total	49	.57	1.01	71	.83	1.02	1.09	.330

Stated differently, the results indicate that the control group overall committed 46 percent (.83 - .57 / .57 x 100) more offenses than then experimental group with the largest difference at the first monthly interval, i.e., 94 percent (.66 - .34 / .34 x 100), but decreasing to 35 percent (.89 - .66 / .66 x 100) at twelve months and 20 percent (1.06 - .88 / .88 x 100) at eighteen months.

Despite these observed differences, however, f-test results indicated no statistical significant differences between the experimental and control groups for any of the

above, i.e., $p > 0.5$ at the six (.158), twelve (.367) and eighteen (.635) months intervals and, hence, overall (.330).

As in Proposition 1 the effects of the small sample size on these significance results should be considered in light of the observed differences. As such, the results suggest that wilderness survival program participants commit less offenses then individuals who are incarcerated. Tentative support is therefore accorded to Proposition 3.

Proposition 4: The experimental group compared to the control group will have a significantly lower increase in the mean number of offenses committed over the entire time period.

As indicated in TABLE 6 below the experimental group's increase in the mean number of offenses committed is greater than the control group's increase at each time period, i.e., 94 percent vs. 35 percent between six and twelve months, 33 percent vs. 19 percent between twelve months and eighteen months and, hence, overall, i.e., 159 percent vs. 61 percent.

TABLE 6 PERCENTAGE INCREASE 1 **IN MEAN NUMBER OF OFFENSES OVER TIME**

Time Period	Experimental	Control
6 - 12 mos.	94% 2	35%
12 - 18 mos.	33%	19%
6 - 18 mos.	159%	61%

1 calculated as: the greater mean of said time period minus the lesser mean of said time period divided by the lesser mean of said time period times 100. E.g., Time Period 6 - 12 mos., Experimental group: .66 - .34 / .34 x 100 = 94%.

2 a number of these offenses (N = 9) observed at the twelve month interval were committed in the twelfth month, thus accounting for the large increase in the 6 - 12 month time period compared to the 12 - 18 month time period.

Stated differently, the results indicate that overall the experimental group had a 161 percent (159% - 61% / 61 x 100) greater increase then the control group in the mean number of offenses committed between the first and last monthly intervals, i.e., 6 - 18 months. When each time period is examined individually the greatest difference occurs during the first time period, i.e., 169 percent (94% - 35% / 35 x 100) between six and twelve months and a 74 percent (33% - 19% / 19 x 100) greater increase between twelve and eighteen months.

Despite these differences, however, f-test results

indicated no statistical significant differences between the two groups with regards to the increase in the overall mean number of offenses committed, i.e., p (.649) > .05, 30 d.f. Regardless of the sample size's effects on the statistical significance of these results, the observed differences do not support Proposition 4. Indeed, although the control group overall has committed more offenses, as noted in Proposition 3, the increase in the mean number of offenses overtime is greater for the experimental group. As such, support is not accorded to Proposition 4.

Summary. The observed results indicate that the wilderness survival group had fewer recidivists (Proposition 1) and fewer mean committed offenses (Proposition 3) for each time interval/period compared to the detention center group, although these were not found to be statistically significant. The significance results, however, are in part a consequence of the samples' relatively small size. Therefore, in light of the observed differences tentative support was accorded to Proposition 1 and 3: that Skywalk Wilderness Survival Programs are more effective than Lakeview Detention Center in reducing the (1) recidivism of, and (2) number of offenses committed by, certain adjudicated young male offenders.

As TABLE 7 below illustrates, the results of

Proposition 1 lends support to the studies reviewed earlier which reported that wilderness survival programs are more effective than institutionalization in reducing the post-release recidivism of young offenders. Indeed, the present study goes a step further by showing that in addition to the above such participants commit fewer offenses than institutionalized offenders (Proposition 3).

TABLE 7 STUDIES OF THE EFFECTS OF WILDERNESS SURVIVAL PROGRAMS UPON PARTICIPANT RECIDIVISM

Name of Study	Year	Testing Interval	Recidivism (%) Exp./Control	Multiple Testing Interval
Kelly and Baer	1968	1 yr.	20/42	Yes
Matheson 1	1969	1 yr.	32/56	No
Maynard	1969	1 yr.	20/42	No
William and Chun	1973	1 yr.	20/42	No
Thorvaldson and Matheson	1973	1 yr.	26/47	Yes
Hilemen	1979	7 mos.	23/40	No
Winterdyk 2	1980	4-6 mos.	20/20	No
Shannon	1988	1 yr.	31/49	Yes

1: examined reincarceration rate
2: control group from probation

While the research designs of the above studies are sounder and, hence, more explanatory than many studies which did not employ a control group nor follow-up on participants' post-release recidivism, nearly all do not examine the effects of time on recidivism rates. Put simply, how long does the effect of the program last, does it "wear off", and if so why? The answers to these questions are important as they could provide correctional treatment personnel and, indeed, delinquency theorists valuable information on what factors affect a return to reoffending and, hence, what measures could be taken to counter such influences.

Unfortunately, only two of the above studies (Kelly and Baer, 1968; Thorvaldson and Matheson, 1973) examined participants' post-release recidivism with multiple measurements; the former four years after the initial measure and the latter two years after the initial measure. Although these studies examined the effects of time on post-release recidivism the lengthly time interval between their measures does not allow for an assessment of how long after release the effects of the program begin to wear off. The present study, however, overcomes this problem by examining three time intervals, each six months apart, upon release from the program.

As the present study indicates although the number of recidivists (Proposition 1) and mean number of committed offenses (Proposition 3) by program participants was less than detention center youths at each time interval, their increase over time, as examined in Propositions 2 and 4 respectively, was greater in the program group. Put simply, the effects supported in Propositions 1 and 3 appeared to weaken over time.

To illustrate, the effects of time on the number of recidivists in each group was examined in Proposition 2. As TABLE 4 of the same indicated the wilderness survival and detention center groups had similar increases in their proportion of recidivists between six and twelve months, i.e., 55 percent and 44 percent. However, in the next time period (twelve to eighteen months) the program group had a 42 percent increase vs. 14 percent for the detention group; a 200 percent greater increase than the detention group in the proportion of recidivists. Overall, then, the wilderness survival group experienced a 120 percent increase in the proportion of recidivists while the detention group had a 65 percent increase; a difference of 85 percent. In short, the proportion of recidivists in the detention group leveled off while in the program group it continued to climb. As such, support was not accorded to Proposition 2: that the increase in the proportion of recidivists in the

Skywalk Wilderness Survival Programs would be less than the Lakeview Detention Center group. Clearly, the effects of the program began to "wear off" around twelve months after completion of the program.

Likewise, Proposition 4 illustrates the effects of time on the mean number of offenses committed by each group. As TABLE 6 of the same indicated the wilderness survival group experienced an overall increase of 159 percent in the mean number of offenses committed while the detention center group had a 61 percent increase; a difference of 161 percent. Again, the detention group's mean number of offenses leveled off around twelve months after completion of their sentence while the experimental group's mean continued to climb. As such, support was not accorded to Proposition 4: that the increase in the mean number of offenses committed by participants in the Skywalk Wilderness Survival Programs would be less than Lakeview Detention Center participants. Once again, the effects of the program appear to "wear off" around twelve months after completion of the program.

Despite the lack of support for Propositions 2 and 4, the results of Propositions 1 and 3 lend support to Kelly and Baer's (1968) observation and many subsequent studies that wilderness survival programs are more effective than

incarceration in reducing the recidivism of adjudicated young offenders. The results of the present study, however, suggest that its effectiveness in doing so tends to decrease over time. Why this occurs and how it might be countered will be discussed in the following section.

Recommendations and Conclusions. Although no statistically significant differences between the wilderness survival and detention center groups were found regarding the study's four propositions the observed differences noted in Propositions 1 and 3 suggest that wilderness survival programs are more effective than incarceration in reducing the recidivism of adjudicated young offenders. But which young offenders? As Kaplan (1974) has argued such programs are not a panacea for all delinquents. In other words, some offenders benefit more by their experience of the program than others.

This argument is supported by the present study's data. To illustrate, TABLE 3 indicated a cumulative total of 25 cases of recidivism for the experimental group. 17 of the 25 cases are attributable to 8 individuals (being recidivists at two or more monthly intervals); the remaining 8 cases are attributable to 8 individuals (being recidivists at only one monthly interval). Further, as TABLE 5 indicated there was a cumulative total of 49 offenses

committed by the experimental group. Interestingly, 36 of the 49 offenses were committed by the former 8 individuals (each committing a total of 3 or more offenses); only 1 individual of the latter 8 individuals committed a total of 3 or more offenses. Clearly, an argument can be made that the eight youths who account for the majority of recidivism cases and offenses may not have been suitable for program participation.

As previously noted the focus of current correctional treatment is in applying a particular program to a particular type of offender to ensure that they will benefit from it (Ross and Gendreau, 1980; Rutter and Giller, 1983). The use of these programs as a "dumping ground" simply because there are available openings may not be in the best interest of the client, let alone the value of the program as a whole. These programs, then, should admit a population that would benefit the most from it. Based on this concern the following is suggested:

> Recommendation 1: The use of an astute assessment and referral process which would ensure that the youths attending the program will benefit from the experience.

This measure would entail the gathering of comprehensive background information which could then be assessed and used to form a typology identifying the kind of youth who would best respond to such a program. Researchers have suggested a

number of clientele variables which may affect a program's success. For example, poor education, learning disabilities, parents with delinquent histories, family instability and the number of prior offenses have been put forward as counter-productive to success (Rutter and Giller, 1983). As well as these, probation officers should also be alert to other variables which may be associated with an offender's suitability. Such attention would help to "fine tune" the assessment and referral process and ensure that those who will benefit the most attend these programs.

Although the results of the present study indicated a difference between the two groups with regards to the proportion of offenders and mean number of offenses, these differences, although statistically not significant, tended to disappear over time. In other words, although the experimental group started off with fewer offenders and committed offenses than the control group at the six month testing period, by eighteen months the two groups were virtually the same.

These findings are consistent with Kaplan (1974), Winterdyk (1980) and others who noted that differences in reconviction rates virtually disappeared by the second year upon completion of the program. Research suggests that the pro social and self benefits of the program may dissipate

after the youths return to their home/social environment. In some circumstances the acquired attitudes and behaviors may not be reinforced and, indeed, may be ignored or chastised. Due to this "onslaught of negative environmental pressures" (Winterdyk, 1980) the effects of the program may "wear off" (Kaplan, 1979) and clients would likely return to past behaviors and attitudes, old ways again in conflict with the law.

What is needed, then, is a means to monitor, reinforce and, hence, maintain the acquired attitudes and behaviors of the program. As such, the following is suggested:

> Recommendation 2: The employment of a follow-up program which would offer short-term wilderness survival trips, educational/vocational assistance and on-going individual/group counselling services.

Such an approach is supported by ample social research which indicates that it is simply not enough to alter a behavior or attitude: there must be a positive environment in order to sustain any acquired changes (Baron and Byrne, 1977). Put simply, treatment does not end with the program's completion. To assist in this Kaplan (1979) has suggested that such programs include positive "significant others", e.g., parents, teachers, non-delinquent friends, social workers and probation officers, in the monitoring and reinforcement of positive behaviors and attitudes. As well, he suggests that even a structured residential setting may be

necessary if the client's home/social environment is highly conducive to encouraging a return to delinquency. Regardless of what method is used it is apparent that some form of post-release intervention is necessary for the continued success of the program's goal of reducing recidivism.

One of the most common methodological flaws in many wilderness survival studies is that they do not outline how the program's dependent variable, i.e., recidivism, is causally related to the theory underlying the programs, i.e., survival and outdoor activities which foster pro social and self attitudes and behaviors. While research suggests that participants of these programs reoffend less than incarcerated youths, unless the independent variable is operationalized for measurement the causal linkage is not clear and the possibility of alternative explanations are plausible.

As noted in the discussion of control theory, wilderness survival programs appear to positively affect how one views/feels about oneself and others. It would be helpful, therefore, to empirically examine these proposed effects of the program. Based on this the following is suggested:

> Recommendation 3: The use of tests which would measure how wilderness survival programs affect a participant's attitude about themself and social others as depicted in control theory.

Ideally, such tests would be conducted (1) prior to the start of the program, to gain a measure of the current status of the variable(s) in question, (2) upon completion of the program, to assess how the program experience affected the variable(s), and (3) sometime after the youth has returned to their home/social environment, to examine how this environment has affected what was attained in the program. The latter test as well could be used in assessing whether follow-up intervention (Recommendation 2) is necessary. The utilization of such tests would substantially increase the validity of the program's objectives and outcomes and thereby increase our understanding of juvenile delinquency and its prevention and treatment.

Finally, regardless of an astute assessment and referral process, follow-up programs and testing procedures the program will be in vain if it does not operate effectively. In other words, the elements of the program, such as the activities and who instructs them, should be monitored and assessed for their possible contribution to the program's outcomes. Golins (1977), for example, has argued that programs which are physically and psychologically intense and stressful have lower recidivism rates than less stressful programs. Likewise, Krajick (1978) and others have suggested that the degree of expertise, readiness and delivery style of staff may affect a program's outcome.

Such questions which focus on the practical operation of the program need to be addressed in order to ensure the success of wilderness survival programs. Based on these concerns the following is suggested:

> Recommendation 4: An on-going evaluation of activity and staff effects on the operation of the program and achievement of its goals.

Such a process evaluation is increasingly being recommended as the emphasis of current research is shifting from one of ascertaining whether these programs are viable to one of ensuring their success (Winterdyk, 1980). Indeed, as these programs gain popularity and new activities, techniques and staff are introduced it is important that these additions or changes be monitored for their possible impact. Such checks help to also eliminate other plausible alternate explanations for the outcome of the program. Finally, a process evaluation would help to identify and manage potential problems. In short, such an approach would help to "streamline" wilderness survival programs for success.

Notwithstanding these concerns, the present study suggests that wilderness survival programs can serve as an effective and cost-efficient correctional intervention strategy for some young offenders. By promoting individual growth as well as social awareness, the key components argued by control theorist in the causation and treatment of much juvenile delinquency, these programs offer a viable

alternative to traditional incarceration's lack of success in reducing recidivism.

There are still a number of unanswered questions and issues such as who would best benefit from such programs and, importantly, how exactly these programs contribute to reducing reoffending. This study has suggested some possible explanations. Indeed, as research in this area becomes more refined we will be in a better position to understand the causal mechanisms and process underlying the success of these programs.

Juvenile delinquency, it causes and treatment, is a complex phenomenon. As Rutter and Giller (1983) note there are no simple or straightforward explanations. Intervention strategies will be developed, implemented, assessed and, in all likelihood, reformulated. While debates as to "what works" in juvenile treatment will surely continue, empirical findings such as this study do provide some guide to policy and action. At the most, it is hopeful that this study provides suggestions as to how these programs could be more effective. In the least, it is suggested that wilderness survival programs, such as Demikoss Creek 1983, 1984 and Granite Bay 1984, 1985, can serve as a viable alternative to incarceration for some young people in conflict with the law.

To quote Haskell and Yablonski (1982):

> Increasing the involvement of young people in the larger society and strenghtening their commitment to its normative patterns appear to be the most valid ways of ultimately minimizing crime and delinquency.

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APPENDIX

Participant Data List

KEY

ID: # = Participant number

PROGRAM
a = Demikoss Creek 1983
b = Demikoss Creek 1984
c = Granite Bay 1984
d = Granite Bay 1985

GROUP:
1 = experimental
0 = control

TIME:
1 = 6 months
2 = 12 months
3 = 18 months

OFFENDED:
1 = Yes
2 = No

OFF/NUM:
0 = no offense
1 = one offense
2 = two offenses
3 = three offenses
4 = four offenses

ID	PROGRAM	GROUP	TIME	OFFENDED	OFF/NUM
1	a	1	1	0	0
1	a	1	2	0	0
1	a	1	3	0	0
2	a	1	1	0	0
2	a	1	2	0	0
2	a	1	3	0	0
3	a	1	1	1	1
3	a	1	2	1	2
3	a	1	3	1	1
4	a	1	1	0	0
4	a	1	2	0	0
4	a	1	3	0	0
5	a	1	1	0	0
5	a	1	2	1	3
5	a	1	3	1	1
6	a	1	1	0	0
6	a	1	2	0	0
6	a	1	3	0	0
7	a	1	1	1	2
7	a	1	2	0	0
7	a	1	3	1	3

8	a	1	1	0	0
8	a	1	2	0	0
8	a	1	3	1	2
9	b	1	1	0	0
9	b	1	2	0	0
9	b	1	3	0	0
10	b	1	1	1	1
10	b	1	2	0	0
10	b	1	3	0	0
11	b	1	1	1	4
11	b	1	2	1	1
11	b	1	3	0	0
12	b	1	1	0	0
12	b	1	2	1	3
12	b	1	3	1	3
13	b	1	1	0	0
13	b	1	2	1	2
13	b	1	3	1	2
14	b	1	1	0	0
14	b	1	2	0	0
14	b	1	3	0	0
15	b	1	1	0	0
15	b	1	2	0	0
15	b	1	3	1	2
16	b	1	1	0	0
16	b	1	2	0	0
16	b	1	3	0	0
17	c	1	1	0	0
17	c	1	2	0	0
18	c	1	1	0	0
18	c	1	2	0	0
19	c	1	1	0	0
19	c	1	2	0	0
20	c	1	1	1	2
20	c	1	2	1	2
21	c	1	1	0	0
21	c	1	2	0	0
22	c	1	1	0	0
22	c	1	2	1	3
23	c	1	1	1	1
23	c	1	2	0	0
24	c	1	1	0	0
24	c	1	2	1	1
25	c	1	1	0	0
25	c	1	2	0	0
26	c	1	1	0	0
26	c	1	2	0	0
27	d	1	1	0	0
27	d	1	2	0	0
28	d	1	1	0	0
28	d	1	2	0	0
29	d	1	1	0	0

29	d	1	2	0	0
30	d	1	1	1	1
30	d	1	2	1	3
31	d	1	1	0	0
31	d	1	2	1	2
32	d	1	1	0	0
32	d	1	2	1	1
33	d	1	1	0	0
33	d	1	2	0	0
34	d	1	1	0	0
34	d	1	2	0	0
35	d	1	1	0	0
35	d	1	2	0	0
36	a	0	1	0	0
36	a	0	2	0	0
36	a	0	3	0	0
37	a	0	1	1	2
37	a	0	2	1	2
37	a	0	3	0	0
38	a	0	1	0	0
38	a	0	2	0	0
38	a	0	3	1	2
39	a	0	1	0	0
39	a	1	2	1	1
39	a	0	3	0	0
40	a	0	1	1	1
40	a	0	2	0	0
40	a	0	3	1	3
41	a	0	1	1	2
41	a	0	2	1	2
41	a	0	3	1	2
42	a	0	1	0	0
42	a	0	2	1	1
42	a	0	3	0	0
43	a	0	1	1	1
43	a	0	2	0	0
43	a	0	3	1	2
44	b	0	1	1	2
44	b	0	2	1	2
44	b	0	3	1	1
45	b	0	1	0	0
45	b	0	2	1	2
45	b	0	3	1	2
46	b	0	1	0	0
46	b	0	2	0	0
46	b	0	3	0	0
47	b	0	1	1	3
47	b	0	2	1	1
47	b	0	3	1	2
48	b	0	1	0	0
48	b	0	2	0	0
48	b	0	3	0	0

49	b	0	1	1	2
49	b	0	2	0	0
49	b	0	3	0	0
50	b	0	1	0	0
50	b	0	2	1	3
50	b	0	3	1	2
51	b	0	1	0	0
51	b	0	2	1	2
51	b	0	3	1	1
52	c	0	1	0	0
52	c	0	2	0	0
53	c	0	1	1	2
53	c	0	2	1	3
54	c	0	1	1	1
54	c	0	2	0	0
55	c	0	1	0	0
55	c	0	2	1	2
56	c	0	1	0	0
56	c	0	2	1	2
57	c	0	1	0	0
57	c	0	2	0	0
58	c	0	1	0	0
58	c	0	2	0	0
59	c	0	1	1	3
59	c	0	2	0	0
60	c	0	1	0	0
60	c	0	2	0	0
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61	c	0	2	1	1
62	d	0	1	0	0
62	d	0	2	1	2
63	d	0	1	1	2
63	d	0	2	0	0
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64	d	0	2	0	0
65	d	0	1	0	0
65	d	0	2	1	2
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67	d	0	2	0	0
68	d	0	1	0	0
68	d	0	2	1	2
69	d	0	1	1	2
69	d	0	2	0	0
70	d	0	1	0	0
70	d	0	2	1	1

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Author [redacted]

Zane Kirby Shannon

August 30, 1988