



**An Impact Evaluation of the Chrysalis Academy Programme focusing on the contribution of its  
Outdoor Component**

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**Compulsory Declaration:**

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## **Abstract**

This evaluation is an impact evaluation of the Chrysalis Academy (CA) Programme. The CA programme is geared to help youth in the Western Cape develop the skills and resilience needed to transcend the prevailing poverty, inequality, unemployment and crime in their communities. Chrysalis offers a 3-month residential and 5 year After-Care programme for NEET youth aged 18-25 that includes life and vocational skills training as well as counselling and community service. The programme also includes a 2-week outdoor/wilderness component that is deemed crucial to the success of the programme.

The evaluation sought to respond to two overarching groups of questions. The first group of questions assessed the long-term impact of the programme with regards to education, employment, crime, drugs as well as family and community relationships. Considering that the outdoor component is regarded as the most crucial component of the programme, the second group of evaluation questions was geared to understand the causal mechanism of the CA outdoor component to assess whether it is consistent with the logic model of successful outdoor programmes and to understand the outcomes that can be expected from this phase.

A quasi-experimental impact evaluation design was used to respond to the impact evaluation questions. A database of 14,614 past applicants from the Western Cape formed the basis of a sampling frame from which a random sample of 300 past applicants who received the programme and those not selected into the programme between 2014 and 2016 was drawn. Face-to-face interviews were scheduled with 35 contacted programme recipients and 35 contacted non-selected applicants and interviews were conducted using a structured questionnaire. A final sample of 32 programme applicants and 33 non-selected applicants was analyzed. Differences in the average outcome attainment between past participants versus non-participants were then assessed after Propensity Score Weighting was used to balance the treatment and control group on key variables related to the probability of being selected into the programme. To assess the causal mechanism of the outdoor component, in-depth, semi-structured interviews were conducted with some success and non-success case graduates of the CA programme to assess their experience of the outdoor component and the outcomes that presented as a result.

The findings of the evaluation show that the CA programme does not have long-term impact as those who did not receive the programme also attained similar positive outcomes. However, there is a possibility of short-term outcomes attainment from the outdoor component as its causal mechanism is similar to that of successful outdoor programmes. Moreover, participants, regardless of their long-term outcomes, are able to achieve the short-term outcomes expected from the outdoor component.

Based on the results, CA should assess how the effect of the outdoor component and possibly other phases of the programme, can be sustained for long periods, possibly by intensifying the After-Care programme. CA should also assess the assumptions around outcomes attainment such as labor market favorability and financial sufficiency and assess how these can be addressed within the scope of the programme.

## LIST OF ABBREVIATIONS

CA	=	Chrysalis Academy
CD-RISC	=	Connor-Davidson Resilience Scale
CYRM	=	Child and Youth Resilience Measure
IPTW	=	Inverse Probability of Treatment Weights
NEET	=	Not in Employment, Education or Training
NIDA	=	National Institute of Drug Abuse
NIDS	=	National Income Dynamics Study
PSM	=	Propensity Score Matching
PYDP	=	Positive Youth Development Programme
RS	=	Resilience Scale
WCDS	=	Western Cape Department of Social Development
WCDCS	=	Western Cape Department of Community Safety
YDP	=	Youth Development Programme

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## Chapter 1: Introduction

A high proportion of youth in the Western Cape, especially those in townships and informal settlements, are marginalized and vulnerable because of the prevailing cycle of poverty, unemployment, inequality and crime (De Lannoy et al., 2018; Sauls, 2014). This population of vulnerable youth includes the 32.6% of youth aged between 15 and 24 who are not in education, employment or training (NEETs) (Statistics South Africa, 2011). This socio-economic deprivation has contributed to an array of adverse consequences for youth such as disengagement from formal education, lack of skills and opportunities for employment and the exposure to and engagement in anti-social behavior such as drug use and crime (Samara, 2005; Sauls, 2014). These consequences themselves have contributed to perpetuating the cycle (De Lannoy et al., 2018).

Positive Youth Development Programmes (PYDPs) have been one initiative used to disrupt the cycle by targeting youth and providing them with the resilience they need to transcend their circumstances and assume roles as active agents of their own progress (Catalano, Berglund, Ryan, Lonczak, & Hawkins, 2004). These programmes are distinguished from other interventions by their aim to provide preventative measures for negative outcomes as opposed to ameliorative measures, by the programmes atmosphere of care, hope and belief in youth's capacities and by their activities that provide opportunities for hard and soft skills development (Roth & Brooks-Gunn, 2003b). In the Western Cape these programmes have been supported and implemented by both government and non-governmental agencies.

PYDPs have presented in several forms such as life skills training, vocational and employment skill development programmes and wilderness/outdoor programmes that are aimed at either building individual, family, school or community level capacities (Catalano et al., 2004). More comprehensive and complex programmes have incorporated more than one of these forms to achieve holistic development by addressing multiple competencies and opportunity deficiencies.

The Chrysalis Academy programme is one such multi-component YDP targeting vulnerable youth in the Western Cape with the aim of deepening resilience and promoting positive outcomes. Although this programme is a coalescence of life-skills, vocational and outdoor components, CA considers the outdoor component of the programme, that has been devised and funded by USIKO Trust, as the most vital component of the programme to achieving its outcomes. One of the objectives of CA and USIKO Trust therefore, was to understand its impact. In late 2017, CA approached Associate Professor Sarah Chapman at the University of Cape Town with the objective of advising on an impact evaluation design for the CA programme and its outdoor component. As a result, CA became the model client for the Programme Evaluation Masters class in the first semester of 2018 where the class was tasked to develop a programme

description and theory of change. This would be instrumental in formulating the evaluation questions and methodology for the impact evaluation. Secondly, USIKO Trust and Associate Professor Sarah Chapman funded the hiring of a consultant to develop a quantitative dataset of past applicants which would provide a sampling frame for a quantitative impact evaluation. This dataset included data of all past applicants recorded during the recruitment process. Lastly, USIKO Trust set aside additional funds for the designing and actualization of the impact evaluation to be carried out as a student project.

The student project and engagement with CA to tailor the impact evaluation begun in July 2018. The initial plan was to only evaluate the outdoor component. However, in reviewing the programme theory and realizing the interconnectedness of the programme components in relation to its expected outcomes, we recognized how impossible it would be to separate the impact of the whole programme and that of the outdoor component. Moreover, we wanted to utilize the dataset that was made available for the evaluation, effectively. Hence, it was decided to perform an impact evaluation of the CA programme as a whole – with specific focus on the role played by the outdoor component. This dissertation therefore, presents the results of the independent research that has been conducted to respond to the impact evaluation needs of CA and USIKO Trust.

### **Programme Description**

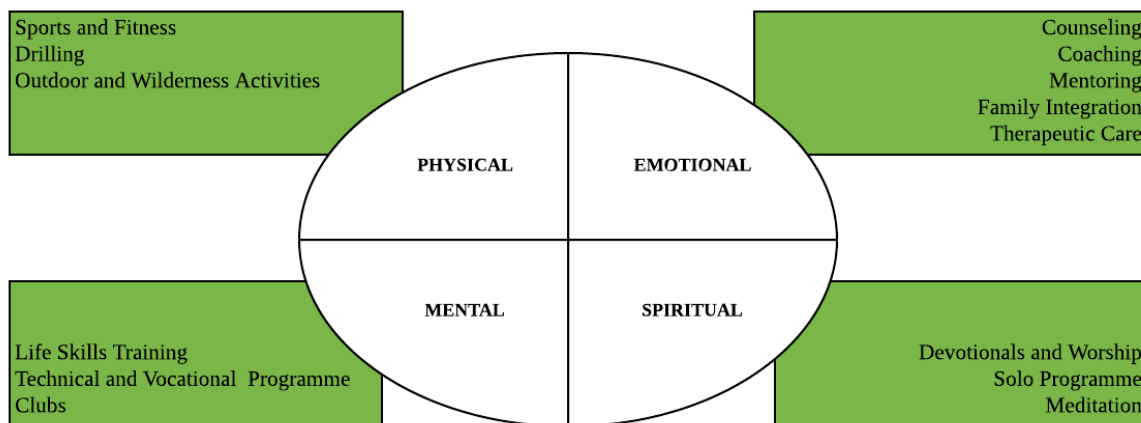
The description of the CA programme has been constructed from the organization's website (<http://chrysalisacademy.org.za/>), interviews with programme staff, the CA programme framework, Annual Reports from 2015-2017 and Annual Performance Plan for 2018-2019.

Chrysalis Academy (CA) is located in Tokai in the Western Cape. CA was established in 2000 by the Western Cape provincial government initially as a youth reformatory with a social crime prevention, development and rehabilitation programme for youth offenders. It was established as a means to curb delinquency, involvement in drug and gang activity among youth in the many disadvantaged communities in the province.

CA currently is registered as a non-profit organization administered by a board of trustees and mainly funded by the Western Cape Department of Community Safety (WCDCS). Other funders of the programme include the Western Cape Department of Social Development (WCDS), Distell Foundation and Glenfair Prop. CA also partners with other organization such as The City of Cape Town, Western Cape Liquor Board, Peace Jam, Alcohol and Drug Concerns Cape, TB HIV Care, Usiko Trust, Human Wildlife Solutions and Northlink Technical, Vocational, Education and Training College for the provision of free goods and services.

Over the past 18 years, CA has evolved into a free multi-component YDP provider primarily focusing on crime prevention and capacity building. The programme is geared to develop capacities in vulnerable youth, to enable them to transcend their vulnerability and as a result, break the cycle of poverty, inequality, crime and unemployment in the province (Chrysalis Academy Strategic Plan, 2018)

The CA programme is a 5-year programme (12 weeks residential with five years ‘aftercare’ support, in which youth selected benefit from a series of workshops, classes, individual and group activities that help them to develop a wide range of skills, qualities and capacities to facilitate personal development and transformation. The activities of the programme are designed to target four key areas of youth development; physical, emotional, spiritual and mental for a holistic transformation in the youth. This is illustrated in Figure 1 below:



*Figure 1: CA Programme Framework*

**Target Population**

CA runs 3 courses of their programme (Alpha, Bravo and Charlie) each financial year for up to 560 youth. The courses are typically run in January, May and September with 180-200 youth in each intake. In the year, two male courses (Alpha and Charlie) and one female course (Bravo) are run. Since 2011, CA has run 20 courses of their programme (12 for males and 8 for females) with just over 3,500 youth in total graduating from the programme (Little, 2018).

The CA targets youth residing in all localities within the Western Cape. However, CA and the WCDCS, identify target communities where an increase in crime or high rates of school-dropout have been reported. These areas become focus areas for the promotion and recruitment for the programme. The programme is promoted to youth and parents/guardians through presentations by the programme staff in the target areas,

through the CA website, through referrals from other municipal organizations and through CA graduates and their families.

### Recruitment and Selection

Youth from all over the Western Cape can apply for the programme via CA’s website, in person at CA or through municipalities. To be selected into the programme, youth have to meet a set of eligibility criteria. Youth are eligible for this programme if they are aged between 18 and 25 and are NEET at the time of application. Moreover, they should have, at least, completed a grade 9 level of schooling and must not possess a criminal record. From 2011 to the end of 2017, CA has received over 14,000 applications for the programme (Little, 2018).

All youth that apply for the programme are invited to the CA premises for one-on-one interviews and a medical and fitness assessment. These interviews are used to determine eligibility (based on the set of eligibility criteria), level of motivation to transform their lives, to assess their substance abuse history and their physical, psychological and academic ability to cope with the programme. CA uses a rating system of 1-4 to group applicants based on how suitable they are for the programme. In this system, a lower rating indicates higher suitability for the programme. Table 1 below, developed by Little (2018), depicts the rating system

**TABLE 1:**  
*CA Recruitment Rating System*

Elements	Rating			
	1	2	3	4
Area or Residence	Rural or Urban	Rural or Urban	Rural or Urban	Rural or Urban
Education	Grade 12	Grade 9-11	Grade 9-12	Grade 9-12
History of Substance Abuse	Never Used	Never Used	No drugs for six months or more (substances used for 2 years or more in the past)	On drugs (excluding heroin)
Motivation	Highly Motivated	Highly Motivated	Motivated	Motivated

*Note: Cigarette smoking and social drinking is acceptable for all ratings*

Youth are more likely to be accepted into the programme if they have met the initial eligibility criteria but additionally, have no history of substance abuse and appear to be highly motivated (Rating 1). However, youth of all ratings can be and are recruited based on need. With the large number of eligible youth applying for the programme, additional criteria are used to select participants. Quotas are considered based on area

of residence, race and language. Target areas can also be prioritized for recruitment purposes. Priority is also given to youth experiencing severe and challenging circumstances. This, for instance, includes severe family disintegration and homelessness.

Based on this selection process, 180-200 youth are selected for each programme intake and other eligible youth are placed on a waiting list. This waiting list is necessary as not all youth that are selected for the intake, register to begin the course. This occurs for several reasons including lack of economic resources to obtain all materials needed for the programme and pregnancy. Those participants eligible for the programme but not selected for intake are re-submitted for subsequent intakes and repeat the recruitment process as priority applicants.

## **Programme Structure**

### **The 12-Week Residential Programme**

The crux of the CA programme is the 12-Week Residential programme. Youth selected to participate are accommodated at the CA premises for the full duration of the 12 weeks. Upon registration youth are required to pay a R 400 non-refundable administration fee. Youth are provided with accommodation, meals, medical services and some materials and special clothing needed for the programme. However, they are required to provide their own toiletries and the required physical training clothing for the course. Youth are required to remain at the CA premises for the duration of the course apart from for programme-specific outdoor activities. They are not allowed to leave the premises (i.e. go home on weekends or unfacilitated outings) for the duration of the 12 week programme but have 2 scheduled family visitations at the Academy.

During this residential programme, youth take part in a four-phase programme namely the Orientation Phase, Outdoor Phase, Skills Phase and Community and Exit Phase.

#### ***The Orientation phase***

The Orientation phase is a 3-week component where youth are taught a range of psychosocial and life skills. During the phase, youth attend a series of group workshops and classes where life skills such as personal mastery, self-monitoring, goal-setting, problem-solving, anger management, empathy, care, tolerance, conflict resolution and communication are taught. Each day of the phase (weekdays), youth attend three, one and a half hour, classroom sessions a day to learn these life skills. They also participate in physical training, sports and drilling practice before and after their classroom sessions. These are administered by peer instructors.

#### ***The Outdoor Phase***

The CA Outdoor phase is administered in the fourth and fifth week of the 12-week residential programme. This phase is regarded as the most vital as it is where personal transformation is believed to be experienced

(CA Management, personal communication, March 7, 2018). During these 2 weeks, youth are placed in groups of 15-18 with two facilitators (a peer –facilitator and/or experienced external facilitator) and engage in an urban-outdoor experience. Youth learn and participate in a wide range of activities that include hiking, camping, wall climbing, abseiling, zip line, canoeing and obstacle courses. These activities take place at several venues outside the CA premises and some within the CA premises. However, during this phase, youth sleep and do all activities outdoors.

### ***24-hour Solo and Circle of life***

Circle of life and the 24-hour solo, according to the programme managers, is one of the fundamental and stand-alone components of the CA outdoor programme and the programme as a whole (CA Management, personal communication, March 7, 2018). The circle of life is a therapeutic element of the outdoor phase that happens before the solo. During this group session, youth engage in a facilitated reflection on the difference stages of their lives and prepare for the solo.

The solo takes place the day after the circle of life. This is when each youth spends 24 hours isolated in nature with minimal food and equipment. Youth are provided with a journal and pen to be used during this time in silence. Youth are encouraged to use this time in isolation for self-reflection. For CA, this experience has been regarded as the catalyst to deep inner transformation (CA Management, personal communication, March 7, 2018). A debrief follows the solo to further reflect on the solo experience and its relevance and to share insights gained.

### ***The Skills Phase***

The Skills Phase is a 4-week component where youth complete an accredited vocational course. Participants choose to complete one of a wide range of courses available such as youth development, child and youth care, fire-fighting, basic cookery, office administration, computer training, hair and grooming, basic electrical circuitry, basic carpentry, plumbing, welding, sport coaching and lifeguarding.

### ***The Community and Exit Phase***

The last phase of the 12-Week residential programme is the community and exit phase where youth are prepared for life outside the Academy. This entails preparing youth for employment by teaching employment skills such as the composition of a curriculum vitae, interview skills and through career guidance. It prepares youth for daily living outside the Academy by imparting financial management skills, entrepreneurial skills and provides them with means to give back to their communities through community service.

## Supplementary Activities

During the 12-Week residential programme, CA participants attend some compulsory and other needs-based activities for a holistic transformation. As part of the physical development domain of the programme, compulsory activities include sporting activities and army drilling. For spiritual development, universal devotional meetings and worship services are organized for the CA participants. Participants also engage in community service activities as a spiritual practice. For mental development, CA participants are also provided with a range of clubs such as debate, arts and crafts, reading groups and music as additional forums for interaction, learning and connections with other youth. These additional sport and recreational activities are mostly scheduled during weekends or at specific time slots during the week. Table 2 below depicts the schedule of a typical weekday during the residential programme at CA.

**Table 2:**

*The Daily Routine at The Chrysalis Academy: Weekday Programme*

---

04:30	Wake Up
05:00	Physical Training
06:00	Ablutions & Preparation for inspection
07:00	Breakfast
08:00	Inspection
08:30	Parade
09:00	Class Session 1
10:30	Tea Break
11:00	Class Session 2
12:30	Lunch
13:30	Class Session 3
15:00	Tea
15:30	Sport and Fitness/Drilling
17:30	Personal Time
18:00	Supper
19:00	Evening Programme
20:00	Debrief
20:30	Ablutions
21:00	Quiet time – Individual Therapeutic Practice
21:30	Lights Out

---

For emotional development CA offers needs-based services including a Therapeutic Care Programme, life coaching and counselling for participants throughout the programme. Activities in this programme include

Yoga and Meditation, Drama therapy, Substance Recovery Support Groups, Support Groups for Grief and Loss, Tai Chi and creative writing. These services are provided by CA's Life Coaches and volunteer counselors.

CA also has a dedicated family integration programme that includes counselling, parent workshops, and family conferencing and visitation days to promote parental support of the participants during and after the residential programme. All parents of the CA participants are encouraged to attend visitation and workshops. However, family or parent counselling is offered based on need. This may be done telephonically or during the visitation days.

### **The 5-Year Aftercare Programme**

After the 12-Week residential programme, participants benefit from support from CA for up to 5 years. In the first year after the programme, all participants are placed in a yearlong paid internship in various institutions in the Western Cape including municipality offices such as SAPS, Fire Stations, City Improvement Districts, Traffic Centers, Hospitals, Community Police Forums and at CA.

After the internship, youth return to their communities but benefit from services offered by CA for up to 5 years. Youth can access individual and family counselling and therapy if required. A refresher course is organized by CA 6 months after the residential programme.

CA also has an Information Hub where graduates can access further free career guidance services, networking opportunities with other organizations, information regarding employment or internship opportunities and assistance with job research and CV updating.

### **Programme Theory**

Programme Theory, also referred to as the theory of change of a programme, describes the rationale of the programme and the assumptions about how it intends to bring about the desired social benefit for its recipients (Rossi, Lipsey, & Freeman, 2004). It highlights the resources and activities provided by the programme and how these can jointly instigate a sequential process of change in the participants leading to the attainment of the desired proximal and distal outcomes of the programme (Donaldson, 2007; Rossi et al., 2004). In the assessment of the impact of the CA programme and understanding how the outdoor phase contributes to these impacts, Programme Theory assists in making explicit the expected impacts of the programme and in unpacking and examining why and how these impacts are likely to occur (Chen, 2015).

The Programme theory can be depicted in several ways. One way is a logic model that depicts the inputs, process and outputs of the programme and then the short to long term outcomes and impact expected by the programme (Bickman, 1987). A multiple-mediator logic model for the current (2018-2019) structure of

the CA programme is depicted in Figure 2. Mediators in this model are the proximal outcomes that are achieved as a direct result of the preceding programme component (Donaldson, 2007). This model has been used as it helps to assess the causal effects of the multiple components of the programme and how they work together to achieve the targeted outcomes (Donaldson, 2007).

The logic model shows the various resources and activities provided by CA, the process of the programme (the 12 Week residential programme and 5-year Aftercare programme) and the output which is youth completing this programme and acquiring the skills and knowledge and services provided for each component. There are several short to long term outcomes that are expected from participating in the programme. Personal outcomes attainment would differ from person to person depending on their circumstances prior to admission.

### ***Short-Term outcomes***

The immediate outcome that is expected from the programme is deepened resilience through an increase in personal and social internal and external protective factors. The internal protective factors include the problem coping skills learnt from therapy and counselling and life skills gained from the orientation phase of the programme such as personal mastery, anger management, communication skills, self-monitoring and problem solving. These protective factors further accumulate as youth progress through the programme. Attributes such as perseverance, focus and self-efficacy, clarity of personal vision are believed to be gained during the outdoor and subsequent phases of the programme.

The external protective factors that will have been gained through the programme include the enhanced support structures available to youth during and after the programme. Family support is elicited and strengthened through the family integration programme. Peer support and reliance is enhanced in engaging with peer mentors as well as fellow youth participating in the programme. Moreover, the support from CA during and after the residential programme is an asset that can be utilized to enhance resilience.

### ***Intermediate outcomes***

Intermediate outcomes of the programme are youth engaging in productive and positive action. Some tangible examples of positive and productive actions include youth finding employment, enrolling into further education or involvement in community service or generally avoiding anti-social behavior such as involvement in drugs and crime. For other youth, positive behaviors may also mean re-establishing connections with families and other members of society and engaging in some way with the activities of the community.

### ***Long-term Outcomes***

The long-term outcomes of this programme are sustained personal development and social inclusion. The programme intends to produce long-term transformation in youth in such that they continue to display positive behavior and continue to progress in whichever lines of productive actions they choose to pursue. Social inclusion, to CA, means that youth become accepted, acknowledged and respected as members of the community. This acceptance may result from the pursuit of pro-social behavior, such as the avoidance of drugs and crime and the engagement in productive and community building processes such as education, employment, entrepreneurship or community service. Social inclusion may also present as a result of youth achieving sustained connections with the community entities including the family and institutions.

### **The Outdoor Phase Programme Theory**

One key focus area of this evaluation however, is the outdoor phase of the programme. This focus was indicated as a priority by the programme because it is considered as the most crucial and transformative component of the programme. For the running of the outdoor phase, CA requires an appropriate outdoor environment conducive to its activities (for instance, expansive natural plains, mountain/hill ranges, a dam/lake etc.), materials (camping equipment, canoes/rafts etc.) and experienced and well-trained outdoor instructors to guide participants through the physical, emotional and spiritual experience.

Immediately following the outdoor programme, it is expected that youth achieve enhanced self-efficacy and confidence and a realization of strength as they would have been able to complete the challenging activities set for them. Moreover, they gain a deeper sense of connection to and reliance on their peers as team work is required to complete these activities. The solo experience provides youth with a connection with self as they reflect on their lives during this period. The experience for some may also induce an epiphany, clarifying their vision and the future goals they want to pursue. These qualities, that are enhanced, all contribute to the deepening of resilience that they would need to cope and transcend their vulnerability after the programme. Figure 3 is a logic model depicting the causal mechanisms underlying the CA outdoor phase and the rationale of how it intends to deepen the resilience of youth.

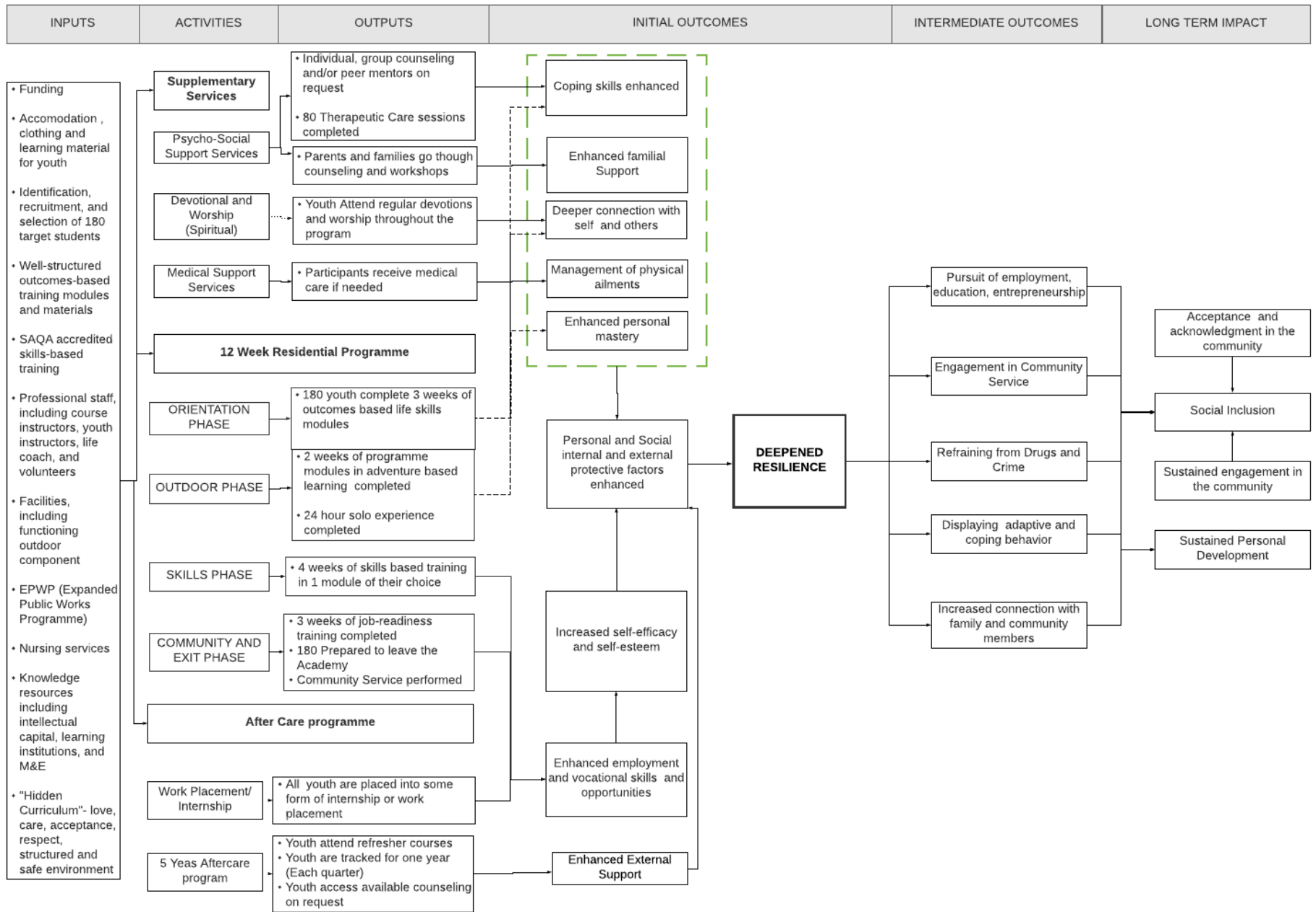


Figure 2: CA programme Logic Model

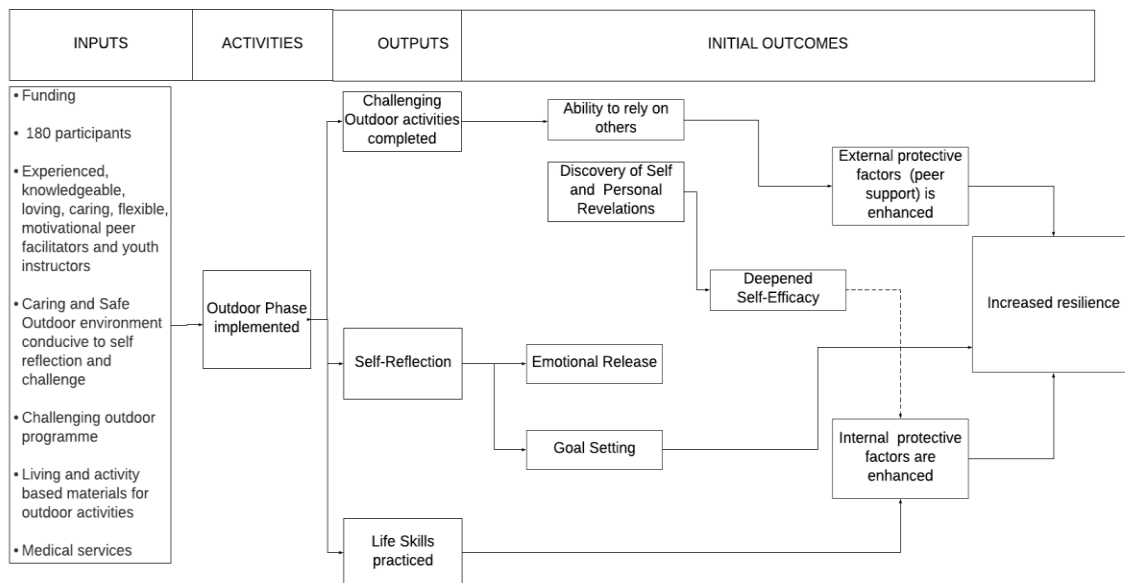


Figure 3: CA Outdoor Programme Logic Model

### Plausibility of the Programme Theory

For an increased probability of a programme to be able to achieve the desired outcomes, it is imperative that the hypotheses that underlie the proposed theory of change, in that particular context, are plausible (Rossi et al., 2004). These hypotheses underlying how the programme intends to work are based on multiple factors including the nature of the target population, the context in which the programme is being implemented, the problem being addressed and diverse related social science and behavioral theories (Bickman, 1987; Donaldson, 2007). For the CA programme to be able to achieve its intended benefits, the following three hypotheses around the outdoor programme and the youth development programme should hold true:

1. Outdoor programmes, as well as other components of the programme, lead to the development of internal and external protective factors needed to deepen resilience in youth
2. Outdoor programmes are a catalyst for deep inner transformation
3. Outdoor programmes and other components of the programme will help youth pursue positive and productive actions needed to be accepted and recognized in society.

The plausibility of these hypotheses will be analyzed by reviewing social science and evaluation literature. Both sources of literature will be used to establish whether there is theoretical as well as programme based evidence of plausibility.

## **1. Outdoor programmes as well as other components of the programme lead to the development of internal and external protective factors needed to deepen resilience in youth**

Resilience has been described as one's ability to achieve positive outcomes despite exposure to challenges or risks (Masten, 2001). In this conceptualization of resilience, two processes are identified; the presence of risk and the mitigation or transcending of this risk. Therefore, if youth are to be considered resilient, they need to be exposed to risk that may potentially induce a negative outcome but transcend it nonetheless (Masten, 2001). In the context of youth in the Western Cape, resilience then would manifest itself when youth are able to overcome risks or challenges including poverty, unemployment, lack of adequate education and the exposure to drugs and crime and disintegrating family and social units.

Resilience has also been conceptualized as the possession of protective intrinsic and extrinsic factors that can be utilized to avert or minimize the effects of risk and challenges faced (Luthar, Sawyer, & Brown, 2006; Masten, 2001; Olsson, Bond, Burns, Vella-Brodrick, & Sawyer, 2003). According to Olson et al. (2003) personal attributes such as self-efficacy, self-esteem, self-control, intelligence, stress and anger management and good health can be used to achieve positive outcomes in the face of risk. Moreover, other social skills such as communication and the possession of pro-social attitudes also contribute to resilient outcomes in individuals (Olsson et al., 2003). Some external protective factors that can be drawn upon in attempts to mitigate risk include support from peers, families, community members and institutions (Olsson et al., 2003).

The definitions explored above provide a basis for measuring resilience. One way of measuring the ability of an individual to gain a positive outcome despite exposure to risk is by using the Connor-Davidson Resilience Measure (CD-RISC-25) (Connor & Davidson, 2003). This measures the extent to which participants are able to adapt to challenges. This measure is scored on a 5-point Likert-scale. Lower scores represent lower resilience. Other tools used to measure resilience measure the extent to which an individual possesses the internal and/or external protective factors needed for resilience. Some of these measures include the Resilience Scale 14 (RS-14) (Wagnild, 2009) and the Child and Youth Resilience Measure -28 (CYRM-28) (Ungar & Liebenberg, 2011).

Positive youth development programmes (PYDPs) have been one tool used to deepen resilience in youth mostly by building protective internal and external factors (Norton & Watt, 2014; Roth & Brooks-Gunn, 2003a). The CA programme is one example of a PYDP with life skills training, vocational and outdoor components.

Life skills training, as a form of PYDP, directly provides participants with the skills needed to enhance their social and personal competence (Botvin & Griffin, 2014). The orientation phase of the CA programme, for

instance, provides youth with lessons to enhance their personal mastery, anger management, communication skills, self-monitoring and problem-solving skills which are internal protective factors that can be utilized to induce positive outcomes. Vocational programmes, also an alternative form of YDP, have the potential of building internal protective factors such as self-esteem and self-efficacy through the completion and acquisition of practical and useful skills that can be used for personal development (Creed, Bloxsome, & Johnston, 2001; Edwards, 2014). However, CA deems the outdoor programme as the most important component in the resilience building process.

### ***Outdoor Programmes***

Outdoor programmes, which are also referred to as wilderness or adventure-based therapy programmes, are another form of PYDP geared to deepen resilience. They entail small groups of participants mastering a wide range of physically, mentally and emotionally challenging activities in an unfamiliar outdoor environment (Ang, Farihah, & Lau, 2014; Gillespie & Allen-Craig, 2009; Wilson & Lipsey, 2000). Features commonly found in outdoor programmes include physical activities, such as hiking and camping, and therapeutic components such as self and group reflection spaces, journal writing and counselling (Russell, 2001; Wilson & Lipsey, 2000).

A wide range of evaluation literature of outdoor programmes exists. It mainly consists of outcome evaluations of outdoor programmes targeting adolescents, delinquent youth or individuals with psychosocial problems (Bowen & Neill, 2013; Hattie, Marsh, Neill, & Richards, 1997; Wilson & Lipsey, 2000). Outcomes that have been considered in these evaluations are academic, behavioral, personal, social, physical and spiritual development (Bowen & Neill, 2013). On average these evaluations have exhibited a small-medium positive effect size of 0.39 with higher effect sizes expected for programmes targeting youth over the age of 18 (Bowen & Neill, 2013; Hans, 2000).

With regards to resilience as an outcome, Outdoor programmes have been seen to have a direct effect. Outward Bound is an example of such an outdoor programme with components similar to that of the CA outdoor phase. In the outcome evaluation of a 22 day Outward Bound outdoor programme based in Australia for male and female youth (mean age = 21) using pre and post measures of resilience (RS-15), large and significant increases were observed ( $d= 1.10$ ) (Neill & Dias, 2001). These programmes have also been designed to enhance protective factors needed for resilience. (Ang et al., 2014; Russell & Walsh, 2011; Ungar, Dumond, & McDonald, 2005). In the evaluation of Relate Expedition, a wilderness programme targeting adolescents and youth aged between 13 and 18, single group pre and post-tests showed that the programme had a significant effect on the attainment of internal assets such as personal commitment, positive values and social competencies (Norton & Watt, 2014). This programme, like the CA programme,

included wilderness and mentorship components. Similarly, in an outcome evaluation of the Wilderness Endeavours Programme, targeting adolescents, pre and post tests show significant increases in self-efficacy ( $ES = 0.35$ ) and hope for the future ( $ES = 0.30$ ) in programme participants (Russell & Walsh, 2011).

In most cases the effectiveness of these programmes have been attributed to the following underlying features of the outdoor programme

1. The challenging nature of the activities
2. Interactions with peers and programme facilitators

### ***The challenging nature of outdoor programmes***

An evaluation of an outdoor adventure programme in the Southwest USA, showed that the programme had a significant effect on the social acceptance and behavioral conduct of participants (Garst, Scheider, & Baker, 2001). An attempt was made to understand the qualities of the programme that contributed to these impacts. The qualitative analysis of the study showed that the challenge, duration and intensity of the programme were some of the qualities that contributed to the impact (Garst et al., 2001).

One of the characterizing elements of outdoor programmes is struggle and challenge and the positive and negative stress produced therefrom (Hans, 2000; Rutko & Gillespie, 2013). It is from successfully completing these challenging activities that individuals begin to develop higher self-esteem, efficacy and locus of control (Kaplan, 1979; Norton & Watt, 2014; Rutter et al., 1998; Wilson & Lipsey, 2000).

Ang, Farihah, & Lau (2014) performed an outcome evaluation of a five-day Outward Bound programme based in Singapore to assess whether goal setting and problem solving and overall school engagement after the programme were achieved by youth participating in mentally and physically challenging activities such as hiking and kayaking. Using a quasi-experimental evaluation design with a matched no-treatment comparison group and pre and post-test and 3-month follow-up measures, findings suggest that the programme had a significant effect on goal-setting ability immediately after the programme relative to those who did not receive the programme (Ang et al., 2014). One weakness of this evaluation is the focus on short term outcomes and short-term resilient action rather than long term impact. The sustainability of youth transformation and resilient action cannot be assumed based on these results.

The CA outdoor programme also provides substantial challenge due to its duration (2 weeks), unfamiliar environment, the 24-hour solo and long hiking expeditions. It can then be assumed that it is likely to at least in the short term, help participants gain some of the resilience building protective factors.

### *Interactions with peers and programme leaders*

Another key feature of outdoor programmes is the group orientation. Usually activities within the programme are performed in small groups of peers accompanied by an instructor or facilitator (Ang et al., 2014; Rutko & Gillespie, 2013). This leads to two dimensions of interpersonal interactions; the individual and their peers and the individual and the instructor/facilitator (Rutko & Gillespie, 2013). In the CA outdoor programme, like various other outdoor programmes, the first interaction between the individual and their peers is induced by the need to complete tasks that are designed to be completed through group efforts such as river rafting, rock climbing and preparing food and shelter (Wilson & Lipsey, 2000). These interactions promote the development of social skills such as cooperation, communication and the development of pro-social attitudes (Wilson & Lipsey, 2000). By encountering stress and challenges as a group, experiential learning, self-management and conflict-resolution can be gained (Rutko & Gillespie, 2013). This group dynamic enhances the feelings of trust and belonging and encourages individuals to utilize peers as an external protective factor in problem-solving and circumventing challenges (Ungar et al., 2005).

Crow River Trail Guards is an example of an outdoor programme based in Minnesota aimed at youth aged 9-19 geared at developing social competencies such as social-efficacy, team-work, cooperation and sense of belonging in participants (Ernst & Schwartz, 2013). In an outcome evaluation of the programme using single-group pre and post-test quantitative measures of the outcomes from current and past participants of the programme, findings showed that the programme induced improvements in all the above outcomes (Ernst & Schwartz, 2013). The quantitative results were supplemented by a qualitative analysis of open-ended responses from questionnaires and focus group discussions with participants. It is seen that participants acknowledged the need for and usefulness of teamwork, cooperation and communication to accomplish goals (Ernst & Schwartz, 2013). Although long-term impacts were sought in this evaluation, it is however unclear whether the improvement in participants led to positive long-term outcomes.

For the CA programme, a key mediator to the achievement of personal and social outcomes is the quality of the facilitation of the outdoor phase. In this context, this means the use of competent and caring facilitators throughout the outdoor programme that are able to provide a safe but supportive environment that facilitates intrapersonal change. Russell (2000) regards this non-confrontational and caring approach, that is characterized by genuineness, a positive attitude towards the participants and empathy, as a necessary condition to achieving the outcomes of the programme. Some attributes displayed by programme facilitators that have been considered helpful in facilitating intrapersonal change are kindness, compassion and self-control (Revell, Duncan, & Cooper, 2013).

The importance of the characteristics and the environment created by programme facilitators is evident in the evaluation of the Crow River Trail Guards programme. In the qualitative analysis, participants contribute the success of the programme to the safe environment provided by the program leaders through the love and care they showed and the assumption of a “role model” role to the participants (Ernst & Schwartz, 2013).

In the literature examining the facilitation of wilderness programmes, emphasis is placed on the character of the outdoor programme staff and the atmosphere they create during the programme and very seldom considers nuances around the type of instructor used (Draper, 2009; Ernst & Schwartz, 2013; Revell et al., 2013; Russell, 2000). The influence of an adult-led or peer-led facilitation model or a female or male facilitated programme has not been adequately explored.

The Educo Africa Leadership Project is a wilderness project based in Cape Town for vulnerable youth. This is a programme that utilizes a peer-facilitation approach (using facilitators between 25-35 years of age (Draper, 2009). This age group of facilitators is used, as younger facilitators struggle to manage the power dynamic with older participants and older facilitators struggle to build rapport with younger participants (Draper, 2009). In a retrospective pilot study of the impact of the programme using qualitative analysis of semi-structured interviews and focus-groups with past participants, it was found that the facilitators played an important role in the achievement of the impact of the programme (Draper, 2009). Facilitators were able to create safe and comfortable spaces for participants to open up and share, they promoted an atmosphere of non-judgementalism and used all activities and situations on the course as a learning opportunity (Draper, 2009).

It can be deduced therefore that for the CA outdoor phase that uses a peer-facilitation model, for the plausibility of the programme theory, what would be key is for the peer-facilitators to possess the necessary characteristics and should be able to create an environment conducive to transformation.

## **2. Outdoor programmes, in particular, act as a catalyst for deep inner transformation for vulnerable youth**

As can be seen in the plausibility of the previous hypothesis, outdoor programmes and other various forms of YDPs have the capability to induce transformation in youth on the level of behavior, skills, attitude and beliefs about themselves and others. However, for the CA programme, the catalyst to this profound change is in the solo experience of the outdoor phase. It is considered a catalyst as it is assumed to be a period where youth make a reflective decision on the path to pursue in life which propels transformation.

Solitary experiences or expeditions are common features in outdoor programmes. This has been described as a therapeutic process where, for a few days (24-48 hours), individuals are isolated in the wilderness with sufficient provisions of food and shelter and regular checks from programme staff (Lowan, 2007). Individuals use this time in isolation to self-reflect and journal their experiences and thoughts, gain insights and inspiration (Russell, 2000, 2001; Ungar et al., 2005). Evaluations of the impact of solo components in isolation have not been done. However, evaluations of wilderness programmes with solo components have been done and effect of the solo described.

Draper et al. (Draper, Lund, & Flisher, 2011), conducted a subsequent retrospective evaluation of The Educo Leadership Project, a wilderness-based leadership development programme with a solo component for its participants. One of the aims of this evaluation was to determine whether the programme achieved its perceived outcomes such as personal development and mastery, emotional resiliency, inter and intrapersonal leadership, self-awareness and personal vision as tools for personal transformation (Draper et al., 2011). A qualitative analysis of interviews with a sample of past participants was conducted to assess the attainment of outcomes and gain views of participant's perceptions of the programme. Findings show that the solo experience was the most common highlight and "turning point" for participants of the programme where they managed to understand themselves and develop a greater sense of purpose (Draper et al., 2011).

Qualitative analysis of client case studies from four wilderness therapy programmes for adolescents in the United States of America also showed the significance of the solo experience (Russell, 2000). One client found that the time spent reflecting on their lives and what they had done wrong helped them to realize the need to change and incite a want to change (Russell, 2000). In the CA context, the greater sense of purpose gained and the realization of the need and want to change one's life and circumstances may therefore be considered a crucial and plausible mechanism needed to help participants assimilate and utilize the protective factors gained from the programme to make active steps to this transformation and, ultimately, a positive outcome.

### **3. Outdoor programmes and other components of the programme will help youth pursue positive and productive actions needed to be accepted and recognized in society.**

If the previous hypotheses are plausible, immediately after graduating from the CA programme or other youth development programmes, youth should have deepened resilience as a result of gaining internal and external protective factors. This resilience, according to Masten's (2001) definition, should help youth to achieve positive outcomes despite exposure to risks and challenges that they may face when they return to their communities. An initial positive outcome in the case of CA and according to the context of the youth

it serves, is the initiation of productive and positive actions and behaviors such as engaging in further education, training, entrepreneurship or employment, community service, refraining from delinquent behavior (drug use and crime) and integration into family units.

Internal protective factors such as self-esteem, self-efficacy and perseverance coupled with a sense of purpose can incite interest and courage in youth to persevere in engaging or seeking education/training and employment opportunities (McMillan & Reed, 1994; Moorhouse & Caltabiano, 2007). Internal factors such as self-control and performing resilient actions such as committing to education or employment, would also help youth refrain from negative and delinquent behavior (McKnight & Loper, 2002). External protective factors such as familial and peer networks of support can be utilized to combat delinquency and promote engagement in productive actions (Richman, Rosenfeld, & Bowen, 1998; Wright & Cullen, 2001).

Several evaluations on wilderness programmes targeting delinquency have found significant decreases in recidivism (West & Crompton, 2001; Wilson & Lipsey, 2000). For instance, Kelly and Baer (1968), performed an evaluation on a 26-Day Outward Bound programme to assess the recidivism rate of delinquent youth aged 15 and over after the programme. Using a matched control group, the evaluation showed a significantly lower recidivism rate in the programme participants 9 months after parole relative to those in the control group (Kelly & Baer, 1968). In this case recidivism was measured by institutionalization.

Ang et al. (2014), also found, in their evaluation of the Outward Bound intercept programme in Singapore that the participation in the programme significantly contributed to positive outcomes of school engagement (Ang et al., 2014). Similarly, in the evaluation of the Catherine Freer Wilderness Therapy Expeditions, it was seen that the programme had a positive and significant effect on school attendance and performance of male programme participants (Harper, Russell, Cooley, & Cupples, 2007)

The evaluation of the Catherine Freer Wilderness Therapy Expeditions, also found a significant and positive effect on family relationships as well as drug and alcohol use when pre and post intervention measures were analyzed (Harper et al., 2007). In terms of family relationships, the programme significantly reduced family arguments ( $ES=0.97$  for males and  $ES= 6.72$  for females) and increased the participants communication with parents ( $ES=0.89$  for males and  $ES= 1.03$  for females)(Harper et al., 2007). Drug and alcohol use was also significantly reduced ( $ES = 1.47$  for male and  $ES= 1.16$  for females) (Harper et al., 2007). This programme, like the CA programme, also included family integration components. However, evaluations of outdoor programmes have seldom considered the impact of the programmes on employment, entrepreneurship and community service outcomes as well as adequately exploring the sustainability of any impacts found.

It is therefore plausible to assume that the programme and the resilience gained through the CA programme, may induce engagement in some productive and positive action at least in the short-term.

## **Evaluation of the CA programme**

A series of consultative engagements resulted in the decision to conduct an impact evaluation of the CA programme as a whole to assess whether it has managed to achieve its potential outcomes. According to Rossi (2004), the impact of the programme is defined as the change in participants after the programme, with regards to the outcomes of interest, relative to any change that may have occurred in the absence of the programme.

Additionally, to address the need to assess the outdoor phase of the programme, this evaluation also assessed whether the outdoor phase can contribute to the deepening of resilience and the positive transformation of programme participants. This evaluation therefore attempted to unpack the causal mechanism around the outdoor phase to assess whether it is similar to that of successful outdoor programmes as described in the literature. It also assessed whether the outdoor phase led to the transformation of programme participants.

Below are the evaluation questions that were developed in consultation with CA to assess impact of the CA programme and the causal mechanism of the outdoor phase.

### **Impact Evaluation Questions**

The overarching impact evaluation question with regards to the impact of the programme was: Do programme participants achieve the anticipated short and long-term outcomes relative to those that do not go through the programme? The evaluation questions below were used to address this main evaluation question.

1. Do participants who have completed the programme display higher levels of resilience relative to those that do not go through the programme?
  - 1b) Does level of engagement in the outdoor phase have an effect on participant's resilience.
2. Are participants engaging in productive and positive action?
  - a. Engagement in employment
  - b. Engaging in further education or training
  - c. Involvement in community service
  - d. Refraining from drug use
  - e. Refraining from involvement in crime and gang activities
3. Do youth feel accepted and acknowledged in their communities after participating in the programme?
4. Do participants that go through the programme have more positive family relationships?

### **Assessment of Causal Mechanism**

In assessing the causal mechanism of the outdoor programme, the overarching evaluation question that was considered was: Does the CA outdoor programme and its implementation have the potential to contribute to outcomes attainment? The evaluation questions below were used to address to address this main evaluation question.

5. Was the programme perceived to be challenging by participants?
6. Were the peer-facilitators competent in both activity and therapeutic components of the outdoor phase?
7. Did the outdoor phase have a non-confrontational and caring and safe environment?
8. Did outdoor peer- facilitators possess and display attributes conducive for programme success?
9. Does the outdoor phase induce deep inner personal transformation?

## Chapter 2: Methods

This chapter will report on the methodology that was used to respond to the proposed impact evaluation questions and to assess the causal mechanism of the outdoor phase.

### Impact evaluation design

In assessing the impact of the CA programme and respond to evaluation questions 1-4, an *ex post facto* or after-the-fact quasi-experimental design was used. An *ex post facto* design was used as the evaluation commenced after participants had concluded the programme. Thus, there are no pre-programme measures available and there was no interference with programme assignment or delivery.

This design can be depicted as follows:

Treatment Group	NR	X	O <sub>1</sub>
Control group	NR		O <sub>2</sub>

*Note: NR indicates that assignment into the treatment and control group is not random.*

*X refers to the receipt of the CA programme*

*O refers to the post-programme data collected for both the treatment and control group.*

### Participants

In analyzing the impact of the programme, past applicants, both those who completed the CA programme and those who were not selected into the programme, were followed-up. The focus was on participants from the City of Cape Town Municipality that applied for 2014-2016 intakes. These intakes were considered as 2014 is when the current programme structure started to be implemented consistently. Moreover, this would also allow for assessing long-term impacts, when core components of the programme (the 12-week residential and work placements) have been completed and youth have assimilated into their communities. At this point, participants would also be able to reflect on how the components of the CA programme (particularly the outdoor phase) would have contributed to any changes in their choices and behaviors without being biased by more immediate perceptions which might be observed after completing the programme.

CA provided records of all applicants into the programme from 2011-2017. Of these applicants, 2,400 were from the Cape Town Municipality and applied for the 2014-2016 intakes. The records included recruitment data of all applicants who were declined admission into the programme, those that graduated from the programme and those that exited the programme (started but did not complete the 12-week residential). The data also included course related information for those who were admitted into the programme. Table 3 shows the number of individuals in the Cape Town area per programme status.

**Table 3:***2014-2016 CA Applicants from the Cape Town Municipality*

Status	Number %
Declined Applicants	1,464 61.00
Exited Applicants	34 1.42
Graduated Applicants	902 37.58

**Control Group**

For impact evaluations, the strongest design is usually one in which participants are randomly assigned into treatment and control group due to the increase chances of establishing equivalence leading to unbiased impact estimates (Rossi et al., 2004). However, considering that the study used past applicants and participants of the programme, random assignment was not feasible as participants to be used had already applied and received the programme whereas others would have been declined admission into the programme. Therefore, those who received and completed the CA programme became the natural treatment group to use in this study and those that were declined admission into the programme, the natural control group. Applicants that were selected but did not complete the programme (exited) were excluded from the evaluation as part of the control group. Including them would have led to a possible bias in the impact estimates considering that they would have been affected by the programme to some degree.

**Sample size**

The sample size used in the analysis to detect an impact in the programme was dependent on the effect size of the resilience outcome. The resilience outcome was used due to its centrality in the programme theory and its ability to influence the attainment of all consequential outcomes. Considering the difficulty in finding evaluations of programmes like the CA programme, the sample size was determined based on the effect sizes obtained from positive YDPs with respect to resilience. The focus in this exercise, was to use components of YDPs that aim to directly enhance resilience such as outdoor and life skills components.

Outdoor programmes that have had a significant effect on resilience have reported small to medium effects on various resilience measures ranging from a Cohen's *d* of 0.24 to 0.6 (Ewert & Yoshino, 2011; Gillespie & Allen-Craig, 2009; Shellman & Hill, 2017; Vetter et al., 2010). One notable effect size is that of the Typo Station programme, that is a combination of wilderness activities with a life skills component and mentorship of youth (Gillespie & Allen-Craig, 2009). This programme with its components similar to that

of the CA programme had a medium effect size of Cohen's  $d = 0.61$ . We therefore, estimate that should the CA programme have positive impact on resilience, the effect size, would at least be the same. The effect size of 0.61 would be practically and meaningfully significant to CA and would be deemed realistic in light of these previous positive findings

The sample size was calculated using G\*Power Software. The sample size calculated based on the effect size of 0.61, an alpha level of 0.05 and a power of 0.81, is 70 with 35 in each group. The output from the G\*Power sample size calculations is attached in Appendix A.

### **The use of Propensity Scores**

To assess the impact of the programme and attain an unbiased estimate of the effect of the programme, the treatment and control group are to be equivalent (Rossi et al., 2004). Therefore, as random assignment could not be used, propensity score methods were used to avert the likely selection bias due to the vast differences that may present in those that were declined admission into the programme (i.e. individuals who are not eligible) and those who completed the programme.

Propensity scores, in this case, represent the likelihood of being selected into the CA programme (Rosenbaum & Rubin, 1983). The aim was to use a treatment and control group that have similar probabilities of being selected into the programme. This likelihood of selection into the CA programme is determined by an applicant's eligibility for the programme and other subsequent criteria used by CA in the selection process. Based on the selection criteria used by CA, the variables that were considered in the generation of propensity scores were:

- a) Age
- b) Last Grade passed
- c) Rating (1-4)
- d) Area/Suburbs of residence
- e) Race
- f) Gender

The year of application was also considered in the generation of propensity scores as the year that individuals applied (and the pool of applicants that year) could have affected their chances of them being selected into the programme. It would have been useful to use a socio-economic, health or motivation variable in the generation of the propensity score as these are also additional criterion considered by the CA in the recruitment process. However, the variables that capture these indicators were not collected and recorded consistently for all the intakes. Therefore, they could not be used in the propensity score generation.

## **Inclusion criteria**

Propensity scores were computed for individuals whose programme status was known and also had data recorded for all variables that were considered to affect their likelihood of selection into the programme (age, grade, rating, area of residence, race, gender and year of application). With this inclusion criterion in place, 2,236 applicants had a propensity score generated (1,350 declined applicants and 886 CA graduates).

Propensity scores were generated using a multiple logistic regression model that used the individuals programme status (graduated or declined) as the dependent variable. The independent variables that were considered are those that significantly affected the odds of selection into the programme. This analysis was done using STATA version 14.

Univariate logistic regressions were run for each of the variables being considered as a predictor of one's programme status to determine whether they significantly affected the odds of being selected into the programme. The variables that were found to be significant predictors of one's programme status were rating, age, gender, last grade passed and year of application. The variables also jointly significantly predicted programme status in a multiple logistic regression model. Although area of residence did not significantly predict one's programme status, it was still considered in the generation of propensity scores as it is a key variable CA uses in its selection criteria. Therefore, the log odds of being selected into the programme were modeled by means of a logit link of the following linear combination of predictor variables

log odds of programme selection

$$= \beta_0 + \beta_1 \text{ rating} + \beta_2 \text{ age} + \beta_3 \text{ area of residence} + \beta_4 \text{ race} + \beta_5 \text{ lastgrade passed} \\ + \beta_6 \text{ gender} + \beta_7 \text{ year of application}$$

Initially, the propensity scores generated were used to create a matched subsample of selected and graduated versus declined participants matched on their propensity scores using one to one nearest neighbor matching within a caliper of  $0.25\sigma_p$  (Guo & Fraser, 2014).

The initial plan was that data was to be collected from matched pairs only (an individual from the treatment group and their corresponding control group match). Although 70 participants were needed for this study, we initially sampled 140 applicants (70 treatment and 70 control group) from the data as we anticipated that some of the applicants may not be traceable or may refuse to be part of the study. If either treatment group or control group individuals were not contactable, that match was to be discarded from the sample and another matched pair to be randomly selected for replacement.

It was realized as soon as the data collection process begun that this initial plan would not be feasible as it was very challenging to reach past CA applicants both in the control and treatment group in each pair.

Several applicant's phone numbers, captured in the CA database, were not reachable. Several applicants who were contacted were no longer living in the City of Cape Town or were out of the city/province for the Christmas holidays. Other applicants, especially females (both CA graduates and non-selected applicants), did not want to be a part of the study. With these challenges, the plan to collect data from matched pairs failed as we discarded nearly all pairs.

We therefore, opted to use a larger sample of 300 treatment and 300 control group participants. We disregarded the matches and contacted participants from the beginning of the list until we found 35 control group and 35 treatment group participants who were willing and able to be a part of the study.

As a result, we disregarded the propensity score matching approach and an alternative propensity score balancing technique was used which adjusts outcome estimates using propensity score weighting. This approach is explained in detail in the data analysis section

### **Data collection Procedures**

Services of four field assistants, who were graduates of the CA programme, were sought for data collection. The field assistants were provided with airtime, transport and a small stipend to follow up and collect post-intervention data on the study participants. Prior to data collection, the field assistants had a day-long training on the instruments that would be used for the study and the data collection procedure to be employed.

Data collection started in December 2018. Field assistants were to contact the sampled applicants telephonically to make an appointment for a face to face meeting. An appointment was made for each participant that was contactable and willing and able to be a part of the study for a meeting close to where they lived. Meetings were arranged at schools, libraries, near police stations and shopping centers for the ease of travel for both participants and field assistants and for security purposes as some areas to be visited were high risk areas.

At the end of the data collection process in January 2019, data from 33 control group participants and 37 treatment group participants was collected. Although 35 appointments with declined applicants were made, 2 who were listed as declined applicants, had completed the programme. Replacement interviews for these declined applicants could not be arranged due to time constraints and the inability to generate a new sample with only people who we had not attempted to contact. From this sample, a random sub-sample of 33 of the 37 treatment group participants was selected to have an equal sample size group. In an initial assessment of the sample, we noted that there was only one white male in the sample belonging to the treatment group with very positive outcomes relative to the rest of the sample. This individual was removed from the sample (without replacement) as the aim was to construct comparable groups and having this individual in the

treatment group and none in the control group may bias the results in favor of the treatment group. Therefore, we analyzed data from 32 treatment and 33 control group participants.

## **Measures**

The measures used for this evaluation were dependent on the evaluation questions

### ***Evaluation Question 1***

#### **Connor Davidson Resilience Scale (CD-RISC)**

To assess the resilience of the participants the Connor Davidson Resilience Scale-10 (CD-RISC) was used. This measure was selected as it assesses participant's adaptive behavior and their ability to gain a positive outcome despite being exposed to challenges (Connor & Davidson, 2003). When used on a sample of South African youth aged 14-21 exiting residential care, the CD-RISC 10 exhibited good internal consistency (Cronbach's Alpha = 0.83) (van Breda, 2014). In this study, the CD-RISC 10 exhibited a lower but adequate internal consistency ( $\alpha = 0.71$ ). The items of the CD-RISC 10 are shown in part one of the questionnaire attached in Appendix B.

This measure was administered to study participants in both the experimental and control group in interview format by the field assistants. Participant's responses were circled on each response sheet.

### ***Evaluation Question 2 and 3***

#### **Questionnaire**

In assessing productive and positive action outcomes, a questionnaire was administered in the form of face to face interviews to study participants. The questionnaire assisted in determining the achievements, current behaviors and actions of participants.

Part two of the questionnaire used, attached in Appendix B, is divided into 6 short sections. Each section focuses on an impact evaluation area. Section A solicits information about education and training impacts. Section B solicits information about employment and entrepreneurship impacts. The questions in these sections (A and B) have been adapted from the NIDS Wave 5 2017 Adult (15+) Questionnaire (Southern Africa Labour and Development Research Unit, 2017).

Section C solicits information about impacts on community service. Section D solicits information on drug and crime related impacts. Questions related to drug use have been adapted from the NIDA Quick Screen V1.0 drug screening (US National Institute on Drug Abuse, 2012). The reliability of this tool has been assessed in terms of its sensitivity and specificity. In a study of the effectiveness of the tool, this measure had a high sensitivity of 79.7 and specificity of 82.8 (Coleman-Cowger et al., 2019). Questions related to crime have been adapted from the Self-Report of Offending questionnaire (Earls, Brooks-Gunn,

Raudenbush, & Sampson, 2006). Self-report methods were selected to measure delinquent behaviors as they tend to have acceptable reliability coefficients and test-retest correlations that are above 0.80 (Thornberry & Krohn, 2000). The section also solicits information about gang involvement. In determining gang membership or affiliation, directly asking ones current and past membership into gangs has been seen as a robust measure (Curry, Decker, & Egley, 2002). To further assess gang involvement, 2 further questions in the sections have been adapted from Curry and Spergel's Eight Gang Involvement Criteria (Curry & Spergel, 1992).

Section E solicits information about impacts on family and community relationships. The questions in this section have been selected and adapted from the General Social Capital Factor and Best 36 Questions (Onyx & Bullen, 2000). This measure as a whole displays good internal consistency ( $\alpha= 0.84$ ) (Onyx & Bullen, 2000). Family measures were adapted from the Post-Deployment Reintegration Scale (81-item version) (Blais, Thompson, & McCreary, 2006). The questionnaire selected questions from the family positive and family negative sections of the scale which displayed good internal consistency of 0.91 and 0.88 respectively (Blais, Thompson, & McCreary, 2006).

To reduce the probability of measuring delinquent social capital, especially if youth are in gangs and consider their gangs as family or their community, field assistants were trained to clearly define the terms family, community and community members. Community was defined as the participants neighborhood or locality and community members as the different groups of people who live in the participant's neighborhood or locality (not limited to those who are close to the participants) (Majee & Hoyt, 2011). Family was defined as those individuals with blood relation to the participants (kin) of whom they may or may not live with (Hareven, 1974). Section F of the questionnaire was administered to treatment group participants only. It solicits information about participant's level of engagement in the outdoor component of the CA programme. How engaged a participant was in the outdoor phase was measured by a participant's self-evaluation of their enjoyment of the outdoor phase, how much they felt they learnt from the experience and the extent to which they performed the activities in the outdoor phase to the best of their abilities. A summative score from the items in the outdoor engagement measure was used as a cohesive measure of outdoor engagement.

English is the main mode of communication for participants who attend the CA programme, however the same was not assumed for control group participants. Field assistants were trained to explain certain questions and words in the questionnaire in both Afrikaans and Xhosa. To assess consistency of translation and presentation of the questionnaire, field assistants were required to record the interviews. The recordings were reviewed by the researcher.

### ***Evaluation 5-9***

#### **Semi-Structured Interviews**

To unpack the causal mechanism of the CA outdoor phase and respond to evaluation questions 5-9, Brinkerhoff success case methods was used (Brinkerhoff, 2003). Semi-structured interviews of 3 success cases and 3 nonsuccess cases were conducted. These success and nonsuccess cases will be identified based on the data provided in the follow-up questionnaires around attainment of impacts. Success cases were identified as those that

- a) Graduated from the CA programme
- b) Were positively impacted by the programme (have attained two or more of the desired outcomes)
- c) Were available for an in-person interview

Non-success cases were identified as those that:

- a) Graduated from the CA programme
- b) Did not attain most of the programmes desired outcomes.
- c) Were available for an in-person interview

In order to reduce bias and to gain a wide range of experiences, we attempted to select, as much as possible, participants from different cohorts of the programme. However, we included two success case participants from the 15 Charlie cohort as we could not get a hold of more success cases within the short timeframe available for the completion of data collection.

The interviews took place in or around the City of Cape Town Central Library. The interviews facilitated by the researcher with translation services (where necessary) done by one field assistant. The interview schedule is attached in Appendix C. During the interview, participants were encouraged to express themselves in a language they felt more comfortable using, although most preferred to conduct the interview in English. The interview was recorded using an IC Professional Digital Voice Recorder and transcribed verbatim using Google Docs voice typing tool thereafter. For non-English speech, detailed transcription and translation services were obtained where necessary.

#### **Data analysis**

##### ***Evaluation Question 1***

In analyzing the scores from the CD-RISC- 10, Inverse-Probability-of-Treatment Weighted (IPTW) linear regression was used to test the following hypothesis:

H<sub>0</sub>: There is no difference in resilience between treatment and control group participants

H<sub>1</sub>: There is a difference in resilience between treatment and control group participants

These weighted regressions control for selection bias using the inverse-probability-of-treatment weights (IPTW) that are derived from the calculated propensity score of each individual (Guo & Fraser, 2014; Heinze & Jüni, 2011). Treatment group participants were assigned a weight of  $1/\text{Propensity Score}$  and those in the control group were assigned weights of  $1/1-\text{Propensity Score}$  (Guo & Fraser, 2014; Heinze & Jüni, 2011; Stone & Tang, 2013; Thoemmes & Ong, 2016). The computed IPTW were then used as sampling weights in the outcome – treatment linear regression model (Guo & Fraser, 2014).

In this weighted linear regression, the dependent variable was the CD-RISC-10 resilience score of the participant, the independent variable was whether the participants were admitted into the CA programme or not. Another independent variable considered in this regression was the attendance of an alternative YDP. This was included as an attempt to reduce history as a threat to internal validity. This analysis was conducted using STATA.

IPTW regression analysis was used as opposed to Propensity Score Matching (PSM) due to the small sample size used and hence the need to use all the treatment and control group participants in the analysis (Stone & Tang, 2013). If PSM was used, a sample of 28 of the 66 (14 treatment and 14 control) would have been generated. However, an ANCOVA on the smaller matched sub-sample was also performed to see if the programmes effect on resilience would differ. In this ANCOVA, the propensity score was used as the covariate (Rosenbaum & Rubin, 1983; Steiner, Cook, Shadish, & Clark, 2010).

### ***Evaluation question 1b***

With regards to the resilience of the CA graduates (treatment group), another information need of CA was to determine whether a CA participant's level of engagement in the outdoor programme influenced the level of resilience after the programme. The following hypothesis was tested:

H<sub>0</sub>: Level of engagement during the outdoor phase was associated with the resilience scores

H<sub>1</sub>: Level of engagement during the outdoor phase was not associated with the resilience scores

To assess this, a linear regression with the dependent variable the resilience score and the independent variable the level of engagement in the outdoor phase of the programme was used. This was assessed using only data from participants in the treatment group.

### ***Evaluation Question 2-4***

Two approaches were used in assessing differences between the experimental and control group with respects to education, training, employment, community service, drug, crime and family and community

relationship outcomes. Where the outcomes in question were binary in nature, such as employment (employed or not employed), education (has a tertiary qualification or not) or community service (involved in community service or not), IPTW logistic regression models were used to assess if there were any significant differences in the odds of outcome attainment between the treatment and the control group (Guo & Fraser, 2014; Heinze & Jüni, 2011). Where continuous variables were assessed, such as the difference in community integration scores between the experimental and control group, IPTW linear regression models were used (Guo & Fraser, 2014).

In both the analyses, we checked whether attending an alternative YDP affected the attainment of each outcome. Where there was no statistically significant effect, it was not included in the regression model.

### ***Evaluation Questions 5-9***

Qualitative methods were employed to assess whether the causal mechanism of the outdoor phase is consistent with the theory of change outlined for successful outdoor programmes in the literature. A qualitative approach was used because unpacking the implementation and potential outcomes of the programme requires accurate and elaborate descriptions of the programme implementation and participants experiences which qualitative data provides (Patton, 1980; Warner, 1990).

In attempts to respond to each evaluation question, the aim was to unpack the emerging themes and hence causal mechanisms from both success case and non-success case graduates. This would help us to identify the elements of the outdoor phase that contributed to the outcome attainment of success case participants and perhaps identify elements of the outdoor phase that were not present in the experience of non-success case graduates.

In order to achieve these aims, the data from the interviews was analyzed using Thematic analysis (Braun & Clarke, 2006). Thematic analysis is a method that is used to identify, assess and report themes that emerge in qualitative data (Braun & Clarke, 2006). A theoretical approach was employed for this thematic analysis in such that the process of generating codes was guided by a set of hypotheses, derived from the evaluation questions, around the causal mechanisms and assumptions of the outdoor programme (Braun & Clarke, 2006). The hypotheses were:

***Hypothesis 1:*** The CA outdoor programme provides an adequate level of challenge.

***Hypothesis 2:*** The CA outdoor facilitators are proficient in both activity and therapeutic components of the outdoor programme

***Hypothesis 3:*** The CA outdoor programme has a non-confrontational and caring and safe environment

***Hypothesis 4:*** CA outdoor facilitators possess and display attributes conducive for programme success

***Hypothesis 5:*** The outdoor programme and solo component induce profound inner transformation

Manifest content open-coding was used to code the data (Elo & Kyngäs, 2008; Graneheim & Lundman, 2004). Coding was done using NVivo 12 Software. Codes from the data were identified and grouped into themes based on the patterns that emerged under each hypothesis. Themes were named and defined and linkages between the implementation of the outdoor phase and the outcomes of the phase were identified (Braun & Clarke, 2006; Patton, 1980). The definition and descriptions of the themes as prescribed by Patton (1980), were elaborate descriptions of the programme and the participant's experiences with regards to each theme.

### Chapter 3: Impact Results

This chapter highlights the quantitative results from data analyses performed to respond to the impact evaluation questions.

Outcomes related data was analyzed for 65 individuals, 32 treatment (CA graduates) and 33 control (declined applicants) individuals. Table 4 summarizes the descriptive statistics of the sample.

**TABLE 4:**

*Sample Descriptive Statistics*

	$N_{\text{Treatment}}$	$N_{\text{control}}$	$M_{\text{Treatment}}$	$M_{\text{Control}}$
	(%)	(%)	(SD)	(SD)
<b>Age</b>			20.97 (2.07)	21.48(1.99)
<b>Sex</b>				
Male	23 (72)	20 (61)		
Female	9 (28)	13 (39)		
<b>Race</b>				
African	23 (72)	27 (82)		
Colored	9 (28)	6 (18)		
<b>Year of Application</b>				
2014	4 (13)	6 (18)		
2015	11 (34)	11 (33)		
2016	17(53)	16 (39)		
<b>Recruitment Rating</b>				
1	21 (66)	14 (42)		
2	9 (28)	16 (39)		
3	0	2 (6)		
4	2 (6)	1 (3)		

#### Checking Covariate Balance

For analysis of the average treatment effect of the programme on its various outcomes, we proposed the use of propensity score weights to balance the treatment and control group on key variables that were shown (in logistic regressions) to be significantly associated with the probability of a candidate being selected into the programme. By applying such weighting, we thus effectively correct potential imbalances in key

variables between groups, and thus statistically render the treatment and control groups more equivalent and hence remove potential biases in the outcome analysis. Table 5 presents the results of an assessment of the imbalance checking before and after the use of the IPTW.

**TABLE 5:**

*Covariate Imbalance After Propensity Score Weighting*

Dependent Variable	Before Weighting		After Weighting		
	N (65)		N (65)		
	Bias %	<i>t</i>	% of Bias Reduced	Bias %	<i>t</i>
Age	-25	-1.03	54.0	-17.9	-.88
Sex	23.6	.95	47.6	12.4	.59
Last Grade Passed	64.4	2.59*	54.0	29.6	1.43
Race	23.4	.94	-29.5	30.3	1.53
Year of Application	13.9	.59	98.2	-0.3	-.01
Recruitment Rating	-29.8	-1.20	92.8	-2.1	-.11
Area of Residence	51.1	2.06*	95.4	2.4	.10

\* $p < .05$ , \*\* $p < .01$ , <sup>a</sup>  $p > .05$

Before weights were used, there was covariate imbalance on last grade passed and area of residence. After IPTW weights were applied, covariate balance is achieved.

**Evaluation question 1: Do participants who have completed the programme display higher levels of resilience relative to those that do not go through the programme?**

Based on the sample used for this analysis, 3-5 years after the programme, on average, youth that do not go through the CA programme have higher resilience scores than those that were on the programme ( $M = 32.64$   $SD = 4.11$  vs.  $M = 31.06$ ,  $SD = 5.03$ ). When comparing average scores obtained on each item of the CD-RISC, CA graduates had obtained slightly higher scores for Item 1 (I am able to adapt to change), Item 2 (I can deal with whatever comes), Item 3 (I try to see the humorous side of problems), Item 7 (I can stay focused under pressure) and item 10 (I can handle unpleasant feelings). Table 6 shows the unweighted average score for each item in the CD-RISC measure of resilience for both the CA graduates and the declined applicants.

**TABLE 6:***CD RISC: Unweighted Average Scores*

Item	Group	<i>M</i>	<i>SD</i>
1. I am able to adapt to change	Declined	2.94	.90
	CA	3.21	.87
2. I can deal with whatever comes	Declined	3.52	.67
	CA	3.13	.91
3. I try to see the humorous side of problems	Declined	2.70	.88
	CA	2.72	1.05
4. Coping with stress can strengthen me	Declined	3.18	.98
	CA	2.63	1.18
5. I tend to bounce back after illness or hardship	Declined	3.10	.86
	CA	3.06	1.01
6. I can achieve goals despite obstacles	Declined	3.58	.79
	CA	3.47	.80
7. I can stay focused under pressure	Declined	3.21	.74
	CA	3.22	.87
8. I am not easily discouraged by failure	Declined	3.42	.75
	CA	2.88	.98
9. I think of myself as a strong person	Declined	3.76	.50
	CA	3.59	.71
10. I can handle unpleasant feelings	Declined	3.12	.82
	CA	3.16	.92
Total	Declined	32.64	4.11
	CA	31.06	5.03

Using propensity score weighted regression depicted in Table 7, it is seen that the difference in resilience between CA graduates and declined applicants is not significant,  $t(64) = -1.66, p > 0.05$ . However, based on this sample, the regression shows that there is a significant difference in the resilience scores for those who went through alternative youth development programmes. Those who went through alternative programmes ( $n = 7$ ) have, on average, a 2.68 higher resilience score than those that did not ( $t(64) = 2.07, p < 0.05$ ). However, from this regression we can still deduce that declined applicants who went through an

alternative programme, on average, have a higher resilience score of 35.72 compared to CA graduates who also attended an additional youth development programme ( $M=33.42$ ).

**TABLE 7:**

Summary of IPTW Regression Analysis for Resilience Outcome

Variable	$\beta$	SE	$p$
CA Programme Attendance	-2.3	1.40	.10
Attended alternative programme	2.69	1.30	0.04*
Constant	33.03		

\* $p < .05$ , \*\* $p < .01$ , <sup>a</sup> $p > .05$

Using the smaller matched sub-sample, an ANCOVA showed that programme attendance does not have a statistically significant effect on the resilience score obtained,  $F(1,25) = 1.19, p > 0.05$ . The ANCOVA also showed that the probability of being in the CA programme (the propensity score) did not significantly affect the resilience score either. The results of the ANCOVA are depicted in Appendix D.

**Evaluation question 1b: Does the level of engagement in the outdoor phase have an effect on participant’s resilience.**

Although there was no significant difference between the resilience of treatment and control group participants, it was shown that for those that did go through the CA programme, their level of engagement in the outdoor phase significantly explained 23% of the variability in their resilience scores ( $R^2 = 0.23, F(1,30) = 8.76, p < 0.01$ ).

**TABLE 8:**

Summary of Linear Regression to assess effect of Outdoor Engagement on Resilience

Variable	B	SE	$P$
Outdoor Engagement	1.47	.50	0.01**
$R^2$	.23		

\* $p < .05$ , \*\* $p < .01$ , <sup>a</sup> $p > .05$

The results of the regression analysis summarized in Table 8, show that a point increase in engagement in the outdoor phase was associated with an increase in the summative resilience score of 1.47.

## Evaluation question 2: Are participants engaging in productive and positive action?

### a. Engagement in employment

Cichello, Leibbrandt and Woolard define being employed as engaging in some form of income generating activity (Cichello, Leibbrandt, & Woolard, 2012). Based on this definition, study participants were classified as employed if they were earning income through either formal, self or casual employment. Based on this definition, proportions shown in Table 9 and a summary of the weighted logistic regressions in Table 10, we see that although there are slightly more employed CA graduates compared to those that were declined into the programme, the higher odds of being employed as a CA graduate are not significantly different from the odds of being employed as a declined applicant ( $OR_{\text{Employment}} = 1.37, p > 0.05$ )

**TABLE 9:**

*Employment Outcomes Attainment*

Variable	CA Graduates	Declined Applicants
	n(N) %	n(N) %
Currently Employment	23(32) 72	21 (33) 64
Currently in Formal Employment	21(32) 66	19(33) 12
Currently Self-Employed	7 (32) 21	4 (33) 12
Currently in Casual Employment	6 (32) 18	3 (33) 9

The higher odds of being in self or casual employment as a CA graduate relative to a declined applicant are also not statistically significant ( $OR_{\text{Self-Employment}} = 2.39, OR_{\text{Casual Employment}} = 2.53$ )

**TABLE 10:***Summary of IPTW Logistic Regression for Employment Outcomes*

<b>Outcome Variable</b>	<b>Odd Ratio</b>	<b>SE</b>	<b>B</b>
Currently Employment	1.37	.83	.31 <sup>a</sup>
Currently in Formal Employment	.99	.57	-.01 <sup>a</sup>
Currently Self-Employed	2.39	1.71	.87 <sup>a</sup>
Currently in Casual Employment	2.53	2.00	.93 <sup>a</sup>

\* $p < .05$ , \*\* $p < .01$ , <sup>a</sup>  $p > .05$ **b. Engaging in further education or training**

In the assessment of education outcomes, we focused on two changes. The first was the change in grade after applying. In this case, we compared the highest grade achieved before applying and at data collection. We then assessed whether there was a significant difference in the odds of CA graduates furthering their high school education after completing the CA programme compared to a declined applicant. We secondly assessed the proportion of those who are currently pursuing tertiary education and those who have post high school diplomas, degrees or certificates.

**TABLE 11:***Education Outcomes Attainment*

<b>Variable</b>	<b>CA Graduates</b>	<b>Declined Applicants</b>
	n(N) %	n(N) %
Higher High School Grade achieved since applying	6 (11) 54	14 (20) 70
Currently in Tertiary Education	6 (32) 18	4 (33) 12
Have obtained a Post High School Qualification	11 (32) 34	13 (33) 39

As depicted in Table 11, a higher proportion of applicants that were declined from the CA programme seemed to achieve more educational outcomes than CA graduates. For those that did not complete Grade 12 before applying for the CA programme, 70% of declined applicants went on to complete higher grades of high school education and only 54% of the CA graduates did the same. Although the odds of a CA

graduate completing higher grades of education are 29% less than those of a declined applicant, this difference is not statistically significant ( $\beta=-0.34$ ,  $OR = 0.71$ ,  $p >0.05$ ).

At the time of data collection, none of the study participants reported to be in high school. Despite slight differences in the tertiary education outcomes attainment, these differences however, did not translate into statistically significant odds of outcomes attainment as seen by the odds ratios depicted in Table 12.

**TABLE 12:**

*Summary of IPTW Logistic Regression for Education Outcomes*

<b>Outcome Variable</b>	<b>Odd Ratio</b>	<b>SE</b>	<b><math>\beta</math></b>
Higher High School Grade achieved since applying	.71	0.60	-.34 <sup>a</sup>
Currently in tertiary Education	1.53	1.17	.42 <sup>a</sup>
Have obtained a post-high school qualification	1.00	.58	.00 <sup>a</sup>

\* $p < .05$ , \*\* $p < .01$ , <sup>a</sup> $p > .05$

### c. Involvement in Community Service

Both a year after applying for CA and at present, the differences in the number of CA graduates and declined applicants involved in community service is minimal as seen in Table 13.

**TABLE 13:**

*Community Service Outcome Attainment*

<b>Variable</b>	<b>CA Graduates</b>	<b>Declined Applicants</b>
	n(N) %	n(N) %
We involved in community service a year after applying for CA	13(32) 41	11 (33) 33
Are currently performing community service	7(32) 22	6(33) 18

The odds of a CA graduate currently being involved in community service is 35% lower than a declined applicant. However, this difference in odds is not statistically significant ( $\beta=-0.435$ ,  $OR = 0.65$ ,  $p >0.05$ ) as seen in Table 14.

**TABLE 14:***Summary of IPTW Logistic Regression for Community Service Outcome*

Variable	Previous community Service			Current performance of community service		
	Odd Ratio	SE	$\beta$	Odd Ratio	SE	$\beta$
Programme Attendance	1.44	.83	.36 <sup>a</sup>	.65	.50	-.43 <sup>a</sup>

\* $p < .05$ , \*\* $p < .01$ , <sup>a</sup> $p > .05$ **d. Refraining from drug use**

Table 15 shows the proportion of CA graduates and declined applicants and the frequency of their current drug use. Overall, the data shows lower levels of drug and alcohol use than we might typically expect from youth in these communities. This is expected as we had very few individuals with a rating of 3 and 4 in the sample ( $n_{\text{treatment}} = 2$ ,  $n_{\text{control}} = 3$ ) who hence have history of substance abuse. The difference in the number of drug and alcohol users and the frequency of use between CA graduates and declined applicants is very small. Although the odds of alcohol and marijuana usage among CA graduates are higher as seen in Table 16 ( $OR_{\text{Alcohol}} = 1.39$ ,  $OR_{\text{Marijuana}} = 1.61$ ), these odds are not statistically significant. Moreover, the lower odds of CA graduates using prescription or non-prescription drugs for non-medical reasons are also not statistically significant.

**TABLE 15:***Drug Outcomes Attainment*

	<b>Never use</b>	<b>Once or Twice</b>	<b>Monthly Usage</b>	<b>Weekly Usage</b>	<b>Daily or Almost Daily Usage</b>
<b>Drug</b>	n(N) %	n(N) %	n(N) %	n(N) %	n(N) %
<b>Alcohol</b>					
CA Graduates	11 (32) 34	6(32) 19	11 (32) 34	4 (32) 13	0(32) 0
Declined Applicants	10 (33) 30	10 (33) 30	9(33) 27	4(33) 12	0 (33) 0
<b>Prescription or Non-Prescription drugs for non-medical reasons</b>					
CA Graduates	28(32) 88	3 (32) 9	1 (32) 3	0(32) 0	0 (32) 0
Declined Applicants	27 (33) 82	3 (33) 9	2 (33) 6	1(33) 3	0 (33) 0
<b>Illegal Drugs</b>					
CA Graduates	30 (32) 94	1 (32) 3	0 (32) 0	0(32) 0	1 (32) 3
Declined Applicants	33 (33) 100	0 (33) 0	0 (33) 0	0(33) 0	0 (33) 0
<b>Marijuana</b>					
CA Graduates	26(32) 81	3 (32) 9	0(32) 0	0 (32) 0	3 (32) 9
Declined Applicants	30(33) 91	2 (33) 6	1(33) 3	0 (33) 0	0 (33) 0

**TABLE 16:***Summary of IPTW Logistic Regression for Drug Outcomes*

Variable	Alcohol			Prescription or Non-Prescription drugs for non-medical reasons			Illegal Drugs			Marijuana		
	<i>OR</i>	<i>SE</i>	<b>B</b>	<i>OR</i>	<i>SE</i>	<b>β</b>	<i>OR</i>	<i>SE</i>	<b>β</b>	<i>OR</i>	<i>SE</i>	<b>β</b>
Programme Attendance	1.39	.85	.32 <sup>a</sup>	.71	.54	-.34 <sup>a</sup>	1	-	0	1.61	1.30	.48 <sup>a</sup>

\**p*<.05, \*\**p*<.01, <sup>a</sup>*p*>.05**e. Refraining from involvement in crime and gang activities**

Few study participants reported to have been implicated in criminal activities. Implication in this case, referred to being fined, jailed or warned by the police for criminal activities. Both declined applicants and CA graduate groups had 2 people who were implicated in criminal activities. There was also only 1 declined applicant who reported to be in a gang and no CA graduate reported to be in a gang. The statistical significance of these differences was not checked as the numbers reported were too low.

**TABLE 17:***Crime and Gang Outcomes Attainment*

Variable	CA Graduates	Declined Applicants
	n(N) %	n(N) %
Been implicated in criminal activities	2(32) 6	2 (33) 6
Is in a gang	0(32) 0	1(33) 3
Been approached by gang and did not accept	2(32) 6	5 (33) 15
Been approached by gang and accepted	0(32) 0	1(33) 3

**Evaluation question 3: Do youth feel accepted and acknowledged in their communities after participating in the programme?**

In terms of community integration, CA graduates and declined applicants had very similar community integration and acceptance scores. Out of a possible 20 points CA graduates, on average had scores of 14.66

( $SD=3.44$ ) and declined applicants had an average score of 14.94 ( $SD=2.93$ ). The weighted regression analysis depicted in Table 18, show that this slight difference is statistically insignificant ( $\beta=.55$ ,  $t(64)=-.70$ ,  $p > 0.05$ ).

**TABLE 18:**

*Summary of IPTW Linear Regression for Community Integration Outcome*

Variable	$\beta$	$SE$	$t$
Programme Attendance	-.55	.79	-.70 <sup>a</sup>

\* $p < .05$ , \*\* $p < .01$ , <sup>a</sup> $p > .05$

**Evaluation question 4: Do participants that go through the programme have more positive family relationships**

To assess the differences in family relationships between CA graduates and declined applicants, we compared the score obtained on each individual indicator of the family relationship outcome. These results are displayed in Table 19. The  $p$ -values obtained from weighted linear regressions on the scores and programme attendance, suggest that CA graduates and declined applicants do not have significantly different scores on all family relationship outcome indicators. The weighted linear regression performed on the summative score for family relationships also showed that there is no significant difference in the family relationships of CA graduates relative to declined applicants ( $b=1.13$ ,  $t(64) = -0.51$ ,  $p > 0.05$ ).

**TABLE 19***Family Integration: Unweighted Average Scores*

Item	Group	<i>M</i>	<i>SD</i>	<i>t</i>
I feel my family is proud of me	Declined	4.42	.87	-.62 <sup>a</sup>
	CA	4.28	.89	
I have felt like a stranger within my family	Declined	1.42	1.03	-.87 <sup>a</sup>
	CA	1.47	.80	
I have become more responsive to my family's needs	Declined	4.03	1.10	.47 <sup>a</sup>
	CA	4.22	1.01	
I have been more involved in my family relationships	Declined	4.45	.79	-.40 <sup>a</sup>
	CA	4.47	.76	
I have realized how important my family is	Declined	4.82	.39	.26 <sup>a</sup>
	CA	4.84	.37	
I feel closer to my family	Declined	4.67	.78	.17 <sup>a</sup>
	CA	4.63	.71	
I find that my family would like me to spend more time with them	Declined	4.67	.78	-1.38 <sup>a</sup>
	CA	4.41	1.01	
I have a greater willingness to be with my family	Declined	4.73	.45	-1.09 <sup>a</sup>
	CA	4.47	.88	
I feel my family has difficulty understanding me	Declined	2.03	1.21	1.43 <sup>a</sup>
	CA	2.88	1.52	
I feel my family has welcomed me	Declined	4.72	.76	-.55 <sup>a</sup>
	CA	4.59	.80	
TOTAL	Declined	33.06	4.46	0.51 <sup>a</sup>
	CA	33.12	10.46	

\* $p < .05$ , \*\* $p < .01$ , <sup>a</sup>  $p > .05$

## **Chapter 4: Contribution of the Outdoor Component**

This section of results focuses on understanding the functioning of the outdoor phase and deducing whether, in its current form, it could contribute to any positive outcomes expected by the programme. In this regard, it seeks to assess; a) if the outdoor phase possesses similar characteristics to those exhibited by outdoor programmes that have been found to have an impact on programme participants and b) that the causal mechanism of the outdoor phase is consistent with the programme theory.

For the qualitative analysis, 6 in-depth interviews were conducted on CA graduates, half of which were considered to be in the success case category. These were selected based on the attainment of most of the programme outcomes and being available and willing to meet for an interview. The outcomes that were highly considered in this case were resilience, community service involvement and employment/ or education outcomes. The non-success cases were considered based on their inability to attain most of the CA outcomes especially with regards to crime and drugs.

In reviewing the transcripts of both success and non-success case graduates, it was noted that there are similarities in how the outdoor phase is experienced by both groups and in the outcomes attained thereafter. The codes, themes and patterns that emerged in both cases are the same.

### **Evaluation question 5: Was the programme perceived to be challenging by participants?**

The overarching theme of “challenge” of the outdoor phase was widely present in the responses of both success and non-success case graduates. There were two themes that emerged in both the success case and non-success case groups with regards to the challenging nature of the CA outdoor phase. These two themes are difficulty and fear.

#### ***Difficulty***

With regards to this theme, both success and non-success cases described the physical challenges faced during the outdoor phase. For some participants, the outdoor phase was considered difficult as the environment and activities were unfamiliar and uncomfortable. Participants had to do things that they had never done before such as sleeping in a tent in an unfamiliar terrain. The long hikes with heavy apparel were also described to provide a substantial challenge.

The solo was also considered difficult since participants were completely alone and disconnected from the outside world. This disconnection, for some, was due to not being able to talk to fellow participants or not

having access to a cellphone to keep them busy or distracted. The small rations of food provided during the solo, added further challenge to the solo.

*I walked my legs broken. There were some days I wanted to give up because we had to walk in the heat. It's hot outside, you only have your hat and a bottle of water and it's only the road. You must just walk with a back pack with a lot of stuff... And it's only you and the road and that water bottle and peanuts... just to keep the body up and going. – Non-Success Graduate*

*We were always crying when we were hiking because the bags are heavy, and the hike is long – Success Case Graduate*

### ***Fear***

Fear was also a theme in many of the responses regarding the outdoor phase and particularly the solo component for both success and non-success case graduates. For some of the participants, the outdoor phase provided a “fear of the unknown” in a new environment of which they were not accustomed to. With regards to the solo, several participants described fears of potential animal attacks in the wilderness. For others, being alone and disconnected from everything incited fear.

*I was scared at the solo because I'm alone- Success Case Graduate*

*That time [during the solo] I was scared [I made sure] that I must always be awake so that anything which can come, I'm prepared to fight- Non-success Graduate*

### **Evaluation question 6: Were the peer-facilitators competent in both activity and therapeutic components of the outdoor programme?**

Themes identified in relation to the competencies of the facilitators, from the responses of both success and non-success graduates, were primarily linked to their therapeutic competencies. The main competencies identified were the ability to build rapport and trust with the participants, render emotional support and encourage reflection.

### ***Building rapport and Trust***

In both success and non-success cases, facilitators of the outdoor phase were reported to establish better bonds of friendship, respect and trust with the participants. It was reported, in both cases, that facilitators were more approachable and easier to communicate to during the outdoor phase compared to previous and subsequent phases of the programme. Building rapport and trust also presented through facilitators sharing personal stories and experiences with the participants during the outdoor phase. For a success graduate, this made them realize that the facilitators were not as “bad” as previously presumed. It may have also built

trust and comfort between the two parties. Participants expressed the close relationship built between them and the facilitators which in some instances, resulted in comfortable exchanges.

*They shared their life with us ... We were like friends- Non-success Case Graduate*

*We [the participants] also felt comfortable in sharing our stories with them when it came to Circle of Life because we took them [the male facilitators] as our fathers and the females [facilitators] as our mothers. So we could have shared everything. – Success Case Graduate*

### ***Emotional Support***

Facilitators were also reported to show emotional support to participants where required. For the female success case participants, although they felt that there was a general attitude among the facilitators that female participants tend to be “dramatic”, they still assisted when participants were emotional. Facilitators were reported to display their emotional support by being approachable and by offering valuable advice and guidance.

*He [the facilitator] was a good guy that you can communicate to whenever you are feeling down. If you talk to him, he was there to give a helping hand of care. -Success Case Graduate*

*If you had a problem... You can go to the instructors and talk to them about how you feel. They always lift you up and at least motivate you and you feel inspired - Non-Success Case Graduate*

### ***Creating reflection spaces and opportunities***

Another therapeutic competency of the facilitators was their ability to help participants reflect on their lives and circumstances. As seen above, facilitators took advantage of opportunities to share their stories which helped participants reflect on their own lives and their futures. Apart from the circle of life, which was a formal space for reflection, facilitators in some instances also created informal opportunities for reflection. These, for some, were in the form of “teachable moments” where situations were used as tools for participants to reflect on their conduct or lives in general.

*Some of them [the facilitators] were telling us how they grew up. Then....you realize that these are the things which you went through. But you get hope that one day, you can change. One day you can be a better person. – Non-Success Case Graduate*

*. On outdoor when hiking, if we feel [tired]..... sometimes they would first find out from the group “What do you think when you see somebody that is injured?. So we had to carry each other's bags.- Success case Graduate*

**Evaluation question 7: Did the outdoor component have a non-confrontational, caring and safe environment?**

With regards to this evaluation question, themes around the environment being non-confrontational did not emerge. However, in the responses of both success and non-success graduates, themes around caring and safety of the outdoor environment, along with other themes such as conducive to reflection emerged.

### ***Caring***

In the responses from both success and non-success cases, the caring nature of the outdoor environment was created by the facilitators. Facilitators were reported to be caring and supportive towards the participants during the outdoor phase. Facilitators were reported to assist with the carrying of bags during the hiking and to counsel participants when needed. This will be elaborated on in assessing the attributes of the facilitators.

### ***Safety***

Although for most graduates, the outdoor environment was considered “scary” and unfamiliar, an element of safety was noted in a few responses. Participants felt safe and comfortable to share their experiences due to the closeness and rapport built with the facilitators during the outdoor phase. With regards to the environment itself, safety was not felt at the outset due to its unfamiliarity. However, for some, advice given from facilitators helped to develop a sense of ease. For others, safety was felt due to self-belief.

*You become very safe even if you think about snakes and stuff like that. If they don't come to you, then they don't come. But again if they come, we were told in my course that whenever something comes to visit you, try to find out why. Not because it wants to harm you but try to find out...Maybe it likes your company... or because it has a message of coming to you. - Success Case Graduate*

*You can sleep outside if you tell yourself that there's nothing which is going to happen to you. Nothing is stopping you to sleep outside alone. - Non-Success Case Graduate*

### ***Conducive to reflection***

In numerous responses, the outdoor environment as a conducive space to reflect emerged. Some participants used the outdoor environment (the beach) as an inspirational reflection space. For most of the graduates, being alone during the solo was the most important as it gave them an opportunity to reflect without distractions.

*Every time we go by a beach, I go sit there. I take my pen, I take a walk and I sit, and I just write. Maybe before the night time, before we eat or after we ate, I go to the beach again just to go write my last few thoughts. - Non- Success Case Graduate*

*The reason why I enjoyed the part of the Solo is because most of the time you're always with people. Sometimes, maybe, when you are thinking, a person would just come to disturb you. But that day*

*of the Solo, the 24-hour solo, we had to be alone. Just to be yourself and also thinking your own stuff. Your inner self. – Success Case Graduate*

### **Evaluation question 8: Did outdoor peer- facilitators possess and display attributes conducive for programme success?**

Several and primarily positive facilitator attributes emerged in both success and non-success case responses. Each attribute identified was coded as a theme in itself. In this regard, facilitators were described as caring, motivational and relatable.

#### ***Caring***

In most circumstances, facilitators were described as caring. In the responses, facilitators displayed care to participants in diverse ways. By being helpful, supportive and loving.

*They were so loving and caring for us and treated us as though we were there children. All things that we needed help with, they were there to assist us- Non- Success Case Graduate*

*They were supportive...especially when you were climbing the mountains. They wouldn't let the whole group go without waiting for someone who was tired or wanted to drink some water. - Non-Success Case Graduate*

*They [the facilitators] really helped us in many things. Like on outdoor when we're hiking, they would always there to take our bags if we feel tired. If they can see that we are struggling they would help us- Success Case Graduate*

#### ***Motivational***

Some responses, from both success and non-success graduates, also suggested that facilitators were motivational. This was mainly due to the sharing of personal stories as elaborated upon above.

#### ***Relatable***

Another theme that emerged was that of facilitators being relatable. Some participants described the facilitators as “down-to-earth.” In some cases, this was due to the personal stories they shared with the participants and in some cases, it was due to their close level of interaction with the participants

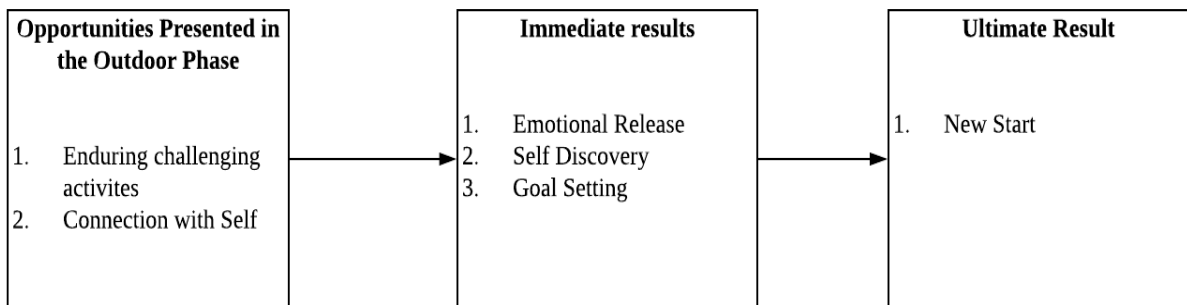
*They are down-to-earth. Because there was a time when they we [the group] said “Can you tell a story about your township or what your life was like out there?” “What is it you want to change when you're out?” ..... She [the facilitator] was the first to get talking and I was like [thinking] she's not that bad. -Success Case Graduate*

*The instructors were playing with us... I'm very happy to see the new face on them-* Non-Success Case Graduate

*When we were there [at the outdoor], they were not excluding themselves from us.* Non-Success Case Graduate

### **Evaluation question 9: Does the outdoor induce deep inner personal transformation?**

Transformation after the outdoor phase is another overarching theme that both success and non-success graduates alluded to in their responses. In this case, three themes emerged with respects to transformation. These themes not only describe the effect that the outdoor programme had on participants, but also describes how participants felt this transformation was induced. These themes could then be considered the process leading to transformation. These themes and sub themes are depicted in Figure 4 below:



*Figure 4: The Process of Personal Transformation induced by the Outdoor Programme*

#### ***Opportunities presented in the outdoor phase***

The opportunities presented in the outdoor phase have been described in some detail above. Participants are exposed to challenging activities during the outdoor phase that they all complete. They also connect with themselves in the various self-reflection spaces provided throughout the outdoor phase and especially during the solo.

*That [the solo] was a good experience. You are alone there. You just drink water and talk to yourself. You just think about yourself. Who you really are. You do an introspection with yourself. That is what it was-* Success Case graduate

*You are stranded on your own so it's only you and your thoughts. That's the only thing. You had to deal with the inner person.* - Non-Success Case Graduates

#### ***Immediate Results***

In the responses of both success and non-success case graduates, similar sub-themes emerged with regards to results or feelings after the outdoor phase. In both cases, graduates felt an emotional release after the solo. This was described as “weight lifted of shoulders” and freedom. Some described it as a sense of healing from reflecting and dealing with the trauma in their lives during the solo.

*I let go of all my negativity. All the things that keep me back and all the things I thought kept me back, I released.* – Non-Success Case Graduate

*And I also thought of what happened to me when I was young. I was raped when I was still young. I thought of that and realized that it was not my fault.* - Success Case Graduate

Graduates also describe how the outdoor phase assisted them to discover their true selves and to discover things about themselves that they never knew. This ranged from a realization of their inner strength and their ability to overcome challenges and the realization of the person they wanted to be.

*I felt like I can conquer the world. I can do anything now that I've overcome the fear of snakes and the fear of sleeping on the mountains.* – Non-Success case Graduate

*I found out who I really am. That I was not born to be an alcohol abuser. I can live without alcohol. Even if I still crave that I must have a beer, but I can still go away from that if only I want to –* Success case Graduate

Graduates also expressed how the outdoor phase enabled them to set goals for their lives after the programme. These goals ranged from generally being a better person to more specific material goals.

*When I came back I just thought to myself that I should just be a better person especially to my roommates* - Non-Success Case Graduate

*I'll make sure my kids get all the things that I wanted .... I was going to break this curse. My child will go to a proper school ... My child will go to university ... I am going to change all of this –* Success case Graduate

### ***Ultimate Results***

The ultimate result of the outdoor phase, which was expressed by all the graduates, is that of having a new start. That presented in two ways, releasing the past and being a new person. A success case graduate expressed it as “pressing restart and starting over.” With regards to being a new person, most success case and non-success case graduates describe being a new person after the solo. In some cases, this new person was identified as their “real self”.

*I left the old person also by the solo. I left him there by the bushes and I brought a new me. I brought a new me back-* Non-Success Case Graduate

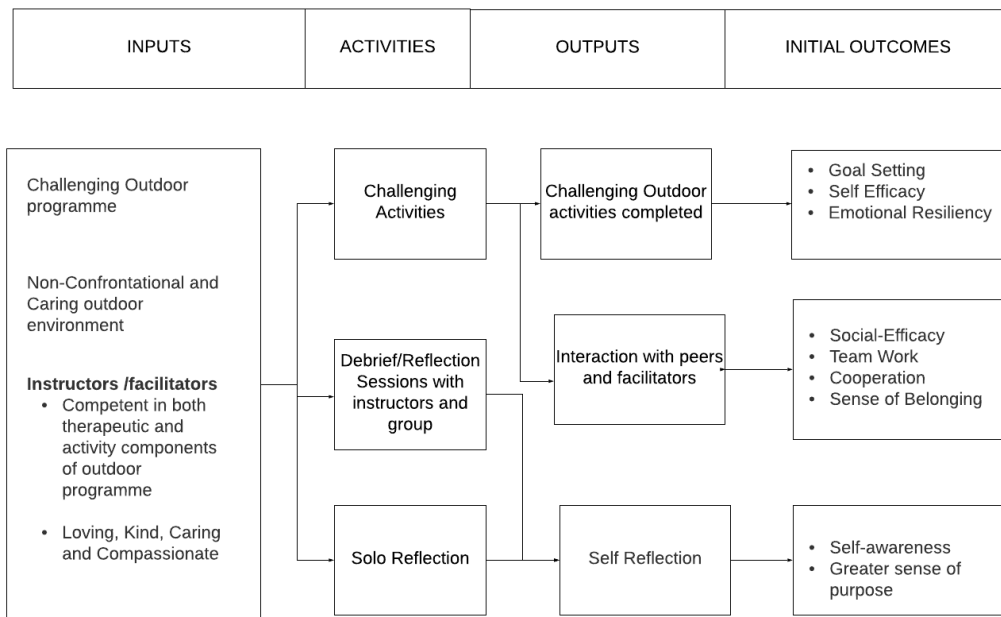
*After the Solo I felt good because I found who I really am. It was a good experience –* Success case Graduate

## Chapter 5: Discussion

This evaluation was designed to assess: a) whether the CA programme has impact b) whether the outdoor programme in its current form is likely to contribute to impacts. This chapter reflects on two aspects. Firstly, the effectiveness of the outdoor programme and secondly, the impact of the CA programme and its implications.

### The effectiveness of the outdoor phase

The findings of the qualitative analysis suggest that the CA outdoor phase functions as perceived and desired. The inputs, causal mechanism and outcomes of successful outdoor programmes from the literature has several commonalities with CA's current outdoor phase. Therefore, we can see that the programme theory of CA's outdoor phase is confirmed and deemed plausible. The logic model, depicted in Figure 5, was developed based on findings in the literature and compared to the qualitative results.



*Figure 5: Causal Mechanism of Successful Outdoor Programmes*

The success of the CA Outdoor programme has been largely attributed to the facilitation of the phase, the challenging nature of the programme and the solo component.

### *Facilitation of the outdoor*

The literature on outdoor programmes suggests that facilitators with activity and therapeutic competencies and loving qualities are able to assist programme participants to achieve the desired outcomes (Draper et al., 2011; Revell et al., 2013). For the 2014-2016 CA intakes, the peer facilitators seemed to possess these competencies and qualities, have positive interactions with participants, create a safe and caring environment, act as role models to the participants and can help participants to reflect.

One of the information needs of CA was to understand whether the facilitation model used for the outdoor phase affects the outcomes of the phase. However, this study was limited in that it only considered engagement with facilitators in general and did not directly assess nuances around the demographics of facilitators (age, gender, race and background) and whether they were internal or external facilitators. Considering that CA's outdoor phase uses peer facilitation, the results suggest that the desired causal mechanism can be achieved using peer facilitators and using their current facilitation model (where the same instructors of the orientation phase facilitate the outdoor phase). However, definitive conclusions about the effectiveness of this facilitation model are limited as we do not have a comparator.

### *Challenge of the outdoor*

All participants, whether success or non-success cases, found the outdoor phase challenging. The CA outdoor phase, although implemented in an urban-outdoor environment, provides adequate challenge that helped all participants to gain a sense of self-efficacy and emotional resiliency from completion.

### *The solo component*

The solo not only contributed to the challenge of the programme but also helped in creating a conducive and vital reflection space for participants. During this period, several protective factors were gained. Self-efficacy was gained by being able to complete the solo. Self-awareness, clarity of vision and a sense of purpose was also gained when participants reflected on their lives and circumstances and made tangible goals for their futures.

A key finding of the qualitative analysis is that regardless of the long term effects of the programme, CA graduates achieve some or all the desired outcomes of the outdoor phase and both experienced the outdoor phase in similar ways. This may imply that although the outdoor phase works, attainment of more distal outcomes or lack thereof are more likely largely influenced by other factors such as other phases of the programme or the individual's circumstances after the programme.

## **Impact of the CA programme**

If the CA programme theory holds, seeing as its outdoor phase produces the intended outcomes, the long-term impacts of the CA programme should have also been achieved. However, as seen by the results of the quantitative analysis, this is not the case. The section below will explore possible explanations and considerations.

### **Impact on Resilience**

There are three emerging findings relating to resilience in this evaluation

- a) The outdoor programme seems to enhance protective factors needed for resilience.
- b) High engagement in the outdoor programme led to high resilience scores.
- c) There was no significant and sustained impact on resilience.

Based on the qualitative results, the outdoor phase is capable of deepening protective factors such as self-efficacy, emotional resiliency, self-awareness, a sense of purpose and goals. The quantitative results further show that youth that engaged more with the outdoor phase had significantly higher resilience scores. Although this result supports the findings that the outdoor programme can deepen resilience, the possible reverse causation and simultaneity bias cannot be ignored. Although high engagement may contribute to higher resilience, it is also likely that individuals who are more resilient at the outset, would also engage more with the outdoor phase. They would be able to tackle challenging tasks, and thus enjoy the programme more due to their already higher resilience levels. If pre-resilience levels were measured, this potential reverse causation could have been assessed.

Although the evaluation shows that there is no long-term impact of the programme on resilience, this however, does not imply that the programme does not enhance the participant's resilience in the short-term. The literature shows that most YDPs with outdoor components and in most instances, life skills components have had significant effects on participant's resilience and protective factors when post-test measures of resilience were obtained immediately after the programme (Gillespie & Allen-Craig, 2009; Neill & Dias, 2001; Shellman & Hill, 2017). The qualitative results also show that the CA outdoor phase is likely to enhance resilience-building protective factors, at least in the short term. It could be possible that resilience or the protective factors gained cannot, however, be sustained over long periods.

We refer to the quasi-experimental evaluation of the 5-day Outward Bound programme performed by Ang, Farihah and Lau (2014). Using a matched comparison group, a significant difference in goal setting was identified one month after the intervention (Ang et al., 2014). A 3-month follow up was used to assess sustainability of the outcome's achievement. It shows that 3 months after the programme, the mean goal

setting scores decreased for the intervention group and were not significantly different from the control group (Ang et al., 2014). This is depicted in Figure 6.

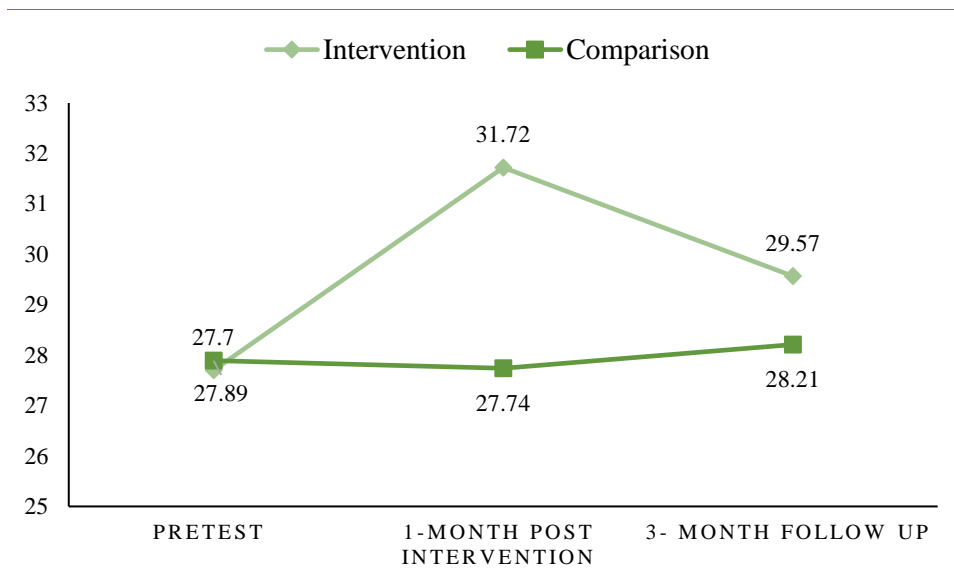


Figure 6: Goal Setting Scores by Group Across Time. Adapted from “An outcome evaluation of the implementation of the Outward-Bound Singapore five-day “intercept” program,” R.P. Ang, N. Farihah & S. Lau, 2014, *Journal of Adolescence*, 37(6), 775.

If this is the case, one factor that has been identified to sustain resilience is continued support of participants after the programme (Kaplan, 1979; West & Crompton, 2001). In assessing the impact of adventure programmes, it is identified that although programmes may be successful in enhancing protective factors at the outset, if these are not strengthened after the programme, long-term impacts may not be achieved (Kaplan, 1979; West & Crompton, 2001). These external protective factors may be in the form of parental support, counselling, a safe and productive environment for youth to thrive and spaces to engage with like-minded youth (West & Crompton, 2001).

Kaplan (1979) identifies 4 post programme support mechanisms that can help youth sustain their transformation after the programme

- a) *Periodic outdoor programmes* – Weekend-long outdoor programmes can be organized to assist participants to reflect on community life
- b) *Community service placements*: Encouraging and/ or placing youth into community service projects in their own communities
- c) *Alternative Education Programmes*: A programme should be developed where lectures and group discussions can be held

- d) *Counselling*: Individual and family counselling should be made available to youth after the programme

### ***Implications and Recommendations***

One of the limitations of this evaluation is the fact that it does not assess the fidelity of the implementation of the After-Care programme and its uptake. Therefore, it is unclear whether the programme adequately addressed the domains identified by Kaplan (1979). However, CA is in the process of enhancing their 5 Year After-Care Programme to include community graduate-led mentorship to continue the enhancement of some of these protective factors.

- a) The implementation and uptake of the After-Care Programme needs to be evaluated to assess how CA graduates utilize and engage with the After-Care services.
- b) CA also needs to assess whether the elements of the After-Care Programme are sufficient to sustain participant's transformation after the program.

### **Impact on positive and productive action.**

The results of this evaluation show that the CA programme does not have significant impact on positive and productive action. Based on the programme theory, this result is very likely due to the fact that there was no significant lasting impact on resilience. However, results show that 72% of CA graduates are currently employed, 54% of graduates who did not complete Grade 12 before the programme completed higher grades of high school after the programme, 34% of graduates have obtained some form of post-high school qualification, 41% were involved in community service after the programme (21% currently) and 100% of graduates are not part of gangs. It is to be noted that these figures do not account for fluctuations in engagement in positive and productive actions over time. The lack of statistical impact however, presents due to the fact that declined applicants are apparently able to achieve similar proportions despite rejection from the CA programme.

Two inferences can be drawn from this.

- a) Based on the programme theory, the resilience levels for participants after the programme perhaps were not strong enough to induce engagement in positive action in a larger number of participants.
- b) Although CA to some extent, might spur participants to engage in positive and productive action, there are other means to achieving these outcomes.

### ***Productive Action – Employment and Education***

The lack of impact of YDP's on employment is common. Vocational-focused YDPs are mainly geared to target employment outcomes. These in themselves, seldom have a positive impact on employment even when they are able to significantly enhance resilience-building protective factors (life-skills) (Card, Ibararán, Regalia, Rosas-Shady, & Soares, 2011; Diaz & Rosas, 2016; Ibararan, Ripani, Taboada, Villa, & Garcia, 2014). In the evaluation of such programmes, a further assumption that needed to be met for programme impact was a favorable labor market i.e. vacancies for programme graduates (Ibararan et al., 2014).

Other external assumptions should also be considered for the lack of impact with respects to education and entrepreneurship outcomes. Attendance of school and tertiary education or starting businesses, largely, depends on adequate financial resources. As we assume that CA caters for disadvantaged youth, in the case where CA graduates are not awarded scholarships, bursaries, employment or loans, it may hinder the number of CA graduates achieving these outcomes (Barón, 2009; Cho & Honorati, 2013). Although CA graduates are offered a paid internship after the programme, we need to assess whether their earnings are sufficient to meet this assumption and hence are likely to help propel youth to finance education or entrepreneurship endeavors.

### **Implications and Recommendation**

The assumptions affecting the plausibility of the CA programme at the outset were not exhaustive.

- i) With regards to employment, CA needs to consider the assumption of a favorable labor market in the Western Cape.
- ii) With respect to education and entrepreneurship, the assumption of financial sufficiency after the programme needs to be considered.

CA must assess whether these assumptions can be influenced within the scope of the programme or whether more realistic expectations of programme impact should be set. For instance:

- i. CA may tailor their skills phase to meet labor market demands
- ii. Providing CA graduates with access to bursaries, scholarships or loans to encourage the pursuit of education and entrepreneurial outcomes.

### ***Positive Action – Crime, Drug use, Community Service and Family and Community Integration***

The results showed lack of impact on positive action. Both CA graduates and declined applicants reported low involvement in gang, crime or drug related activities, and positive family relationships on average. Firstly, this lack of impact could suggest that CA largely attracts and recruits youth that are not very

susceptible to gang and criminal involvement. This could be deduced from the low reported levels of gang membership prior to applying for the programme and the low chances of applicants having a criminal record based on the publicized eligibility criteria.

Secondly, the lack of impact could have been created by a potential underreporting bias. Drug and crime related outcomes tend to be underreported (Blattman, Jamison, Koroknay-Palicz, Rodrigues, & Sheridan, 2016). In this case, although data suggests consistent underreporting in both treatment and control group, we cannot ignore that the control group had more of a reason to not report drug or crime involvement. Although diligence was accorded to ensure that all interviewed participants understood the purpose of our research prior to inviting them for interview and when seeking consent before the interview, feedback from field assistants suggests that most control group participants still believed that the interview was to recruit them into CA or other opportunities organized by CA. Their being cognizant of the selection criteria into CA, may have given the control group an incentive to conceal any drug or criminal involvement which may have led to underestimation of impact.

In terms of community service, the low levels of community service involvement by programme graduates are perhaps not unexpected. Emphasis on community service involvement is an element of the CA programme that has only recently gained emphasis (CA Management, personal communication, April 15, 2019). For the 2014-2016 cohorts we studied, very few programme inputs were allocated to helping participants pursue this outcome after the programme. We might therefore anticipate that these results may well be more positive in future evaluations which take into account involvement in community service projects such as the Youth Café, suggested to graduates of the 2017-2018 cohorts.

With regards to family and community integration, although no impact is seen, this does not indicate a lack of improvement. However, using this evaluation design, improvements could not be assessed as the study did not measure the participant's family and community relationships prior to the programme. Moreover, the use of quantitative data to assess impact on family and community relationships was limiting in addressing the nuances in the attainment of these outcomes as these outcomes are very subjective and dependent on each individual's circumstances.

### **Alternative explanation for lack of impact**

The sections above have attempted to understand why the CA programme may have been insufficient to attain outcomes. A large part of understanding the lack of impact is also understanding why the control group achieved similar outcomes to the CA graduates.

In this study, the only alternative explanation that was considered and measured to likely contribute to effects in the control group was attending other or additional youth development programmes. It was seen

that in all cases attending alternative programmes did not significantly affect participant's achievement of productive and positive outcomes and hence the variable not being included in the models. However, there could be other factors that could explain outcomes attainment in some participants that this study did not measure. Some of these may include family history (HIV/ AIDS, violence, crime, support structures) and socio-economic background (van Breda & Theron, 2018).

The lack of difference in resilience between CA graduates and non-graduates, may also stem from a likely selection bias that should be considered. In a quasi-experimental design, to get unbiased estimates of impact, the goal is to ensure that treatment and control groups are largely comparable (Gertler, Martinez, Rawlings, Premand, & Vermeersch, 2016; Rossi et al., 2004). However, despite enhancing the strength of the evaluation design by using propensity score weighting to make the treatment and control group comparable based on a number of key underlying characteristics used in selection for the programme, the baseline resilience levels could not be measured. There is a possibility that baseline resilience would have been significantly different, based on the CA recruitment policy of recruiting/prioritizing more vulnerable individuals. If initial baseline resilience of programme participants is therefore lower, the programme may have been successful in at least raising resilience levels so that, post the programme, it is similar to that of their non-selected counterparts.

Methods using Propensity Scores to remove selection bias and hence balance the treatment and control groups, are effective if all variables affecting the likelihood of selection into the programme are included in the generation of the propensity scores (Rosenbaum & Rubin, 1983). In this evaluation, if variables that were not measured (such as pre-programme resilience or social-economic background) significantly influenced selection, the weighting method used may perhaps not have been as effective and therefore may have still led to biased impact estimates.

### **Limitations**

Several limitations of the evaluation have been discussed throughout the chapter. However, a few additional limitations with respect to the evaluation design and its ability to meet the information needs of CA and detect an impact, are explored.

Firstly, a limitation of this evaluation is the lack of pre-test measures. This is largely due to the retrospective nature of the evaluation. Although including a counterfactual in the evaluation design improves our ability to make causal inferences, it still does not enable us to understand how resilience of the participants and hence their engagement in positive and productive action have changed as a result of the programme. One recommendation is that CA consider the measurement of pre and post programme resilience and other

outcomes at recruitment, before graduation and perhaps during and after the work placement so that attainment trends can be assessed.

Secondly, another limitation of the study may be the reliability of the measures that were used to assess impact in this study. Although high reliability coefficients are reported for the measures used in the questionnaire, they may not have been as reliable and valid in this study as only a selected few questions from the measures were adapted for this particular study and the context in which they are administered was different.

Another limitation of this evaluation is the small sample used. Firstly, propensity score techniques require a large pool of controls from which to construct a closely matched control group (Rosenbaum & Rubin, 1983). With a small size, we may not have been able to construct a control group of the best possible matches which may have adversely affected the weights used in the analysis. Secondly, the chance of detecting a statistically significant difference between groups is affected by the sample size used (Glennister & Takavarasha, 2013). In this case, the sample size used in the analysis was small because we expected the programme to produce a large effect size of at least 0.61. However, the effect size may have been very small. A larger sample size would therefore have been required to increase the power of the analysis and hence increase the chances of detecting even the slightest difference between the groups (Glennister & Takavarasha, 2013). Future evaluations should consider a larger sample size to assess whether differences between graduates and declined applicants may be observed.

## **Conclusions**

This evaluation was aimed at understanding the long-term impact of the CA programme focusing on the effect of the outdoor phase. This evaluation found that the CA programme does not have long-term impact on programme outcomes. However, this does not imply that the programme did not have a positive effect on participants. The outdoor phase is capable of deepening participant's resilience due to its plausible causal mechanism. However, more needs to be learned about the extent to which the programme increases and sustains resilience. In understanding the lack of impact, CA needs to examine ways in which the protective factors can be significantly increased, sustained and be translated into positive and productive action.

## **Contribution to Knowledge**

This is the first impact evaluation of the CA programme and hence provides learning and knowledge for the organization that can be used to assess the programme and be utilized for programme improvement. The evaluation has also provided resilience measures that can be used as baseline or end line measures for future evaluations.

Several resilience constructs have been used to measure resilience in the South African context. This study is one of the few that has used the 10-item CD-RISC measure to measure resilience for vulnerable youth in this context. This evaluation provides a step in the assessment of the validity and reliability of this measure. It also helps to provide resilience values that can be used as comparison measures for other studies and future evaluations of the CA programme

Most literature surrounding outdoor programmes, have seldom assessed the long-term impact of the programmes (i.e. longer than a year). This evaluation provides a positive step in understanding what long-term impact can be expected of such programmes. It also highlights one of several possible methodologies that can be used for impact evaluations long after programmes have been implemented.

## References

- Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, 50(2), 179-211.
- Ang, R. P., Farihah, N., & Lau, S. (2014). An outcome evaluation of the implementation of the Outward Bound Singapore five-day "intercept" program. *Journal of Adolescence*, 37(6), 771-778.  
doi:10.1016/j.adolescence.2014.05.003
- Bandura, A., & Adams, N. E. (1977). Analysis of self-efficacy theory of behavioral change. *Cognitive therapy and research*, 1(4), 287-310.
- Barón, J. (2009). Exploring the Factors Associated with Youths' Educational Outcomes: The Role of Locus of Control and Parental Socio-Economic Background. In (Vol. 598): Centre for Economic Policy Research, Research School of Economics, Australian National University.
- Bickman, L. (1987). *Using program theory in evaluation*. San Francisco: Jossey-Bass.
- Blais, A.-R., Thompson, M. M., & McCreary, D. R. (2006). *Post-deployment reintegration measure: Psychometric replication and preliminary validation results*. Retrieved from DRDC Toronto TR 2005-277: [http://cradpdf.drdc-rddc.gc.ca/PDFS/unc104/p525084\\_A1b.pdf](http://cradpdf.drdc-rddc.gc.ca/PDFS/unc104/p525084_A1b.pdf)
- Blattman, C., Jamison, J., Koroknay-Palicz, T., Rodrigues, K., & Sheridan, M. (2016). Measuring the measurement error: A method to qualitatively validate survey data. *Journal of Development Economics*, 120(C), 99-112. doi:10.1016/j.jdeveco.2016.01.005
- Botvin, G. J., & Griffin, K. W. (2014). Life Skills Training: Preventing Substance Misuse by Enhancing Individual and Social Competence. *New Directions for Youth Development*(141), 57-65.  
doi:10.1002/yd.20086
- Bowen, D. J., & Neill, J. T. (2013). A meta-analysis of adventure therapy outcomes and moderators. *The Open Psychology Journal*, 6(1).
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, 3(2), 77-101.

- Brinkerhoff, R. O. (2003). *The success case method find out quickly what's working and what's not*. San Francisco, CA: Berrett-Koehler.
- Card, D., Ibararán, P., Regalia, F., Rosas-Shady, D., & Soares, Y. (2011). The Labor Market Impacts of Youth Training in the Dominican Republic. *Journal of Labor Economics*, 29(2), 267-300. doi:10.1086/658090
- Catalano, R. F., Berglund, M. L., Ryan, J. A. M., Lonczak, H. S., & Hawkins, J. D. (2004). Positive Youth Development in the United States: Research Findings on Evaluations of Positive Youth Development Programs. In (Vol. 591, pp. 98-124): SAGE Publications.
- Chen, H. T. (2015). *Practical Program Evaluation : Theory-Driven Evaluation and the Integrated Evaluation Perspective* (Second edition. ed.). Los Angeles: SAGE Publications.
- Cho, Y., & Honorati, M. (2013). Entrepreneurship Programs in Developing Countries: A Meta Regression Analysis. In (Vol. 7333): Institute for the Study of Labor (IZA).
- Chrysalis Academy Strategic Plan, (2018). *Chrysalis Academy Strategic Plan: 01 April 2018 – 31 March 2021*. Chrysalis Academy.
- Cichello, P. L., Leibbrandt, M. V., & Woolard, I. D. (2012). *Labour market : analysis of the NIDS Wave 1 and 2 datasets*. Cape Town: Southern Africa Labour and Development Research Unit.
- Coleman-Cowger, V. H., Oga, E. A., Peters, E. N., Trocin, K. E., Koszowski, B., & Mark, K. (2019). Accuracy of Three Screening Tools for Prenatal Substance Use. *Obstetrics & Gynecology*, 133(5), 952-961. doi:10.1097/aog.0000000000003230
- Connor, K. M., & Davidson, J. R. T. (2003). Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depression and Anxiety*, 18(2), 76-82. doi:10.1002/da.10113
- Creed, P. A., Bloxome, T. D., & Johnston, K. (2001). Self-esteem and self-efficacy outcomes for unemployed individuals attending occupational skills training programs. *Community, Work & Family*, 4(3), 285-303. doi:10.1080/01405110120089350

- Curry, G. D., Decker, S. H., & Egley, A. (2002). Gang involvement and delinquency in a middle school population. *Justice Quarterly*, 19(2), 275-292. doi:10.1080/07418820200095241
- Curry, G. D., & Spengel, I. A. (1992). Gang Involvement and Delinquency among Hispanic and African-American Adolescent Males. *Journal of Research in Crime and Delinquency*, 29(3), 273-291. doi:10.1177/0022427892029003002
- De Lannoy, A., Fortuin, A., Mpofo-Mketwa, T., Mudiriza, G., Ngcowa, S., & Storme, E. (2018). *Unpacking the Lived Realities of Western Cape Youth. Exploring the well-being of young people residing in five of the most deprived areas in the Western Cape Province*. Retrieved from Cape Town:[https://www.westerncape.gov.za/sites/www.westerncape.gov.za/files/youth\\_well\\_being\\_wc\\_lowres.pdf](https://www.westerncape.gov.za/sites/www.westerncape.gov.za/files/youth_well_being_wc_lowres.pdf)
- Diaz, J. J., & Rosas, D. (2016). *Impact evaluation of the job youth training program Projoven*. Retrieved from <https://pdfs.semanticscholar.org/a97d/096ea19d58e389985617eadd14fd6ff02041.pdf>
- Donaldson, S. I. (2007). *Program theory-driven evaluation science : strategies and applications*. New York: Lawrence Erlbaum Associates.
- Draper, C. (2009). *Process and Impact Evaluation of the Educo Africa Leadership Project: A pilot study*. Retrieved from <http://www.educo.org.za/wp-content/uploads/2013/09/Leadership-Project-Evaluation-Report.pdf>
- Draper, C., Lund, C., & Flisher, A. (2011). A Retrospective Evaluation of a Wilderness-Based Leadership Development Programme. *South African Journal of Psychology*, 41(4), 451-464. doi:10.1177/008124631104100405
- Earls, F. J., Brooks-Gunn, J., Raudenbush, S. W., & Sampson, R. J. (2006). Project on Human Development in Chicago Neighborhoods (PHDCN): Self Report of Offending, Wave 3, 2000-2002. In: ICPSR - Interuniversity Consortium for Political and Social Research.
- Edwards, M. (2014). The impact of placements on students' self-efficacy. *Higher Education, Skills and Work-based Learning*, 4(3), 228-241. doi:10.1108/HESWBL-05-2014-0015

- Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, 62(1), 107-115. doi:10.1111/j.1365-2648.2007.04569.x
- Ernst, J., & Schwartz, J. (2013). Environmental Service and Outdoor Adventure as a Context for Positive Youth Development: An Evaluation of the Crow River Trail Guards Program. *Journal of Youth Development*, 8(2), 57-75. doi:10.5195/jyd.2013.96
- Ewert, A., & Yoshino, A. (2011). The Influence of Short-Term Adventure-Based Experiences on Levels of Resilience. *Journal of Adventure Education and Outdoor Learning*, 11(1), 35-50.
- Garst, B., Scheider, I., & Baker, D. (2001). Outdoor Adventure Program Participation Impacts on Adolescent Self-Perception. *Journal of Experiential Education*, 24(1), 41-49. doi:10.1177/105382590102400109
- Gertler, P., Martinez, S., Rawlings, L. B., Premand, P., & Vermeersch, C. M. J. (2016). *Impact Evaluation in Practice: Second Edition*.
- Gillespie, E., & Allen-Craig, S. (2009). The Enhancement of Resilience via a Wilderness Therapy Program. A Preliminary Investigation. *Australian Journal of Outdoor Education*, 13(1), 39-49.
- Glennerster, R., & Takavarasha, K. (2013). Statistical Power. In *Running Randomized Evaluations : A Practical Guide* (pp. 241-297). Princeton: Princeton University Press.
- Graneheim, U. H., & Lundman, B. (2004). Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today*, 24(2), 105-112. doi:10.1016/j.nedt.2003.10.001
- Guo, S., & Fraser, M. W. (2014). *Propensity Score Analysis* (2nd ed.): SAGE.
- Hans, T. (2000). A Meta-Analysis of the Effects of Adventure Programming on Locus of Control. *Journal of Contemporary Psychotherapy*, 30(1), 33-60. doi:10.1023/A:1003649031834
- Hareven, T. K. (1974). The Family as Process: The Historical Study of the Family Cycle. *Journal of Social History*, 7(3), 322-329. doi:10.1353/jsh/7.3.322

- Harper, N., Russell, K., Cooley, R., & Cupples, J. (2007). Catherine Freer Wilderness Therapy Expeditions: An Exploratory Case Study of Adolescent Wilderness Therapy, Family Functioning, and the Maintenance of Change. *Child and Youth Care Forum*, 36(2-3), 111-129.  
doi:10.1007/s10566-007-9035-1
- Hattie, J., Marsh, H. W., Neill, J. T., & Richards, G. E. (1997). Adventure Education and Outward Bound: Out-of-Class Experiences That Make a Lasting Difference. *Review of Educational Research*, 67(1), 43-87. doi:10.3102/00346543067001043
- Heinze, G., & Jüni, P. (2011). An overview of the objectives of and the approaches to propensity score analyses. *European heart journal*, 32(14), 1704-1708. doi:10.1093/eurheartj/ehr031
- Ibarraran, P., Ripani, L., Taboada, B., Villa, J., & Garcia, B. (2014). Life skills, employability and training for disadvantaged youth: Evidence from a randomized evaluation design. *IZA Journal of Labor & Development*, 3(1), 1-24. doi:10.1186/2193-9020-3-10
- Kaplan, L. (1979). Outward Bound: A Treatment Modality Unexplored by the Social Work Profession. *Child Welfare*, 58(1), 37-48.
- Kelly, F.J., & Baer, DJ. (1968). Outward Bound Schools as an alternative to institutionalization for adolescent delinquent boys. Boston: Fandel.
- Little, M. (2018). *Chrysalis Academy Data Analysis*. Unpublished Manuscript.
- Lowan, G. (2007). Outward Bound Giwaykiwin: Connecting to Land and Culture through Indigenous Outdoor Education. *19*(3), 4-6.
- Luthar, S. S., Sawyer, J. A., & Brown, P. J. (2006). Conceptual Issues in Studies of Resilience. *Annals of the New York Academy of Sciences*, 1094(1), 105-115. doi:10.1196/annals.1376.009
- Majee, W., & Hoyt, A. (2011). Cooperatives and Community Development: A Perspective on the Use of Cooperatives in Development. *Journal of Community Practice*, 19(1), 48-61.  
doi:10.1080/10705422.2011.550260

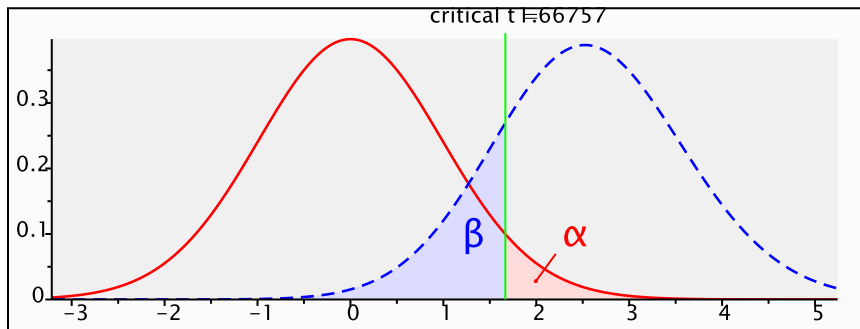
- Masten, A. S. (2001). Ordinary Magic: Resilience Processes in Development. *American Psychologist*, 56(3), 227-238. doi:10.1037/0003-066X.56.3.227
- McBride, D., & Korell, G. (2005). Wilderness Therapy for Abused Women. *Canadian Journal of Counselling*, 39(1), 3-14.
- McKnight, L. R., & Loper, A. B. (2002). The Effect of Risk and Resilience Factors on the Prediction of Delinquency in Adolescent Girls. *School Psychology International*, 23(2), 186-198.  
doi:10.1177/0143034302023002744
- McMillan, J. H., & Reed, D. F. (1994). At-Risk Students and Resiliency: Factors Contributing to Academic Success. *Clearing House*, 67(3), 137-140.
- Moorhouse, A., & Caltabiano, M. L. (2007). Resilience and Unemployment: Exploring Risk and Protective Influences for the Outcome Variables of Depression and Assertive Job Searching. *Journal of Employment Counseling*, 44(3), 115. doi:10.1002/j.2161-1920.2007.tb00030.x
- Neill, J. T., & Dias, K. L. (2001). Adventure education and resilience: The double-edged sword. *Journal of Adventure Education & Outdoor Learning*, 1(2), 35-42.
- Norton, C. L., & Watt, T. T. (2014). Exploring the Impact of a Wilderness-Based Positive Youth Development Program for Urban Youth. *Journal of Experiential Education*, 37(4), 335-350.  
doi:10.1177/1053825913503113
- Olsson, C. A., Bond, L., Burns, J. M., Vella-Brodrick, D. A., & Sawyer, S. M. (2003). Adolescent resilience: a concept analysis. *Journal of Adolescence*, 26(1), 1-11. doi:10.1016/S0140-1971(02)00118-5
- Onyx, J., & Bullen, P. (2000). Measuring Social Capital in Five Communities. *The Journal of Applied Behavioral Science*, 36(1), 23-42. doi:10.1177/0021886300361002
- Patton, M. Q. (1980). *Qualitative evaluation methods*. Beverly Hills: Sage Publications.
- Revell, S., Duncan, E., & Cooper, M. (2013). Helpful aspects of outdoor therapy experiences: An online preliminary investigation. *Counselling and Psychotherapy Research*, 14(4), 1-7.  
doi:10.1080/14733145.2013.818159

- Richman, J. M., Rosenfeld, L. B., & Bowen, G. L. (1998). Social Support for Adolescents at Risk of School Failure. *Social Work, 43*(4), 309-323. doi:10.1093/sw/43.4.309
- Rosenbaum, P. R., & Rubin, D. B. (1983). The central role of the propensity score in observational studies for causal effects. *Biometrika, 70*(1), 41-55.
- Rossi, P. H., Lipsey, M. W., & Freeman, H. E. (2004). *Evaluation : A systematic approach* (7th ed.). Thousand Oaks, Calif.: Sage Publications.
- Roth, J., & Brooks-Gunn, J. (2003a). What Exactly Is a Youth Development Program? Answers From Research and Practice. *Applied Developmental Science, 7*(2), 94-111.  
doi:10.1207/S1532480XADS0702\_6
- Roth, J., & Brooks-Gunn, J. (2003b). Youth development programs: risk, prevention and policy. *Journal of Adolescent Health, 32*(3), 170-182. doi:10.1016/S1054-139X(02)00421-4
- Russell, K. C. (2000). Exploring How the Wilderness Therapy Process Relates to Outcomes. *Journal of Experiential Education, 23*(3), 170-176. doi:10.1177/105382590002300309
- Russell, K. C. (2001). What is Wilderness Therapy? *Journal of Experiential Education, 24*(2), 70-79.  
doi:10.1177/105382590102400203
- Russell, K. C., & Walsh, M. A. (2011). An Exploratory Study of a Wilderness Adventure Program for Young Offenders. *Journal of Experiential Education, 33*(4), 398-401.  
doi:10.1177/105382591003300415
- Rutko, E. A., & Gillespie, J. (2013). Where's the Wilderness in Wilderness Therapy? *Journal of Experiential Education, 36*(3), 218-232. doi:10.1177/1053825913489107
- Rutter, M., Giller, H., & Hagell, A. (1998). *Antisocial behavior by young people*. Cambridge, UK: Cambridge University Press.
- Samara, T. R. (2005). Youth, Crime and Urban Renewal in the Western Cape. *Journal of Southern African Studies, 31*(1), 209-227. doi:10.1080/03057070500035943

- Sauls, H. (2014). *A Situational Analysis of Youth in the Western Cape*. Retrieved from [https://www.westerncape.gov.za/assets/departments/social-development/a\\_situational\\_analysis\\_of\\_youth\\_in\\_the\\_western\\_cape\\_final\\_research\\_report\\_aug\\_2014.pdf](https://www.westerncape.gov.za/assets/departments/social-development/a_situational_analysis_of_youth_in_the_western_cape_final_research_report_aug_2014.pdf)
- Shellman, A., & Hill, E. (2017). Flourishing through Resilience: The Impact of a College Outdoor Education Program. *Journal of Park and Recreation Administration*, 35(4), 59. doi:10.18666/JPra-2017-V35-I4-7779
- Southern Africa Labour and Development Research Unit, . (2017). National Income Dynamics Study Wave 5 2017 Adult (15+) Questionnaire. Retrieved from <http://www.nids.uct.ac.za/documentation/questionnaires/wave-5>
- Statistics South Africa, . (2011). *Census 2011*. Retrieved from <https://youthexplorer.org.za/profiles/province-WC-western-cape/>
- Steiner, P. M., Cook, T. D., Shadish, W. R., & Clark, M. H. (2010). The Importance of Covariate Selection in Controlling for Selection Bias in Observational Studies. *Psychological Methods*, 15(3), 250-267. doi:10.1037/a0018719
- Stone, C. A., & Tang, Y. (2013). Comparing Propensity Score Methods in Balancing Covariates and Recovering Impact in Small Sample Educational Program Evaluations. *Practical Assessment, Research & Evaluation*, 18(13).
- Thoemmes, F., & Ong, A. D. (2016). A primer on inverse probability of treatment weighting and marginal structural models. *Emerging Adulthood*, 4(1), 40-59.
- Thornberry, T. P., & Krohn, M. D. (2000). The self-report method for measuring delinquency and crime. *Criminal justice*, 4(1), 33-83.
- Ungar, M., Dumond, C., & McDonald, W. (2005). Risk, Resilience and Outdoor Programmes for At-risk Children. *Journal of Social Work*, 5(3), 319-338. doi:10.1177/1468017305058938

- Ungar, M., & Liebenberg, L. (2011). Assessing Resilience Across Cultures Using Mixed Methods: Construction of the Child and Youth Resilience Measure. *Journal Of Mixed Methods Research*, 5(2), 126-149. doi:10.1177/1558689811400607
- US National Institute on Drug Abuse, . (2012). Resource Guide: Screening for Drug Use in General Medical Settings. Retrieved from <https://www.drugabuse.gov/publications/resource-guide-screening-drug-use-in-general-medical-settings/nida-quick-screen>
- van Breda, A. D. (2014). Validation of a measure of resilience of youths exiting residential care. *University of Johannesburg, Johannesburg, RSA.*
- van Breda, A. D., & Theron, L. C. (2018). A critical review of South African child and youth resilience studies, 2009–2017. *Children and Youth Services Review*, 91, 237-247. doi:10.1016/j.chilyouth.2018.06.022
- Vetter, S., Dulaev, I., Mueller, M., Henley, R., Gallo, W., & Kanukova, Z. (2010). Impact of resilience enhancing programs on youth surviving the Beslan school siege. *Child and Adolescent Psychiatry and Mental Health*, 4(1), 11. doi:10.1186/1753-2000-4-11
- Wagnild, G. M. (2009). The Resilience Scale User's Guide: for the US English Version of The Resilience Scale TM and The 14-Item Resilience Scale TM (RS-14 TM): Resilience center.
- Warner, A. (1990). Program evaluation: past, present, and future. In J.C. Miles, & S. Priest (Eds.), *Adventure Recreation* (pp. 309-321). State College, PA: Venture Publishing, Inc.
- West, S. T., & Crompton, J. L. (2001). A Review of the Impact of Adventure Programs on At-Risk Youth. *Journal of Park & Recreation Administration*, 19(2).
- Wilson, S. J., & Lipsey, M. W. (2000). Wilderness challenge programs for delinquent youth: A metaanalysis of outcome evaluations. *Evaluation and Program Planning*, 23(1), 1-12. doi:10.1016/S0149-7189(99)00040-3
- Wright, J. P., & Cullen, F. T. (2001). Parental Efficacy and Delinquent Behavior: Do Control and Support Matter? *Criminology*, 39(3), 677-706. doi:10.1111/j.1745-9125.2001.tb00937.

## APPENDIX A: G\*POWER SAMPLE SIZE CALCULATIONS



**t tests - Means:** Difference between two independent means (two groups)

**Analysis:** A priori: Compute required sample size

**Input:** Tail(s) = One  
 Effect size  $d$  = 0.61  
 $\alpha$  err prob = 0.05  
 Power (1- $\beta$  err prob) = 0.81  
 Allocation ratio  $N_2/N_1$  = 1

**Output:** Noncentrality parameter  $\delta$  = 2.5518131  
 Critical  $t$  = 1.6675723  
 Df = 68  
 Sample size group 1 = 35  
 Sample size group 2 = 35  
 Total sample size = 70  
 Actual power = 0.8109592

## APPENDIX B: QUESTIONNAIRE

CA ID (To be filled by researcher): \_\_\_\_\_

Year applied for CA programme: \_\_\_\_\_

Programme Status:  Graduate  Not Graduate

Have you completed any other youth development programmes other than the Chrysalis Academy programme?

1. Yes
2. No
3. Refused

### PART ONE

#### CD-RISC-10

<i>To what extent are the following statement true</i>	Not true		Sometimes		True nearly all the time
	at all	Rarely true	true	Often true	
1. I am able to adapt to change	0	1	2	3	4
2. I can deal with whatever comes	0	1	2	3	4
3. I try to see humorous side of problems	0	1	2	3	4
4. Coping with stress can strengthen me	0	1	2	3	4
5. I tend to bounce back after illness or hardship	0	1	2	3	4
6. I can achieve goals despite obstacles (barriers	0	1	2	3	4
7. I can stay focused under pressure	0	1	2	3	4
8. I am not easily discouraged by failure	0	1	2	3	4
9. I think of myself as a strong person	0	1	2	3	4
10. I can handle unpleasant feelings	0	1	2	3	4

**PART TWO:**

**Section A: Education and Training: Adapted from Section H of National Income Dynamics Study Wave 5 2017**

**Adult (15+) Questionnaire**

Are you currently in High School

1. Yes
2. No
3. Refused
4. I don't know

---

**H1** What is the highest grade in school that you have successfully completed?

1. Grade: **G**
2. Refused
3. I don't know

---

Are you currently in any form of post high school education?  
For example: College, university or vocational training?

1. Yes
2. No
3. Refused
4. I don't know

---

**H8** Have you successfully completed any diplomas, certificates or degrees outside of school?

1. Yes
2. No
3. Refused
4. I don't know

---

**Section B: Employment and Entrepreneurship: Adapted from Section E of National Income Dynamics Study**

**Wave 5 2017 Adult (15+) Questionnaire**

- Ea1** Which one of the following best describes what you were doing a year after you applied for the CA programme?
1. Working for Pay
  2. Self Employed
  3. Working on own plot or looking after livestock
  4. Helping another family
  5. Homemaker (looking after children at home/ others or home)
  6. Long-Term Sick/ Disabled
  7. Unemployed but actively searching for a job
  8. Unemployed but not actively searching for a job
  9. EPWP Internship/ Learnership
  10. Any other internship
  11. None of the above

- 
- Eb1** Which one of the following best describes what you are currently doing?
1. Working for Pay
  2. Self Employed
  3. Working on own plot or looking after livestock
  4. Helping another family
  5. Homemaker (looking after children at home/ others or home)
  6. Long-Term Sick/ Disabled
  7. Unemployed but actively searching for a job
  8. Unemployed but not actively searching for a job
  9. EPWP Internship/ Learnership
  10. Any other internship
  11. None of the above

- 
- Eb1** Are you currently being paid a wage or salary to work on a regular basis for an employer (that is not yourself) whether full time or part time?
1. Yes
  2. No
  3. Refused
  4. I don't know

**Eb9** How much did you earn last month from your main job before any deductions for tax, medical aid or pension? 1. Amount: **R**  
2. Refused  
3. I don't know

---

**Ec1** Have you currently engaged in any self-employment activities during the last month? For example, do you buy and sell goods, farm, work for yourself as a doctor, traditional healer, hairdresser or be a freelance consultant 1. Yes  
2. No  
3. Refused  
4. I don't know

---

**Ec15.2** How much did you earn last month from your self-employment activities before any deductions for tax, medical aid or pension? 1. Amount: **R**  
2. Refused  
3. I don't know

---

**Ed1** Are you currently doing any casual work to earn money? 1. Yes  
2. No  
For example, was it construction work, waitressing, gardening, or paid domestic work? 3. Refused  
4. I don't know

---

**Ed3** How much did you earn last month from casual work before any deductions for tax, medical aid or pension? 1. Amount: **R**  
2. Refused  
3. I don't know

---

**Section C: Community Service: Adapted from Toolkit for Evaluating Positive Youth Development**

Did you get involved in community service after applying for the CA programme? 1. Yes  
2. No  
For example, volunteering with local organization (NGO, church, school, orphanage, hospital ), organizing community events, part of youth group that helps the community, part of the youth café 3. Choose not to respond

---

- 
- Are you currently involved in community service?
1. Yes
  2. No
  3. Choose not to respond

---

**Section D: Drugs and Crime Activity: Adapted from NIDA QUICK SCREEN and Self report for Offending**

**In the past year, how often have you used the following**

1. Alcohol (For men, 5 or more drinks a day.  
For women, 4 or more drinks a day)
  1. Never
  2. Once or Twice
  3. Monthly
  4. Weekly
  5. Daily or Almost Daily
  6. Choose not to respond

- 
2. Prescription or Non-Prescription Drugs for  
Non-Medical Reasons  
Such as Codeine (Cough Syrup), pain killers,  
Allergex, grandpa, antidepressants,  
antibiotics
    1. Never
    2. Once or Twice
    3. Monthly
    4. Weekly
    5. Daily or Almost Daily
    6. Choose not to respond

3. Illegal Drugs  
Such as Mandrax, tik, cocaine, heroin
  1. Never
  2. Once or Twice
  3. Monthly
  4. Weekly
  5. Daily or Almost Daily
  6. Choose not to respond

---

4. Marijuana (weed, dagga)

1. Never
2. Once or Twice
3. Monthly
4. Weekly
5. Daily or Almost Daily
6. Choose not to respond

---

**Since applying for the CA programme, have you**

Been Arrested

1. Yes
2. No
3. Choose not to respond

---

Spent some time in Jail

1. Yes
2. No
3. Choose not to respond

---

Were you warned and released by the police?

1. Yes
2. No
3. Choose not to respond

---

Fined for any criminal offence

1. Yes
2. No
3. Choose not to respond

---

Do you belong to a gang?

1. Yes
2. No
3. Choose not to respond

Have you ever been a member of a gang?

1. Yes
2. No
3. Choose not to respond

---

Do you have gang members as friends?

1. Yes
  2. No
  3. Choose not to respond
-

---

Do you hang out with gang members?

1. Yes
2. No
3. Choose not to respond

---

Have you been approached by gang members to join them?

1. Yes
2. No
3. Choose not to respond

---

Did you accept to join the gang

1. Yes
2. No
3. Choose not to respond

---

**Section E: Family and Social Capital: The General Social Capital Factor and Best 36 Questions and Self Report Family Inventory**

Do you feel valued by your community	<i>No, Not Much</i>				<i>Yes, Very Much</i>
	1	2	3		4

---

Can you get help from community members when you need it?	<i>No not at all</i>				<i>Yes Definitely</i>
	1	2	3		4

---

Have you attended a local community event in the past 6 months (concert, sports days, community meetings, holiday programmes.)?	<i>No not at all</i>				<i>Yes, Several (At least 3)</i>
	1	2	3		4

---

Are you an active member of a local organization or club (e.g., sport, craft, social club, peer group)?	<i>No not at all</i>				<i>Yes, Very Active</i>
	1	2	3		4

---

Does your local community feel like home?	<i>No not at all</i>				<i>Yes Definitely</i>
	1	2	3		4

---

---

Who were you living with before applying for the CA programme?

---

Who are you currently living with?

---

**Family Reintegration Measure Adapted from the Post-Deployment Reintegration Scale (81-item version)**

**How true are these statements true to you**

Not true

at all    Slightly    Somewhat    True    Completely true

	1	2	3	4	5
I feel my family is proud of me	1	2	3	4	5
I have felt like a stranger within my family	1	2	3	4	5
I have become more responsive to my family's needs	1	2	3	4	5
I have become more involved in my family relationships	1	2	3	4	5
I have realized how important my family is	1	2	3	4	5
I feel closer to my family	1	2	3	4	5
I find that my family would like me to spend more time with them.	1	2	3	4	5
I have a greater willingness to be with my family.	1	2	3	4	5
I feel my family has had difficulty understanding me.	1	2	3	4	5
I feel my family has welcomed me.	1	2	3	4	5

*Only for Graduates*

**SECTION F: Engagement in the outdoor experience**

**To what extent are these statements true**

Not  
true

at all   Slightly   Somewhat   True   Completely true

	1	2	3	4	5
I enjoyed the outdoor experience	1	2	3	4	5
I learnt a lot about myself during the outdoor experience	1	2	3	4	5
I did all the activities in the outdoor experience to the best of my ability	1	2	3	4	5
I learnt many life lessons from the activities during outdoor experience	1	2	3	4	5

## APPENDIX C: INTERVIEW SCHEDULE

### INTERVIEW SCHEDULE

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#### Experience of the CA programme

1. Can you tell me about your life before applying for the Chrysalis Academy?

Probes:

*Who were you living with?*

*What was your situation at home?*

*What activities were you involved in?*

*What was your school situation?*

2. What made you apply for Chrysalis Academy?
3. What did you expect the programme to be like?
4. What did you expect after the programme?
5. Can you tell me about your experience at the Chrysalis Academy?

Probes

*What aspect of the programme did you enjoy and why?*

*What aspects of the programme didn't you enjoy and why?*

*Can you tell me about the staff at Chrysalis?*

*Can you tell me how you felt being at Chrysalis?*

6. Can you tell me your experience of the Outdoor Phase?

Probes:

*How did you feel about the outdoor environment?*

*How did you feel about the activities?*

*How did you feel about the facilitators?*

*How did you feel after the outdoor?*

7. What was your experience of the solo?

Probes

*What did you feel about the time alone?*

*What did you do during this time?*

*How did you feel after the solo experiences?*

---

8. Did you find the programme useful?

Probes

*What aspects of the programme did you find the most useful?*

*What are the most valuable skills you gained during the programme?*

*What are the most valuable lessons learnt during the programme?*

---

**Outcomes**

9. How has your life changed since going through the CA Programme?

*Probes*

*How has your life changed with regards to your employment or education?*

*How has your life changed with regards of your family relationships?*

*How has your life changed with regards to your involvement with the community?*

*How do you think people look at you since completing the programme?*

10. What skills/lessons that you learnt during the programme are you still utilizing now

**APPENDIX D: ANCOVA RESULTS**

**TABLE 20:**

*Results of ANCOVA for Resilience Outcome using Propensity Score Matching*

<b>Source</b>	<b>Type III Sum of squares</b>	<b><i>df</i></b>	<b><i>MS</i></b>	<b><i>F</i></b>	<b><i>Sig.</i></b>	<b>Partial Eta. Squared</b>	<b>Observed Power</b>
Programme Attendance	30.65	1	30.65	1.42	.25	.05	.21
Log Propensity score	25.76	1	25.76	1.19	.29	.05	.18
Error	541.43	25					