A longitudinal study of behaviour-disordered adolescents and the effects on them of a wilderness-enhanced program

Dell Brand
University of Wollongong
NOTE

This online version of the thesis may have different page formatting and pagination from the paper copy held in the University of Wollongong Library.

UNIVERSITY OF WOLLONGONG

COPYRIGHT WARNING

You may print or download ONE copy of this document for the purpose of your own research or study. The University does not authorise you to copy, communicate or otherwise make available electronically to any other person any copyright material contained on this site. You are reminded of the following:

Copyright owners are entitled to take legal action against persons who infringe their copyright. A reproduction of material that is protected by copyright may be a copyright infringement. A court may impose penalties and award damages in relation to offences and infringements relating to copyright material. Higher penalties may apply, and higher damages may be awarded, for offences and infringements involving the conversion of material into digital or electronic form.
Chapter 6
Methodology

There are many juvenile delinquents in the world and many different programs in existence to deal with them. Some programs contain multiple components. There is a need to evaluate programs that are wilderness-enhanced and multivariate. Also, there is the need to examine the nature of the contribution made by the wilderness experience component in the overall program. The study drew upon the psychosocial research that identified key variables that distinguish conduct disordered and delinquent adolescents from the normal adolescent population. The most useful framework for this is the Problem Behaviour Proneness model of Jessar and Jessar. This chapter describes the design of the study, the sampling procedures and the construction of the questionnaire, including reliability and validity constructs, and the procedures followed for data collection.

6.1 The Design of the Study

In order to evaluate the impact of the wilderness experience and the total wilderness-enhanced multivariate intervention program, this study used a multi-phase pre and post treatment and control group design with a longitudinal follow-up, in which subjects were tested over a two year period. The study gathered self-reported data on many of the variables deemed relevant to juvenile delinquency, which were derived from the psycho-social literature and, in particular, from Jessar and Jessar’s problem behaviour proneness model (Jessar and Jessar, 1977). The variables examined are outlined later in the chapter. The outline of the study can be in Figure 6.1.

<table>
<thead>
<tr>
<th></th>
<th>Pretest</th>
<th>Intervention</th>
<th>Post test</th>
<th>Follow-Up 1</th>
<th>Follow-Up 2</th>
<th>Follow-Up 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Control</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Reference</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 6.1 A Simple Outline of the Study
This design cannot be categorised as a true intervention design because of the absence of randomisation (Campbell & Stanley, 1966). While pure experiments within laboratory settings have certain standards of rigour that can enhance internal validity, they are deficient in terms of external validity regarding applicability across settings and populations. The almost aseptic laboratory conditions can make the results unrealistic in practical situations where many outside and uncontrolled influences may have an effect. Inferences from the data may need to be appropriately limited in character, especially with regard to making causal inferences; but as Cook and Campbell (1979) pointed out, 'it is unrealistic to expect that a single piece of research will effectively answer all of the validity questions surrounding even the simplest causal relationship' (p245).

Even though the results of quasi experiments are harder to interpret than true experiments, they are more feasible in the social laboratory and should permit greater generalisation of data to the field setting.

### 6.2 Sampling Procedures

A total of 190 male subjects participated in the pre-test session. All participants in the study were granted permission to do so by their parents or legal guardians. A total of 73 male students were enrolled in wilderness-enhanced programs, 52 male students acted as controls and 65 male students acted as a reference group. Data were collected in two annual waves and these were combined for the purposes of statistical analysis. One intake was in 1994 and the other in 1995.

The treatment group contained 73 students, spread over four sub-groups. The first sub-group was from the South Coast Wilderness Enhanced Program (SCWEP) (N=35), comprising of students taken into the program over two years. The SCWEP students were those who were judged to be extremely behaviour-disordered by their schools and who were exhibiting great difficulty in maintaining their place there. They had already received special attention from teachers and counsellors and had failed to respond in a more positive way. The students selected for this
program were usually from Years 7 and 8 (aged 13–14 years), with one intake each year of Year 6 students (aged 12 years). The second and third sub-groups came from Project Breakaway (PB) (N=16) and the MacArthur Adventure-Learning Program (MAP) (N=16) in the south-west region of Sydney. These programs were modelled on the South Coast Wilderness Enhanced Program. The students selected for Project Breakaway were usually in Years 6 and 7. The fourth sub-group in the study was the Queanbeyan Cluster Project (QCP) (N=6). This program was also modelled on the South Coast Wilderness Enhanced Program.

There was a Control Group (N=52). These were students who were perceived by their schools to have behaviour problems but who were receiving no specialist help outside their schools. They were considered to be serious behaviour problems in their schools.

A Reference Group (N=65) was formed from within the south coast region of NSW. This region, one of ten in NSW, extended from Wollongong to Eden, west to Cooma and included the Southern Highlands. It consisted of students who exhibited no serious problem behaviour and they were used to ascertain normal change with maturation. Research has shown that changes do occur as adolescence progresses in many of the variables used in the study (Jessor & Jessor, 1977).

The initial numbers of subjects in the study can be seen on the following page in Table 6.1.
Table 6.1: Initial Numbers of Subjects in the Study

<table>
<thead>
<tr>
<th>Treatment Groups</th>
<th>1994</th>
<th>1995</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Coast Wilderness-Enhanced Program</td>
<td>21</td>
<td>14</td>
<td>35</td>
</tr>
<tr>
<td>Project Breakaway</td>
<td>8</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>McArthur Adventure Program</td>
<td>16</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Queanbeyan Cluster Project</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>73</td>
</tr>
</tbody>
</table>

| Control Group                          | 37   | 15   | 52    |
| Reference Group                        | 23   | 42   | 65    |
| Total                                   | 108  | 82   | 190   |

6.3 Measurement: Choice of Questionnaire Methodology

The most common methodology employed in research of this nature is the self-report questionnaire. Self-report questionnaires have been used in similar research studies overseas (Kelly & Baer, 1969; Winterdyk & Griffiths, 1984; Callahan, 1995) and in Australia (Marsh et al, 1986; Sveen & Denholm, 1991). According to Smart et al (1980) and Johnston and O'Malley (1985), the use of self-report questionnaires has both advantages and disadvantages. The advantages are as follows: firstly, the administration of questionnaires to clustered samples provides considerable economy in terms of cost and time; secondly, more accurate estimates of prevalence and trends are possible and a greater ability to conduct subgroup analyses as a result of lowered costs permits data collection to occur on a larger scale; thirdly, the degree of anonymity obtainable in large groups, in which relative confidentiality can be assured, is generally much greater than that which is achieved by other methods; and an important consideration with young people answering sensitive questions is that
the proximity of parents and other family members is not a factor. Also, the rate of non-response to
the questionnaire among those present is often under one per cent (Johnston et al, 1982).

6.4 Validity of Self-Report Data

Self-reported studies in the area of adolescent development developed as a response to weaknesses
suspected in simply relying only on official statistics. Researchers became aware that the more
traditional methods of collecting data by accessing police and court records and recidivism rates did
not reveal the whole delinquency picture. These records reflect only recorded delinquency and so
give a distorted view of juvenile delinquency as a whole. Early researchers talked of hidden
delinquency, that is, the delinquency that occurred but went unrecorded in official record-keeping.
Porterfield’s study (1943) revealed that all the students questioned on a self-report questionnaire
admitted to delinquent acts, yet none of them had been brought to police or court attention. Another
study by Murphy et al (1946) revealed a staggering amount of unrecorded delinquency. Mukherjee
(1985) cited that ‘more than 90% of the respondents......have committed some acts that could be
defined as crimes but were not detected’ (p 19). Self-report data appears to overcome this problem
to a large extent.

However Murphy’s study also pointed out difficulties with self-report questionnaires. One of these is
the reliability of the responses. Do the subjects always tell the truth and are they willing and able to
report on their own transgressions? The overwhelming majority confess to some form of law-
breaking in their life and researchers appear satisfied with the truthfulness of their responses
(Mukherjee, 1985). As a consequence, these revelations of previously ‘hidden’ delinquency have
been a major support for theories of juvenile delinquency. An excellent critique has been written on
this subject by Reiss (1975).

Concerns with self-reported data exist in terms of validity and reliability of answers. Harrell (1985)
lists three factors which can affect validity: firstly, the factors in the mode of enquiry such as degree
of anonymity or confidentiality promised by the researcher are possibly not accepted by the respondents; secondly, the failure by the respondent to provide accurate information because they never knew or forgot the answer; and thirdly, response bias may occur, such as an unwillingness to present information without attempting to answer in a socially favourable way by either under or over reporting.

There is, however, evidence to suggest that these problems can be largely overcome. Because there is always a concern with self-report data about the degree to which respondents may not tell the truth, or the possibility that misunderstandings or misinterpretations could occur, a variety of methods have been employed to assess the validity of self-report data. Methods include repeating questions in slightly different terms or repeating the question in another section of the questionnaire or comparing answers with other surveys. The general consensus of opinion is that, when appropriate conditions of confidentiality and administration are adhered to, the vast majority of subjects give accurate accounts and answers to the questions asked of them (Groerer, 1985, Barnea et al, 1987, Mensch & Kandel, 1988, Reinisch et al, 1991).

In view of the substantial research evidence suggesting that students are willing to provide accurate and valid self-reports, and because of the advantages of time, cost and relative confidentiality that could be provided, a self-report questionnaire methodology was chosen.

6.5 The Instrument Used in this Study: 'All About You' and the Validity of the Scales

The final instrument was soundly based on Jessor and Jessor's problem behaviour proneness model. The model argues that there are three groups of significant predictor variables of the state called problem behaviour proneness. These three groups are personality, the perceived social environment and behaviour factors. As the variables within these groups combine, a higher proneness to problem behaviour leads to resultant behaviours such as drug and alcohol abuse, age-
inappropriate sexual activity and promiscuity and other deviant behaviours such as violence and acts of delinquency.

Jessar and Jessar's model identified a number of variables that impact on problem behaviour proneness. Their variables are known to be appropriate because they have been used as predictors and have been shown to be accurate in terms of problem behaviour in adolescents (Jessar and Jessar, 1977, Jessar and Jessar, 1984, Jessar et al, 1991). A number of scales based on Jessar and Jessor's work were devised for this study. Many of the predictor variables deemed important by Jessar and Jessor were measured in this study using questions organised into thirty-one subscales of questions in the self-report questionnaire, called 'All About You'. The variables examined in the study, which were the basis of the question and subscale construction, are found in Figure 6.2.
### Figure 6.2 Variables Examined in this Study

1. **The Personality System**
   - **A. Motivational-Instigational Structure**
     1. Commitment to School
     2. Attitude to Independence
     3. Independent Behaviour
   - **B. Personal Belief Structure**
     4. Self-Esteem (Piers-Harris)
     5. Self-Esteem (subscale Behaviour)
     6. Self-Esteem (subscale Intellectual & School Status)
     7. Self-Esteem (subscale Physical Appearance & Attributes)
     8. Self-Esteem (subscale Anxiety)
     9. Self-Esteem (subscale Popularity)
     10. Self-Esteem (subscale Happiness & Satisfaction)
     11. Locus of Control
     12. Self-Efficacy
     13. Efficacy of Self-Control
     14. Alienation
   - **C. Personal Control Structure**
     15. Attitude to Deviance

2. **The Social Environment System**
   - **A. Proximal Structure**
     16. Relationship with Parents
   - **B. Distal Structure**
     17. Control by Parents
     18. Influence of Peer Group
     19. Deviant Behaviour of Peer Group

3. **The Behaviour System**
   - **A. Problem Behaviour Structure**
     20. Drug Behaviour
     21. General Deviant Behaviour
     22. Violent Behaviour
     23. Oppositional Defiance
     24. Conduct Disorder
     25. Behaviour at School
     26. Behaviour at School (subscale Acting-Out Behaviour)
     27. Behaviour at School (subscale Distracter Behaviour)
     28. Behaviour at School (subscale Peer Relationships)
     29. Behaviour at School (subscale Delinquent Behaviour)
   - **B. Conventional Behaviour Structure**
     30. General Conforming Behaviour
     31. Conforming Behaviour of Peer Group

---

A: Purpose constructed subscale  
B: Internal Reliability established  
C: Test-Retest Reliability established
When each subscale was developed, the subscales were patterned off Jessors and Jessors's model and Jessors and Jessors's instrument. The questions which comprise the subscales in the 'All About You' questionnaire were sometimes chosen directly from the Jessors and Jessors instrument, modelled on Jessors and Jessors's questions, or developed particularly for this study. This was necessary, given the literacy level of the subjects and the time taken to complete the questionnaire. Each question was subjected to comparison to Jessors and Jessors's models of instrumentation and examined by experts (see Appendix 2). Following discussion and piloting, the final scales were derived and face validity is claimed. Each scale was subject to analysis for internal consistency and the results are outlined later in this section.

The questionnaire was an amalgam of purpose constructed questions which aggregated into subscales relevant to each of the identified variables, plus three established instruments used specifically to examine three of the variables in the Jessors and Jessors model (given their known predictive ability with regard to problem behaviour) to validate the purpose constructed subscales. The three established tests were:

- Piers-Harris Children's Self-Concept Scale (Piers, 1984)
- Nowicki-Strickland Internal-External Locus of Control Scale
  (Nowicki & Strickland, 1983)
- Automatic Thoughts Questionnaire (Hollon & Kendall, 1980)

These tests strengthened the claim for face validity and they were used to not only provide information in their own right but also to demonstrate a consistency of results between the 'All About You' questionnaire and the established tests. Figure 6.2 shows the variables measured in the 'All About You' questionnaire and indicates which scales were purpose constructed and which used established tests.

Twenty-two purpose constructed subscales were devised. Questions in each subscale and the subsequent scales themselves were examined by a panel of experts for validity; subjected to trialling;
re-examined; pilotted to establish internal consistency and test-retest reliability; and finally examined by the same panel of experts to establish face and construct validity.

Pilot testing was conducted in order to both trial the 'All About You' questionnaire and to refine the questions if necessary. Only minor changes were found to be needed in some of the subscales. In 1993 the questionnaire was administered, with anonymity ensured, to the entire Year 7 student population of a selected local high school (N = 172). Items were scrutinised and analysed with reliability scores calculated on the subscales. The same questionnaire was administered again at a later stage to a sub-sample of the Year 7 population (one class group) to check reliability in a test-retest (TRT) situation (N=24). Finally the test was also administered to a Year 10 class twice (Yr10) to ensure that reliability was maintained with an older cohort (N=48).

The questions carried a five-point scale which was Never/Not at All - Seldom/Rarely/Hardly Ever - Sometimes - Quite Often - Always/All the Time. This scale was used throughout the questionnaire, with very few exceptions. The questions from the questionnaire used in each subscale can be found in Appendix 3. The coding and measurement schedule for the questionnaire can be seen in Appendix 4.

Cronbach’s alpha is considered appropriate for tests with multi-scored items, such as were used in this study (Anastasi, 1982). All the reliability scores using Cronbach’s alpha formula are recorded in Appendix 5. These scores of internal consistency met the criteria for scales to be used for research purposes (Nunnally, 1978; Shaw & Wright, 1967). Desirable levels fall in the 0.70’s or above.
6.5.1 The Personality System

The concepts that constitute personality, or the person system, include values, expectations, beliefs, attitudes and an orientation towards oneself and others. These concepts are cognitive and reflect social meanings and social experience.

6.5.1.1 The Motivational-Instigational Structure

The first sub-group within the personality predictor variables in Jessor and Jessor’s model is the motivational-instigational structure. The value that is placed on goals, and the expectation of attainment of them, help determine behaviour. The variables addressed in this sub-group are academic goals and commitment to school and independence.

6.5.1.1.1 Commitment to School

To ascertain information on commitment to school and academic goals and aspirations, respondents were asked ten questions which required self-reported answers using a Likert-style format. The maximum score achievable was 50 and the minimum was 10. The higher the score the less the commitment to school. These two elements of commitment and goals are not necessarily the same. A student may show commitment to school through their place in a sporting team, a musical band or any one of numerous other activities that go on in schools without having any great commitment to academic success. However a student who has both is likely to be more highly committed to remaining at school. The internal validity of the commitment to school scale, as measured by Cronbach’s alpha, showed a reliability of 0.87 in the pilot study, 0.84 in TRT and 0.90 in Yr10.
6.5.1.1.2  Attitude to Independence

To ascertain the respondents' attitude towards independence, that is, making their own decisions about issues in their lives, they were asked four questions which required self-reported answers using a Likert-style format. The maximum score achievable was 20 and the minimum was 4. The higher the score the greater the independent attitude. The internal validity of the attitude towards independence scale, as measured by Cronbach's alpha, showed a reliability of 0.91 in the pilot study, 0.91 in TRT and 0.88 in Yr10.

6.5.1.1.3  Independent Behaviour

To ascertain the respondents' independent behaviour, that is, making their own decisions and acting on them (without being told what to do and doing what they are told), they were asked four questions which required self-reported answers using a Likert-style format. The maximum score achievable was 20 and the minimum was 4. The higher the score the greater the independent behaviour. The internal validity of the independent behaviour scale, as measured by Cronbach's alpha, showed a reliability of 0.88.

6.5.1.2  The Personal Belief Structure

The second sub-group within the personality predictor variables in Jessor and Jessor's model was the personal belief structure. The interaction of these variables can constrain or permit problem behaviour. The variables included in this sub-group are self-efficacy, self-concept, locus of control and alienation.

6.5.1.2.1  Self-Esteem

The Piers-Harris Self-Concept Test was used to measure any changes in self-esteem over the two years. Self-concept, as assessed by this instrument, was defined as a relatively stable set of self-
attitudes reflecting both a description and an evaluation of the subjects’ own behaviour and attributes. Items on the scale were scored in either a positive or negative direction to reflect this self-evaluative dimension. A high score on the scale suggested a positive self-evaluation, whereas a low score suggested a negative self-evaluation. The scale focussed on the respondents' conscious self-perceptions, rather than attempting to infer how they felt about themselves from their behaviours or the attributions of others. Thus, this definition was consistent with what Wylie (1979) referred to as a phenomenological view of self-concept and was interchangeable with the terms ‘self-esteem’ and ‘self-regard’ (Piers, 1984).

Deviant adolescents have usually experienced repeated failure at school, either through an inability to grasp basic literacy and numeracy skills, or through their aberrant behaviours making normal learning extremely difficult. This increases the likelihood of premature departure from school and the further breakdown of social ties, available through the school. These are manifestations of low self-esteem. The test comprised eighty short questions and was designed to assess how adolescents feel about themselves. The test also contained six sub-scales that gave a more detailed interpretation of different facets of self-concept. They were Behaviour, Intellectual and School Status, Physical Appearance and Attributes, Anxiety, Popularity and Happiness and Satisfaction. Because the Piers-Harris test is an established test with proven reliability it was considered necessary to only run the test on one of the groups in the pilot study. The internal validity of the self-concept scale, as measured by Cronbach’s alpha, showed a reliability of 0.83 in Yr10.

6.5.1.2.2 Self-Esteem (subscale Behaviour)

To ascertain this subscale 16 of the 80 questions from the Piers-Harris Self-Concept Scale were analysed separately. This subscale reflected a 'cluster scale' on problematic behaviour. The maximum score achievable was 16 and the minimum was 0. The higher the score the poorer the behaviour. The internal validity of the self-concept (behaviour) subscale, as measured by Cronbach’s alpha, showed a reliability of 0.99 in the pilot study.
6.5.1.2.3  Self-Esteem (subscale
Intellectual and School Status)

To ascertain this subscale 17 of the 80 questions from the Piers-Harris Self-Concept Scale were analysed separately. This subscale reflected a 'cluster scale' on intellectual and school status, that is, the subject's self-assessment of their abilities with respect to intellectual and academic tasks, including general satisfaction with school and future expectations. The maximum score achievable was 17 and the minimum was 0. The higher the score the more positive the self-assessment. The internal validity of the self-concept (intellectual and school status) subscale, as measured by Cronbach's alpha, showed a reliability of 0.98 in the pilot study.

6.5.1.2.4  Self-Esteem (subscale
Physical Appearance and Attributes)

To ascertain this subscale 13 of the 80 questions from the Piers-Harris Self-Concept Scale were analysed separately. This subscale reflected a 'cluster scale' on physical appearance and attributes, that is, the subject's self-assessment of their physical characteristics, as well as attributes such as leadership and the ability to express ideas. The maximum score achievable was 13 and the minimum was 0. The higher the score the more positive the self-assessment. The internal validity of the self-concept (physical appearance and attributes) subscale, as measured by Cronbach's alpha, showed a reliability of 0.97 in the pilot study.

6.5.1.2.5  Self-Esteem (subscale Anxiety)

To ascertain this subscale 14 of the 80 questions from the Piers-Harris Self-Concept Scale were analysed separately. This subscale reflected a 'cluster scale' on anxiety, that is, the subject's self-assessment of emotional disturbance and dysphoric mood. Individual items tapped a variety of specific emotions including worry, nervousness, shyness, sadness, fear, and a general feeling of being left out of things. The maximum score achievable was 13 and the minimum was 0. The
higher the score the greater the anxiety felt. The internal validity of the self-concept (anxiety) subscale, as measured by Cronbach’s alpha, showed a reliability of 0.98 in the pilot study.

6.5.1.2.6 Self-Esteem (subscale Popularity)

To ascertain this subscale 12 of the 80 questions from the Piers-Harris Self-Concept Scale were analysed separately. This subscale reflected a ‘cluster scale’ on popularity, that is, the subject’s evaluation of their popularity with classmates, being chosen for games and their ability to make friends. The maximum score achievable was 12 and the minimum was 0. The higher the score the less the popularity felt by the respondent. The internal validity of the self-concept (popularity) subscale, as measured by Cronbach’s alpha, showed a reliability of 0.97 in the pilot study.

6.5.1.2.7 Self-Esteem (subscale Happiness and Satisfaction)

To ascertain this subscale 10 of the 80 questions from the Piers-Harris Self-Concept Scale were analysed separately. This subscale reflected a ‘cluster scale’ on happiness and satisfaction, that is, the subject’s general feeling of being a happy person, easy to get along with and feeling generally satisfied with life. The maximum score achievable was 10 and the minimum was 0. The higher the score the greater the happiness felt by the respondent. The internal validity of the self-concept (happiness and satisfaction) subscale, as measured by Cronbach’s alpha, showed a reliability of 0.97 in the pilot study.

There were fourteen remaining questions that were included in the overall Piers-Harris Self-Concept Test and make up the total of 80 statements.

As well as the Piers-Harris Self-Concept Scale and subscales, the Locus of Control test and the Automatic Thoughts Questionnaire were also standardised and well-established tests, and it was therefore not considered necessary to test for reliability in all the pilot study situations.
6.5.1.2.8 Locus of Control

Locus of Control was measured using the Nowicki-Strickland Internal-External Locus of Control Test. It measured any changes in external-internal locus of control over time. There were twenty-one responses required in the adolescent sub-scale of this test. It focussed on problems and situations that arise in the daily life of an adolescent. Because deviant adolescents frequently do not own their behaviour, they are adept at finding others to take the blame for their behaviours or the results of their actions. They are very good at avoiding the consequences of their decisions and actions, either by denial, flight or placing the blame elsewhere. Consequently, they are reckless in their decision-making. Scores range from 0-21, with the higher the score, the greater the externality of locus of control. The internal validity of the locus of control scale, as measured by Cronbach's alpha, showed a reliability of 0.96 in the pilot study.

6.5.1.2.9 Self-Efficacy

To ascertain self-efficacy respondents were asked the 40 questions which comprised the Automatic Thoughts Questionnaire and which required self-reported answers using a Likert-style format. The Automatic Thoughts Questionnaire gave an indication of whether the subject's thoughts were predominantly negative or predominantly positive towards their life in general. This reflected the adolescent's inner feelings and gave a window into this area of self-concept. The maximum score achievable was 200 and the minimum was 40. The higher the score the greater the self-efficacy. The internal validity of the automatic thoughts scale, as measured by Cronbach's alpha, showed a reliability of 0.96 in the pilot study and 0.95 in Yr10.

6.5.1.2.10 Efficacy of Self-Control

It has been shown that self-efficacy tends to generalise to other situations, even situations substantially different from the original treatment task (Bandura, 1977). The Efficacy of Self-Control
subscale contained questions on maintaining self-control and staying out of trouble in situations occurring at school and in the home. To ascertain efficacy of self-control, respondents were asked ten questions that required self-reported answers using a Likert-style format. The questions asked how well they could stay in control if certain commonplace events happened to them. The maximum score achievable was 50 and the minimum was 0. The higher the score the greater the confidence in self-control. The internal validity of the efficacy of self-control scale, as measured by Cronbach’s alpha, showed a reliability of 0.89 in the pilot study, 0.95 in TRT and 0.83 in Yr10.

6.5.1.2.11 Alienation

Alienation was measured in this questionnaire through a series of questions which asked about unacceptable behaviours or behaviours which do not ‘fit in’ with society’s expectations and desires. The questions did not measure whether the subject feels alienated or isolated, but the alienating behaviours themselves. To ascertain this alienation from mainstream society through partaking in socially-unacceptable behaviours, respondents were asked seventeen questions which required self-reported answers using a Likert-style format. The maximum score achievable was 85 and the minimum was 17. The higher the score the greater the alienation. The internal validity of the efficacy of self-control scale, as measured by Cronbach’s alpha, showed a reliability of 0.87 in the pilot study, 0.86 in TRT and 0.73 in Yr10.

6.5.1.3 The Personal Control Structure

The third sub-group within the personality predictor variables in Jessor and Jessor’s model is the personal control structure. The controls in a person’s life such as belief in a religion and attitudes to different behaviours will have a bearing on how that person behaves. The variable chosen for inclusion in the study is attitude to deviant behaviour. Religiosity is considered later in a measure of conventional behaviours.
6.5.1.3.1 Attitude to Deviance

To ascertain attitude to deviance, respondents were asked twelve questions which required self-reported answers using a Likert-style format. The questions probed the subjects' tolerance to deviant behaviour in others by asking whether they thought it was okay for people to do certain socially-unacceptable behaviours such as taking drugs, stealing and using violence. The maximum score achievable was 60 and the minimum was 12. The higher the score the greater the tolerance to deviant behaviour. The internal validity of the attitude to deviance scale, as measured by Cronbach's alpha, showed a reliability of 0.95 in the pilot study, 0.90 in TRT and 0.86 in Yr10.

6.5.2 The Social Environment System

The concepts that constitute the environment are the supports, influence, controls, models, and expectations of others. These are amenable to logical co-ordination with personality concepts and represent environmental characteristics capable of being cognized or perceived.

6.5.2.1 The Proximal Structure

The second group of significant predictor variables in Jessor and Jessor's Problem Behaviour model is in the perceived social environment. Within this group there are two sub-groups of variables, the proximal and distal. These variables include the impact family and peers have on the person and the relative effect of each. Within the proximal sub-group the variable chosen was relationship with parents. Criminality in the family was also considered.

6.5.2.1.1 Relationship with Parents

To ascertain information on relationship with parents, respondents were asked five questions that required self-reported answers using a Likert-style format. The maximum score achievable was 25 and the minimum was 5. The higher the score the better the relationship with parents. The internal
validity of the relationship with parents scale, as measured by Cronbach’s alpha, showed a reliability of 0.75 in the pilot study, 0.55 in TRT and 0.48 in Yr10. These latter two were not considered acceptable, however the variable was still included in the study. The results obtained from this variable must therefore be viewed with extreme caution.

Criminality in the Family was also measured using three questions. The scores ranged from 3-15 and the higher the score the greater the number of times members of their family have been in gaol. This measure was only taken into account initially as a background variable.

6.5.2.2 The Distal Structure

Within the distal sub-group the three variables included in this study were control by parents, influence of the peer group and deviant behaviour of the peer group.

6.5.2.2.1 Control by Parents

To ascertain information on control by parents, respondents were asked seven questions that required self-reported answers using a Likert-style format. The maximum score achievable was 35 and the minimum was 7. The higher the score the less control the parents are perceived to have. The internal validity of the control by parents scale, as measured by Cronbach’s alpha, showed a reliability of 0.71 in the pilot study, 0.87 in TRT and 0.76 in Yr10.

6.5.2.2 Influence of the Peer Group

The influence of the peer group was ascertained by asking questions about their own behaviour and whether or not they were influenced by what their friends said and did. To ascertain information on the influence of the peer group, respondents were asked six questions that required self-reported answers using a Likert-style format. The maximum score achievable was 30 and the minimum was 6. The higher the score the greater the influence of the peer group. The internal validity of the
influence of the peer group scale, as measured by Cronbach's alpha, showed a reliability of 0.58 in the pilot study and 0.82 in Yr10.

6.5.2.2.3 Deviant Behaviour of the Peer Group

Association with deviant peers was ascertained by asking questions about the behaviour of their friends. Respondents were asked seven questions which required self-reported answers using a Likart-style format. The maximum score achievable was 35 and the minimum was 7. The higher the score the greater the reported deviant behaviour of the peer group. The internal validity of the deviant behaviour of the peer group scale, as measured by Cronbach's alpha, showed a reliability of 0.86 in the pilot study, 0.92 in TRT and 0.92 in Yr10.

6.5.3 The Behaviour System

The third group of significant predictor variables in Jessar and Jessar's Problem Behaviour model are the behaviour factors. Within this group there were two sub-groups of variables, the problem behaviour structure and the conventional behaviour structure. Included in the first group were sexual activity, drinking and problem drinking, marijuana use and general deviant behaviour. These can be expressions of unconventionality and independence. The second sub-group includes striving for academic success and religiosity. They were socially-approved behaviour and expressions of belief in conventional values.

6.5.3.1 The Problem Behaviour Structure

Within the problem behaviour structure, the variables chosen to be included in this study were alcohol and drug use, sexual activity, behaviour at school, violence and general deviant behaviour. These were chosen as appropriate aspects of problem behaviour from the review of the literature and Jessar and Jessar's work.
6.5.3.1.1 Drug Behaviour

To ascertain the subjects' involvement in drug-related behaviour, including alcohol, tobacco, marijuana and other hard drugs, respondents were asked six questions that required self-reported answers using a Likert-style format. The maximum score achievable for the drug-use scale was 31 and the minimum was 5. The higher the score the greater the drug-taking behaviour. The internal validity of the drug behaviour scale, as measured by Cronbach's alpha, showed a reliability of 0.70 in the pilot study, 0.89 in TRT and 0.70 in Yr10.

6.5.3.1.2 General Deviant Behaviour

Another variable in this sub-group was General Deviant Behaviour. To ascertain the subjects' general deviant behaviour, respondents were asked ten questions that required self-reported answers using a Likert-style format. The maximum score achievable was 50 and the minimum was 10. The higher the score the greater the deviant behaviour. The internal validity of the general deviant behaviour scale, as measured by Cronbach's alpha, showed a reliability of 0.87 in the pilot study, 0.91 in TRT and 0.72 in Yr10.

6.5.3.1.3 Violent Behaviour

To ascertain the subjects' violent behaviour, respondents were asked thirteen questions that required self-reported answers using a Likert-style format. The maximum score achievable was 65 and the minimum was 13. The higher the score the greater the violent behaviour. The internal validity of the violent behaviour scale, as measured by Cronbach's alpha, showed a reliability of 0.85 in the pilot study, 0.76 in TRT and 0.78 in Yr10.
6.5.3.1.4 Oppositional Defiance

The instrument used to examine the self-reported level of Oppositional Defiance of the participants, was a subscale of nine questions taken from the criteria defined by the 'Diagnostic and Statistical Manual' (Revised Fourth Edition). These questions required self-reported answers using a Likert-style format. The maximum score achievable was 45 and the minimum was 9. The higher the score the greater the oppositional defiance. The internal validity of the oppositional defiance scale, as measured by Cronbach’s alpha, showed a reliability of 0.73 in the pilot study, 0.80 in TRT and 0.70 in Yr10.

6.5.3.1.5 Conduct Disorder

The instrument used to examine the self-reported level of Conduct Disorder of the participants, was a subscale of eleven questions taken from the criteria defined by the 'Diagnostic and Statistical Manual' (Revised Fourth Edition). These questions required self-reported answers using a Likert-style format. The maximum score achievable was 55 and the minimum was 11. The higher the score the greater the conduct disorder. The internal validity of the conduct disorder scale, as measured by Cronbach’s alpha, showed a reliability of 0.78 in the pilot study, 0.71 in TRT and 0.81 in Yr10.

6.5.3.1.6 Behaviour at School

To ascertain the subjects' behaviour at school, respondents were asked 23 questions that required self-reported answers using a Likert-style format. The maximum score achievable was 115 and the minimum was 23. The higher the score the greater the general misbehaviour at school. The internal validity of the behaviour at school scale, as measured by Cronbach’s alpha, showed a reliability of 0.90 in the pilot study, 0.87 in TRT and 0.87 in Yr10. There were four behaviour at school subscales used as well.
6.5.3.1.7 Behaviour at School (subscale
Acting-Out Behaviour)

To ascertain this subscale, respondents were asked seven of the 23 questions from the behaviour at school scale. These required self-reported answers using a Likert-style format. This subscale reflected a ‘cluster scale’ on acting-out type behaviour. The maximum score achievable was 35 and the minimum was 7. The higher the score the greater the acting-out behaviour at school. The internal validity of the behaviour at school (acting out subscale), as measured by Cronbach’s alpha, showed a reliability of 0.85.

6.5.3.1.8 Behaviour at School (subscale
Distracter Behaviour)

To ascertain this subscale, respondents were asked four of the 23 questions from the behaviour at school scale. These required self-reported answers using a Likert-style format. This subscale reflected a ‘cluster scale’ on behaviour that is used to try and distract others from their work. The maximum score achievable was 20 and the minimum was 4. The higher the score the greater the distracting behaviour at school. The internal validity of the behaviour at school (distracter subscale), as measured by Cronbach’s alpha, showed a reliability of 0.85.

6.5.3.1.9 Behaviour at School (subscale
Peer Relationships)

To ascertain this subscale, respondents were asked four of the 23 questions from the behaviour at school scale. These required self-reported answers using a Likert-style format. This subscale reflected a ‘cluster scale’ on peer relationships. The maximum score achievable was 20 and the minimum was 4. The higher the score the poorer the peer relationships at school. The internal validity of the behaviour at school (peer relations subscale), as measured by Cronbach’s alpha, showed a reliability of 0.84.
6.5.3.1.10  Behaviour at School (subscale 
Delinquent Behaviour)

To ascertain this subscale, respondents were asked six of the 23 questions from the behaviour at 
school scale. These required self-reported answers using a Likert-style format. This subscale 
reflected a 'cluster scale' on delinquent behaviour. The maximum score achievable was 30 and the 
minimum was 6. The higher the score the greater the delinquent behaviour at school. The 
internal validity of the behaviour at school (delinquency subscale), as measured by Cronbach's 
alpha, showed a reliability of 0.83.

6.5.3.2  The Conventional Behaviour Structure

Within the conventional behaviour structure, the variables included in this study were general 
conforming behaviour and conforming behaviour of the peer group.

6.5.3.2.1  General Conforming Behaviour

To ascertain conforming behaviour, respondents were asked eleven questions that required self-
reported answers using a Likert-style format. The maximum score achievable was 55 and the 
minimum was 11. The higher the score the greater the conforming behaviour. The internal validity 
of the general conforming behaviour scale, as measured by Cronbach's alpha, showed a reliability of 
0.77 in the pilot study, 0.90 in TRT and 0.53 in Yr10.

6.5.3.2.2  Conforming Behaviour of the Peer Group

To ascertain conforming behaviour of the peer group respondents were asked seven questions that 
required self-reported answers using a Likert-style format. The maximum score achievable was 35 
and the minimum was 7. The higher the score the greater the conforming behaviour of the peer
group. The internal validity of the conforming behaviour of the peer group scale, as measured by Cronbach’s alpha, showed a reliability of 0.69 in the pilot study, 0.58 in TRT and 0.39 in Yr10.

6.6 The External Validity of the Study

The treatment subjects were usually nominated to the program by their schools. The subjects for the reference group were then selected on the basis of those students who were referred to the treatment program. As such, they were not random in the true sense of the word, but they were not volunteers either. Some students were from metropolitan schools and some were from country centres. The subjects in the control group were identified from a range of schools closely matching the treatment group’s schools. The five schools selected to provide the control group were from a pool of all schools, of which all had an equal chance of being chosen.

6.7 Procedure

The ‘All About You’ questionnaire was within a pre-test/post-test research design. If a student left school during the two years of data collection, a third version of the questionnaire, called the ‘Follow-Up School Leavers’ Questionnaire’, was administered. All three questionnaires ask the same questions, but the questions were phrased in a more suitable way in each version. Copies of the three questionnaires can be found in Appendices 6-8.

Data were gathered by a number of research assistants. All these data collectors were interviewed by the researcher and the procedures for collecting the data explained, with an emphasis on total confidentiality and anonymity by the participants. Where appropriate, usually in outlying areas, data were collected by school counsellors.
The questionnaire took approximately 30 minutes to complete for a subject who had a reading age of 10-12 years. Consent forms from parents or guardians were obtained for every subject.

The research design and the testing schedule can be seen more clearly in Figure 6.3.
Figure 6.3 Research Design for the Longitudinal Study of Behaviour-Dosordered Adolescents

N* Note: The N size at each data point differed due to attrition

Treatment Group
Wilderness-Enhanced Program
N=73

Pretest T1 N=73
6 Weeks
T2 N*=49
6 Mnths
T3 N*=49
6 Mnths
T4 N*=41
9 Mnths
T5 N*=34

Wilderness Experience Component Evaluation Stage

Control Group
N=53

Pretest T1 N=53
6 Weeks
T2 N*=47
6 Mnths
T3 N*=47
6 Mnths
T4 N*=47
9 Mnths
T5 N*=37

Reference Group
N=65

Pretest T1 N=65
7 Mnths
T3 N*=59
6 Mnths
T4 N*=57
9 Mnths
T5 N*=43
Data collection began in March 1994 and continued through till the end of 1996. All individuals and groups received the same instructions. The data collectors were asked to read the cover sheet of the questionnaire to the subjects and to assure them of total privacy. The subjects were told that no-one would see their answers except the researcher. It was stressed that no names were linked in any way to the questionnaires. Only the university researcher would be able to identify and match the questionnaires and, to that extent, anonymity and confidentiality were assured. They also told the subjects that they, the supervisors, were permitted to read all or parts of the questionnaire out loud if a subject requested it, but would not be within reading distance of a subject's answers.

Due to their behaviour and short attention spans it was found that the ideal situation for collecting the data from the treatment and control subjects was to have them sit individually in a room where the data collector could supervise them and read the questions to them when necessary. However, it remained imperative that every subject was assured of anonymity and confidentiality. The collector remained at a distance from the subject so the subject was assured that their answers could not be seen and at the end of the session their completed questionnaire was sealed in a plain brown envelope and placed in a box near the exit.

A special code was developed for each student to re-inforce the notion of confidentiality. This code permitted subsequent follow-up questionnaires to be matched to each subject. Only the university researcher would be able to identify and match these questionnaires. At no time did a subject put their name to a questionnaire and at no time did a supervisor read or show any interest in reading the subject's answers.

Data collection from the reference group was usually done in group sessions, in a classroom, where each student was assured the same degree of confidentiality and anonymity. The importance of adhering to the kinds of techniques previously described regarding privacy, confidentiality and anonymity was stressed. This same procedure was followed at all subsequent data collection points. Data were collected pre and post wilderness for the treatment group. The control group was tested at like times. The reference group was not tested at the post wilderness time. Then all subjects were
tested again six months later, twelve months later and then twenty-one months later. All subjects therefore, except the reference group, were tested at five different times over a two-year period, as follows:

T1 Before the wilderness experience
T2 Immediately after the wilderness experience (to try and ascertain how the wilderness experience impacted on the subjects)
T3 6 months later
T4 6 months later
T5 9 months later

The reference group was tested a total of four times, with T2 of the above schedule being the time data were not collected.