
**Risk, Criminogenic Need and Responsivity: An Evaluative
Framework Applied to the Operation Flinders Wilderness
Therapy Program for Youth-at-Risk**

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Statement of Authorship

This thesis contains no material which has been accepted for the award of any other degree or diploma in any tertiary institute and, to the best of my knowledge and belief, this thesis contains no material previously published or written by any other person, except where due reference is made in the text of the thesis.

Signed:.....

Ivan Raymond

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*It is not the mountains we conquer,
but ourselves.*

Sir Edmund Hillary

Abstract

Youth-at-risk are a difficult cohort to both engage and sustain in long-term treatment regimes. A treatment modality that has much intuitive appeal for its ability to overcome such barriers is wilderness therapy. However, owing to its loosely defined treatment approaches, conflicting theoretical underpinnings and inconsistent research base, it has lacked mainstream status. In response, this study used a forensic psychological framework to evaluate the efficacy of the Operation Flinders wilderness therapy program in respect to the rehabilitation principles of Risk, Need and Responsivity. A pretest-posttest control group design compared participants ($n = 58$) and controls ($n = 55$) on measures designed to assess self-esteem, anger, criminal cognitions (attitudes towards police, neutralisations & identification with criminal others) and classroom behaviour. Mixed model ANOVAs found that the Operation Flinders participants had differential improvements on the majority of measures, although they were neither consistent across measures, nor, apart from isolated results, considerably large. Compared to the entire sample, the study found no differential effects for young people high in need, or exhibiting the worst outcomes within the pretest phase of this evaluation. Larger improvements (effect sizes) were found for young people at high, as opposed to low risk of school marginalisation; with the program found to be equally efficacious for participants at high and low risk of criminal behaviour. Participant responsivity was examined by conducting bivariate correlations between a range of participant factors (age, sex, demographics, attitudes & experiences) and program outcomes. Although a number of consistent patterns emerged, the ability to identify a typology of young people who gained the most benefits from the Operation Flinders program remained problematic. The most robust results were found in the prediction of individual outcomes. An 11-item post-exercise questionnaire measuring program enjoyment, self-reported benefits and retrospective feelings towards the program supplemented the quantitative data. The results were discussed in respect to the previous Operation Flinders evaluation (Mohr et al., 2001), Davis-Berman and Berman's (1994a) systems theory, areas for ongoing program development and improvement, and future research methodologies.

Introduction

Australia's youth have become an increasingly marginalised cohort of Australian society (Eckersley, 1995; Wyn & White, 1997). In searching for alternate forms of expression, many of these young people will develop a range of *at-risk* or delinquent behaviour that may include the abuse of drugs and alcohol, school dropout, suicidal ideation, sexual promiscuity and criminal behaviour. More importantly, these *at-risk* behaviours have cumulative properties (DETYA, 2001); that is, increased numbers of *at-risk* behaviours are associated with an increased vulnerability to enter, and arguably become engrained within the juvenile justice system, and ultimately, the adult correctional system (Homel et al., 1999).

Considering the high fiscal and social costs of non-intervention (Farrington, 1989; Potas, Vining & Wilson, 1990), the challenge has been for social policy to develop a rehabilitative framework that can both react to, and be proactive in reducing *at-risk* behaviour. Owing to the modest successes associated with current tertiary prevention measures (e.g., juvenile justice system) (Mulvey, Arthur & Reppucci, 1993), there is a need for ongoing development and forward thinking within the management of delinquent behaviour (Hollin, 2002a).

An intervention that has seen increasing appeal in America, and more recently in Australia, and purported to have a role within both secondary and tertiary prevention (Caldwell, 2001), is wilderness therapy. While support grows that wilderness therapy can have a significant positive effect on *at-risk* youth (Mason & Wilson, 1988; Reddrop, 1997), it lacks mainstream status due to its loosely defined treatment approaches and inconsistent research base (Newes, 2001; Russell, 2001). In particular, there is little

information on “why or how WAT [wilderness-adventure therapy] works, for whom it works, under what conditions its works and for how long it works” (Weston & Tinsley, 1999, p. 37).

In response to these noted shortcomings, Heseltine, Mohr and Howells (2003) recently proposed an alternate evaluation methodology. Based upon a set of widely accepted principles for offender rehabilitation (Andrews & Bonta, 1998), for the purpose of this study, they are limited to the principles of Risk, Need and Responsivity. In addition to providing an evaluation methodology, these principles provide the means to identify (1) whom should be treated, (2) what factors should be targeted within rehabilitation and (3) how programs should be delivered (Heseltine et al., 2003).

A program recently evaluated using this forensic psychological framework was the Operation Flinders wilderness therapy program. With strong, but preliminary support found for the program (Mohr et al., 2001), the aim of this study was to further this research, in particular, examine the efficacy of the Operation Flinders program in respect to the criminogenic principles of Risk, Need and Responsivity.

A Contextual Basis for Wilderness Therapy

In order to provide a contextual basis for wilderness therapy within the treatment provision of *at-risk* youth, a number of questions warrant further investigation, these are: (1) who are *at-risk* youth, (2) what are the barriers to traditional treatment with this cohort and (3) how does wilderness therapy attempt to overcome these barriers?

Defining At-Risk Youth

Characterised as a developmental period of “stress and storm” (Erickson, 1968), all adolescents are arguably *at-risk* on one level or another. Therefore, the challenge is to differentiate young people along this continuum (DETYA, 2001). Ultimately, a definition of *at-risk* youth remains extremely problematic, with different professionals (e.g., educationalists, forensic psychologists and mental health workers) having different criteria for assessing risk (Tidwell & Garrett, 1994). Loosely speaking, the term *at-risk* denotes “a set of presumed cause-and-effect dynamics that place the child or adolescent in danger of negative *future events*” (McWhirter, McWhirter, McWhirter & McWhirter, 1998, p. 7). Within the wilderness therapy literature, these dynamics have included youth with emotional and behavioural disorders (Long, 2001), substance abuse problems (Lally & Cook, 1995), delinquent histories (Baer, Jacobs & Carr, 1975; Kelly & Baer, 1971; Lally & Cook, 1995) and prior adjudication (Sakofs, 1992; Wright, 1983).

For the purpose of this study, *at-risk* will be defined in accordance with the Operation Flinders selection criteria, and as such, includes individuals whose characteristics promote one or more of the following:

1. Leaving school without realising their full potential.
2. Offending.
3. Engaging in risk taking behaviour that might include taking drugs, abusing alcohol, sexual promiscuity and suicide.
4. Not seeking employment.

The proceeding literature review will limit itself to juvenile programs targeting the same or closely related risk factors.

Barriers to Intervention with At-Risk Youth

It is widely regarded that *at-risk* youth are a difficult cohort to engage in clinical intervention (Brendtro, Brokenleg & Bockern, 1998). The following are a number of adolescent traits that have the potential to undermine treatment provision:

1. Poor help-seeking behaviour (Boldero & Fallon, 1995; Raviv, Sills, Raviv & Wilansky, 2000). Youth are more likely to seek help from informal sources, such as family and friends, as opposed to formal sources, such as teachers, counsellors and psychologists (Dubow, Lovko & Kausch, 1990).
2. Emerging need to develop autonomy and independence (Shefler, 2000).

Within the higher risk cohorts, denoted in this case by the juvenile offender, there are a number of additional characteristics that have the potential to undermine treatment provision, they include:

1. Low motivation towards intervention (Hemphill & Howell, 2000).
2. Suspicion and distrust towards authority (Farabee, Nelson & Spence, 1993).
3. High impulsivity, low maturity and impaired foresight (Bergeron & Valliant, 2001).
4. Poor concentration/attention, restlessness and hyperactivity (O'Mahony & Deazley, 2000).
5. Poor verbal (Humber & Snow, 2001), non-verbal and literacy skills (Putniņš, 1999).

Owing to barriers of this type, *at-risk* youth, and in particular juvenile offenders, are a difficult cohort to both engage and sustain in long-term intensive treatment regimes. Furthermore, the detrimental effects of the aforementioned barriers are likely to be

exacerbated within interventions that rely solely on “talking-based” methodologies (Heseltine et al., 2003).

Wilderness Therapy and At-Risk Youth

Considering the numerous barriers to the engagement of youth, there is much intuitive appeal for interventions that can actively engage and maintain juvenile interest. One such treatment modality is wilderness therapy (Reddrop, 1997). It has been suggested that the compatibility between *at-risk* youth and wilderness therapy is due to young people’s high degree of energy, affiliation for risk-taking and inclination towards action, as opposed to verbal-orientated programs (Kelly & Baer, 1971). Furthermore, considering such programs are often provided under the guise of adventure and fun, participants often do not consider themselves involved in therapeutic intervention, thereby circumventing the barriers and resistance associated with traditional interventions. For these reasons, wilderness therapy may be considered the “hook” that gets adolescents into treatment (Long, 2001).

What is Wilderness Therapy?

The ability to adequately operationalise wilderness therapy remains a significant challenge to the discipline (Berman & Davis-Berman, 2001; Russell, 2001). This difficulty has been reflected on two levels. First, the modality has been ascribed with a diverse range of labels, including: wilderness experience programs (Russell, 2001), wilderness-adventure therapy (Weston & Tinsley, 1999; Mohr et al., 2001), wilderness stress-challenge programs (Castellano & Soderstrom, 1992), adventure therapy (Gass, 1993a) and wilderness treatment programs (Kimball, 1983).

Second, there has been a tendency for outdoor facilitators to apply haphazardly the term “wilderness therapy” to a wide range of outdoor programs. The operationalisability of wilderness therapy, therefore, has been dependent on the ability to differentiate wilderness therapy from programs that are solely adventure- or recreational-based (Itin, 2001). To attempt to provide clarity, Gass (1993a) has divided the outdoor-adventure modality into the domains of adventure therapy, wilderness therapy and residential camping. He suggests wilderness therapy is a therapeutic approach applied in a remote wilderness setting, spread over a number of days and involving a round the clock intervention. A more descriptive definition is provided by Weston and Tinsley (1999):

“Wilderness adventure therapy is a systematic experiential group intervention that occurs in a natural setting and employs therapeutic techniques and processes within the context of activities and experiences that contain elements of real or perceived risk (i.e., physical, social and emotional) to facilitate the improvements in the psychological and behavioural functioning of the participant.” (p. 31)

While conceptually descriptive, a definition of this type does not operationalise readily. This led Russell (2001) to conclude that any definition must focus on underlying theory, the practice itself and intended outcomes. In other words, a succinct definition remains both program and population specific. This study utilises a similar broad definition, operationalising wilderness therapy as a group-based intervention that is systematically applied within a wilderness environment over an extended period of time.

Origins and Applications of Contemporary Wilderness Therapy

Wilderness therapy in its contemporary form is a product of a number of distinct outdoor and therapeutic movements (Davis-Berman & Berman, 1994a). The modality

was founded upon the intuitive belief that the wilderness environment had restorative powers (circa 1850s). It was not until the advent of the “tent therapy” (circa 1900s) that the therapeutic potential of the outdoors was first recognised (Davis-Berman and Berman, 1994a). As the founder of the contemporary wilderness movement, Kurt Hahn developed the Outward Bound survival program for British seaman during World War II (Miner, 1990). From its humble beginnings, Outward Bound has grown worldwide, with this program and its derivatives being the most widely recognised and applied wilderness therapy program (Greene & Thompson, 1990).¹

From its point of origin, Heseltine et al. (2003) suggest that the intuitive appeal of wilderness therapy has been largely at the expense of the modality’s theoretical and empirical development. This, they argue, has led to wilderness therapy’s adoption to a wide range of client groups and applications, often without well-founded clinical basis. A cross-section of such treatment cohorts include: female sexual assault survivors (Levine, 1994), psychiatric patients (Kelley, Coursey, & Selby, 1997), individuals with physical disability (Anderson, Schleien, McAvoy, Lais & Seligmann, 1997) and youth in residential care (Fischer & Attah, 2001). It is also been used as an adjunct to anger management programs (Putniņš & Harvey, 2001), community-based programming (Collis & Griffin, 1993), family training programs (Pommier & Witt, 1995), supported employment programs (Herbert, 1998) and is purported to have a role within clinical assessment (Kimball, 1993; Russell, 2000). It is worth noting, however, the majority of wilderness programs target *at-risk* youth (Barrett, 1993; Davis-Berman, Berman & Capone, 1994).

¹ For a detailed historical overview, the reader is directed to Davis-Berman and Berman (1994a) and Ewert (1989).

Central Tenants of Wilderness Therapy

The overlap between wilderness and other outdoor programs (e.g., adventure, recreation) has the potential to undermine the ability to compare wilderness programs. One way to differentiate wilderness therapy from other outdoor programs is to isolate aspects of wilderness therapy that are central to its application. They would appear to include the following:

1. Wilderness or natural environment - Bernstein (1972) characterises this as an environment of low-density population with limited artificial or social stimuli. Furthermore, it is likely to be both challenging and unfamiliar (Kimball & Bacon, 1993; Mason & Wilson, 1988).
2. Situations or experiences that induce fear and/or stress (Ewert, 1989; Gair, 1997; Weston & Tinsley, 1999).
3. An experiential-based methodology - in this form of learning, direct experience is the crucial feature in the growth of learning and/or behavioural change (Gass, 1993a; Long, 2001; Sveen, 1993).
4. The use of reflective, metaphorical and therapeutic techniques that promote both learning transference and generalisation (Gass, 1993b; Gass, 1993c; Kimball & Bacon, 1993; Miles, 1993; Russell, 2000).
5. Group-based intervention (Gair, 1997; Weston & Tinsley, 1999; Kimball & Bacon, 1993).
6. Natural consequences (Gass, 1993a; Russell, 2001).
7. Performance-based outcomes (Kimball & Bacon, 1993).

Although recreation- or adventure-based programming may contain a number of these features, wilderness therapy programs may be characterised as containing most, if not all, of these aspects.

Theoretical Background

As noted, a number of questions have been raised against wilderness therapy's theoretical basis (Gibson, 1979; Reddrop, 1997). In a review of research articles in the *Therapeutic Recreation Journal* between 1986 and 1990, Bedini and Wu (1994) found that the overwhelming majority of the articles were not theory driven. Instead, it is widely accepted that there is no universally accepted model for understanding wilderness therapy (Davis-Berman & Berman, 1994a; Berman & Davis-Berman, 2001). To illustrate this point, while Bernstein (1972) attributes program outcomes to a high degree of predictability within the wilderness environment, Miles (1990), on the other hand, suggests they are related to a loss of control and high unpredictability.

Wilderness therapy has attracted a number of theoretical viewpoints. Within the literature, attempts have been made to integrate wilderness therapy with milieu theory (Hunter, 1985), group integrated reality therapy (Clagett, 1992), developmental theory (Sveen, 1993), systems theory (Berman & Davis-Berman, 1991; Davis-Berman & Berman, 1994a), transpersonal theories (Kimball & Bacon, 1993) and more holistic perspectives (Miles, 1993). Others have attempted to divide the theoretical framework into whether the environment or therapeutic community is central to the understanding (Mohr et al., 2001).

There is a general consensus that participant dissonance (or disequilibrium) has a fundamental role in explaining the modality's purported benefits with *at-risk* youth (Davis-Berman & Berman, 1994a; Gass, 1993a; Mohr et al., 2001; Nadler, 1993; Reddrop, 1997). This viewpoint suggests that when *at-risk* youth are removed from their comfort zones or familiar environment, they undergo a state of dissonance. Through the reappraisal of dysfunctional attitudes and behaviours, equilibrium can once again be maintained. This shift is likely to be reinforced through the natural consequences (Russell, 2001) and stress-inducing properties (Weston & Tinsley, 1999) of the wilderness environment.

This dissonance-based viewpoint has been furthered by Davis-Berman and Berman (1994; Berman and Davis-Berman 1991). Applying a systems theory approach, they suggest many *at-risk* youth are characterised by an external locus of control and low self-efficacy. As the wilderness environment forces young people to confront the choices they have made, the only avenue to reduce this state of dissonance is for the young people to take responsibility for their actions and to confront dysfunctional behaviour. Furthermore, by mastering activities that become incrementally more challenging, the youth not only achieve mastery over their immediate environment, but develop the self-confidence, self-efficacy and internal locus of control that are postulated to transfer this mastery to their home environment. Based on experiential principles, the viewpoint has received descriptive support within the literature (as described in sub-section: Self-Concept).

Apart from the systems theory approach, few theoretical positions have been operationalised within the literature. Therefore, in line with Mohr et al. (2001), for a cohort of this type, a viable theoretical framework is likely to include:

1. “Removal of the participant from the dysfunctional environment and thus the influences and contingencies maintaining dysfunctional conduct.
2. Exposure to circumstances in which well-established beliefs and behaviour patterns that may dysfunctional are no longer viable.
3. Dissonance – i.e., the resultant uncertainty – thus increasing the individual’s susceptibility to the influence of models of appropriate conduct and promoting pro-social outcomes.
4. The use of the therapeutic community – i.e., a supportive group setting – in order to enhance the process of change” (p. 50).

The Effectiveness of Wilderness Therapy

The previous discussion has highlighted the heterogenous nature of wilderness therapy. Owing to the diverse range of programs and cliental, in conjunction with the confounding nature of risk, the comparability of both programs and outcomes remains problematic. This discussion divides program outcomes into four categories, they include: self-concept, attitude, behaviour and recidivism. Each is considered in turn.

Self-Concept.

The majority of wilderness therapy outcomes have focused on participant self-concept (Russell, 2000). In support of Davis-Berman and Berman’s (1994a) systems theory, the literature suggests wilderness therapy can increase self-esteem (Herbert, 1998;

Hogan, Ireland & Lloyd Jones, 1994; Mohr et al., 2001; Wright, 1983) and self-confidence (Wright, 1983), as well as promote internality (Herbert, 1998; Wright, 1983; Sakofs, 1992). Overall, while the research remains mixed (Mohr et al., 2001), a number of meta-analytic² studies conclude that wilderness therapy can have a positive and statistically significant impact on participant self-concept (Cason & Gillis, 1994; Hattie, Marsh, Neill & Richards, 1997; Wilson & Lipsey, 2000).

One cautionary note is required. Although self-concept provides a conceptually descriptive account of wilderness therapy outcomes, it has limited predictive validity for future criminal behaviour (Andrews & Bonta, 1998). Instead, in some cases, heightened self-concept (e.g., self-esteem) may even promote criminal tendencies (see Baumeister, Smart & Bowden, 1996). While acknowledging this, it is worth noting that improved self-concept remains a worthy treatment goal for *at-risk* youth. It has implications for promoting overall wellbeing (Day, Howells & Rickford, 2003), as well as lowering the risk for other dysfunctional outcomes (e.g., marginalisation from school) (DETYA, 2001).

Attitudinal Measures.

Attitudes are strongly linked to both the establishment and maintenance of *at-risk* behaviour (Andrews & Bonta, 1998). However, surprisingly, as an outcome measure, dysfunctional attitudes have been used sparingly within the wilderness literature. Of the few studies that have attempted to link the two, the results have been mixed. To illustrate, Minor and Elrod (1994) found that the attendance of a 3-day adventure program, in

² Meta-analytic techniques are a statistical method of combining the results of a large number of empirical studies. The results can be considered quite robust.

conjunction with skill-based workshops, did not significantly mediate a participant's perception of juvenile justice. In contrast, Sakofs (1992) reported (with limited supporting documentation) a significant difference between participants and controls in asocial orientation, manifest aggression and values orientation using the Jesness Inventory. In more recent support, the Operation Flinders wilderness program was found to have a positive and statistically significant effect on a youth's attitudes towards the police, neutralisation, identification with criminal others and angry feelings (Mohr et al., 2001).

Behavioural Measures.

The transference of psychological growth into long-term behavioural change remains a significant challenge for the wilderness modality (Sakofs, 1992). Although reports of positive behavioural change are noted (Mohr et al., 2001; Pommier & Witt, 1995; Wichmann, 1991), there are few methodologically sound or readily accessible studies. Two meta-analytic reviews have included the examination of behavioural outcomes. The first by Cason and Gillis (1994), found a medium effect for behavioural assessment ($d = 0.40$) and school attendance ($d = 0.47$) within an adolescent cohort.³ Second, using stricter selection criteria, and focusing solely on delinquent populations, Wilson and Lipsey (2000) found that wilderness therapy was related to a small reduction in antisocial behaviour ($d = 0.24$) and increased school adjustment ($d = 0.30$).

³ Cohen's d (effect size) is a standardised measure of the difference between two means. Small, medium and large effect sizes are denoted by $d = .20$, $d = .50$ and $d = .80$, respectively (Cohen, 1992).

Recidivism Measures.

Reductions in recidivism have been noted within a number of studies (Baer, Jacobs & Carr, 1975; Bailey & Ray, 1979; Clagett, 1990; Clagett, 1992; Kelly & Baer, 1971). In the most methodologically rigorous, Castellano and Soderstrom (1992) used a matched control group design with multiple recidivism measures to assess the efficacy of a 30-day wilderness program, modelled after Outward Bound. The program was found to have a positive and measurable effect on recidivism measures, with successful program completion related to less serious re-offending behaviours. These reductions began immediately and lasted for approximately one year. However, at longer-term follow-ups, the differences became negligible.

While a number of short to medium-term benefits are noted, overall, there is no conclusive support that long-term reductions in recidivism are linked to wilderness therapy (Reddrop, 1997). However, two cautionary notes are added. First, recidivism measures have been criticised on the grounds they reflect the actions of the criminal justice system, as opposed to actual criminal behaviour (Greenwood, 1994; Seidman & Couzens, 1974). Second, many wilderness programs target clients at different levels of risk, or, young people at different positions along the developmental pathway of criminal behaviour. Therefore, while behaviours like sexual promiscuity, substance abuse, suicidal ideation, and marginalisation from both work and education may become antecedents to future criminal behaviour (Homel et al., 1999), they are also worthwhile treatment goals in their own right. For these reasons, a sole reliance of recidivism measures for interventions targeting *at-risk* youth should be questioned.

Meta-Analytic Reviews.

Three meta-analytic reviews of wilderness-adventure programs have been conducted. The first by Cason and Gillis (1994) examined 43 studies and reported a mean effect size of 0.31 for adolescent populations. In the second, Hattie et al. (1997) used an educational model to report a mean effect size of 0.21 for adolescent school students, with adult populations demonstrating consistently stronger effect sizes ($d = 0.38$).

The third, and most pertinent to this study, was conducted by Wilson and Lipsey (2000). This meta-analysis was in response to the number of shortcomings within the previous two, notably their focus on non-behavioural outcomes (e.g., self-esteem, locus of control), and their inclusion of all subject types and single treatment studies. Adopting a rigorous methodology, they only included studies that targeted juvenile delinquency and had a matched or equivalent comparison group. Of the 22 studies, the mean effect size was 0.18. From this figure they concluded that 37% of the control group participants' recidivate compared to 29% of young people attending wilderness programs.

In review of both Cason and Gillis (1994) and Wilson and Lipsey (2000), Mohr et al. (2001) concluded that the literature shows “a pattern of small effect sizes for delinquent youth, and generally moderate effect sizes for adolescents” (p. 48). However, universal acceptance of this conclusion is cautioned. As noted by Weston and Tinsley (1999), owing to a paucity of methodologically sound evaluations, the wilderness literature does not support meaningful meta-analysis.

Long-Term Efficacy of Wilderness Therapy

The long-term efficacy of wilderness therapy remains one of the strongest challenges to the discipline's mainstream acceptance (Mason & Wilson, 1988). The discussion to date has highlighted the ability of wilderness therapy to promote participant self-concept, attitudes and behaviour in the short- to medium-term. However, without ongoing follow up, a number of studies indicate regression towards pretest scores (Davis-Berman & Berman, 1994b; Herbert, 1998; Hunter, 1985; Pommier & Witt, 1995; Weston & Tinsley, 1999). This regression has been, in part, explained by the situation-specific nature of the intervention (Hunter, 1985). With the gains seen as lacking generalisability beyond the wilderness setting, Durgin and McEwen (1991) suggest that participant changes "are soon lost in the struggle against poor family interactions and negative community environments" (p. 34). Owing to criticisms of this type, there has been an increased focus within the field to develop a range of techniques that promote both experience generalisation and transference (Gass, 1990; Gass, 1993d; Luckner & Nadler, 1995; Priest & Gass, 1994).

Effectiveness of Wilderness Therapy in Australia

The majority, along with the most promising research on wilderness therapy has come from America (Mason & Wilson, 1988; Reddrop, 1997). Within Australia, there are a large number of youth development programs that are run under the auspice of outdoor-wilderness therapy (see Cianchi, 1991; Mason & Wilson, 1988; Reddrop, 1997). Support is provided that criminal tendencies can be mediated when such programs are applied in a supportive social context and in conjunction with community groups (Cameron &

MacDougall, 2000). In regard to delinquent youth, the reduction of youth boredom and unsupervised leisure time would appear the most important mediating factors (Morris, Sallybanks, Willis & Makkai, 2003).

Overall, while many of Australia's wilderness programs provide support for improved self-concept and behaviour (Bowling & Williams, 1993; Lally & Cook, 1995; Pearson, 1989; Sveen, 1991; Sveen & Denholm, 1993), their reliance on anecdotal data severely undermines the validity of their findings. Furthermore, apart from isolated studies (e.g., Mohr et al., 2001), much of the research is characterised by small sampling and poor methodological rigour (Mason & Wilson, 1988). For these reasons, the efficacy of wilderness therapy remains largely unknown within this country (Reddrop, 1997).

Research Limitations of Wilderness Therapy

The research concerns noted within Australia have been replicated worldwide (Hattie et al., 1997). Bedini and Wu (1994) examined the quality of research articles in the *Therapeutic Recreation Journal* between 1986 and 1990 and found that the overwhelming majority of articles were not theory driven, had weak measurements, lacked methodological rigour, and that reliability and validity measures were often overlooked. Methodological shortcomings are noted throughout the literature, they include: the comparison of self-designated rating scales to standardised measures (Cason & Gillis, 1994), a lack of control for repeat testing effects (Fischer & Attah, 2001; Newes, 2001), the use of non-randomised control groups (Gibson, 1979; Weston & Tinsley, 1999), a reliance on low power studies (Fischer & Attah, 2001; Hattie et al., 1997), the screening out of high-risk cases (Reddrop, 1997), a lack of operational

definitions (Berman & Davis-Berman, 2001), a heavy reliance on single level measures (Marsh, Richards & Barnes, 1986; Newes, 2001; Sveen & Denholm, 1993) and a tendency to focus on outcome, as opposed to process-orientated measures (Hattie et al., 1997; Russell, 2000; Wichmann, 1991).

Owing to these concerns, the challenge being set for the discipline is to develop and utilise a methodologically sound framework (Davis-Berman & Berman, 2001; Nichols, 1994). This framework would appear to include the following aspects: (1) the use of a randomly selected control group, (2) multi-level assessment that includes both outcome and process-orientated measures, (3) an appropriate sample size for the analysis undertaken, (4) the use of standardised measures that directly relate to stated goals of the program and (5) the use of both quantitative and qualitative analysis (adapted from Mohr et al., 2001; Reddrop, 1997; Weston & Tinsley, 1999).

The Effectiveness of Wilderness Therapy: Conclusions

It is widely regarded that wilderness therapy is not a panacea for youth crime and *at-risk* behaviour (Reddrop, 1997; Sveen & Denholm, 1993). In this light, the therapeutic outcomes expected from wilderness therapy have become more modest than they once were (Berman, 1995). Notwithstanding the aforementioned criticisms, in lieu of recent research (e.g., Mohr et al., 2001), and strong anecdotal and community support for such programs, the potential viability of wilderness therapy as a treatment option for *at-risk* youth within Australia should not be discounted.

A Contemporary Approach to Understanding Wilderness Therapy

Need for a New Model of Understanding

A number of preliminary conclusions can be drawn from the discussion to date. First, wilderness therapy is a heterogeneous intervention. That is, not all programs are equally effective, nor do all *at-risk* youth benefit equally from this form of intervention. Second, *at-risk* is a construct that falls along a continuum. Youth differ significantly in their propensity for future *at-risk* behaviour, and the aspects in their life they need to develop in order to grow in a socially constructive manner. Third, there is a strong need to develop a theoretical framework that encompasses both an outcome and process orientated understanding of wilderness therapy. Finally, future understanding of wilderness therapy must occur in a background of methodologically sound research. At present, there is no approach within the outdoor therapy discipline that can provide a unified framework for such issues. Therefore, in line with Heseltine et al. (2003), this study looks towards the forensic psychology discipline as a means to provide a robust and evidence-based framework to assess clinical interventions of this type (Day & Howells, 2002; MacKenzie, 2000).

Principles of Rehabilitation: Risk, Need and Responsivity

In the past decade a framework has emerged that describes the best principles (or “what works”) for offender rehabilitation (McGuire & Priestley, 1995). Aligned to the Canadian researchers Andrews, Bonta and colleagues (Andrews, 1995; Andrews & Bonta, 1998; Andrews, Bonta & Hoge, 1990; Andrews, Zinger et al., 1990; Bonta, 1996; Bonta, 1997), the model is based on the principles of Risk, Need, and Responsivity. The

Risk Principle suggests that interventions should target individuals who are at high risk of future offending. According to the Needs Principle, interventions should target factors that directly relate to future offending behaviour. Lastly, the Responsivity Principle suggests that interventions should be delivered in a manner that matches the characteristics, personality and learning style of the offender.

Leschied, Andrews and Hoge (1993) report that interventions based on these principles may reduce recidivism in young offenders by 25 to 40%. Although this figure may be regarded as somewhat optimistic, the model is seen as one of the most significant advances in both adult and juvenile offender rehabilitation (Andrews, Bonta et al., 1990; Baird, 1991; Day et al., 2003; Dowden & Andrews, 1999a; Dowden & Andrews, 1999b; Leschied, Andrews & Hoge, 1993). Each of these principles and their relationship to wilderness therapy are considered in turn.

Risk. Risk includes static factors that are related to the increased propensity for *at-risk* or criminal behaviour. Although the assessment of risk within juvenile populations remains problematic (Hoge & Andrews, 1996), a number of important predictors have emerged within the literature, they include: prior offending behaviour, type of offence, age of first offence, number of prior commitments, sex, race, socio-economic status and previous abuse (Cottle, Lee & Heilbrun, 2001; Heilbrun et al., 2000; Hoge, Andrews & Leschied, 1996; Hollin, 2002b; Putniņš, 2001; Simourd, Hoge, Andrews & Leschied, 1994).

As already noted, risk has cumulative properties, that is, increased levels of risk are associated with a greater propensity for criminal behaviour (Homel et al., 1999). The Risk Principle suggests the higher the risk of future offending behaviour, the more

intense the intervention required (Andrews & Bonta, 1998; Baird, 1991). Intense services applied to low risk offenders may have little effect on recidivism, with the literature suggesting that criminogenic tendencies may even be promoted in some cases (Andrews & Bonta, 1998). Strong support is provided that intense interventions targeting high-risk offenders have the greatest impact on subsequent offending behaviour (Andrews, Zinger et al., 1990; Gendreau, 1996). It is worthy to note, however, in a review of 44 methodologically sound studies, Antonowicz and Ross (1994) found that both high- and low-risk offenders may respond equally to varying intensities of intervention.

In regard to wilderness therapy, meta-analytic reviews conducted by Cason and Gillis (1994), Hattie et al. (1997) and Wilson and Lipsey (2000) have found no significant relationship between a participant's level of risk and program outcomes. In the most methodologically rigorous, Wilson and Lipsey reported that wilderness therapy is equally efficacious for non-delinquent, delinquent and institutionalised youth. Apart from these cross-study reviews, there have been few, if any, studies that have individually isolated participant risk and its mediation of program outcomes. Wilson and Lipsey (2000) acknowledge, however, the potential mediating effect of participant risk, notably within the pre-delinquent cohort, remains a notable area of interest.

In the recent review of the Operation Flinders program, Mohr et al. (2001) reported that there was a general feeling among both team leaders and referral agencies that high risk, or young people with ingrained criminal behaviour, gain minimal benefit from the program. However, as noted, there is little quantitative support within the wilderness literature to support such a claim. Instead, support from the criminogenic literature suggests that when a program consists entirely of high-risk individuals, it may

result in increasing the cohesiveness of the antisocial group (Andrews & Bonta, 1998). That is, peer modelling leads to the reinforcement of maladaptive behaviour (Collins & Griffin, 1993). Therefore, the heterogeneity of risk would appear an important feature of group-based wilderness therapy programs (Kelly & Baer, 1969).

Criminogenic need. Criminogenic needs include the attitudes, values, beliefs and behaviours that an individual uses to support and maintain dysfunctional or *at-risk* behaviour (Andrews & Bonta, 1998). Bonta (1997) summarises these around six domains, they include: criminal associates, pro-criminal attitudes, substance abuse, antisocial personality, dysfunctional problem solving skills and hostility-anger. Unlike the principle of Risk, these factors are dynamic or malleable to intervention. For this reason, criminogenic needs form the immediate goals of rehabilitation, as well as provide the means to evaluate interventions (Bonta, 1996).

Although support is provided that the needs of young offenders may be different to adults (see Cottle et al., 2001), in particular their focus on developmental and educational aspects, the role of criminogenic needs remain a central feature of offender programming within this cohort (Day et al., 2003). Three criminogenic needs are pertinent to this study, they include: anger, criminal cognitions and marginalisation from school. Each is considered in turn.

Anger. Anger is a reliable and robust predictor of future criminal tendencies (Bonta, 1997). A meta-analysis by Gendreau, Goggin and Little (1996) found that anger in childhood was significantly correlated with adult criminal behaviour ($r = .30$). In addition, Dowden and Andrews (1999a) found that the targeting of anger-

antisocial feelings was significantly positively correlated with larger effect sizes in young offender interventions ($r = .28$).

Criminal cognitions. Criminal cognitions include the values, beliefs and rationalisations (e.g., neutralisations) a young person uses to justify and support criminal behaviour (Guerra, 1989). Criminal attitudes are one of the most robust predictors of future criminal behaviour in both adult (Bonta, 1997; Gendreau et al., 1996) and juvenile populations (Granic & Butler, 1998; Guerra, 1989; Hoge et al., 1996; Shields & Whitehall, 1994; Simourd & Andrews, 1994; Simourd & Olver, 2002). Furthermore, the targeting of antisocial attitudes are significantly positively correlated with larger treatment effect sizes ($r = .13$), or greater treatment efficacy with young offender interventions (Dowden & Andrews, 1999a).

Marginalisation from school. Cohen (1955) was the first to speculate that frustration at school may lead to the development of compensatory achievement through illegitimate activities. Research suggests that poor academic performance, truancy and poor classroom behaviour are all potential antecedents to future criminal behaviour (Baker, 1998; Gruber & Machamer, 2000; Heilbrun et al., 2000; Marguin & Loeber, 1996). More importantly, the role of school is seen as having a crucial protective influence for both future *at-risk* and antisocial behaviour (DETYA, 2001; Hoge et al., 1996; Homel et al., 1999).

Responsivity. The principle of responsivity is considered the catalyst of treatment provision (Bonta, 1996). Within the literature, a number of client traits have shown the potential to mediate treatment responsivity, they include: age, gender, learning styles, motivation, personality, emotional expression, interests, cognitive abilities, mental illness

and social skills (Bonta, 1996; McMurrin et al., 1998; Zettle, Haflich & Reynolds, 1992). It is worthy to note, however, their potential mediating effects are both program and population specific.

In regard to wilderness therapy, treatment responsiveness has received minimal attention within the literature (Heseltine et al., 2003). However, considering the widely accepted viewpoint: “only some programs are effective, and then only on some outcomes, and it is probable that only parts of the programs are influencing these outcomes” (Hattie et al., 1997, p. 70), the identification of participant and program related factors that mediate wilderness therapy outcomes remain a notable area of interest (Weston & Tinsley, 1999). A review of the literature identifies a number of potential mediating variables. Each will be considered in turn.

Program type. Wilderness programs are notably heterogeneous (Hattie et al., 1997). Kelly and Baer (1971) compared three types of Outward Bound and found that programs that had a high degree of physical challenge and excitement, followed by periods of reflection, predicted the best outcomes. The literature suggests that delinquent populations are most responsive to intense programs that include a high degree of physical rigour (e.g., backpacking) (Wilson & Lipsey, 2000), with juvenile offenders attracted to programs high in adventure and perceived fear (Reddrop, 1997).

It is worth noting that wilderness programs based on boot-camp methodologies, while appealing popular sentiment, are given minimal support within the literature (Hollin, 2000a). That is, harsh discipline does not manifest in the reduction of antisocial behaviour (Gendreau, 1996; Hoge, n.d.; Leschied, Andrews & Hoge, 1993).

Program length. Wilderness programs vary considerably in the length of their program. Cason and Gillis (1994) found that longer programs were significantly positively correlated with larger effect sizes ($r = .17$). In contrast, Wilson and Lipsey (2000) found that short but intense programs were associated with larger effect sizes. As such, it is widely accepted that program composition has a more powerful mediating role than program length (Wilson & Lipsey, 2000).

Therapeutic enhancement. There has been an increased emphasis within the wilderness discipline to apply interventions with greater therapeutic intent (Itin, 2001). In part, this has been achieved by integrating a number of therapeutic techniques (e.g., counselling, family therapy and therapeutic group sessions) into the wilderness experience. These techniques attempt to maximise both the therapeutic value of the intervention itself and the long-term generalisation of the experience (Gass, 1993c). While acknowledging that the majority of programs do not include such enhancement methods (Barrett, 1993), there is both strong descriptive (Gass, 1993c; Itin, 2001) and empirical (Wilson & Lipsey, 2000) support that the inclusion of such methods manifests in more powerful outcomes.

Age. Durgin and McEwen (1991) suggest that wilderness therapy is suited to younger participants due to their less developed criminal attitudes and behaviours. Meanwhile, others argue that wilderness participants must have a suitable cognitive development to generalise the therapeutic experience (Davis-Berman & Berman, 1994a). Meta-analytic reviews have produced mixed results. While Cason and Gillis (1994) found that age was significantly negatively correlated ($r = -.18$) with larger effect sizes, Wilson and Lipsey (1998) reported no differential effects.

Ethnicity. Qualitative support is provided that wilderness programs are equally efficacious for Indigenous and non-Indigenous participants (Dunn, Graham & Wanganeen, 1991), and young people from a diverse range of cultural backgrounds (Mason & Wilson, 1988).

Sex. Sex differences have not been well researched (Long, 2001; Mason & Wilson, 1988). While some have argued for differential effects (Gilligan, 1991; Levitt, 1994), others have strongly disputed this claim (Autry, 2001). In the only meta-analysis isolating such differences, Hattie et al. (1997) found that there was no significant relationship between participant sex and therapeutic outcomes.

Motivation. The experiential therapy process relies heavily on client motivation (Gass, 1993a). Strong qualitative support is provided that coerced (e.g., court ordered) participants not only achieve worse outcomes, but their inclusion also impacts negatively on the group process (Collins & Griffin, 1993; Sveen, 1991; Sveen & Denholm, 1993).

Treatment readiness. Recently, one aspect of client motivation, titled treatment readiness, has received considerable attention within the anger management literature. Howells and Day (2003) suggest low readiness is the “presence of characteristics (states or dispositions) within either the client or the therapeutic situation, which are likely to impede engagement in therapy and which, thereby, are likely to diminish therapeutic change” (p. 320). Low readiness, therefore, is associated with low treatment responsiveness and less efficacious treatment outcomes.

Howells and Day (2003) suggest a central aspect of readiness is way in which clients (1) become aware of their dysfunctional behaviours and (2) demonstrate a

preparedness to resolve them. Described within the clinical literature as a process of change, the most influential model has been developed by Prochaska, DiClemente and colleagues (McConaughy, DiClemente, Prochaska & Velicer, 1989; Prochaska, DiClemente & Norcross, 1992), and has been recently found to have utility with young offenders (Hemphill & Howell, 2000). The model examines the degree a person is aware of their problem, and more importantly, his/her willingness to take steps to modify his/her experiences, behaviour and environment to address these problems. Treatment responsiveness, therefore, is associated with higher levels of problem awareness and willingness to change. At present, treatment readiness has received no systematic examination within the wilderness therapy literature.

Outdoor-related factors. The wilderness literature supports the notion that young people respond differently to stress, challenging situations and camping experiences (Mason & Wilson, 1988). It is intuitively appealing that young people who are attracted to adventurous activities, along with possessing a higher level of physical fitness, would gain greater enjoyment from high intensity wilderness programs, thereby increasing their responsiveness to the program's therapeutic message. Conversely, it could also be argued that participants low in these qualities undergo greater dissonance (e.g., further out of their comfort zones), thereby manifesting in greater reappraisal of dysfunctional attitudes and behaviours, and ultimately, greater program outcomes. Although Davis-Berman and Berman's (1994a) systems theory would support the later, at present, there is nothing within the literature to predict this relationship. For this reason, outdoor-based responsiveness traits remain a notable area of interest.

The Operation Flinders Program

Program Details.

Operation Flinders is an 8-day wilderness therapy program developed as a “behaviour circuit breaker” for *at-risk* youth (Murray-White, 1994, p. 157). The program’s mission statement is:

“to provide young men and women who have either breached the law, or at risk of breaching the law, with demanding outdoor challenges and support, to help them develop their personal attitudes and values of self-esteem, motivation, team work and responsibility so they may grow as valued members of the community”

Participants aged between 14 and 18 years of age are referred to the program by a number of agencies, including: the Department of Education and Training (DETE), Family and Youth Services (FAYS), schools and youth-care agencies. With the selection of participants left to referral agencies, DETE and school referrals are likely to reflect problems at school, including poor classroom behaviour and truancy; with FAYS and other referrals likely to reflect a range of *at-risk* or criminal behaviour.

On each exercise, up to 10 teams, each comprised of between seven and ten participants, independently backpack a 100km circuit of the Northern Flinders Ranges. Each day teams walk to designated endpoints where they are resupplied with food and water, and rotate through a number of manned stands (abseiling, cultural awareness and bush survival) and challenge-based exercises. Accompanying each team is a team leader, at least one counsellor (or teacher) from each referral agency, an assistant team leader, and peer group mentor (where available). Designed as a physically intense stand-alone program, structured follow up is largely left with referral agencies.

In an examination of best practices, Mohr et al. (2001) concluded that Operation Flinders either wholly or partially met 82% of the best practice criteria, with 13% not met

and 5% unable to be determined at the time of evaluation. Furthermore, the Operation Flinders program contains a number of features the literature suggests are highly efficacious with delinquent populations (see Reddrop, 1997; Wilson & Lipsey, 2000). That is, the program is based on activities that are high in intensity, physical rigour (e.g., backpacking) and adventure, and includes activities that are high in perceived fear (e.g., abseiling). Together, these results support the soundness of the Operation Flinders wilderness therapy program.

Previous Evaluation.

The Operation Flinders program is one of the few wilderness programs within Australia that has undergone rigorous evaluation. Commissioned by the South Australian Attorney General's Department, Mohr et al. (2001) used a pretest-posttest control group design to examine the effect of the program on participant self-esteem, anger, criminal cognitions and classroom behaviour. Retrospective analysis of the program was not possible due to the inability to find a suitable control group and missing archival data. The comparison of pretest-posttest shifts between the participant and control group revealed no significant differential improvement pattern in favour of the participant group. However, when high need individuals were isolated, that is, "individuals scoring in that half of a scale's score range that might be classed as indicative of dysfunction" (p. 149), a differential pattern of results emerged. Among these respondents, completion of the program, relative to non-attendance, was related to significant improvements in self-esteem, angry feelings, attitudes towards the police, neutralisation, and identification with criminal others. The only self-report measure to show no effect for Operation Flinders participation was aggressive impulses.

Mohr et al. (2001) used the Behaviour Academic Self-Esteem (BASE) questionnaire to assess the effect of the Operation Flinders program on classroom behaviour. Relative to controls, the participant group recorded significant improvements on all five of the BASE's subscales, including: social attention, coping with success and failure, social attractiveness, student initiative and self-confidence. When high need individuals were isolated, the improvements were more pronounced.

Mohr et al. (2001) provided evidence that the improvements were maintained at 5- and 14-week follow-ups; although these results are cautioned due to notable attrition within the control group. Two other points are noted. First, using correlation coefficients, a variable pattern of change was reported. That is, some participants gained more benefits from the program than others, with this also reflected in that improvements did not occur uniformly across all measures. Second, the evaluation also showed small but consistent improvements in the control group. Analogous to the use of repeated measure designs, it underpins the requirement to use control groups in evaluations of this type.

Although Mohr et al. (2001) designed their evaluation on a criminogenic framework, no attempt was made to isolate the potential mediating effects of static risk or responsivity-based factors. Furthermore, as the sample available to them did not include a FAYS or Learning Centre group, they suggest that young people with higher levels of risk were significantly under-represented. This, along with the finding that improvements associated with the program were not uniform, suggests that the potential mediating effects of static risk and responsivity factors remains a significant area of interest. By isolating such factors, it is postulated that a set of predictive participant selection criteria may be developed.

Current Study

The primary aim of the current study was to examine efficacy of the Operation Flinders wilderness therapy program using the criminogenic principles of Risk, Need and Responsivity. By doing so, the generalisability of these results for wilderness therapy was examined. The study was based on four distinct features. First, the study utilised a pretest-posttest control group design. The selection of the comparison group, drawn from the same population, enabled the measurement of change, while at the same time controlling for the repeat-testing effects of maturation, history and regression towards the mean (Borkovec, 1997). Although, ideally, both participant and comparison groups should be randomly selected, in reality, Operation Flinders referral agencies select participants on the basis of achieving viable group dynamics.

Second, the timing of pre- and post-testing were designed to be outside the period of what Newes (2001) labels pre-trip emotionality and post-trip euphoria. Noted by a number of others (Davis & Davis-Berman, 1994a; Marsh et al., 1986), the 4-week follow-up (posttest) was designed to measure the degree the program had been generalised.

Third, the study was designed to include both multi-levelled outcomes and data collection. This included the use of attitudinal, behavioural and qualitative outcomes, and the use of self- and other-report measures. The potential dangers of relying solely on self-report data with a cohort of this type are noted (Hoge & Andrews, 1994).

Finally, the outcomes used within this study included dynamic risk factors (criminogenic needs) that predict both marginalisation from the school system and future criminal behaviour. Specifically, they included: anger, criminal cognitions and poor

classroom behaviour. Self-esteem, although a non-criminogenic need, was also included as it is one of the stated outcomes of the program, and has implications for both treatment responsivity and general well-being within this cohort.

This study had three aims.

1. To examine the efficacy of the Operation Flinders wilderness therapy program for youth at different levels of risk and criminogenic need.
2. To examine the interrelationships between risk, criminogenic need and responsivity, and their mediation of Operation Flinders program outcomes.
3. To develop a set of participant selection criteria that has predictive validity for the Operation Flinders program.

Method

Participants

Responsibility for the assignment of young people to both participant and control groups was left with counsellors from referral agencies. To assist, counsellors were asked to “identify young people who, if there were double the number of places on the current exercise, would have attended”. They were asked to ensure that the same selection criteria, in particular: level of perceived risk, age and gender, were applied to both groups. The perceived equivalence, distinguished only by the availability of places within the program, arguably befitted the comparison group as a waiting list control.

In total, 113 subjects, drawn from 12 referral agencies, participated in the current study. Of this, 58 young people attended the Operation Flinders program, while 55 young people participated in the evaluation as an untreated control group. The participant group represented 82% of the young people attending the June Operation Flinders Exercise. The rate of pretest-posttest attrition was approximately 25% and 41% for the Operation Flinders and control group, respectively.

The Operation Flinders Exercise was comprised of eight individual teams. This included five teams in which two referral agencies combined to form a composite team, and three teams in which a single agency represented a team. Composite teams included the following referral agencies: Wirreanda High School, Seaford 6-12 School, The Heights High School, Oakbank Area School, Gawler High School, Golden Grove High School, Glenunga International High School, Warriappendi School, Behaviour Management Services Murray Bridge and Modbury High School. Single agency teams

included: Smithfield Plains High School, Ceduna Area School and Beafield Education Services Para Hills.

Demographic data indicated that the mean age of the participant and control group was 14.4 (SD = 0.97, range 13 to 17 years) and 14.2 (SD = 0.97, range 13 to 17 years), respectfully. In both groups the majority of participants were male (around 85%), with approximately 65% of the participants coming from metropolitan Adelaide referral agencies.

Materials

This study used both self- and other-report measures. The self-report questionnaires included measures previously validated by Mohr et al. (2001) and measures specifically designed for this study. In both cases, questionnaires were designed to accommodate anticipated literacy and attention span deficiencies. The following self-report measures were used.

Background information. This 7-item self-report measure was admitted to both the control and participant group at the pretest (Appendix A). The questionnaire sought responses on subject demographics (age and sex) and static risk factors. The later included items on the subjects' previous school (truancy, suspension and exclusion) and criminal history (convictions and detention).

Self-esteem. This 5-item self-report measure was admitted to both the control and participant groups at the pre- and post-test (Appendix B). The scale had previously demonstrated a moderate level of internal consistency ($\alpha = .75$) (Mohr et al., 2001). On a 5-point Likert scale, with 1 representing *strongly disagree* and 5 representing *strongly*

agree, respondents indicated his/her agreement with how each item represented how they currently felt. Higher scores represented increased self-esteem.

Anger. Developed by Mohr et al. (2001), this 12-item inventory was designed to assess an individual's recent experience of anger; in particular, the frequency and expression of this anger (Appendix B). On a 5-point Likert scale, with 1 representing *never* and 5 representing *very often*, subjects were asked to think back over the past week and indicate how often these angry expressions and feelings had occurred. Higher scores represented increased levels of anger. Developed as a two-factor scale - Angry Feelings and Aggressive Impulses – the scale had previously demonstrated both good internal consistency ($\alpha = .87$ and $\alpha = .90$, respectfully) and convergent validity (Mohr et al., 2001).

Criminal cognitions. A modified version of the Criminal Sentiments Scale (Mohr et al., 2001) was administered to both the control and treatment groups at the pre- and post-test (Appendix C). Comprised of three subscales - Attitudes Towards Police, Neutralisation, and Identification with Criminal Others – responses were sought on a 5-point Likert Scale, with 1 representing *strongly disagree* and 5 representing *strongly agree*.

Attitudes Towards Police. With higher scores representing more positive attitudes towards the police, this 7-item subscale had previously demonstrated a good level of internal consistency ($\alpha = .86$) (Mohr et al., 2001).

Identification with Criminal Others. With higher scores representing an increased identification with criminal others, this 5-item subscale had previously demonstrated an acceptable level of internal consistency ($\alpha = .61$) (Mohr et al., 2001).

Neutralisation. With higher scores representing an increased use of neutralisations, this 7-item subscale had previously demonstrated an acceptable level of internal consistency ($\alpha = .72$) (Mohr et al., 2001).

Responsivity. A 19-item questionnaire was administered to both the control and treatment groups at the pretest (Appendix D). Designed with high face validity, the questionnaire's aim was to tap into a range of young people's experiences and attitudes that were postulated to mediate wilderness therapy outcomes. The scale was organised around six domains, they were: camping enjoyment, sense of adventure, physical activeness, group responsiveness, problem awareness and willingness to change. Items from the later two domains were developed from the stages of change model (McConaughy et al., 1989). Subjects responded to items on a 5-point Likert Scale, with 1 representing *strongly disagree* and 5 representing *strongly agree*.

Post-exercise questionnaire (PEQ). An 11-item post-exercise questionnaire was completed by the participant group only (Appendix E). The questionnaire sought responses on a young person's experience of the program, in particular their perceived enjoyment, self-reported benefits, and feelings towards fellow participants, team leader and the program in general. Responses were sought on a 5-point Likert scale, with 1 representing *strongly disagree* and 5 representing *strongly agree*.

Counsellor-completed measures. At the pre-test, counsellors completed a five-item questionnaire targeting static risk factors for young people both in the control and treatment groups (Appendix F). The questionnaire was similar to the self-report measure, except was more formally written and did not include demographic responses. The

inclusion of this questionnaire was designed to both supplement and to provide concurrent validity for the self-report data.

Behavioural Academic Self-Esteem (BASE). Counsellors-teachers completed the BASE for both the control and treatment groups at the pre- and post-test. Developed by Coopersmith and Gilberts (1982), the 16-item BASE provides a measure of self-esteem within the school environment. Responses were given on a 5-point Likert scale, with 1 representing *never* and 5 representing *always*. Comprised of five subscales, they included:

1. Student Initiative – six-item subscale designed to measure a student’s willingness and initiative to engage in a range of classroom activities.
2. Social Attention – three-item subscale designed to measure a student’s cooperation and willingness to engage in behaviours presumed to be conducive to classroom learning.
3. Success-Failure – two-item subscale designed to measure a student’s ability to cope with his/her mistakes and teacher feedback.
4. Social Attraction – two-item subscale designed to measure a student’s social attractiveness, or willingness to interact with his/her peers.
5. Self-Confidence – two-item subscale designed to measure a student’s willingness to express opinions and appreciate the products of his/her work.

With higher scores representing increased self-esteem within the classroom, the total BASE score is the sum of these five subscales.

Procedure

Pre-program. Five weeks before the start of the program, a nominated contact person from each referral agency received an introductory letter (Appendix G), followed by telephone contact a week later from the researcher. This contact clarified both the role and structure of the comparison group and the assistance sought.

Two weeks before the start of the program, the researcher attended the Operation Flinders pre-exercise introduction night and briefed all counsellors in attendance. The research was placed in its theoretical and applied context, the evaluation tools were explained and the admission procedure was discussed. Written instructions detailing both the admission procedure and administration requirements were provided to all counsellors (Appendix H). The counsellors were asked to ensure the questionnaires were completed one week prior to the start of the exercise, and if this date was not practical, the nearest day before or after this date was acceptable.

Post-program. Post-program, counsellors from referral agencies were again provided with both telephone and written (Appendix I) contact. They were asked to ensure the questionnaires were completed on the four-week anniversary of the completion of the Operation Flinders exercise, and if this date was not practical, the nearest day before or after this date was acceptable. Subsequent telephone contact indicated that the majority of questionnaires were not completed until after the five-week anniversary.

Pre- and post-test data was collated using randomly assigned identification numbers, with data analysis conducted using SPSS (10.01) for Windows.

Results

Descriptive Analysis*Comparison of Self- and Teacher-Reported Data*

This study used both self- and teacher-completed measures to assess a range of static risk factors. Table 1 shows the inter-correlations between both sets of data.

Table 1.

Correlations (Φ) Between Subject- and Teacher-Completed Static Risk Data

Truancy History	.39
Suspension History	.76
Exclusion History	.69
Offending History	.71

Note. All correlations significant at the .001 level (two-tailed).

Correlations between the self- and other-report responses indicated strong agreement between the two measures assessing suspension ($\Phi = 0.76, p < .001$), exclusion ($\Phi = .69, p < .001$) and previous offending history ($\Phi = .71, p < .001$). Although the correlation for the truancy measure was considerably lower, it remained significant ($\Phi = .39, p < .001$). Further analysis indicated that compared to the self-report data, the teachers significantly underreported the prevalence of truant behaviour within their students, $\chi^2(1, N = 207) = 6.58, p < .05$. This finding supports the largely covert nature of truant behaviour; one that may or may not come to the teachers' attention.

In light of these strong correlations, in conjunction with the higher frequency of “unknown” and/or missing responses within the teacher-completed questionnaire, subject risk was quantified using self-report data within this study.

Risk

Table 2 shows the prevalence of static risk indices for both the Operation Flinders and control group. The general pattern shows that both groups had a higher proportion of school, as opposed to offending-related problems. Consistent with expectations, this differential can be attributed to all participant referrals originating from school agencies.

Table 2.

Static Risk Indices for Operation Flinders and Control Group Participants

	Operation Flinders	Control Group	χ^2	
School Truancy	≥ 1 Occasion	70.0%	68.1%	$\chi^2(1, N = 106) = .03, n.s.$
	≥ 4 Occasions in Past Month	40.7%	25.5%	$\chi^2(1, N = 104) = 1.31, n.s.$
	≥ 10 Occasions in Past Month	31.5%	10.6%	$\chi^2(1, N = 104) = 6.67, p < .05$
School Suspension	≥ 1 Occasion	85.7%	70.0%	$\chi^2(1, N = 108) = 3.79, n.s.$
	≥ 3 Occasions	55.3%	46.0%	$\chi^2(1, N = 102) = .93, n.s.$
	≥ 5 Occasions	33.9%	32.0%	$\chi^2(1, N = 102) = .04, n.s.$
School Exclusion	≥ 1 Occasion	32.0%	22.0%	$\chi^2(1, N = 107) = 1.70, n.s.$
	≥ 2 Occasions	12.5%	6.0%	$\chi^2(1, N = 104) = 1.09, n.s.$
Criminal Conviction	≥ 1 Occasion	39.2%	34.0%	$\chi^2(1, N = 107) = .64, n.s.$
	≥ 2 Occasions	27.7%	16.0%	$\chi^2(1, N = 103) = 2.09, n.s.$
	≥ 5 Occasions	9.3%	10.0%	$\chi^2(1, N = 103) = .02, n.s.$
Incarceration ^a	≥ 1 Occasion	5.4%	8.0%	$\chi^2(1, N = 106) = .30, n.s.$

Note: Missing data has not been included in the analysis. ^aIncarceration includes previous detention in Magill and/or Cavan Youth Training Centres

To isolate the potential mediating effects of participant risk on program outcomes, three risk domains were developed for this study.

1. Risk of Marginalisation from School – high-risk subjects were denoted by individuals who had been suspended on one or more occasion and had truanted from school on three or more occasions in the past month.
2. Risk of Criminal Behaviour – high-risk subjects were denoted by individuals who reported having had one or more criminal conviction.

3. Combined Risk – high-risk subjects were denoted by individuals who had been suspended on one or more occasion, had one or more criminal conviction and had truanted from school on two or more occasions in the past month.

Correlational analysis indicated that young people who were at high risk of marginalisation from the school system, were also at high risk of criminal behaviour ($\Phi = .28, p < .01$). While no causal relationship is inferred from this finding, it further supports the potential of the school system to moderate the expression of criminal tendencies, and the use of school-based outcomes within this study.

Equivalency of Operation Flinders and Control Group

The pretest-posttest control group design relies heavily on the use of an equivalent control group. One way to assess equivalency was to compare the proportion of high and low risk subjects within each risk domain. Categorical analysis indicated that there was a significantly greater proportion of high risk subjects within the Operation Flinders compared to the control group, for both the risk of school marginalisation, $\chi^2(1, N = 99) = 6.37, p < .05$; and the composite risk domain, $\chi^2(1, N = 97) = 4.26, p < .05$. Further analysis (Table 2) indicated that only the prevalence of severe truant behaviour (i.e., greater than 10 occasions in the past month) showed a significant categorical difference between the two groups, $\chi^2(1, N = 104) = 6.67, p < .05$. Finally, no significant difference was found in respect to the risk of criminal behaviour, $\chi^2(1, N = 107) = 0.64, ns$.

Together, these results suggest that the Operation Flinders group was at higher risk of school marginalisation and combined risk. Consistent with expectations, this differential should be seen as a product of a non-random selection process; where

selection agencies have prioritised the referral of participants on the basis of the greatest perceived need.

However, as the differences, or effects sizes, between groups remained small ($\Phi < .25$), in conjunction with the finding that there was no significant differences between groups based solely on criminogenic risk, the use of the current control group remains strongly supported.

Reliability Analysis

Self-Esteem

The 5-item Self-Esteem scale demonstrated a moderate level of internal consistency ($\alpha = .75$).

Anger

The 12-item Anger scale was designed as a two-factor scale measuring angry feelings and aggressive impulses. Both subscales demonstrated a high level of internal consistency; Angry Feelings ($\alpha = .85$) and Aggressive Impulses ($\alpha = .88$). In addition, the total anger score showed excellent internal consistency ($\alpha = .93$), with the subscale scores of the two factors highly correlated ($r = .85, p < .001$).

Criminal Cognitions

The criminal cognitions scale was comprised of three subscales. While a moderate level of internal consistency was found the seven items measuring attitudes towards the police ($\alpha = .75$), the internal consistency of both the 4-item Identification with Criminal

Others ($\alpha = .61$) and the 6-item Neutralisation subscale ($\alpha = .60$), although acceptable, was low. One item from each of the later two subscales was removed to improve internal consistency.

Behavioural Academic Self-Esteem

The counsellor-rated Behaviour Academic Self-Esteem (BASE) questionnaire contained five subscales. While a good level of internal consistency was demonstrated with the Student Initiative ($\alpha = .87$), Social Attention ($\alpha = .81$), Success-Failure ($\alpha = .83$) and Social Attention ($\alpha = .83$) subscales, the Self-Confidence subscale demonstrated a low, but acceptable, level of internal consistency ($\alpha = .59$). Meanwhile, the combined BASE scale demonstrated excellent internal consistency ($\alpha = .92$).

Test-Retest Reliability

Table 3.

Control Group Pretest-Posttest Correlations (r)

Self-Esteem	.55
Angry Feelings	.58
Aggressive Impulses	.71
Attitudes Towards Police	.80
Neutralisation	.64
Identification with Criminal Others	.53
Base Total	.73

Note. All correlations significant at the .01 level (two-tailed).

The control group's pretest-posttest correlations are shown in Table 3. As a measure of test-retest reliability, the Self-Esteem ($r = .55, p < .01$), Angry Feelings ($r = .58, p < .01$) and Identification with Criminal Others ($r = .53, p < .01$) scales demonstrated low reliability, while the remaining scales exhibiting a low to moderate level of test-retest reliability.

Validity Analysis

This study chose dependent measures that the literature suggests support and maintain both criminal behaviour and marginalisation from the school system. Loosely speaking, point-biserial correlations between dependent measures and risk domains provide a measure of convergent validity (Table 4).

Table 4.

Point-Biserial Correlations (r) Between Risk Domains and Dependent Measures

	Risk Domain		
	Marginalisation from School	Criminal Behaviour	Combined
Self-Esteem	-.05	-.03	.05
Angry Feelings	.18	.03	.06
Aggressive Impulses	.23 *	.07	.12
Positive Attitudes Towards Police	-.27 **	-.24 *	-.24 *
Neutralisation	.19	.22 *	.18
Identification With Criminal Others	.02	.26 **	.08
BASE Total	-.06	.00	-.03

Note: * Correlation is significant at .05 level (two tailed). ** Correlation is significant at the .01 level (two-tailed).

Consistent with expectations, the risk of criminal behaviour was significantly negatively correlated with positive attitudes towards the police ($r = -.24, p < .05$), and positively correlated with the identification with criminal others ($r = .26, p < .01$) and the use of neutralisations ($r = .22, p < .05$). Surprisingly, while there was a positive relationship between angry feelings ($r = .03, ns$) and aggressive impulses ($r = .07, ns$) and the risk of criminal behaviour, in both cases the effect size was small and non-significant. The literature suggests that anger-based measures have the strongest predictive validity for violent and/or aggressive behaviour. One explanation for this weak relationship, therefore, is that the previous offending behaviour of the Operation Flinders cohort was characterised by non-aggressive acts; possibly typified by a high proportion of petty criminal convictions (e.g., larceny).

Meanwhile, the risk of school marginalisation domain showed a near significant relationship with angry feelings ($r = .18, p = .08$) and a significant relationship with aggressive impulses ($r = .23, p < .05$). Considering, as expected, higher anger scores were associated with an increased risk of being marginalised from the school system, support is provided for the use of both dependent measures.

Finally, although the total BASE score did not significantly correlate with any of the risk domains, further analysis indicated that the total BASE score was strongly negatively correlated with suspension history ($r = -.34, p < .001$).

Outcome-Based Analysis

To assess the effectiveness of the Operation Flinders program, two-way mixed model ANOVAs, with group (Operation Flinders versus control) as the between-subjects factor and time of measurement (pre- versus post-test) as the within-subjects factor, were conducted for each outcome measure. Greater improvement, positive or negative depending on the outcome measure, in the Operation Flinders relative to the control group, was indicated by an interaction effect. Separate analyses were conducted for (1) the total sample, (2) young people identified as high in need, (3) Operation Flinders participants at high versus low of risk of school marginalisation and (4) Operation Flinders participants at high versus low risk of criminal behaviour.

In line with recent trends (Becker, 1991), this study did not rely solely on the use of significance level-based reporting to evaluate the efficacy of the Operation Flinders program. Instead, as the primary aim of the study was to examine the effectiveness of the Operation Flinders program for young people at different levels of risk and need, this study used the measure of effect size to compare outcomes. Unlike the significance level,

the effect size represents the most robust measure to compare outcomes from different sized samples.

Two measures of effect size were used. First, Cohen's d measured the effect size difference between pretest and posttest means; with small, medium and large effects represented by 0.2, 0.5 and 0.8, respectfully (Cohen, 1992). Second, partial eta squared (η^2) measured interaction effects, and as a measure of the strength of association, or, the proportion of variance in the dependent variable attributed to the size of the effect, it was interpreted in the same manner as r^2 (Tabachnick & Fidell, 2001). Thereby, small, medium and large effect sizes were denoted by .01, .09 and .25, respectfully.

Total Sample

Table 5 shows that young people who attended the Operation Flinders program showed large improvements in Student Initiative ($d = 1.0$), Self-Confidence ($d = 0.86$), and their total BASE score ($d = 0.99$). These improvements were significant at the .05 level. Meanwhile, moderately sized improvements were found in the Self-Esteem ($d = 0.50$), Social Attraction ($d = 0.55$), Neutralisation ($d = 0.59$) and Aggressive Impulses ($d = 0.53$) scales; with small improvements found in young people's social attention ($d = 0.41$) and success-failure ($d = 0.45$) within the classroom. Conversely, no notable improvement was found in the Operation Flinders participants' attitudes towards the police ($d = 0.07$) and angry feelings ($d = 0.16$), with there being a moderate increase ($d = 0.52$) in their identification with criminal others.

Table 5.

Pretest-Posttest Means, Standard Deviations, Change Scores and Interaction Effects for Operation Flinders (OF) and Control Group (CG) Participants

		n	Mean Differences					Interaction Effects																																																																																																																																																																																																																											
			Pretest Mean	Posttest Mean	Change	<i>t</i>	<i>p</i> ^a	<i>d</i>	<i>F</i>	<i>p</i> ^a	η_p^2																																																																																																																																																																																																																								
Self-Esteem	OF	40	17.2	18.2	1.0	1.56	0.13	0.50	1.04	<i>ns</i>	0.020																																																																																																																																																																																																																								
	CG	29	16.3	16.4	0.1	0.07	<i>ns</i>	0.03				Angry Feelings	OF	37	17.7	17.3	-0.4	-0.49	<i>ns</i>	0.16	0.44	<i>ns</i>	0.010	CG	31	18.7	17.5	-1.2	-1.42	0.17	0.52	Aggressive Impulses	OF	37	17.0	15.3	-1.7	-1.60	0.12	0.53	0.63	<i>ns</i>	0.010	CG	31	18.1	17.5	-0.6	-0.73	<i>ns</i>	0.27	Attitudes Towards Police	OF	42	21.1	21.3	0.2	0.24	<i>ns</i>	0.07	0.44	<i>ns</i>	0.010	CG	30	20.6	20.1	-0.5	-0.86	<i>ns</i>	0.32	Neutralisations	OF	41	18.7	17.7	-1.0	-1.87	0.07	0.59	5.01	0.03	0.070	CG	30	18.8	19.7	0.9	1.34	0.19	0.50	ID with Criminal Others	OF	41	11.8	12.5	0.7	1.66	0.11	0.52	0.30	<i>ns</i>	0.004	CG	30	12.8	13.1	0.3	0.70	<i>ns</i>	0.26	BASE - Student Initiative	OF	40	15.7	17.5	1.8	3.13	< 0.01	1.00	12.77	< 0.01	0.160	CG	31	16.7	15.6	-1.1	-2.01	0.05	0.73	BASE - Social Attention	OF	40	8.1	8.5	0.4	1.28	<i>ns</i>	0.41	0.67	<i>ns</i>	0.010	CG	31	8.1	8.1	0.0	0.09	<i>ns</i>	0.03	BASE - Success/Failure	OF	39	5.2	5.5	0.3	1.40	0.17	0.45	2.07	0.17	0.030	CG	31	5.6	5.5	-0.1	-0.57	<i>ns</i>	0.21	BASE - Social Attraction	OF	40	8.4	9.1	0.7	1.73	0.09	0.55	0.64	<i>ns</i>	0.010	CG	31	7.8	8.1	0.3	0.63	<i>ns</i>	0.23	BASE - Self-Confidence	OF	40	5.6	6.2	0.6	2.67	0.01	0.86	2.46	0.12	0.030	CG	31	5.5	5.5	0.0	0.22	<i>ns</i>	0.08	BASE - Total	OF	40	42.9	46.8	3.9	3.09	< 0.01	0.99	6.81	0.01	0.090	CG	31	43.8	42.8
Angry Feelings	OF	37	17.7	17.3	-0.4	-0.49	<i>ns</i>	0.16	0.44	<i>ns</i>	0.010																																																																																																																																																																																																																								
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	CG	30	18.8	19.7	0.9	1.34	0.19	0.50				ID with Criminal Others	OF	41	11.8	12.5	0.7	1.66	0.11	0.52	0.30	<i>ns</i>	0.004	CG	30	12.8	13.1	0.3	0.70	<i>ns</i>	0.26	BASE - Student Initiative	OF	40	15.7	17.5	1.8	3.13	< 0.01	1.00	12.77	< 0.01	0.160	CG	31	16.7	15.6	-1.1	-2.01	0.05	0.73	BASE - Social Attention	OF	40	8.1	8.5	0.4	1.28	<i>ns</i>	0.41	0.67	<i>ns</i>	0.010	CG	31	8.1	8.1	0.0	0.09	<i>ns</i>	0.03	BASE - Success/Failure	OF	39	5.2	5.5	0.3	1.40	0.17	0.45	2.07	0.17	0.030	CG	31	5.6	5.5	-0.1	-0.57	<i>ns</i>	0.21	BASE - Social Attraction	OF	40	8.4	9.1	0.7	1.73	0.09	0.55	0.64	<i>ns</i>	0.010	CG	31	7.8	8.1	0.3	0.63	<i>ns</i>	0.23	BASE - Self-Confidence	OF	40	5.6	6.2	0.6	2.67	0.01	0.86	2.46	0.12	0.030	CG	31	5.5	5.5	0.0	0.22	<i>ns</i>	0.08	BASE - Total	OF	40	42.9	46.8	3.9	3.09	< 0.01	0.99	6.81	0.01	0.090	CG	31	43.8	42.8	-1.0	-0.71	<i>ns</i>	0.26																																																																												
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	CG	30	12.8	13.1	0.3	0.70	<i>ns</i>	0.26				BASE - Student Initiative	OF	40	15.7	17.5	1.8	3.13	< 0.01	1.00	12.77	< 0.01	0.160	CG	31	16.7	15.6	-1.1	-2.01	0.05	0.73	BASE - Social Attention	OF	40	8.1	8.5	0.4	1.28	<i>ns</i>	0.41	0.67	<i>ns</i>	0.010	CG	31	8.1	8.1	0.0	0.09	<i>ns</i>	0.03	BASE - Success/Failure	OF	39	5.2	5.5	0.3	1.40	0.17	0.45	2.07	0.17	0.030	CG	31	5.6	5.5	-0.1	-0.57	<i>ns</i>	0.21	BASE - Social Attraction	OF	40	8.4	9.1	0.7	1.73	0.09	0.55	0.64	<i>ns</i>	0.010	CG	31	7.8	8.1	0.3	0.63	<i>ns</i>	0.23	BASE - Self-Confidence	OF	40	5.6	6.2	0.6	2.67	0.01	0.86	2.46	0.12	0.030	CG	31	5.5	5.5	0.0	0.22	<i>ns</i>	0.08	BASE - Total	OF	40	42.9	46.8	3.9	3.09	< 0.01	0.99	6.81	0.01	0.090	CG	31	43.8	42.8	-1.0	-0.71	<i>ns</i>	0.26																																																																																																
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	CG	31	7.8	8.1	0.3	0.63	<i>ns</i>	0.23				BASE - Self-Confidence	OF	40	5.6	6.2	0.6	2.67	0.01	0.86	2.46	0.12	0.030	CG	31	5.5	5.5	0.0	0.22	<i>ns</i>	0.08	BASE - Total	OF	40	42.9	46.8	3.9	3.09	< 0.01	0.99	6.81	0.01	0.090	CG	31	43.8	42.8	-1.0	-0.71	<i>ns</i>	0.26																																																																																																																																																																																
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	CG	31	5.5	5.5	0.0	0.22	<i>ns</i>	0.08				BASE - Total	OF	40	42.9	46.8	3.9	3.09	< 0.01	0.99	6.81	0.01	0.090	CG	31	43.8	42.8	-1.0	-0.71	<i>ns</i>	0.26																																																																																																																																																																																																				
BASE - Total	OF	40	42.9	46.8	3.9	3.09	< 0.01	0.99	6.81	0.01	0.090																																																																																																																																																																																																																								
	CG	31	43.8	42.8	-1.0	-0.71	<i>ns</i>	0.26																																																																																																																																																																																																																											

Note: Significant ($p < .05$, two-tailed) Group x Time interactions and differences between pre- versus post-test means are italicised. ^a*ns* denotes $p > .20$.

While descriptive, the validity of these improvements cannot be seen outside the comparative effects of the control group. In this regard, mixed model ANOVAs found differential effects in favour of the Operation Flinders participants in 10 of the 12 outcome measures. Moderately sized and significant interaction effects were found for the Neutralisation, $F(1, 69) = 5.01, p < .05, \eta_p^2 = .07$; Student Initiative, $F(1, 68) = 12.77, p < .001, \eta_p^2 = .16$; and BASE total scales, $F(1, 68) = 6.81, p < .01, \eta_p^2 = .09$. As shown by Figures 1 to 3, these interactions were supported by a small to moderate deterioration in the behaviour and attitudes of the control group.

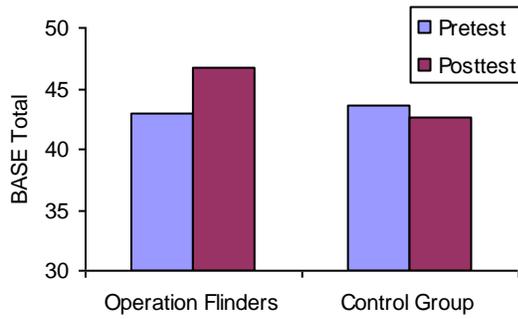


Figure 1. Pretest-posttest BASE total means for the Operation Flinders and control group

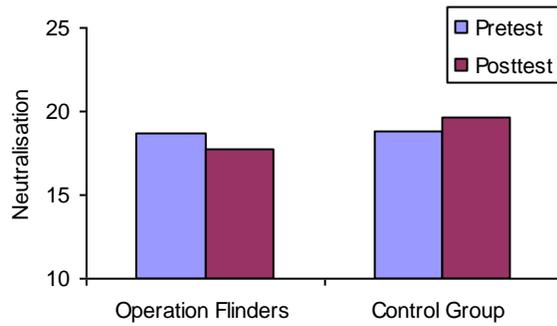


Figure 2. Pretest-posttest neutralisation means for the Operation Flinders and control group

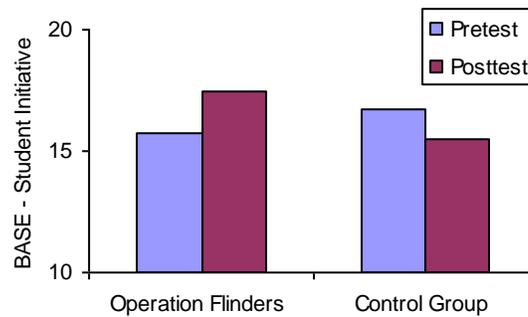


Figure 3. Pretest-posttest student initiative (BASE) means for the Operation Flinders and control group

Small interaction effects in favour of the Operation Flinders group were found in respect to the Self-Esteem ($\eta_p^2 = .02$), Angry Feelings ($\eta_p^2 = .01$), Attitudes Towards Police ($\eta_p^2 = .01$), Social Attention ($\eta_p^2 = .01$), Success-Failure ($\eta_p^2 = .03$), Social Attraction ($\eta_p^2 = .01$) and Self-Confidence ($\eta_p^2 = .03$) scales. Conversely, there were no differential improvement in respect to the participants' identification with criminal others ($\eta_p^2 = .004$), while there was a small differential effect ($\eta_p^2 = .01$) in favour of the control group's reduction of angry feelings.

In summary, the results suggest that, relative to the control group, the Operation Flinders participants had small to moderate differential improvements across the majority

of measures. Focusing exclusively on the most robust results,⁴ the Operation Flinders participants showed moderately sized improvements in self-esteem, aggressive impulses and the use of neutralisations, with the strongest improvements demonstrated with their improved classroom functioning. It is worth noting, however, that while the differential improvements showed some consistency across measures, they were not absolute, nor, apart from isolated results, were the differential effects considerable large.

High Need Young People

Young people were classified as high need if they scored in the problematic half of each pretest outcome. This included individuals who scored above or equal to the midpoint on the measures designed to assess angry feelings (≥ 15), aggressive impulses (≥ 15), neutralisation (≥ 15) and identification with criminal others (≥ 10); and below or equal to the midpoint on the measures designed to assess self-esteem (≤ 12.5), attitudes towards police (≤ 17.5), student initiative (≤ 15), social attention (≤ 7.5), success/failure (≤ 5), social attraction (≤ 7.5), self-confidence (≤ 5) and the total BASE score (≤ 40). The previous analyses were repeated for young people identified as high need for each dependent measure (Table 6).

Table 6 shows that the high need Operation Flinders participants had improvements on 10 of the 11 outcome variables.⁵ This ranged from significantly large improvements in student initiative ($d = 1.20$), social attention ($d = 1.39$), success-failure ($d = 1.07$), social attraction ($d = 1.96$) and self-confidence ($d = 1.80$), and medium to

⁴ Robust in this sense refers to the differential improvements being largely a result of actual improvements in the Operation Flinders participants, as opposed to deteriorations within the Control Group.

⁵ Self-esteem has not been included within this analysis due to the small samples and the high variability (i.e., high *SDs*) within the Operation Flinders group.

large improvements in the reduced use of neutralisations ($d = 0.78$), positive attitudes towards police ($d = 0.78$), reduced aggressive impulses ($d = 0.67$) and angry feelings ($d = 0.50$). Meanwhile, the high-need Operation Flinders participants had a small to medium increase in their identification with criminal others ($d = 0.37$).

Table 6.
Pretest-Posttest Means, Standard Deviations, Change Scores and Interaction Effects for High-Need Operation Flinders (OF) and Control Group (CG) Participants

		n	Mean Differences					Interaction Effects			
			Pretest Mean	Posttest Mean	Change	<i>t</i>	<i>p</i> ^a	<i>d</i>	<i>F</i>	<i>p</i> ^a	η^2
Self-Esteem	OF	5	7.4	14.4	7.0	2.43	0.07	2.43	0.97	<i>ns</i>	0.120
	CG	4	8.8	12.5	4.7	7.83	< 0.01	9.04			
Angry Feelings	OF	25	20.9	19.7	-1.2	-1.23	<i>ns</i>	0.50	0.07	<i>ns</i>	0.001
	CG	26	20.0	18.3	-1.7	-1.66	0.11	0.66			
Aggressive Impulses	OF	24	20.7	18.3	-2.4	-1.60	0.13	0.67	0.12	<i>ns</i>	0.003
	CG	20	21.8	20.1	-1.7	-1.51	0.15	0.69			
Attitudes Towards Police	OF	11	13.0	16.0	3.0	1.24	<i>ns</i>	0.78	0.91	<i>ns</i>	0.040
	CG	11	14.8	15.2	0.4	0.33	<i>ns</i>	0.21			
Neutralisations	OF	34	20.0	18.6	-1.4	-2.24	0.03	0.78	1.46	<i>ns</i>	0.030
	CG	23	20.6	20.3	-0.3	-0.48	n.s.	0.20			
ID with Criminal Others	OF	33	12.8	13.3	0.5	1.06	<i>ns</i>	0.37	0.69	<i>ns</i>	0.010
	CG	27	13.4	13.3	-0.1	-0.15	<i>ns</i>	0.06			
BASE - Student Initiative	OF	22	12.6	14.8	2.2	2.74	0.02	1.20	3.21	0.08	0.090
	CG	12	13.0	13.0	0.0	0.05	<i>ns</i>	0.03			
BASE - Social Attention	OF	19	5.4	6.8	1.4	2.95	0.01	1.39	0.03	<i>ns</i>	0.001
	CG	11	5.6	7.1	1.5	4.66	< 0.01	2.95			
BASE - Success/Failure	OF	23	3.9	4.7	0.8	2.50	0.02	1.07	1.55	<i>ns</i>	0.040
	CG	14	4.1	4.3	0.2	0.68	<i>ns</i>	0.38			
BASE - Social Attraction	OF	16	5.6	7.4	1.8	3.80	< 0.01	1.96	0.24	<i>ns</i>	0.010
	CG	16	6.1	7.6	1.5	3.50	< 0.01	1.75			
BASE - Self-Confidence	OF	19	3.9	5.4	1.5	3.83	< 0.01	1.80	2.56	0.12	0.070
	CG	17	4.3	5.0	0.7	2.63	0.02	1.32			
BASE - Total	OF	17	32.4	38.2	5.8	3.00	0.01	1.50	1.51	<i>ns</i>	0.060
	CG	12	34.7	37.1	2.4	1.45	0.18	0.87			

Note: Significant ($p < .05$, two-tailed) differences between pre- versus post-test means are italicised. ^a*ns* denotes $p > .20$.

It is worth noting that the pretest-posttest improvements were also demonstrated with the control group on 9 of the 11 outcome measures, albeit in these cases, the effect sizes were generally smaller. Mixed model ANOVAs found a number of non-significant differential improvements in favour of the Operation Flinders group. This included a

moderate sized interaction for student initiative ($\eta_p^2 = .09$), and small to medium differential improvements in the Operation Flinders participants' attitudes towards police ($\eta_p^2 = .04$), use of neutralisations ($\eta_p^2 = .03$), social attraction ($\eta_p^2 = .01$), self-confidence ($\eta_p^2 = .07$) and their total BASE score ($\eta_p^2 = .06$). Meanwhile, negligible differences were found with the Social Attention ($\eta_p^2 < .01$) and both Anger scales ($\eta_p^2 < .01$), with the control group showing a small differential improvement in their identification with criminal others ($\eta_p^2 = .01$).

As a side issue, unlike the previous analysis (entire sample), medium sized interactions failed to reach the significance level of .05 within this analysis. Attributable to a smaller sample size, and in turn, reduced statistical power, it underpins the requirement to consider effect size in comparisons of this type.

Overall, in comparison to the previous analysis (entire sample), the isolation of high need individuals resulted in larger pretest-posttest shifts, or improvements, for both the Operation Flinders and control group participants. Analogous to the use of repeated measure designs, it potentially reflects the posttest scores of high need participants regressing towards the mean. The most robust results showing differential improvements in favour of the Operation Flinders participants were shown with the Attitudes Towards Police, Neutralisation, Student Initiative, Success-Failure, Social Attraction, Self-Confidence and BASE total scales. Compared to the previous analysis (entire sample), the interaction effects in favour of the Operation Flinders group for both the Attitudes Towards Police and the Self-Confidence scales slightly increased, while the remaining outcomes were either stable, or showed slightly reduced interaction effects.

Risk of Marginalisation from School

To assess the effectiveness of the Operation Flinders program on young people at risk of school marginalisation, two-way mixed model ANOVAs, with group (high versus low risk of school marginalisation) as the between-subjects factor and time of measurement (pre- versus post-test) as the within-subjects factor, were conducted for each dependent measure.⁶ Table 7 presents a summary of these analyses.

Table 7.
Pretest-Posttest Means, Standard Deviations, Change Scores and Interaction Effects for Operation Flinders Participants at High Versus Low Risk of Marginalisation from School

		n	Mean Differences					Interaction Effects																																																																																																																																																																																																																											
			Pretest Mean	Posttest Mean	Change	<i>t</i>	<i>p</i> ^a	<i>d</i>	<i>F</i>	<i>p</i> ^a	η^2																																																																																																																																																																																																																								
Self-Esteem	High	21	16.2	17.4	1.2	1.22	<i>ns</i>	0.55	0.25	<i>ns</i>	0.010																																																																																																																																																																																																																								
	Low	18	18.3	18.9	0.6	0.74	<i>ns</i>	0.36				Angry Feelings	High	18	20.2	19.1	-1.1	-1.07	<i>ns</i>	0.52	0.57	<i>ns</i>	0.020	Low	18	15.5	15.7	0.2	0.16	<i>ns</i>	0.08	Aggressive Impulses	High	18	20.0	17.7	-2.3	-1.71	0.11	0.83	0.32	<i>ns</i>	0.010	Low	18	14.3	13.3	-1.0	-0.59	<i>ns</i>	0.29	Attitudes Towards Police	High	22	19.1	19.3	0.2	0.14	<i>ns</i>	0.06	< 0.01	<i>ns</i>	< 0.001	Low	18	22.8	23.0	0.2	0.12	<i>ns</i>	0.06	Neutralisations	High	21	20.2	19.2	-1.0	-1.03	<i>ns</i>	0.46	0.15	<i>ns</i>	< 0.001	Low	18	17.6	16.2	-1.4	-1.93	0.07	0.94	ID with Criminal Others	High	21	12.5	12.9	0.4	0.59	<i>ns</i>	0.26	1.14	<i>ns</i>	0.030	Low	18	10.9	12.3	1.4	2.04	0.06	0.99	BASE - Student Initiative	High	15	14.0	17.0	3.0	2.74	0.02	1.46	2.04	0.16	0.060	Low	22	17.0	18.4	1.4	2.35	0.03	1.03	BASE - Social Attention	High	15	7.6	7.9	0.3	0.48	<i>ns</i>	0.27	0.04	<i>ns</i>	0.001	Low	22	8.6	9.1	0.5	1.17	<i>ns</i>	0.51	BASE - Success/Failure	High	15	4.8	5.0	0.2	0.53	<i>ns</i>	0.28	0.25	<i>ns</i>	0.010	Low	21	5.6	6.0	0.4	1.25	<i>ns</i>	0.56	BASE - Social Attraction	High	15	8.7	9.3	0.6	0.76	<i>ns</i>	0.41	< 0.01	<i>ns</i>	< 0.001	Low	22	8.6	9.2	0.6	1.58	0.13	0.69	BASE - Self-Confidence	High	15	4.8	6.1	1.3	2.62	0.02	1.40	3.45	0.07	0.090	Low	22	6.2	6.5	0.3	0.92	<i>ns</i>	0.40	BASE - Total	High	15	39.9	45.3	5.4	2.12	0.05	1.13	0.58	<i>ns</i>	0.020	Low	22	45.9	49.2
Angry Feelings	High	18	20.2	19.1	-1.1	-1.07	<i>ns</i>	0.52	0.57	<i>ns</i>	0.020																																																																																																																																																																																																																								
	Low	18	15.5	15.7	0.2	0.16	<i>ns</i>	0.08				Aggressive Impulses	High	18	20.0	17.7	-2.3	-1.71	0.11	0.83	0.32	<i>ns</i>	0.010	Low	18	14.3	13.3	-1.0	-0.59	<i>ns</i>	0.29	Attitudes Towards Police	High	22	19.1	19.3	0.2	0.14	<i>ns</i>	0.06	< 0.01	<i>ns</i>	< 0.001	Low	18	22.8	23.0	0.2	0.12	<i>ns</i>	0.06	Neutralisations	High	21	20.2	19.2	-1.0	-1.03	<i>ns</i>	0.46	0.15	<i>ns</i>	< 0.001	Low	18	17.6	16.2	-1.4	-1.93	0.07	0.94	ID with Criminal Others	High	21	12.5	12.9	0.4	0.59	<i>ns</i>	0.26	1.14	<i>ns</i>	0.030	Low	18	10.9	12.3	1.4	2.04	0.06	0.99	BASE - Student Initiative	High	15	14.0	17.0	3.0	2.74	0.02	1.46	2.04	0.16	0.060	Low	22	17.0	18.4	1.4	2.35	0.03	1.03	BASE - Social Attention	High	15	7.6	7.9	0.3	0.48	<i>ns</i>	0.27	0.04	<i>ns</i>	0.001	Low	22	8.6	9.1	0.5	1.17	<i>ns</i>	0.51	BASE - Success/Failure	High	15	4.8	5.0	0.2	0.53	<i>ns</i>	0.28	0.25	<i>ns</i>	0.010	Low	21	5.6	6.0	0.4	1.25	<i>ns</i>	0.56	BASE - Social Attraction	High	15	8.7	9.3	0.6	0.76	<i>ns</i>	0.41	< 0.01	<i>ns</i>	< 0.001	Low	22	8.6	9.2	0.6	1.58	0.13	0.69	BASE - Self-Confidence	High	15	4.8	6.1	1.3	2.62	0.02	1.40	3.45	0.07	0.090	Low	22	6.2	6.5	0.3	0.92	<i>ns</i>	0.40	BASE - Total	High	15	39.9	45.3	5.4	2.12	0.05	1.13	0.58	<i>ns</i>	0.020	Low	22	45.9	49.2	3.3	2.29	0.03	1.00																
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Note: Significant ($p < .05$, two-tailed) differences between pre- versus post-test means are italicised. ^a*ns* denotes $p > .20$.

⁶ A suitably sized comparative group was not available for these analyses, thereby limiting the ability to control for repeat-testing effects.

An examination of main effects indicated that young people who were at high risk of school marginalisation had significantly higher angry feelings, $F(1, 34) = 4.93, p < .05, \eta_p^2 = .13$; and aggressive impulses, $F(1, 34) = 7.59, p < .01, \eta_p^2 = .18$; had poorer attitudes towards the police, $F(1, 36) = 4.99, p < .03, \eta_p^2 = .12$; and were more likely to use neutralisations, $F(1, 37) = 6.33, p < .05, \eta_p^2 = .15$. Similar trends were shown with the Self-Esteem, $F(1, 37) = 2.41, p = .13, \eta_p^2 = .06$; Identification with Criminal Others, $F(1, 37) = 1.75, p = .20, \eta_p^2 = .05$; and BASE total scales, $F(1, 35) = 1.98, p = .17, \eta_p^2 = .05$, although, in these cases, the effect sizes were smaller and non-significant. Together, the results suggest that young people at risk of school marginalisation had poorer outcomes on the criminogenic needs within this study.

An analysis of interaction effects indicated that high-risk Operation Flinders participants had small differential improvements in self-esteem ($\eta_p^2 = .01$), angry feelings ($\eta_p^2 = .02$), aggressive impulses ($\eta_p^2 = .01$), identification with criminal others ($\eta_p^2 = .03$)⁷ and their BASE total ($\eta_p^2 = .02$); and small to moderate differential improvements in student initiative ($\eta_p^2 = .06$) and classroom self-confidence ($\eta_p^2 = .09$). Meanwhile, the low-risk participants had a small differential improvement in dealing with success and failure in the classroom ($\eta_p^2 = .01$).

In summary, there is a general pattern showing that the Operation Flinders program is having a differential and greater effect (small to moderate) for young people at risk of school marginalisation. More promising, however, is that high-risk subjects showed moderate to large improvements on both anger measures. Considering both measures previously demonstrated convergent validity with the risk of school

⁷ In this case the small interaction effect was a result of greater deterioration in the low risk participants, as opposed to a positive improvement in the high risk participants.

marginalisation, support is provided that the Operation Flinders program may lower participants' risk of school marginalisation through the reduction of anger.

However, one note of caution is required. This analysis showed that participants at high risk of school marginalisation also had comparatively poorer outcomes on the criminogenic needs within this study (i.e., high in need). Therefore, it cannot be fully ruled out that the differential improvements are a by-product of repeat-testing effects, in particular, the regression of both high and low risk participants' scores towards the mean. Notwithstanding, much optimism is provided that the Operation Flinders program is having a differential impact on its target population.

Risk of Criminal Behaviour

To assess the effectiveness of the Operation Flinders program on young people at risk of criminal behaviour, two-way mixed model ANOVAs, with group (high versus low risk of criminal behaviour) as the between-subjects factor and time of measurement (pre-versus post-test) as the within-subjects factor, were conducted for each dependent measure. Table 8 presents a summary of these analyses.

An examination of main effects indicated that young people at high risk of criminal behaviour exhibited greater angry feelings, $F(1, 35) = 1.70, p = .20, \eta_p^2 = .05$; and aggressive impulses, $F(1, 35) = 1.76, p = .19, \eta_p^2 = .05$; had poorer attitudes towards the police, $F(1, 40) = 3.89, p = .06, \eta_p^2 = .09$; were more likely to use neutralisations, $F(1, 39) = 2.03, p = .16, \eta_p^2 = .05$; had a greater identification with criminal others, $F(1, 39) = 3.37, p = .07, \eta_p^2 = .08$; and had poorer classroom behaviour as measured by the BASE total, $F(1, 36) = 1.01, p = .32, \eta_p^2 = .03$. All of these main effects were small to

moderately sized, and approached significance. Consistent with expectations, these trends indicate that young people at risk of criminal behaviour had poorer outcomes on the criminogenic needs used within this study.

Table 8.
Pretest-Posttest Means, Standard Deviations, Change Scores and Interaction Effects for Operation Flinders Participants at High Versus Low Risk of Criminal Behaviour

		n	Mean Differences				Interaction Effects																																																																																																																																																																																																																												
			Pretest Mean	Posttest Mean	Change	<i>t</i>	<i>p</i> ^a	<i>d</i>	<i>F</i>	<i>p</i> ^a	η_p^2																																																																																																																																																																																																																								
Self-Esteem	High	16	17.0	17.8	0.8	0.95	<i>ns</i>	0.50	0.09	<i>ns</i>	0.002																																																																																																																																																																																																																								
	Low	24	17.3	18.4	1.1	1.23	<i>ns</i>	0.51				Angry Feelings	High	12	19.0	19.5	0.5	0.44	<i>ns</i>	0.27	0.55	<i>ns</i>	0.020	Low	25	17.1	16.2	-0.9	-0.75	<i>ns</i>	0.31	Aggressive Impulses	High	12	17.8	18.2	0.4	0.19	<i>ns</i>	0.11	1.78	0.19	0.050	Low	25	16.6	13.9	-2.7	-2.02	0.06	0.82	Attitudes Towards Police	High	17	18.9	19.5	0.6	0.36	<i>ns</i>	0.37	0.14	<i>ns</i>	0.004	Low	25	22.6	22.5	-0.1	-0.08	<i>ns</i>	-0.03	Neutralisations	High	16	19.8	18.6	-1.2	-1.47	0.16	0.76	0.03	<i>ns</i>	0.001	Low	25	18.0	17.1	-0.9	-1.25	<i>ns</i>	-0.51	ID with Criminal Others	High	16	12.7	13.4	0.7	0.85	<i>ns</i>	0.44	< .01	<i>ns</i>	< 0.001	Low	25	11.2	11.9	0.7	1.50	0.15	0.61	BASE - Student Initiative	High	16	14.8	16.9	2.1	2.61	0.02	1.35	0.03	<i>ns</i>	0.001	Low	22	16.6	18.4	1.8	2.35	0.03	1.03	BASE - Social Attention	High	16	7.4	8.0	0.6	1.07	<i>ns</i>	0.55	0.09	<i>ns</i>	0.003	Low	22	8.8	9.1	0.3	0.69	<i>ns</i>	0.30	BASE - Success/Failure	High	16	5.3	5.5	0.2	0.64	<i>ns</i>	0.33	0.11	<i>ns</i>	0.003	Low	21	5.3	5.7	0.4	1.18	<i>ns</i>	0.53	BASE - Social Attraction	High	16	8.5	9.3	0.8	1.09	<i>ns</i>	0.56	0.12	<i>ns</i>	0.003	Low	22	8.7	9.2	0.5	1.37	0.17	0.60	BASE - Self-Confidence	High	16	5.1	6.2	1.1	2.42	0.03	1.25	2.35	0.13	0.060	Low	22	6.1	6.4	0.3	1.07	<i>ns</i>	0.47	BASE - Total	High	16	41.1	45.9	4.8	2.39	0.03	1.23	0.22	<i>ns</i>	0.006	Low	22	45.2	48.8
Angry Feelings	High	12	19.0	19.5	0.5	0.44	<i>ns</i>	0.27	0.55	<i>ns</i>	0.020																																																																																																																																																																																																																								
	Low	25	17.1	16.2	-0.9	-0.75	<i>ns</i>	0.31				Aggressive Impulses	High	12	17.8	18.2	0.4	0.19	<i>ns</i>	0.11	1.78	0.19	0.050	Low	25	16.6	13.9	-2.7	-2.02	0.06	0.82	Attitudes Towards Police	High	17	18.9	19.5	0.6	0.36	<i>ns</i>	0.37	0.14	<i>ns</i>	0.004	Low	25	22.6	22.5	-0.1	-0.08	<i>ns</i>	-0.03	Neutralisations	High	16	19.8	18.6	-1.2	-1.47	0.16	0.76	0.03	<i>ns</i>	0.001	Low	25	18.0	17.1	-0.9	-1.25	<i>ns</i>	-0.51	ID with Criminal Others	High	16	12.7	13.4	0.7	0.85	<i>ns</i>	0.44	< .01	<i>ns</i>	< 0.001	Low	25	11.2	11.9	0.7	1.50	0.15	0.61	BASE - Student Initiative	High	16	14.8	16.9	2.1	2.61	0.02	1.35	0.03	<i>ns</i>	0.001	Low	22	16.6	18.4	1.8	2.35	0.03	1.03	BASE - Social Attention	High	16	7.4	8.0	0.6	1.07	<i>ns</i>	0.55	0.09	<i>ns</i>	0.003	Low	22	8.8	9.1	0.3	0.69	<i>ns</i>	0.30	BASE - Success/Failure	High	16	5.3	5.5	0.2	0.64	<i>ns</i>	0.33	0.11	<i>ns</i>	0.003	Low	21	5.3	5.7	0.4	1.18	<i>ns</i>	0.53	BASE - Social Attraction	High	16	8.5	9.3	0.8	1.09	<i>ns</i>	0.56	0.12	<i>ns</i>	0.003	Low	22	8.7	9.2	0.5	1.37	0.17	0.60	BASE - Self-Confidence	High	16	5.1	6.2	1.1	2.42	0.03	1.25	2.35	0.13	0.060	Low	22	6.1	6.4	0.3	1.07	<i>ns</i>	0.47	BASE - Total	High	16	41.1	45.9	4.8	2.39	0.03	1.23	0.22	<i>ns</i>	0.006	Low	22	45.2	48.8	3.6	2.07	0.05	0.90																
Aggressive Impulses	High	12	17.8	18.2	0.4	0.19	<i>ns</i>	0.11	1.78	0.19	0.050																																																																																																																																																																																																																								
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Attitudes Towards Police	High	17	18.9	19.5	0.6	0.36	<i>ns</i>	0.37	0.14	<i>ns</i>	0.004																																																																																																																																																																																																																								
	Low	25	22.6	22.5	-0.1	-0.08	<i>ns</i>	-0.03				Neutralisations	High	16	19.8	18.6	-1.2	-1.47	0.16	0.76	0.03	<i>ns</i>	0.001	Low	25	18.0	17.1	-0.9	-1.25	<i>ns</i>	-0.51	ID with Criminal Others	High	16	12.7	13.4	0.7	0.85	<i>ns</i>	0.44	< .01	<i>ns</i>	< 0.001	Low	25	11.2	11.9	0.7	1.50	0.15	0.61	BASE - Student Initiative	High	16	14.8	16.9	2.1	2.61	0.02	1.35	0.03	<i>ns</i>	0.001	Low	22	16.6	18.4	1.8	2.35	0.03	1.03	BASE - Social Attention	High	16	7.4	8.0	0.6	1.07	<i>ns</i>	0.55	0.09	<i>ns</i>	0.003	Low	22	8.8	9.1	0.3	0.69	<i>ns</i>	0.30	BASE - Success/Failure	High	16	5.3	5.5	0.2	0.64	<i>ns</i>	0.33	0.11	<i>ns</i>	0.003	Low	21	5.3	5.7	0.4	1.18	<i>ns</i>	0.53	BASE - Social Attraction	High	16	8.5	9.3	0.8	1.09	<i>ns</i>	0.56	0.12	<i>ns</i>	0.003	Low	22	8.7	9.2	0.5	1.37	0.17	0.60	BASE - Self-Confidence	High	16	5.1	6.2	1.1	2.42	0.03	1.25	2.35	0.13	0.060	Low	22	6.1	6.4	0.3	1.07	<i>ns</i>	0.47	BASE - Total	High	16	41.1	45.9	4.8	2.39	0.03	1.23	0.22	<i>ns</i>	0.006	Low	22	45.2	48.8	3.6	2.07	0.05	0.90																																																								
Neutralisations	High	16	19.8	18.6	-1.2	-1.47	0.16	0.76	0.03	<i>ns</i>	0.001																																																																																																																																																																																																																								
	Low	25	18.0	17.1	-0.9	-1.25	<i>ns</i>	-0.51				ID with Criminal Others	High	16	12.7	13.4	0.7	0.85	<i>ns</i>	0.44	< .01	<i>ns</i>	< 0.001	Low	25	11.2	11.9	0.7	1.50	0.15	0.61	BASE - Student Initiative	High	16	14.8	16.9	2.1	2.61	0.02	1.35	0.03	<i>ns</i>	0.001	Low	22	16.6	18.4	1.8	2.35	0.03	1.03	BASE - Social Attention	High	16	7.4	8.0	0.6	1.07	<i>ns</i>	0.55	0.09	<i>ns</i>	0.003	Low	22	8.8	9.1	0.3	0.69	<i>ns</i>	0.30	BASE - Success/Failure	High	16	5.3	5.5	0.2	0.64	<i>ns</i>	0.33	0.11	<i>ns</i>	0.003	Low	21	5.3	5.7	0.4	1.18	<i>ns</i>	0.53	BASE - Social Attraction	High	16	8.5	9.3	0.8	1.09	<i>ns</i>	0.56	0.12	<i>ns</i>	0.003	Low	22	8.7	9.2	0.5	1.37	0.17	0.60	BASE - Self-Confidence	High	16	5.1	6.2	1.1	2.42	0.03	1.25	2.35	0.13	0.060	Low	22	6.1	6.4	0.3	1.07	<i>ns</i>	0.47	BASE - Total	High	16	41.1	45.9	4.8	2.39	0.03	1.23	0.22	<i>ns</i>	0.006	Low	22	45.2	48.8	3.6	2.07	0.05	0.90																																																																												
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	Low	25	11.2	11.9	0.7	1.50	0.15	0.61				BASE - Student Initiative	High	16	14.8	16.9	2.1	2.61	0.02	1.35	0.03	<i>ns</i>	0.001	Low	22	16.6	18.4	1.8	2.35	0.03	1.03	BASE - Social Attention	High	16	7.4	8.0	0.6	1.07	<i>ns</i>	0.55	0.09	<i>ns</i>	0.003	Low	22	8.8	9.1	0.3	0.69	<i>ns</i>	0.30	BASE - Success/Failure	High	16	5.3	5.5	0.2	0.64	<i>ns</i>	0.33	0.11	<i>ns</i>	0.003	Low	21	5.3	5.7	0.4	1.18	<i>ns</i>	0.53	BASE - Social Attraction	High	16	8.5	9.3	0.8	1.09	<i>ns</i>	0.56	0.12	<i>ns</i>	0.003	Low	22	8.7	9.2	0.5	1.37	0.17	0.60	BASE - Self-Confidence	High	16	5.1	6.2	1.1	2.42	0.03	1.25	2.35	0.13	0.060	Low	22	6.1	6.4	0.3	1.07	<i>ns</i>	0.47	BASE - Total	High	16	41.1	45.9	4.8	2.39	0.03	1.23	0.22	<i>ns</i>	0.006	Low	22	45.2	48.8	3.6	2.07	0.05	0.90																																																																																																
BASE - Student Initiative	High	16	14.8	16.9	2.1	2.61	0.02	1.35	0.03	<i>ns</i>	0.001																																																																																																																																																																																																																								
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	Low	22	8.8	9.1	0.3	0.69	<i>ns</i>	0.30				BASE - Success/Failure	High	16	5.3	5.5	0.2	0.64	<i>ns</i>	0.33	0.11	<i>ns</i>	0.003	Low	21	5.3	5.7	0.4	1.18	<i>ns</i>	0.53	BASE - Social Attraction	High	16	8.5	9.3	0.8	1.09	<i>ns</i>	0.56	0.12	<i>ns</i>	0.003	Low	22	8.7	9.2	0.5	1.37	0.17	0.60	BASE - Self-Confidence	High	16	5.1	6.2	1.1	2.42	0.03	1.25	2.35	0.13	0.060	Low	22	6.1	6.4	0.3	1.07	<i>ns</i>	0.47	BASE - Total	High	16	41.1	45.9	4.8	2.39	0.03	1.23	0.22	<i>ns</i>	0.006	Low	22	45.2	48.8	3.6	2.07	0.05	0.90																																																																																																																																								
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	Low	21	5.3	5.7	0.4	1.18	<i>ns</i>	0.53				BASE - Social Attraction	High	16	8.5	9.3	0.8	1.09	<i>ns</i>	0.56	0.12	<i>ns</i>	0.003	Low	22	8.7	9.2	0.5	1.37	0.17	0.60	BASE - Self-Confidence	High	16	5.1	6.2	1.1	2.42	0.03	1.25	2.35	0.13	0.060	Low	22	6.1	6.4	0.3	1.07	<i>ns</i>	0.47	BASE - Total	High	16	41.1	45.9	4.8	2.39	0.03	1.23	0.22	<i>ns</i>	0.006	Low	22	45.2	48.8	3.6	2.07	0.05	0.90																																																																																																																																																												
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	Low	22	8.7	9.2	0.5	1.37	0.17	0.60				BASE - Self-Confidence	High	16	5.1	6.2	1.1	2.42	0.03	1.25	2.35	0.13	0.060	Low	22	6.1	6.4	0.3	1.07	<i>ns</i>	0.47	BASE - Total	High	16	41.1	45.9	4.8	2.39	0.03	1.23	0.22	<i>ns</i>	0.006	Low	22	45.2	48.8	3.6	2.07	0.05	0.90																																																																																																																																																																																
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	Low	22	6.1	6.4	0.3	1.07	<i>ns</i>	0.47				BASE - Total	High	16	41.1	45.9	4.8	2.39	0.03	1.23	0.22	<i>ns</i>	0.006	Low	22	45.2	48.8	3.6	2.07	0.05	0.90																																																																																																																																																																																																				
BASE - Total	High	16	41.1	45.9	4.8	2.39	0.03	1.23	0.22	<i>ns</i>	0.006																																																																																																																																																																																																																								
	Low	22	45.2	48.8	3.6	2.07	0.05	0.90																																																																																																																																																																																																																											

Note: Significant ($p < .05$, two-tailed) differences between pre- versus post-test means are italicised. ^a*ns* denotes $p > .20$

An examination of interaction effects indicated that Operation Flinders participants at high risk of criminal behaviour had small differential improvements in classroom self-confidence ($\eta_p^2 = .06$), while the low risk participants had differential improvements with their expression of angry feelings ($\eta_p^2 = .02$) and aggressive impulses ($\eta_p^2 = .05$). The remaining outcomes showed no differential effects ($\eta_p^2 < .01$).

In summary, the general pattern shows that the Operation Flinders program had no differential effect for young people at high versus low risk of criminal behaviour. However, one point warrants further comment. This study operationalised high risk as participants with one or more criminal conviction. Although previous criminal history is a reliable predictor of future criminal tendencies, in comparison to a cohort of institutionalised or repeat offenders, the Operation Flinders participants within this study represented a group of relatively low risk offenders. Therefore, in real terms, the external validity of these conclusions cannot be extended beyond this lower risk cohort.

Combined Risk

This study intended to isolate the potential mediating effects of young people who were at risk of both school marginalisation and criminal behaviour (combined risk). However, owing to the small sample sizes for both the Operation Flinders ($n = 12$) and control group ($n = 3$), analyses using this domain were not undertaken.

Inter-Relations Between Risk, Need and Operation Flinders Participant Outcomes

The forensic psychology literature suggests that offenders of varying levels of risk and criminogenic need may respond differently, or gain differential benefits, from treatment provision. Program effectiveness, therefore, is often judged by the ability of rehabilitation programs to target offenders who are high in risk and need. To examine the ability of the Operation Flinders program to effectively target high risk-need young people, this study compared low risk-need versus high risk-need young people with program outcomes. The dependent measures were the mean change scores between pre-

and post-testing. Loosely translatable to outcome effect sizes, in each case they were coded such that positive scores represented desired change (Table 9).⁸

Table 9.
Mean Differences in Outcome Change Scores for High Risk-Need Versus Low Risk-Need Operation Flinders Participants

		High Risk - High Need ^b				Low Risk - Low Need ^b				Differences			
		n	Mean	SD	<i>d</i>	n	Mean	SD	<i>d</i>	Mean	<i>t</i>	<i>p</i> ^d	<i>d</i>
Self-Esteem ^a	School Marginalisation	4	6.00	6.98	0.86	17	-0.03	2.15	0.01	6.03	1.71 ^c	0.18	0.78
	Criminal Behaviour	2	2.50	3.54	0.71	21	-0.12	2.47	0.05	2.62	1.40	0.18	0.64
Angry Feelings ^a	School Marginalisation	14	1.54	4.27	0.36	7	-2.06	5.42	0.38	3.60	1.67	0.11	0.77
	Criminal Behaviour	9	0.00	3.60	0.00	9	-0.16	4.95	0.03	1.16	0.57	<i>ns</i>	0.27
Aggressive Impulses ^a	School Marginalisation	14	2.43	6.15	0.40	8	-0.50	5.50	0.09	2.93	1.14	<i>ns</i>	0.51
	Criminal Behaviour	8	1.00	6.91	0.14	9	2.11	5.28	0.40	-1.11	-0.38	<i>ns</i>	0.20
Attitudes Towards Police ^a	School Marginalisation	7	1.40	8.75	0.16	14	-1.43	4.31	0.33	2.83	1.01	<i>ns</i>	0.46
	Criminal Behaviour	6	2.81	10.43	0.27	20	-0.88	4.17	0.21	3.68	0.85 ^c	<i>ns</i>	0.35
Neutralisations ^a	School Marginalisation	20	1.00	4.42	0.23	4	-0.50	5.07	0.10	1.50	0.61	<i>ns</i>	0.26
	Criminal Behaviour	14	1.66	3.14	0.53	5	0.08	4.02	0.02	1.58	0.90	<i>ns</i>	0.44
ID with Criminal Others ^a	School Marginalisation	19	-0.68	2.67	0.25	6	-3.17	1.72	0.54	2.48	2.13	0.04	0.87
	Criminal Behaviour	14	-0.83	2.93	0.28	6	-2.33	1.86	1.25	1.50	1.15	<i>ns</i>	0.54
Total BASE Score ^a	School Marginalisation	7	5.87	11.02	0.53	14	1.18	7.23	0.16	4.69	1.17	<i>ns</i>	0.54
	Criminal Behaviour	8	5.25	8.14	0.64	15	1.55	7.70	0.20	3.70	1.08	<i>ns</i>	0.47

Note: ^aAll change scores represent improved or desirable functioning. ^bHigh and low need determined by scale midpoint on pretest scores. ^cEqual variances were not assumed in these cases and adjusted t-value has been reported. Significant ($p < .05$, two-tailed) differences between pre- versus post-test means are italicised. ^d*ns* denotes $p > .20$

Table 9 shows that in all but one outcome measure (identification with criminal others), the high risk-need participants had small to moderate improvements from pre- to post-testing. However, as noted by the high standard deviations, there was much variability in the rate and direction of this improvement. In contrast, in 10 out of the 14 outcomes, low risk-need young people had a negative or undesirable change. Of particular interest, low risk-need (risk of criminal behaviour) participants had a large increase in their identification with criminal others ($d = 1.25$) and a small ($d = .21$) decrease in their positive attitudes towards police. These results highlight the potential of

⁸ A suitably sized comparative group was not available for these analyses, thereby limiting the ability to control for repeat-testing effects.

peer modelling to impact negatively on low risk-need young people in group-based programs like Operation Flinders.

Comparisons, or mean differences between low risk-need versus high risk-need participants, showed that in all but one case, the Operation Flinders program resulted in larger and more positive effect sizes for young people high in risk and need. The only result significant at the .05 level was between young people at high versus low risk of school marginalisation and their identification with criminal others, $t(23) = 2.13, p < .05$. This difference, however, was a result of greater deterioration in the attitudes of the low risk-need young people, as opposed to an improvement in the high risk-need participants. Overall, Table 9 shows a pattern of moderately sized differential improvements in favour of the high risk-need Operation Flinders participants. Again, their non-significance should be interpreted as a lack of statistical power, or small sample size, to detect such differences.

In summary, this analysis suggests that the Operation Flinders program is having a positive and moderately sized differential effect on young people who are high in risk and need. While it cannot be discounted that such a result is simply a by-product of both high and low risk-need subject scores regressing towards the mean, and as such, should not be used to justify the overall effectiveness of the program itself, optimism is provided that the Operation Flinders program is having a positive impact on its target population.

Consistency of Program Outcomes

Table 10 presents a correlation matrix of pretest-posttest change scores and outcome measures. As expected, both anger scales ($r = .60, p < .01$) and the BASE's individual subscales demonstrated consistent change across measures. Of greater interest,

however, was that improvements in self-esteem were related to reductions in both angry feelings ($r = .50, p < .01$) and aggressive impulses ($r = .26, p < .05$). Apart from these noted relationships, the pattern of small and non-significant correlations suggests that the improvements in participant outcomes lacked consistency across measures.

Table 10.

Correlation Matrix of Operation Flinders Participant Pretest-Posttest Change Scores

	1	2	3	4	5	6	7	8	9	10	11	12
1 Improved Self-Esteem		.65 **	.34 *	.10	.11	-.04	-.34	.18	.25	.20	.15	.03
2 Reduced Angry Feelings			.60 **	.10	.04	-.25	.09	.23	.25	.12	.14	.22
3 Reduced Aggressive Impulses				.19	.13	.07	.24	.12	.10	.07	.05	.19
4 Improved Attitudes Towards Police					-.10	.09	.06	.27	-.08	.51 **	.33	.33
5 Reduced Use of Neutralisations						.26	.30	-.12	.00	.24	-.01	.19
6 Reduced ID with Criminal Others							-.06	-.12	.11	.28	.19	.09
7 Improved BASE - Student Initiative								.44 **	.34 *	.38 *	.37 *	.83 **
8 Improved BASE - Social Attention									.40 *	.40 *	.20	.71 **
9 Improved BASE - Success/Failure										.19	.45 **	.52 **
10 Improved BASE - Social Attraction											.45 **	.71 **
11 Improved BASE - Self-Confidence												.56 **
12 Improved Total BASE												

Note: Positive correlations indicate that positive or negative pretest-posttest change was replicated between measures. * Correlation significant at the .05 level (two-tailed). ** Correlation significant at the .01 level (two-tailed).

Outcome Analysis: Conclusions

Support was provided that young people who attended the Operation Flinders program had improvements in self-esteem, anger, criminal cognitions and classroom behaviour. However, the practical utility of this conclusion should be made in regard to the following considerations: (1) participants did not improve uniformly across measures, (2) apart from isolated results, the differential improvements were not considerable large, (3) the most robust and largest improvements were demonstrated with the reduced use of neutralisations and improved behavioural functioning in the classroom; specifically student initiative and self-confidence, (4) the outcomes provided to high need young people were not notable different from the sample at large, (5) young people at high and low risk of criminal behaviour had similar outcomes and (6) preliminary support was

provided that the Operation Flinders program was having a positive and small differential effect on young people at high, as opposed to low risk of school marginalisation.

Program and Participant Responsivity

A further aim of this study was to identify a number of program and participant factors that were postulated to mediate therapeutic outcomes. Designed as an exploratory analysis, this study chose static and dynamic predictors (e.g., attitudes and feelings towards the program) that were developed from both single and multiple items from the background, responsivity and post-exercise questionnaires. In each case, the dependent variables were differences in pre- and post-test scores, with variables coded such that positive scores represented desired improvements.

Owing to the large number of bivariate correlations, the high multicollinearity (inter-factor correlations) shown between a number of factors,⁹ and the use of single-item measures, the potential existed for a number of spurious relationships to be reported. Therefore, interpretations were only made on the basis of: (1) consistent correlational patterns, (2) correlations with large effect sizes and (3) relationships that had applied or theoretical relevance.

Static Factors

Table 11 shows the relationship between static factors and program outcomes. Three patterns of interest are noted. First, in comparison to males, females had consistently larger reductions in both angry feelings ($r = -.53, p < .001$) and aggressive impulses ($r = -.40, p < .05$). Second, this reduction in anger was also replicated in both

⁹ Multivariate procedures were not possible due to the high number of predictors and low number of cases.

older and metropolitan participants, although the effect sizes in both cases were smaller. Third, both females ($r = -.20, p = .22$) and metropolitan participants ($r = -.32, p < .05$) had the largest improvements in self-esteem.

Table 11.
Static Factors and Program Responsivity

	Sex	Age	Rural vs City
Improved Self-Esteem	<i>-.20</i>	-.09	<i>-.32</i> *
Reduced Angry Feelings	<i>-.53</i> **	.18	<i>-.32</i> *
Reduced Aggressive Impulses	<i>-.40</i> *	<i>.34</i> *	-.16
Improved Attitudes Towards Police	-.01	.02	-.17
Reduced Use of Neutralisations	.16	-.09	<i>.24</i>
Reduced ID with Criminal Others	-.09	<i>.22</i>	.10
Improved BASE - Student Initiative	.10	-.07	<i>.26</i>
Improved BASE - Social Attention	.03	-.04	-.04
Improved BASE - Success/Failure	-.19	.03	.05
Improved BASE - Social Attraction	-.01	-.02	-.17
Improved BASE - Self-Confidence	-.12	-.07	.00
Improved Total BASE	-.02	-.06	.06

Note: Positive correlations denote larger effect sizes in male participants and young people living in non-metropolitan (rural) locations. * Correlation significant at the .05 level (two-tailed). ** Correlation significant at the .01 level (two-tailed). Correlations with $r > .20$ are italicised.

The consistency shown with both metropolitan and female participants' warrants further comment. In both cases, compared to their male and rural counterparts, it is likely that these young people were less familiar with the wilderness/outdoor environment. By mastering this unfamiliar environment, it is postulated that both groups developed greater self-efficacy, and, which in turn, had a positive effect on their self-esteem. Furthermore, this new and less familiar environment may have also provided both groups with experiences and opportunities to express and manage their anger.

Participant Responsivity to Treatment

Treatment readiness is a factor that has attracted increasing interest within the forensic psychology literature. This study developed two 3-item scales to measure two aspects of treatment readiness: problem awareness and willingness to change. Owing to

their very low internal reliabilities, one factor titled “responsivity to change” was developed. Encompassing both aspects, this 5-item factor demonstrated a low, but acceptable level of internal consistency ($\alpha = .50$).

A second factor titled “program motivation” was a dichotomous variable developed from a single-item from the responsivity questionnaire. Correlational analysis indicated that the factors assessing responsivity to change and program motivation measured distinct aspects of participant responsiveness ($r = .23, ns$). Finally, a continuous variable titled “group responsiveness” was comprised of the following statements: “I like to do thing by myself” and “I often feel uncomfortable in group situations”. This factor demonstrated a low, but acceptable level of internal consistency ($\alpha = .56$).

Table 12.

Responsivity for Change, Participant Motivation, Group Responsiveness and Program Responsivity

	Responsivity for Change	Program Motivation	Group Responsiveness
Improved Self-Esteem	.04	.03	-.29
Reduced Angry Feelings	.29	-.07	-.27
Reduced Aggressive Impulses	.29	-.06	-.07
Improved Attitudes Towards Police	.18	.04	-.07
Reduced Use of Neutralisations	-.25	.29	-.04
Reduced ID with Criminal Others	-.23	.14	.08
Improved BASE - Student Initiative	.08	.04	.09
Improved BASE - Social Attention	.25	.09	.28
Improved BASE - Success/Failure	.41 *	.20	.09
Improved BASE - Social Attraction	.00	.06	.23
Improved BASE - Self-Confidence	-.20	.01	.06
Improved Total BASE	.15	.11	.22

Note: * Correlation significant at the .05 level (two-tailed). Correlations with $r > .20$ are italicised.

Table 12 shows that pre-program motivation was positively related to a small but consistent pattern of larger effect sizes. While a young person’s responsiveness for change was also related to larger effect sizes for both the anger and behavioural

measures, the cognitive-based outcomes showed less consistency. More interestingly, young people low in group responsiveness, or, what may be loosely characterised as “shy”, had the largest improvements in self-esteem ($r = -.29, p = .07$). This was not, however, translated to improved self-confidence within the classroom ($r = .06, ns$).

Outdoor-Related Factors

Three outdoor-related factors were developed from the responsivity questionnaire. They included: a 3-item scale measuring a young person’s camping enjoyment ($\alpha = .79$), a 4-item scale measuring a young person’s “sense of adventure” ($\alpha = .66$) and a 2-item scale measuring a young person’s enjoyment of fitness and bushwalking ($\alpha = .75$).

Table 13

Camping-, Adventure- and Fitness-Related Enjoyment and Program Responsivity

	Camping Enjoyment	Sense of Adventure	Fitness - Bushwalking
Improved Self-Esteem	-.10	<i>-.43</i> **	-.06
Reduced Angry Feelings	-.09	<i>-.37</i> *	-.05
Reduced Aggressive Impulses	.13	<i>-.30</i>	-.09
Improved Attitudes Towards Police	-.02	.15	<i>.28</i>
Reduced Use of Neutralisations	.18	.15	.12
Reduced ID with Criminal Others	-.03	-.17	-.18
Improved BASE - Student Initiative	<i>.26</i>	.11	.12
Improved BASE - Social Attention	.09	-.03	.18
Improved BASE - Success/Failure	.03	-.03	.00
Improved BASE - Social Attraction	.19	.03	.03
Improved BASE - Self-Confidence	.16	<i>-.25</i>	-.11
Improved Total BASE	<i>.23</i>	-.01	.08

Note: *Correlation significant at the .05 level (two-tailed). ** Correlation significant at the .01 level (two-tailed). Correlations with $r > .20$ are italicised.

Table 13 shows a number of patterns between a young person’s enjoyment of outdoor activities and program outcomes. First, pre-program camping enjoyment demonstrated a consistent relationship with larger behavioural outcomes. Second, a young person’s enjoyment of fitness/bushwalking did not have a consistent moderating

effect on program outcomes. Third, the least adventurous young people had the greatest improvements in self-esteem ($r = -.43, p < .01$), angry feelings ($r = -.37, p < .05$) and aggressive impulses ($r = -.30, p = .08$), with these larger effects also translated to increased self-confidence within the classroom ($r = -.25, p = .13$). One explanation for this pattern is similar to that provided for the differential effects noted for female and metropolitan participants. As the Operation Flinders program challenged individuals to confront and negotiate a number of adventurous activities, by mastering activities that were previously unfamiliar, young people not only developed greater self-esteem and self-confidence, but potentially learnt alternate ways to manage and express anger.

Retrospective Feelings

Three factors measuring retrospective feelings towards the Operation Flinders program were developed from the post-exercise questionnaire. They included: a 2-item scale assessing overall program enjoyment ($\alpha = .88$) and two single-item dichotomous variables measuring “closeness to fellow participants” and “closeness to team leader”.

Table 14

Retrospective Feelings Towards the Operation Flinders Exercise and Program Responsivity

	Overall Enjoyment	Closeness to Fellow Participants	Closeness to Team Leader
Improved Self-Esteem	.10	.08	-.04
Reduced Angry Feelings	.00	-.09	-.05
Reduced Aggressive Impulses	.05	-.09	.10
Improved Attitudes Towards Police	.16	-.02	-.12
Reduced Use of Neutralisations	.24	.26	-.09
Reduced ID with Criminal Others	.05	.10	.13
Improved BASE - Student Initiative	.08	-.10	.10
Improved BASE - Social Attention	-.09	-.03	-.30
Improved BASE - Success/Failure	-.13	.04	-.03
Improved BASE - Social Attraction	.04	.05	-.16
Improved BASE - Self-Confidence	-.03	-.15	.17
Improved Total BASE	-.01	-.06	-.06

Note: Correlations with $r > .20$ are italicised.

Table 14 shows that program enjoyment was related to a small but consistent improvement in self-esteem, anger and criminal cognitions. Meanwhile, a young person's perceived closeness to their fellow participants or team leader demonstrated no consistent relationship with program outcomes.

Participant Responsivity: Conclusions

A number of general and preliminary conclusions can be drawn from this section on participant responsivity. First, different types of young people gained different benefits from the Operation Flinders program. These benefits were neither consistent across outcomes, nor easy to predict. Second, preliminary support was provided that young people who were unfamiliar with the wilderness environment and/or were the least adventurous, the Operation Flinders program provided them with both opportunities and experiences by which they could improve their self-concept, as well as express or manage their anger. Third, participant motivation and responsiveness to change, in conjunction with overall program enjoyment, would appear important facets in optimising program outcomes. Finally, the ability to narrow down a typology of young people who gained the greatest benefits from the Operation Flinders program remains problematic. Age, sex, motivation, attitudes and previous experiences all interact in non-consistent ways; with their predictive validity related to individual outcomes (e.g., self-esteem, anger).

Post-Program Descriptive Data

Table 15.
Post-Program Descriptive Data (%) for Operation Flinders Participants (N = 43)

	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree	Mean ^b	SD
	%	%	%	%	%		
I really enjoyed myself on Operation Flinders ^a	9.5	9.5	21.4	16.7	42.9	3.74	1.37
Operation Flinders has been one of the best experiences of my life ^a	14.0	16.3	2.3	34.9	32.6	3.56	1.48
Operation Flinders has taught me a lot about myself ^a	4.7	7.0	16.3	34.9	37.2	3.93	1.15
Operation Flinders has helped me deal with my teachers better ^a	7.3	26.8	19.5	34.1	12.2	3.17	1.20
Operation Flinders has helped me deal with my family better ^a	11.6	11.6	34.9	23.3	18.6	3.26	1.26
Operation Flinders has given me the skills to deal with life's problems more easily ^a	4.7	7.0	30.2	25.6	32.6	3.74	1.16
Operation Flinders has been a total waste of time ^a	48.8	23.3	9.3	11.6	7.0	2.05	1.33
I really enjoyed being a part of a team on Operation Flinders ^a	4.7	2.3	11.6	34.9	46.5	4.16	1.06
I felt close to my team members by the end of Operation Flinders ^a	2.3	7.0	11.6	39.5	39.5	4.07	1.02
I felt close to my team leader by the end of Operation Flinders ^a	4.7	4.7	16.3	44.2	30.2	3.91	1.05
I would do Operation Flinders again ^a	25.6	4.7	23.3	16.3	30.2	3.21	1.60

Note: ^aStatements coincide with those presented on the post-exercise questionnaire. ^bStrongly disagree to strongly agree were coded by numbers 1 to 5, respectively. The reported means correspond to the average of this scale. The highest response (%) per item is italicised.

Table 15 presents the breakdown of responses from the post-exercise questionnaire (PEQ) completed by young people who attended the Operation Flinders program. The responses indicate that the participants viewed the program in an extremely positive and beneficial light. Of note, the overwhelming majority of the participants reported: (1) they really enjoyed themselves on the program (60%), (2) they learnt a lot about themselves (72%), (3) the program had given them the skills to deal with life's problems more easily (58%) and (4) the program had been one of the best

experiences of their life (67%).¹⁰ In addition, approximately half of the sample reported that the program had helped them deal with their family and teachers better, with less than 19% reporting that the program had been a total waste of time.

Inter-Relationships Between PEQ Items and Program Responsivity Factors

A correlation matrix comprised of the aforementioned PEQ items and a number of responsivity factors are presented in Table 16. Relationships of interest are discussed within this section.

Program enjoyment. Young people who enjoyed the Operation Flinders program were also likely to report the greatest number of total self-reported benefits¹¹ ($r = .47, p < .01$), and, as expected, showed a greater willingness to attend the program again ($r = .69, p < .01$). This enjoyment was also positively related to pre-program motivation ($r = .64, p < .01$), and responsiveness to camping ($r = .43, p < .01$), challenging and adventurous activities ($r = .34, p < .05$), fitness and bushwalking ($r = .39, p < .01$), and feeling close to the team leader ($r = .41, p < .01$). It was not, however, related to feeling close to other team members ($r = .15, ns$).

Sex differences. An analysis of sex differences indicated that males reported the largest number of benefits ($r = .38, p < .01$), with females less likely to conclude that the Operation Flinders program had been one of the best experiences of their life ($r = .30, p < .05$).

¹⁰ Positive responses included *agree* and *strongly agree*.

¹¹ Total self-report benefits were a composite measure of PEQ items 3 to 6.

Table 16.
Correlation Matrix of Post-Exercise and Responsibility Questionnaire Items

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
1 Sex (Female = 0, Male = 1)																						
2 Age	-.28 *	.26 *	.13	-.23	.27	.30 *	.28	.42 **	.30 *	.27	-.30 *	.25	.16	.09	.23	.07	-.01	.20	.26 *	.38 **		
3 Rural (1) versus City (0)		-.11	-.03	.42 **	.05	.17	.09	.01	.03	.16	-.07	.16	.24	.09	.10	.06	-.01	.06	.04	.08		
4 Responsibility for Groups (RQ 11-12)			.03	-.24	-.20	-.20	.09	.08	.06	-.15	.01	.23	-.05	-.08	-.19	-.13	-.15	.02	-.10	.03		
5 Responsibility for Change (RQ 13-17)			-.07	.07	-.01	.15	-.06	-.03	.08	-.01	.14	.10	.36 *	-.11	-.09	-.03	.01	-.11	.04			
6 I really enjoyed myself on Operation Flinders (PPQ 1)			.15	.23	.13	.14	.31 *	.34 *	-.18	-.01	.00	.00	.25	.23	.28 *	.27 *	.29 *	.30				
7 Operation Flinders has been one of the best experiences of my life (PPQ 2)			.79 **	.49 **	.42 **	.31 *	.35 *	-.78 **	.52 **	.15	.41 **	.69 **	.64 **	.43 **	.34 *	.39 **	.47 **					
8 Operation Flinders has taught me a lot about myself (PPQ 3)			.59 **	.57 **	.29	.51 **	-.73 **	.61 **	.20	.52 **	.75 **	.49 **	.20	.12	.27	.59 **						
9 Operation Flinders has helped me deal with my teachers better (PPQ 4)			.71 **	.36 *	.62 **	-.55 **	.71 **	.34 *	.61 **	.54 **	.33 *	.03	.26	.33 *	.80 **							
10 Operation Flinders has helped me deal with my family better (PPQ 5)			.55 **	.63 **	-.60 **	.40 **	.17	.33 *	.44 **	.42 **	.07	.30	.48 **	.87 **								
11 Operation Flinders has given me the skills to deal with life's problems more easily (PPQ 6)			.62 **	-.43 **	.10	.33 *	.06	.30 *	.52 **	.40 **	.41 **	.50 **	.78 **									
12 Operation Flinders has been a total waste of time (PPQ 7)			-.50 **	.28	.33 *	.24	.49 **	.33 *	.12	.11	.43 **	.87 **										
13 I really enjoyed being a part of a team on Operation Flinders (PPQ 8)			-.49 **	-.31 *	-.40 **	-.63 **	-.57 **	-.34 *	-.27	-.44 **	-.63 **											
14 I felt close to my team members by the end of Operation Flinders (PPQ 9)			.28	.56 **	.49 **	.22	.15	.42 **	.32 *	.44 **												
15 I felt close to my team leader by the end of Operation Flinders (PPQ 10)			.32 *	.37 *	.03	-.04	.25	.19	.35 *													
16 I would do Operation Flinders again (PPQ 11)			.42 **	-.01	-.04	.08	-.15	.36 *														
17 Motivation to attend Operation Flinders (RQ 19)			.49 **	.23	.24	.22	.53 **															
18 Responsibility for Camping (RQ 1-3)			.47 **	.44 **	.34 **	.47 **																
19 Responsibility for Challenge & Adventure (RQ 4-6-8)			.60 **	.62 **	.19																	
20 Responsibility for Fitness-Bushwalking (RQ 7,9)			.70 **	.32 *																		
21 Total Self-Perceived Improvements (PPQ 3-7)			.51 **																			

Note: * Correlation is significant at the .05 level (two-tailed). ** Correlation is significant at the .01 level (two-tailed).

Responsivity to change. Young people who demonstrated a pre-program responsiveness to change were more likely to report that the Operation Flinders program had helped them deal with their family better ($r = .31, p < .05$) and had given them the skills to deal with life's problems more easily ($r = .34, p < .05$). However, it was not related to improved student-teacher relationships ($r = .14, ns$).

Self-reported benefits. Correlational analysis was used to determine whether a participant's self-reported benefits was related to improved, or larger program outcomes.

Table 17.

Correlations (r) Between Operation Flinders Participants' Self-Reported Benefits and Pretest-Posttest Dependent Measure Change Scores

Improved Self-Esteem	.11
Reduced Angry Feelings	.01
Reduced Aggressive Impulses	.09
Positive Attitudes towards Police	.29
Reduced Use of Neutralisations	.22
Reduced Identification with Criminal Others	-.18
Improved Base Total	-.07

Note: Self-reported benefits were a composite measure of PEQ items 3 to 6. Positive correlations denote that self-reported benefits were related to larger, or more positive program outcomes (change scores). No correlations were significant at the .05 level (two-tailed).

As shown by the pattern of small and non-significant correlations within Table 17, there was no consistent relationship between self-reported benefits and program outcomes. This finding suggests that the Operation Flinders program provided young people with therapeutic outcomes additional to those quantified by the criminogenic needs within this study.

Discussion

The primary aim of this study was to examine the efficacy of the Operation Flinders wilderness therapy program using the criminogenic principles of Risk, Need and Responsivity. The study found that young people who attended the Operation Flinders program gained benefits in self-esteem, anger, criminal cognitions and behaviour. The largest and most robust improvements were shown in the reduced use of neutralisations and improved classroom functioning. Apart from these isolated results, the differential improvements in favour of the Operation Flinders participants were not particularly large, nor were they consistent across measures or participants. However, overall, the size and direction of these improvements are consistent with a number of meta-analytic reviews (Cason & Gillis, 1994; Hattie et al., 1997; Wilson & Lipsey, 2000).

Risk and Need

A further aim of this study was to examine the efficacy of the Operation Flinders wilderness therapy program for youth at different levels of risk and criminogenic need. The study found that Operation Flinders participants high in need, or demonstrating the worst outcomes within the pretest phase of this evaluation, did not gain therapeutic outcomes above that of the entire sample. The study also found that there was no difference in the therapeutic outcomes of participants at high versus low risk of criminal behaviour, although the generalisability of these results to cohorts of higher risk offenders is cautioned. Conversely, the study found that the Operation Flinders program had differentially greater outcomes for young people at high, as opposed to low risk of marginalisation from the school system.

Participant Responsivity and Selection

An additional aim of this study was to examine the role of participant responsivity; notably, participant traits, attitudes and experiences that were postulated to mediate program outcomes. From this it was envisaged a set of predictive selection criteria might be developed. The study concluded that the ability to narrow down a typology of young people who gained the most benefits from the Operation Flinders program remained problematic. Different types of young people gained different outcomes from the Operation Flinders program, with the most robust results found in the prediction of individual outcomes (e.g., self-esteem, anger). While acknowledging this, the general pattern from both the correlational and descriptive data suggests that the program offered the most benefits for young people who enjoyed themselves, were motivated to attend the program and demonstrated a responsiveness or willingness for change.

This study also found support for Berman and Davis-Berman's (1991; Davis-Berman & Berman, 1994) systems theory. Young people who were postulated to experience heightened levels of dissonance, noted in this study as female and metropolitan participants, and young people exhibiting a low sense of adventure or shyness, had the greatest improvements in self-esteem. Although these improvements were also related to reductions in anger, the mechanism for this improvement would appear to be more strongly related to the opportunities provided by the Operation Flinders program to develop alternate outlets for anger expression.

Comparison with Previous Evaluation

This study replicated the design, dependent measures and analyses undertaken by the previous evaluation of the Operation Flinders program (Mohr et al., 2001). A distinguishing difference between studies, however, was that the post-testing phase within this study occurred, on average, four weeks later.¹² By comparing studies, the opportunity is afforded to examine the utility of the Operation Flinders program over time. A comparison of interaction effects indicated that there was a marginal, but non-consistent decrease in the overall effectiveness of the program over time; with the isolation of high need participants demonstrating a much larger deterioration in pretest-posttest improvements. Together, this pattern provides preliminary support that the improvements obtained by Operation Flinders participants are regressing over time, with the deteriorations occurring most rapidly in participants who have the greatest need requirements.

It is worth acknowledging that the largest and most robust improvements, in both this and the previous evaluation (Mohr et al., 2001), were demonstrated in participants' improved classroom behaviour. While it cannot be ruled out that these improvements were a by-product of teacher expectations, that is, positive expectations of the program manifested in teachers rating the post-program behaviour of Operation Flinders participants in a more positive manner, an alternate, and more likely is scenario is suggested. Within this evaluation, all participants were referred from school-based agencies, and as such, participant referral was likely to reflect a need to reduce their risk for future school marginalisation. With this goal in mind, it is envisaged that many of the

¹² Mohr et al. (1999) also conducted 5- and 14-week follow-ups, however, owing to high attrition in the control group, the 7-day posttest was considered the most robust follow up measure for this comparison.

teachers/counsellors accompanying participants on the Operation Flinders program would have tailored their therapeutic interventions (e.g., individual counselling, group work), both during and after the program, around achieving this goal. Considering the consistent improvements in classroom behaviour, in conjunction with the finding that the Operation Flinders program was equally, if not more efficacious for young people at high risk of school marginalisation, support was provided that this goal was achieved for many participants.

Implications for the Operation Flinders Program and Wilderness Therapy in General

The issue of post-program regression has been noted throughout the wilderness literature (Davis-Berman & Berman, 1994b; Herbert, 1998; Hunter, 1985; Pommier & Witt, 1995; Weston & Tinsley, 1999). In response, wilderness programs are being challenged to develop and improve their programs on two fronts (Davis-Berman & Berman, 1994b; Weston & Tinsley, 1999; Mohr et al. 2001), they include:

1. Maximising therapeutic outcomes - this includes developing a greater therapeutic basis, with special emphasis given to the role of therapeutic enhancement techniques that promote experience generalisation and transference (see Gass, 1990; Gass, 1993d; Luckner & Nadler, 1995; Priest & Gass, 1994).
2. Providing frameworks for, and actively encouraging participant follow up.

The development of both aspects would appear to offer much utility for the Operation Flinders program (Mohr et al., 2001).

Research Limitations

A number of research issues warrant further comment. First, follow-up contact indicated that there were large procedural differences between referral agencies in the admission and completion of questionnaires. Second, this contact also indicated that the literacy and verbal reasoning skills required to complete a number of the questionnaires (notably the revised CCS) remained problematic for many young people within this study. Third, differential attrition, low sample size and reduced statistical power limited the generalisability of the smaller effect sizes within this study, along with the ability to control for repeat-testing effects (i.e., regression towards the mean) and multicollinearity within the analyses on participant risk and program responsivity, respectfully.

Future Research

The descriptive data within both this, and the previous evaluation (Mohr et al., 2001), indicates that young people view the Operation Flinders program as a powerful experience within their lives. The literature suggests that experiences of this type have the potential to evoke both reflective insights and introspective thought patterns (Miles, 1993). An interesting methodology, therefore, is to examine whether such patterns manifest in the reappraisal of, or, willingness to change dysfunctional behaviours within young people. Having much intuitive appeal, future research using the stages of change model may provide a means to examine the efficacy of this application.

Conclusions

This study provides support that wilderness therapy programs like Operation Flinders may have a positive impact on the psychological and behavioural outcomes for *at-risk* youth, lower the risk for future dysfunctional outcomes, as well as provide a medium by which young people can be engaged in a manner and style that is conducive to future positive outcomes. Ultimately, however, the size and longevity of these outcomes is dependent on the intervention's generalisability and the provision of ongoing follow-up. Although wilderness programs like Operation Flinders should not be seen as a panacea for all *at-risk* behaviour, or be considered equally efficacious for all young people (Reddrop, 1997), much optimism is provided for the use of this modality in the treatment provision of *at-risk* youth.

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Appendixes

Appendix A.
Self-Report Static Risk Questionnaire

Name

What is your gender? Male Female

What is your age? _____

Have you ever been suspended from school? Yes No
 If yes, how many times have you been suspended?
1
2
3
4
5+

Have you ever been excluded from school? Yes No
 If yes, how many times have you been excluded?
1
2
3
4
5+

Have you ever "wagged" school? Yes No
 If yes, how many times have you "wagged" school in the past month?
1
2
3
4-9
10+

Have you ever been convicted of committing an offence? Yes No
 If yes, how many times have you been convicted?
1
2
3
4
5+

Have you ever been to Magill or Cavan Training Centres? Yes No

Appendix B.
Self-Esteem/Anger Questionnaire

The following questions are about how you feel about yourself. There are no right or wrong answers.

How often do you have the following thoughts? Please circle the number that best describes your answer

	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree
1. Sometimes I think I am no good at things	1	2	3	4	5
2. I feel useless at times	1	2	3	4	5
3. I'm pretty happy with myself	1	2	3	4	5
4. I can do things as well as most people	1	2	3	4	5
5. I have a low opinion of myself	1	2	3	4	5

The following questions are about what you felt or did in the last week. There are no right or wrong answers.

When you think back over the last week, how often have these things happened to you? Please circle the number that best describes your answer.

	Never	Not often	Sometimes	Often	Very Often
1. I felt angry	1	2	3	4	5
2. Something annoyed me and I couldn't get it out of my mind	1	2	3	4	5
3. I felt like I was ready to explode	1	2	3	4	5
4. I yelled at someone	1	2	3	4	5
5. I felt like smashing things	1	2	3	4	5
6. Other things or people got on my nerves	1	2	3	4	5
7. I felt like hitting someone	1	2	3	4	5
8. I abused someone	1	2	3	4	5
9. I felt like going beserk	1	2	3	4	5
10. I threatened someone	1	2	3	4	5
11. I blew my top	1	2	3	4	5
12. I felt like people were having a go at me	1	2	3	4	5

Appendix C.
Criminal Cognitions Questionnaire

These questions are about your opinions. There are no right or wrong answers.
 Circle the number that best describes what you think about each statement

	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree
1. On the whole, police are honest	1	2	3	4	5
2. A cop is a friend to people in need	1	2	3	4	5
3. Life would be better without police	1	2	3	4	5
4. The police should be paid more	1	2	3	4	5
5. The police are just as crooked as the people they arrest	1	2	3	4	5
6. There should be more police	1	2	3	4	5
7. Police don't try to help people	1	2	3	4	5
8. Sometimes you need to break the law in order to get ahead	1	2	3	4	5
9. Most successful people used illegal means to become successful	1	2	3	4	5
10. People who have been in trouble with the law think a lot like me	1	2	3	4	5
11. People should obey the law even if it stops them getting what they want	1	2	3	4	5
12. I would rather mix with people who obey the law than with those who don't	1	2	3	4	5
13. It is alright to break the law if you don't get caught	1	2	3	4	5
14. Most people would commit crimes if they knew they would not get caught	1	2	3	4	5
15. There is a never a reason for breaking the law	1	2	3	4	5
16. I have much in common with people who break the law	1	2	3	4	5
17. A hungry person has the right to steal	1	2	3	4	5
18. No one can break the law and be my friend	1	2	3	4	5
19. People should only obey reasonable laws	1	2	3	4	5

Appendix D.
Responsivity Questionnaire

The following questions are about some of your experiences. There are no right or wrong answers. Please circle the response that best describes your answer.

	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree
1. I enjoy camping	1	2	3	4	5
2. Camping can still be fun even when you are tired and dirty	1	2	3	4	5
3. Sleeping under the stars is always fun	1	2	3	4	5
4. I am a person who loves adventure	1	2	3	4	5
5. Rock climbing sounds like fun	1	2	3	4	5
6. Exploring the Australian bush excites me	1	2	3	4	5
7. I like to stay fit	1	2	3	4	5
8. I like to do things that challenge me	1	2	3	4	5
9. I enjoy bushwalking	1	2	3	4	5
10. I enjoy being a part of a team	1	2	3	4	5
11. I like to do things by myself	1	2	3	4	5
12. I often feel uncomfortable in group situations	1	2	3	4	5
13. There are things in my life I could do better	1	2	3	4	5
14. The problems I have at school are my teachers fault	1	2	3	4	5
15. There is nothing in my life that I need to improve	1	2	3	4	5
16. I need to learn new ways of dealing with my problems	1	2	3	4	5
17. I am ready to change things about myself	1	2	3	4	5
18. Programs like Operation Flinders can't help me	1	2	3	4	5
19. I would really like to go on Operation Flinders	1	2	3	4	5

Appendix E.
Post-Exercise Questionnaire

The following questions are about your experiences on Operation Flinders. There are no right or wrong answers. Please circle the response that best describes your answer.

	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree
1. I really enjoyed myself on Operation Flinders	1	2	3	4	5
2. Operation Flinders has been one of the best experiences of my life	1	2	3	4	5
3. Operation Flinders has taught me a lot about myself	1	2	3	4	5
4. Operation Flinders has helped me deal with my teachers better	1	2	3	4	5
5. Operation Flinders has helped me deal with my family better	1	2	3	4	5
6. Operation Flinders has given me skills to deal with life's problems more easily	1	2	3	4	5
7. Operation Flinders has been a total waste of time	1	2	3	4	5
8. I really enjoyed being a part of a team on Operation Flinders	1	2	3	4	5
9. I felt closer to my team members by the end of Operation Flinders	1	2	3	4	5
10. I felt close to my team leader at the end of Operation Flinders	1	2	3	4	5
11. I would do Operation Flinders again	1	2	3	4	5

**Background Information on young person *attending/not attending*
 Operation Flinders - Counsellors to complete**

Name of young person

Does the young person truant regularly from school?	Yes	No	Not known
If yes, in the past month, how many times did the young person truant?			1
			2
			3
			4 to 9
			10+

Has the young person ever been suspended from school?	Yes	No	Not Known
If yes, how many times has the young person been suspended?			1
			2
			3
			4
			5+

Has the young person ever been excluded from school?	Yes	No	Not Known
If yes, how many times has the young person been excluded?			1
			2
			3
			4
			5+

Has the young person ever been convicted of committing an offence?	Yes	No	Not known
If yes, how many times has the young person been convicted?			1
			2
			3
			4
			5+

Is the young person a FAYS client?	Yes	No	Not Known
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Appendix G.
Introductory Letter to Referral Agencies

(printed on Operation Flinders letterhead)

13th May, 2003

>>Name>>
>>Address Line 1>>
>>Address Line 2>>
>>Address Line 3>>

Dear (insert name)

Operation Flinders strongly values a process of ongoing improvement. One such means of improvement is for the program to undergo regular evaluations. In keeping with this aim, Exercise 2A will be evaluated. Therefore, I am writing to inform you of and request your involvement in the upcoming evaluation

The evaluation will be conducted by one of our current team leaders, and former FAYS counsellor, Ivan Raymond. Ivan is currently an Honours Psychology student at University of South Australia and will completing the research as a part of his thesis requirements. Ivan's research has the full support of the Operation Flinders Clinical Advisory Committee and the University of South Australia's Division of Human Research Ethics Committee (DHREC).

Ivan's research will be an extension of the previous evaluation conducted by the University of South Australia in 2000. This evaluation yielded extensive information for the Foundation, which has enabled us to improve the program. Essentially Ivan will be comparing outcomes for young people who attend the exercise with young people who do not attend this exercise. This is where we need your assistance. First we would like you to identify young people who, if there were double the number of places on the current exercise, would have attended. What we then will be asking you to do is to get these young people to fill out a series of questionnaires and for you to fill out a series of questionnaires about the young people, both before and after the exercise. I know this may sound confusing this is why Ivan will contact you in the next week or so to explain the nature of the evaluation and what you will be required to do.

Ivan will make regular contact with you over the research period that will be completed by the second week of third term. He will also be attending the Pre-Exercise Briefing Night. In the meantime, if you have any queries, Ivan is available at RAYIJ001@students.unisa.edu.au. Alternatively, Ms Karen Heseltine, a member of the University who is supervising the research, is available on 8302 1007.

I realise that the end of the term can be an extremely busy time, but as you would appreciate, an evaluation of this type is extremely valuable to the Foundation. Therefore your time and commitment are much valued.

Again can I thank you in anticipation of your assistance, and I look forward to catching up with you in the Flinders during Exercise 2A.

Kind Regards

John Shepherd
Executive Director

***Information Sheet for Counsellors-Teachers Participating in the Evaluation of Operation
Flinders Exercise 2A-03***

This package includes four distinct colour coded forms

- Form A (Green) – is to be completed by young people ***attending*** Operation Flinders
- Form B (Orange) – is to be completed by young people ***not attending*** Operation Flinders
- Form C (White) - is to be completed by counsellors-teachers on young people ***attending*** Operation Flinders
- Form D (Purple) - is to be completed by counsellors-teachers on young people ***not attending*** Operation Flinders

To ensure the data is collected in the most accurate and reliable manner, the following points are noted

- You are asked to ensure that the young person's name is filled out on all forms provided. The collation of pre- and post-program data is dependent on this occurring. Upon the questionnaires being received by myself, subject names will be removed and replaced by numbers.
- For this study to benefit both the Operation Flinders Foundation, and ultimately, future young people who undertake the program, you are asked to ensure that all responses are provided in a candid and accurate manner. For this reason, you are asked not to coach or prompt subject responses, or attempt to manipulate any of the data.
- You may note that there is some overlap in questions between the forms completed by yourself and the young people. You are asked to ensure that both forms are independently completed.
- The questions provided on Forms C and D have been designed to include information from a number of Operation Flinders referral agencies. Therefore, some of the questions may not be directly applicable to you.
- Both forms C and D include the attachment of the BASE questionnaire. The only information required to be completed on this questionnaire is the subject's name and the 16 items on page two and three. There is no requirement to do a running total of the subscales.

The completion of forms by the young people should occur in the following manner:

- The most efficient manner to administer the questionnaires is to have the young people complete them in a group format. If this occurs, you are asked to ensure that the questionnaires are independently completed and that no dialogue occurs between

the young people. Alternatively, you may find it more effective to read the questionnaires to the group one item at a time.

- If the young person has a query with an item you may read it back to the young person. However, you are asked not to provide an interpretation, nor prompt a response.
- The questionnaires may be completed in more than one sitting. You will be happy to know that the post-program questionnaires are significantly shorter.

When all forms are completed, you are asked to return both the forms and the manila folders in the Express Post Envelope provided. It is requested that the envelopes be in the post no later than Friday the **20th June 2003**. If this time line is not feasible, alternate arrangements can be made in the first instance with myself, and then with Karen Heseltine.

The post-program package should arrive to you by Express Post on the **22nd July 2003**, the second day of term 3. I will make contact with you on the 23rd July 2003 to confirm it has arrived, and to answer any further queries you may have. The post-program testing may occur anytime between the **23rd July 2003** and **30th July 2003**. The second package must be in the post no later than the **30th July 2003**. If you would like to receive this package earlier, or you have any concerns with this timeline, alternate arrangements can be made in the first instance with myself, and then with Karen Heseltine.

I am aware that a process like this never runs smoothly, especially when dealing with cliental of this type. If any “hick ups” occur, or, if you have any further questions, I am contactable throughout the research period on 0417 846 103. Alternatively, Ms Karen Heseltine, the University of South Australia supervising officer, is contactable on (08) 8302 1007.

The results of this research will be made publicly available from the middle of October. Opportunities will be made through the Operation Flinders Foundation to receive a detailed summary of the findings.

As you can well appreciate, young people can be an extremely difficult group to engage in a process like this. Therefore, the rapport you have developed with these young people is seen as a central feature in the success of this research. As such, your time and support are much valued.

I closing, I hope that Exercise 2A is a rewarding experience for both yourself and your team.

Kind Regards
Ivan Raymond

Appendix I.
Posttest Package Information Sheet

(printed on University of South Australia letterhead)

>>Name>>
>>Address Line 1>>
>>Address Line 2>>
>>Address Line 3>>

20th July 2003

Dear (insert name),

RE: Operation Flinders Evaluation for Exercise 2A-03

I would like to personally thank both yourself and your school's contribution to the current Operation Flinders evaluation. Owing to the strong support in the pre-testing phase of the evaluation, this research is set to both significantly benefit the Operation Flinders Foundation and future young people who undertake the program. However, ultimately, the success of the evaluation is dependent on this post-testing phase. Therefore, your time and support is once again requested.

This package includes four distinct forms:

- Form G (Light Blue) – is to be completed by young people who **attended** Operation Flinders
- Form H (Dark Blue) – is to be completed by young people who did **not attend** Operation Flinders
- BASE Form I (White) - is to be completed by counsellors-teachers on young people who **attended** Operation Flinders
- BASE Form J (White) - is to be completed by counsellors-teachers on young people who did **not attend** Operation Flinders

To ensure the data is collected in the most accurate and reliable manner, the following points are noted (these points **differ slightly** from the pre-testing phase).

- Where possible, you are asked to replicate both the environment and testing conditions where the young people completed the pre-test questionnaires (e.g., having the same teacher-counsellor administer the questionnaires, using the same classroom & administering the questionnaires at the same time of day).
- It is extremely important that for each young person, the teacher-counsellor who completed the pre-test BASE questionnaire, also complete this second BASE questionnaire. If this is not possible, can you please write on top of the BASE questionnaire that a different teacher-counsellor completed the questionnaire.
- You are asked to ensure that the young person's name is filled out on all forms provided.

- For this study to benefit both the Operation Flinders Foundation, and ultimately, future young people who undertake the program, you are asked to ensure that all responses are provided in a candid and accurate manner. For this reason, you are asked neither to coach nor prompt subject responses, nor attempt to manipulate the data.
- The only information required to be completed on the BASE questionnaires is the subject's name and the 16 items on page two and three. There is no requirement to do a running total of the subscales.

The completion of forms by the young people should occur in the following manner:

- The most efficient manner to administer the questionnaires is to have the young people complete them in a group format. If this occurs, you are asked to ensure that the questionnaires are independently completed and that no dialogue occurs between the young people. Alternatively, you may find it more effective to read the questionnaires to the group one item at a time.
- If a young person has a query with an item you may read it back to them. However, you are asked not to provide an interpretation, nor prompt a response.
- The questionnaires may be completed in more than one sitting.

It is requested that the questionnaires be completed between the **31st July 2003 and 1st August 2003**. When all forms are completed, you are asked to return both the forms and the manila folders in the Express Post Envelope provided. It is requested that the envelopes be in the post no later than the **5th August 2003**. If this time line is not feasible, or, if you are having problems accessing any of the young people, alternate arrangements can be made in the first instance with myself, and then with Karen Heseltine.

I will be making contact with you in the next couple of days to answer any queries you may have. In addition, if any "hick ups" occur, or, if you have any further questions, I am contactable throughout the research period on 0417 846 103. Alternatively, Ms Karen Heseltine, the University of South Australia supervising officer, is contactable on (08) 8302 1007.

The results of this research will be made publicly available from the middle of October. Opportunities will be made through the Operation Flinders Foundation to receive a detailed summary of the findings.

Lastly, thank you again, and I look forward to catching up with you and your school in future Operation Flinders adventures.

Kind Regards
Ivan Raymond

Appendix J.
Information Letter to Parents/Caregivers

(printed on University of South Australia letterhead)

10 June 2003

Dear Parent/Guardian,

I am writing to you to invite your child to take part in an evaluation of the Operation Flinders Foundation's Wilderness Program. The project is titled: "Understanding Operation Flinders". The evaluation is being conducted by Ivan Raymond, a student completing his Honours in Psychology at the University of South Australia, in conjunction with Forensic and Applied Psychology Research Group at the same university. Karen Heseltine, a member of this group, is supervising the research.

Operation Flinders is a program that helps young people reach their full potential. To help us find which young people get the most benefit from the program, we are comparing young people who attend the program, to young people who may have the opportunity to attend the program in the future. If you agree for your child to take part in the study, your child will be asked to complete two short questionnaires. One will be completed in the next week or so, and one will be completed in the first week of Term 3. Both should take no longer than 10 minutes to complete.

Below I have answered some of the questions you may raise. Firstly, all the information provided by your child is strictly confidential and anonymous. Secondly, you may withdraw your written consent at any time. Lastly, your child may also withdraw from the study at any time, with this having no bearing on any future involvement with the Operation Flinders Foundation, or your child's relationship to their school.

This research has been approved by the University of South Australia Division of Human Research Ethics committee, Department of Education and Children's Services, and the Operation Flinders Clinical Advisory Committee.

If you are prepared for your child to take part, a Consent Form is attached for you to sign. Should you require additional information regarding this research, please contact Karen Heseltine, on (08) 8302 1007.

Thank you for considering this request.

Ivan Raymond
University of South Australia
IRAY001@students.unisa.edu.au

Your participation in this study is greatly appreciated

(printed on University of South Australia letterhead)

PARENT/CAREGIVER CONSENT FORM

Project Title: Understanding Operation Flinders

Name of child: _____

- I have read and understood the Information Sheet on the above project. I understand that my child is being asked to fill out a series of short questionnaires.
- I understand that my child may not directly benefit by taking part in this research.
- I understand that while information gained in the study may be published, my child will not be identified and all individual information will remain confidential.
- I understand that I can withdraw my child from the study at any stage up until the end of the collection of data.
- I consent to my child being involved in this project.

Name of Parent: _____
or guardian

Signed: _____

Date: _____