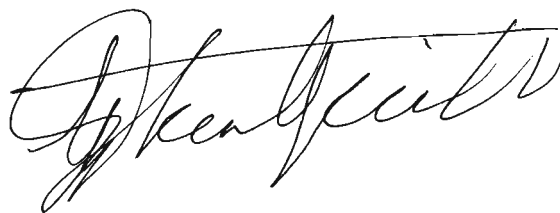


**THE EFFECTIVENESS OF THE N. P. A. T.
KWAZULU NATAL MIDLANDS ECOTHERAPY
PROGRAMME**

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A handwritten signature in black ink, appearing to read 'Gregory Streatfield', written in a cursive style.

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ABSTRACT

There is much support for ecotherapy as a psychological intervention within the current literature. Research has indicated that ecotherapy does have a detectable therapeutic effect, particularly for programmes that run for more than 20 days. Furthermore, a number of studies have provided evidence of the effectiveness of ecotherapy in improving self-esteem and psychological health. However, research and evaluation of ecotherapy programmes have been plagued with poor quality studies with serious methodological problems. Many past evaluations of ecotherapy programmes have used anecdotal evidence and outcome-based interpretations. The current study evaluated the effectiveness of the N.P.A.T. KwaZulu Natal Midlands Ecotherapy Programme. The study focused on subjects' self-esteem and the manifestation of psychological symptoms as outcome measures. The experimental design employed three different experimental groups and a control group. All experimental and control groups were administered a pretest and posttest consisting of the Symptoms Checklist-90-Revised and the Culture-Free Self-Esteem Inventory-2. The pretest was administered before the ecotherapy programme. The experimental groups were administered the posttest one month after the ecotherapy programme. The control group were given no intervention, and were administered the posttest one month after the pretest. Pretest and posttest differences were tested for significance using repeated measures analysis of variance (ANOVA). No statistically significant difference was found between the experimental and control groups on the pretest and posttest. This suggests that the ecotherapy programme had no detectable effect on the experimental group subjects' self-esteem or the manifestation of psychological symptoms. The implications of these results and future considerations were discussed.

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CHAPTER 1

INTRODUCTION

1.1 The Socio-Political Environment in South Africa

Many South African families were disrupted and destroyed through the apartheid era violence. The apartheid era's migrant labour regulations, which forced men to seek employment in urban areas away from the homelands, has broken down cultural traditions. The Land Act of 1913 allowed only thirteen percent of land to be owned by black people, which have resulted in the majority of black South Africans being poverty stricken. These factors have caused the escalation of the crime rate and general lawlessness. High levels of unemployment have also played a role. The result is that trauma in South Africa is an extensive phenomenon. Therapeutic interventions to alleviate the resultant psychological situation are underdeveloped and under-studied (N.P.A.T., 2000). Both the scale of the trauma in South Africa, and the philosophy and culture of South African communities, points to the use of group therapy (N.P.A.T., 2000). In addition, South African cultural knowledge needs to be incorporated into psychology to make it more meaningful, generalisable to, and effective in a South African context.

1.2 The National Peace Accord Trust

The National Peace Accord Trust (N.P.A.T.) was formed in 1992 as a non-profit organisation with the task of aiding the process of transformation in South Africa. Making use of a wide range of resources and socio-political networks, the N.P.A.T. has focused efforts on breaking

cycles of violence, despair, and apathy. These efforts are achieved through community-based networks, by linking resources and needs, and the use of ecotherapy programmes. These ecotherapy programmes aim to combine practical training and community upliftment. The N.P.A.T. Ecotherapy Programme is a community-based initiative focusing on providing assistance in the form of ecotherapy to traumatised individuals and communities, suffering from past and present human rights violations and abuse. The ecotherapy programmes have two major target populations: Firstly, they are intended to assist survivors of human rights violations, and secondly, youth at risk, gangsters, and ex-parolees through ecotherapy diversion programmes.

In South Africa, violence has left a large proportion of the economically active population despondent and unable to actively engage with the opportunities available in the new democratic South Africa. The N.P.A.T. has had significant success in empowering previously marginalized youth and women to become active, hopeful and caring community residents with energy to better themselves and their surroundings (NPAT, 2000). This initiative aims to develop a self-sustaining ecotherapy programme to train ecotherapy guides, from the respective communities, in order to provide communities with the necessary facilities to deal with psychological pain and trauma. In this manner, communities are empowered to begin the healing of South Africa from a grass roots level.

1.3 What are Ecotherapy Programmes?

Ecotherapy programmes address the traumas of the past and present through an outdoors therapeutic intervention, healing the “brokenness” of the body, the spirit and relationships (NPAT, 2000). Ecotherapy programmes provide participants with a structured series of

activities, interactions and challenges within nature. These events expose participants to nature, which in turn provides a challenge and the opportunity for a therapeutic wilderness experience to surface (Conner, 2000). Removing individuals from society for a brief period provides the opportunity to develop new and improved self-concept as well as development of social skills by overcoming natural obstacles provided by the wilderness experience.

Theorists in ecopsychology have claimed that human physical and mental health is connected with people's relationship with the natural environment (Conn, 1998; Davis, 1998). Therefore nature can be used to promote human physical, social and emotional development and improve psychological health (Conn, 1998; Davis, 1998; Glendinning, 1995; Greenway, 1995; Metzner, 1995; Shepard, 1995). This notion has come to be realised through the development of such programs as Outward Bound (Mason, 1987; Bell, Fisher, Baum & Greene, 1990; Bandoroff & Scherer, 1994). Studies have shown that a wilderness experience has the potential to change a person's self-concept and improve psychological well-being (Sveen & Denholm, 1997; Kelley, Coursey & Selby, 1997; Wheeler, Goldie & Carolyn, 1998; Israel, 1998; Herbert, 1998; Higson-Smith, 2001).

In the United States of America, mental health providers, insurance companies, and juvenile authorities have begun to accept ecotherapy programmes as a feasible alternative to traditional mental health services because of its relative success and cost effectiveness as compared to traditional residential and outpatient treatment (Russell & Hendee, 1999). These are important implications to consider, especially in the South African context. It is impossible in South Africa for one to one counseling to be offered to entire communities who are suffering from trauma. Ecotherapy programmes may be able to provide a solution due to its cost effectiveness as well as its focus on group dynamics.

1.4 The N.P.A.T. KZN Midlands Programme Evaluation Study

Ecopsychology has developed a number of models of the wilderness experience, which have been drawn from various theoretical perspectives in psychology. The present proposed study intends to use these models of wilderness experience where necessary. However, the study is primarily aimed at evaluating the N.P.A.T. KZN Midlands Ecotherapy Programme as an intervention rather than validating any of these specific models.

The literature suggests that ecotherapy is an effective intervention (Hattie et al., 1997, Sveen & Denholm, 1997; Kelley, Coursey & Selby, 1997; Wheeler, Goldie & Hicks, 1998; Israel, 1998; Herbert, 1998; Higson-Smith, 2001). If there are significant improvements in subjects' self-esteem, and a significant decrease in the manifestation of psychological symptoms in the current evaluation study, it will provide support for the therapeutic effectiveness of the N.P.A.T. KZN Midlands Ecotherapy Programme and the practice of ecotherapy in general. Few ecotherapy programme evaluation studies have been conducted in a South African context. It is therefore imperative to determine whether ecotherapy programmes as a psychological intervention, are able to transcend different cultural groups. The present study intends to explore these issues.

CHAPTER 2

LITERATURE REVIEW

2.1 What is Ecopsychology?

We are living cells in the living body of the Earth. Our collective body is in trauma and we are experiencing that. Even though we try to suppress it or drown it out or cut a nerve so we don't feel it, the collective plight exists at some level of our consciousness... We need to listen to ourselves as if we were listening to a message from the universe... There is no private salvation (Macy, 1995; in Conn, 1998, p. 179)

Ecology is concerned with the study of how organisms relate to one another and to their physical surroundings (Dorit, Walker & Barnes, 1991). In comparison, psychology is the scientific study of behaviour and mental processes (Honora Kineavy, 1997). Ecopsychology is a discipline that integrates ecology and psychology, focusing on the foundations of human behaviour and their relationship with the physical environment (Rozak, 1995, Honora Kineavy, 1997). It informs environmental education through the provision of psychological principles and practice, while contributing ecological thoughts and views to psychotherapy and growth (Davis, 1998). Individuals in the field suggest that the application of ecopsychology principles will lead to human lifestyles that are more balanced, and are both ecologically and psychologically healthy.

Davis (1998) maintains that ecopsychology is based on three premises. These premises are as follows:

- 1) At an unconscious level humans are deeply bonded to nature. Furthermore, they share a mutual relationship with nature. Within ecopsychology, these are represented by two predominant metaphors. Firstly, “nature as home and family (siblings, Mother)” (Davis, 1998, p. 2), and secondly, “nature as Self, in which identifications with self include the 'greater-than-human' world and Gaia” (Davis, 1998, p. 2). The Gaia hypothesis developed by Lovelock (1979, as cited in Rozak, 1995) argues that the biota, oceans, atmosphere, and soils are a self-regulating system that maintains the conditions necessary for life on Earth. In South Africa, a large proportion of society has lost this bonded and mutual relationship with nature. This is the result of group segregation due to the Group Areas Act imposed by the former South African Apartheid Government. This act forced many people to live in overpopulated townships that were far removed from areas traditionally regarded as natural.
- 2) Apparent division between humans and nature leads to suffering for both humans (for example through grief, despair, and alienation) and the environment (ecological devastation) (Davis, 1998). Many members of South African township populations display similar symptoms. This could be the result of their forced settlement away from natural areas.
- 3) “Connection between humans and nature is healing for both” (Davis, 1998, p. 2). Davis (1998) suggests that this reconnection includes the healing potential of contact with nature through such practices as ecotherapy, and work on grief and despair with regard to environmental destruction. The current study endeavours to determine whether the practice of ecopsychology, such as the ecotherapy

programme conducted by the National Peace Accord Trust (2000), can alleviate suffering in South Africa.

Similarly, Conn (1998) suggests that the practice of ecopsychology realises that the earth's needs are interdependent and interconnected to those of humans and that human physical and mental health is connected to preservation of a mutually enhancing relationship with the natural world. This view is shared by a number of other theorists in ecopsychology (Shepard, 1995; Glendinning, 1995; Metzner, 1995; Greenway, 1995). Conn (1998) suggests that ecopsychology aims to improve humans' interconnectedness within the entire system of life throughout all levels.

2.1.1 Why is there a need for Ecopsychology?

Theorists in ecopsychology suggest that the earth is a living system (Conn, 1998). This theory stems from the Gaia hypothesis. Humans are part of this self-sustaining system and have a crucial role in maintaining it. Since humans are part of the system of nature and share a mutual relationship, their psyche is bonded at a deep psychological level to the Earth (Rozak, 1995). Although this bonding is unconscious, it suggests that humans can interpret their contacts with the natural environment as "projections of the unconscious needs and desires", in a similar manner to the way they can learn about themselves through dreams (Rozak, 1995).

Theorists in ecopsychology argue that as modern society has developed, humans have lost their connection with nature. Shepard (1995) suggests that this process began with the dawn of agriculture, when humans were able to assume some control over nature. Theorists within

ecopsychology suggest that this has played a role in the decrease of general psychological health in society (Shepard, 1995; Glendinning, 1995; Metzner, 1995; Greenway, 1995). The examples of the effects of disconnection with nature in humans include such psychological symptoms as alienation, denial, numbness and despair (Davis, 1998). Ecopsychology suggests that this contact can be restored through such practices as ecotherapy, which allow humans to reconnect with nature.

2.2 Theoretical perspectives in Ecotherapy

In terms of the theoretical foundations of ecopsychology, ecotherapy models draw predominantly from either:

- 1) Experiential Learning Theory,
- 2) Jungian Psychotherapy,
- 3) Postmodernism and Social Constructionist perspectives, or
- 4) Systems Theory.

The four theoretical perspectives and their dominant premises are presented in Table 1. These theoretical stances provide divergent views and explanations of the effects of wilderness and the underlying mechanisms of change in ecotherapy. The boundaries of ecotherapy models are therefore sometimes unclear because theorists incorporate ideas from different perspectives in their models. However, the central ideas within these perspectives are compatible because their respective focuses are at different levels of the human psyche.

Table 2.1: A summary of the predominant Theoretical Perspectives in Ecotherapy

Model	Premise	Example
1) Experiential Learning	Behavioural change is the result of some form of experience.	Outward Bound, Mason's (1987) Family Wilderness Therapy Model, and Hendee and Brown's (1988) Wilderness Therapy Model.
2) Jungian Perspectives	Unconscious processes are facilitated by the transpersonal mystical experience of being in nature.	Jung, Greenway's (1995) theory of Dualism.
3) Social Constructionism	Social discourse shapes the phenomena people experience.	Narrative Psychology.
4) Systems Theory	Individual properties within a system can only be understood within the context of the entire system.	Bronfenbrenner (1979), Capra (1997).

2.2.1 Experiential Learning

Experiential learning programmes extend from the principle that all behavioural change has some form of experience as its source (Gass, 1993). In an ecotherapy programme, participants are exposed to a very different environment as compared with their normal home environment. This causes a shift in their normal cognitions. This shift could be the result of a number of factors, for example rituals used in the ecotherapy process, or exposure to a natural

environment. In order to restore the equilibrium it is necessary to change behaviour. This behavioural change is necessary to obtain a state of equilibrium because of the dissonance caused to participants by the programme (Gass, 1993). Dissonance is discussed in detail in section 2.4.2. This section will now review the influences of Kurt Hahn on ecotherapy through the formation of Outward Bound.

2.2.1.1 Outward Bound

The majority of experiential learning programmes are derivatives of Outward Bound wilderness therapy (Kimball & Bacon, 1993). Kurt Hahn, a German Educator, founded Outward Bound. He believed that an academic environment where students were thrust into experiences contributes to the emergence of pro-social values. The two categories that he found were most conducive to value formation were 1) wilderness training, and 2) rescue training (Kimball & Bacon, 1993). These programmes have led to the formation of adventure therapy programmes. Adventure therapy differs from ecotherapy as practised by N.P.A.T. In adventure therapy, individuals are placed in contrived situations specially designed to provide experiences that lead to experiential learning and behavioural change, for example, abseiling and raft building. In adventure therapy, nature does not have as important a role as the designed challenges and tasks. Some adventure therapy programmes are not even conducted in natural areas. These programmes have been predominantly used with adolescent participants, especially those who are regarded as being at risk of becoming offenders of the law.

There are however experiential learning programmes that can be considered ecotherapy. The models now presented by Mason (1987) and Hendee and Brown (1988, as cited in Ramsay,

1988) are based on experiential learning theory. Mason (1987) also draws on family therapy, which has its foundations in systems theory. Systems theory will be discussed in detail in section 2.2.4.

2.2.1.2 The Hendee and Brown Model

The Hendee-Brown model offers a particular form of explanation of how a wilderness experience facilitates personal growth through experiential learning. Their hypotheses for growth during a wilderness experience are based upon four preconditions. These are receptivity, optimum stress, change, and metaphors inherent in wilderness where:

- 1) *Receptivity* is defined as the readiness for experience. Participants need to be willing to take part in the programme and open to the experiences it offers.
- 2) *Optimum stress* refers to the correct degree of challenge during a wilderness experience in order to provide sufficient, but not excessive challenge for the individual. Too much stress may cause participants to drop out of the programme, while too little stress may not provide enough disruption to participants' cognitive equilibrium.
- 3) *Change* refers to the adjustments people make in order to adapt to a wilderness environment. Change and adjustment are necessary because of the dissonance possibly experienced by participants.
- 4) *Metaphors* are seen as innate in the wilderness. These include such obstacles as a river crossing or climbing some rocks. Metaphors assist to link actual physical experiences to psychological experiences (Ramsay, 1988).

The wilderness experience, through these four assumptions promotes personal awareness, which moves individuals to a growth motivation threshold or the so-called “growing edge”. Reappraising oneself leads to increased social awareness, especially in interpersonal relationships. This can be developed and tested in a “safe environment”. The wilderness provides an environment where conventional roles and status dissolve. These experiences are all enhanced by the primal influences of the wilderness (Ramsay, 1988).

Hendee and Brown's model provides a simplified overview of the mechanisms responsible for change in ecotherapy. Their model concentrates on a cognitive level of change, focussing only on the influence of a wilderness experience and ignoring other factors that may also influence participants, for example group process. Ecotherapy incorporates a number of mechanisms that could be responsible for behavioural change, which Hendee and Brown's models does not sufficiently account for.

2.2.1.2 Mason's Wilderness Family Therapy Model

Time spent in the wilderness provides a diversity of experiences. These experiences vary in their intensity and the degree of risk to which individuals are exposed. However, they all provide opportunities for gaining self-knowledge, which is assumed to lead to personal growth within participants (Mason, 1987). In addition, in order for a person to survive in the wilderness, the intellectual, emotional, and physical self must work in unison with the environment, providing a holistic experience (Mason, 1987).

Mason (1987) places much emphasis on the credibility of non-verbal communication compared to verbal communication. She argues that non-verbal communication is five times

more believable than verbal communication. The body experiences non-verbal communication directly through all senses. This provides feedback from more sources than verbal communication, which is more simplified. A non-verbal experience can therefore contribute far more to an individual's self-knowledge. She maintains that the wilderness experience obtains its therapeutic qualities from these non-verbal experiences. Mason (1987) suggests that self-knowledge is obtained during physical risk taking, where the wilderness experience provides the catalyst for risk and change. Her model is based on seven premises of the wilderness experience; 1) immediate feedback, 2) trust, 3) real versus perceived fear, 4) eustress, 5) facing edges, 6) physiological empathy, and 7) gender equality.

These premises provide the opportunities for the individual's gain in self-knowledge. The seven premises are defined as follows:

- 1) *Immediate Feedback*: The effects of the wilderness experience provide immediate feedback. Potential physical danger forces individuals to remove distracting stimuli from their minds in order to concentrate their awareness entirely on the narrow reality of their mind and body and the surrounding wilderness. Feedback from one's actions and deliberate inaction is clearly defined and diverse. Mason (1987) maintains that through these risk experiences individuals are reduced to becoming more real through their vulnerability. By stripping our roles, and exposing ourselves to others, and ourselves, we can see truly who we are (Mason, 1987).
- 2) *Trust*: All human relationships have their foundation in trust. Trusting behaviour differs from the language of trust as words can lie. The wilderness forces trust behaviour in individuals because they are forced to trust others in order to succeed. Thus, individuals learn how important it is to trust others and that others

can be trusted and depended on, which is hopefully transferred to their normal lives.

- 3) *Real versus Perceived Fear*: All people have belief systems about what they might fear. However, as individuals face the new stresses of the wilderness, their “perceived” fears (for example height) often fall away, exposing their “real” fears (for example a fear of failing).
- 4) *Eustress*: Ecotherapy is one of the few activities where this functional stress is obvious, evident, and liberally sought. Mason (1987) suggests that we need eustress to develop a greater capacity for becoming more of who we are. Mason (1987) maintains that the triggered stress, when successfully dealt with, activates hidden strengths that go unrecognised and untapped in most individuals.
- 5) *Facing Edges*: Ecotherapy allows each individual to find his or her own “edge”. A person's edge is the level necessary to pitch challenges at in order to maximise the experience for that participant. The respective individuals determine their edge so that success is ensured, but only after a struggle.
- 6) *Physiological Empathy*: Empathy deepens as individuals struggle together. Each individual's problem becomes the group's problem. Mason (1987) suggests that this association is experienced physiologically.
- 7) *Gender Equality*: Everyone is equal in the wilderness. Each individual, male or female, has his/her unique qualities. These qualities may be invaluable to the group's success in the wilderness. In South Africa, this premise may be extended to include racial equity.

As in Hendee and Brown's model, Mason's model focuses on a cognitive level of change.

Mason's model incorporates a focus on the role of the group in the ecotherapy process. This is

an important addition, because ecotherapy is conducted in groups and therefore has a role in the process. Furthermore, Mason's inclusion of the role of gender equality in ecotherapy is also important. However, the focus of Mason's model, as in all experiential learning models is limited by neglecting unconscious and psychodynamic components. Additionally, a number of ecopsychologists emphasise the importance of reconnection to nature, which experiential learning type models are unable to account for. These factors need to be included to provide an overarching theoretical model of ecotherapy.

2.2.2 Jungian and neo-Jungian perspectives of Ecotherapy

Jung's theories of the unconscious and its role in personality development have played a major role in understanding the impact of wilderness in ecotherapy. Jung maintains that the wilderness setting can be experienced as an archetypal realm. Upon entering the wilderness, the individuals returns to a habitat symbolic of our archetypal origins (Blow, 1990). This has the effect of restoring the psychic imbalances of our everyday lives from which we have lost contact. Robert Greenway draws on Jungian ideas, placing an emphasis on unconscious processes and transpersonal mystical experience as the important features that facilitate change in the wilderness.

2.2.2.1 A Jungian Perspective of the Wilderness

In ecotherapy, Jungian perspectives stem from two fundamental psychological concepts, namely: 1) the unconscious, and 2) the mechanism of projection. Jung maintained that within the unconscious mind, people possess a personal and collective unconscious (Robertson, 1999). The personal unconscious contains individual experiences, while the collective

unconscious contains the universal, impersonal and collective history and memories of mankind. The personal unconscious is a relatively shallow and accessible layer of the psyche, which is open to change. The collective unconscious however is at a far deeper level and is resistant to change, since it has evolved over many generations. Archetypes are found inside the collective unconscious. Jung described these archetypes as universal symbolic images. The most fundamental archetype is the "oneness of nature - the essential self" (Robertson, 1999). Ecotherapy, conducted in a wilderness rich in archetypal significance therefore assists the experience of oneness (Robertson, 1999). This experience creates new connections between participants and the environment.

Since the unconscious is not readily accessible, unconscious thoughts, images and information are projected on to the external world to be communicated to the conscious mind. Ramsay (1989) suggests that this process is similar to images projected on to a screen by a movie projector. This information needs to be transferred to the conscious mind in order to be resolved. To do this, people project these unconscious thoughts and feelings on to suitable objects in the surrounding environment. This may include other people. Petrie (1989) suggests that the wilderness is an environment, which is uninfluenced by the ego. This is essentially because the wilderness is an environment unaffected by mankind. Wilderness therefore provides an ideal "hook" for the projection of the unconscious. Hooks are objects that possess features, which in some way resemble projected material. The wilderness therefore provides a place for the unconscious and conscious to communicate, which mobilises the "transcendent function" that facilitates the shift from one psychological state to another (Robertson, 1999).

Jung regarded the psychological content and character of people's relationship to nature as compensatory (Ramsay, 1989). Jung meant by this that as people are increasingly distanced and alienated from nature, they feel a need to compensate for the loss. This compensatory relationship seems to serve to heal damage to human psychological health because of the separation and alienation from humans' natural environment.

Jungian perspectives on the role of the unconscious in people's experience in the wilderness have reference. This perspective highlights how important the wilderness is to the psychological health of people, and forms an important foundation from which to build ecopsychological theory. However, exposure to wilderness alone does not heal people's psychological problems. Therefore, it is difficult to apply Jungian models singularly in ecotherapy.

Jungian ecotherapy models provide opportunities for error, as they require a vast amount of interpretation, especially with regard to the interpretation of projections and the unconscious. Since there are no hard scientific rules to follow in interpreting projections, accurate interpretation is time consuming and requires individual attention. Ecotherapy is conducted in groups, so individual attention is not always possible. It is also possible to incorrectly interpret unresolved thoughts, especially when there is a large group of people each presenting with different projections requiring interpretation. Furthermore, it is difficult to avoid subjective interpretations of projections. Jungian theory however can be used in the follow-up interventions once the initial ecotherapy intervention has been completed.

2.2.2.2 Greenway's Theory of Dualism

Greenway (1995) suggests that culture is linked to human mental processing. Similarly, the “processes of nature” found in the wilderness are also linked to the human psyche. Therefore, prolonged time spent in the wilderness leads to renewal of the connections to the “processes of nature” within the human mind. Greenway (1995) argues that in order to accurately describe and define these processes in ecopsychology, there is a need to develop a new language or at least redefine the present language used in ecology and psychology. The present language is unable to explain these phenomena.

Greenway (1995) argues that different attempts to define “Mind” display the limitations of current language if it is to be used in ecopsychology. Scientists use mind as an alternative to “psyche” or “mental processes”. This suggests that mind is the property of an individual. Within Buddhist views, and others, mind is defined as “the sum of all natural processes and the information that emanates from them” (p. 130). In this view, mind is regarded as a property of the universe, and not merely limited to the human brain.

Consciousness is regarded as a component of the mind that allows the ability to self-reflect. Greenway (1995) argues that within modern society consciousness is often experienced as separate to the mind. This consciousness has enhanced various human capabilities, but is also responsible for human alienation. This alienation is the result of “dualism”, which can be defined as the increased development of the human capacity to discriminate (Ramsay, 1988).

Greenway (1995) maintains that dualism epitomizes human cultural knowledge and the manner in which information is processed in current society. This he suggests is the source of

the sense of human disconnection, and is responsible for the human obsession with needs and wants. Dualism alienates humans from other people, from themselves, and from the natural world (Ramsay, 1988). In the wilderness, there is a switch from culturally induced and reinforced dualistic reality processing to a more non-dualistic mode (Greenway, 1995). This reconnects humans to nature, destroying the prevailing sense of alienation and disconnection. Greenway highlights some important issues in ecotherapy. Since ecopsychology is constantly breaking new ground, there is definitely a need to produce and acquire a new ecopsychological language, which can explain the phenomena of ecopsychology. Additionally, dualism explains why there is a need for human contact with nature but still does not sufficiently explain how contact with nature is therapeutic. However, his argument of dualism needs to be considered if an overarching model of ecotherapy is ever to be developed.

2.2.3 Social Constructionism

Ecotherapy is predominantly conducted in a group setting. In the ecotherapy programme, social discourse has an important role, allowing individuals to relate and discuss their life experiences and ecotherapy experiences. Social constructionism, a school of thought arising out of postmodernism, argues that knowledge is the result of social discourse and invention, and is therefore an important theoretical perspective to include in ecotherapy. Social constructionism claims that social discourse shapes the phenomena people experience and refer to, and that these vary substantially through space and time (Berggren, No Date). These phenomena are dependant on prevailing social circumstances and context. Since the ecotherapy experience is conducted in a generally unique and unfamiliar setting (the natural environment), social circumstances and context will affect individuals' experiences. Of the

social constructionist paradigm, narrative psychology is the most applicable perspective to ecotherapy.

2.2.3.1 Narrative Psychology

Storytelling, as a metaphor has been used extensively in recent psychological research. However, most notable was the rise of the narrative approach in the 1980's through Bruner (1986, as cited in Wigren, 1994) and Sarbin (1986, as cited in Hermans, 1996). Perspectives differ on the actual function of narratives within cognition. Howard (1991) argues that all thinking is narrative. Other theorists suggest that narratives are a characteristic form used for the explanation of significant action (Bruner, 1986, as cited in Wigren, 1994).

Polkinghorne (1988, as cited in Wigren, 1994) argues for the use of narrative approaches as they highlight human meanings. Social constructionists maintain that personal identities derive from social narratives (Gergen, 1985, as cited in Wigren, 1994; Sampson, 1986, as cited in Wigren, 1994). Furthermore, cognitive science realises the importance of narratives, suggesting that they have a role as a principal structure for cognitive organisation (Schank, 1990, as cited in Wigren, 1994). However, many of these studies fall outside the scope of this section where the pertinent focus is the importance of the narrative approach within psychotherapy and its role in ecotherapy.

Howard (1991) suggests that therapy is a process of repairing a client's story. Therapists attempt to replace negative self-narratives with those that are more useful (White & Epston, 1990). The foundation of narrative psychology is that narratives not only reflect a person's life, but also shape it. Stories control the manner in which a person makes decisions, his or

her actions and reactions, emotions, and thoughts. Furthermore, they sew together the wide range of identifications that orientate an individual's sense of self (Russell & van den Broek, 1992). Narratives are formed when people connect past and future, affect and cognition, and internalise self-representations and those expectations that accompany them (Lysaker & Lysaker, 2001). Jungians maintain that many of the story elements people live by are buried within the unconscious, and are related to the great myths that have captured the experience of the whole human race over hundreds of years (Howard, 1991).

Narratives provide unity to experience in a fluid and dynamic manner (Crossley, 2000, as cited in Lysaker & Lysaker, 2001). Narratives are essentially dialogical, and are sustained through ongoing dialogue within the person, and between the person and others (Lysaker & Lysaker, 2001). Bakhtin (1981, as cited in Lysaker & Lysaker, 2001) argues that different components of the self with various social roles "interanimate each other" or provide meaning to one another through their dialogue. These are important factors with regard to maintaining a continuous stream of consciousness.

Narratives serve three fundamental psychological functions:

- 1) They provide and contain the understanding necessary for use of experiences to predict and respond to future experiences, and furthermore to understand those experiences (Schank, 1990, as cited in Wigren, 1994).
- 2) Narratives are an essential means for social exchange. People communicate through relating stories (Demattos, 1994, as cited in Wigren, 1994).
- 3) Narratives provide the mechanism to thoughts and feelings and communicate those (Wigren, 1994).

Stories are essentially the result of social creation (Wigren, 1994). People spend much of their time narrating their lives. This allows the individual to share experiences and explain their ideas to others. Stories arise from the life experiences a person has. As these experiences occur, they become part of the individual's self-narrative. Depending on the outcomes of each experience, these may be interpreted as successes or failures, important or unimportant (Pauw, 2000). It is however impossible to incorporate all experiences into an individual's self-narrative, only those that are most significant or meaningful. It is important to stress that a self-story is not exactly the same as the experiences a person has, but rather an interpretation and selection of those experiences (Veroff, Sutherland, Chadiha, Ortega, 1993; as cited in Pauw, 2000).

2.2.3.1.1 The Effect of Trauma on Narratives

Trauma occurs when there is a threat to life or body or in situations where a person encounters violence and death. Memories developed during traumatic situations are very different to ordinary memories. Wigren (1994) maintains that ordinary memories are predominantly narrative in formation, compared to traumatic memories, which are emotionally vivid, uncondensed, and frequently disconnected from the primary memory system. Traumatic memories cannot be controlled at will, but rather emerge in response to “triggers”.

Herman (1992) suggests that traumatic symptoms have the tendency to disconnect from their source and take on a life of their own. These are often accompanied by intense affect and often vivid imagery, and can appear as somatic sensations. Ordinary memory contains affect that is modulated (Wigren, 1994). These memories do not produce overpowering affect, and

are able to be recalled voluntarily. Should the memory be triggered, it is possible to retain control of, and turn attention to, other matters. People contain affect through the construction of narratives. When the memory is in a narrative form, there is affect linked, and therefore contained in that episode, relative to that specific time, place, character, and meaning (Wigren, 1994).

Trauma interrupts both social and psycho physiological connections that make story making possible (Wigren, 1994). Narratives provide the structure to bind affect with cognitive events. To connect mind and body requires sophisticated and coordinated action from a number of structures within the brain. Cognition is the result of activity within the cerebral cortex, while affect is generated within the limbic system. During a crisis, the limbic system activity increases. The individual is continually primed to make fast and gross distinctions, and act in a self-preserving manner. Concurrently, the cerebral cortex is relatively repressed. Memories acquired during this time are intense, and from a cognitive point of view, are poorly organized (van der Kolk, 1998, as cited in Wigren, 1994; van der Kolk & Sapporta, 1991, as cited in Wigren, 1994; van der Kolk, 1993, as cited in Wigren, 1994).

These affectively dominated experiences are processed cognitively at a later stage. Trauma however presents special difficulties in cognitive processing. Integration of such information involves the incorporation of new instances of what is already understood. However, traumatic information is alien and cannot be easily assimilated. Kelly (1963, as cited in Wigren, 1994) explains that accommodation of information occurs when the information is novel, and not threatening. Kelly (1963, as cited in Wigren, 1994) defines novel information as information that is unfamiliar but can be understood by extending or recombining existing

understandings. Since trauma is information that generally falls outside this range, it is not easily processed without large shifts in existing schemata.

Traumatic information challenges and threatens the previously held assumptions, that the individual holds, of the existing inter and intrapersonal worlds. This forces the individual to make rapid decisions in order to preserve himself or herself. This is at the expense of complex reasoning. Furthermore, traumatic information is not easily integrated and therefore difficult to accommodate. These problems however can be overcome, and normal narrative processing restored, through appropriate social support.

2.2.3.1.2 The Narrative Approach in Psychotherapy

Howard (1991) suggests that narrative therapy invariably starts with an invitation to the client to tell his or her story. In the course of doing so, the client provides the therapist with an initial idea of his or her orientation toward life and ambitions in life. Additionally, this provides the therapist with some idea of the events and stresses surrounding the presenting problem. The narrative approach principles provide a structure from which to identify places of incompleteness in patients' stories and help focus psychotherapeutic attention (Wigren, 1994). Psychotherapy provides the opportunity to address narrative coherence (Lysaker & Lysaker, 2001).

Five characteristics of narratives within human cognition can be used as important tools in psychotherapy (Wigren, 1994). The creation of narratives is crucial to psychological organization, while narrative activity serves to make connections at different levels of the self and to others. This can be seen in the important role that narratives play in relational schema.

Narratives organize and contain affect. The formation of narratives provides a platform to experience and share cognitions, therefore forming a necessary link between mind and body. Moreover, the disruption of narratives can result in psychopathology. These factors are important in the explanations of the experience of, and in the treatment of trauma and the possible development of posttraumatic stress disorder. Lastly, attention to incomplete narratives is a useful focus for psychotherapy. Complete stories relate experiences, identify affect, and make meaning of the relative situations. This is highlighted in the incoherent narratives present in schizophrenia (Lysaker & Lysaker, 2001). These features provide an important framework from which to assess clients.

The synthesis of self-narratives requires a level of individual awareness. Without this, there is no chance that sense of self will increase as narratives evolve (Lysaker & Lysaker, 2001). Lysaker and Lysaker (2001) suggest that such awareness is not synonymous with a narrative sense of self. Instead, self-narratives are activities generated through the movement between self-positions within the relative collective experiences that support existing identifications (Hermans, 1996, as cited in Lysaker & Lysaker, 2001). Thus, narrative coherence between self-positions is accomplished and sustained, as well as experienced.

When people struggle to make sense of an experience they will replay the event many times. This is an attempt to make sense or give structure to that experience. Stories reflect these attempts to make meaning to one's life. People are not always able to fully understand an experience as it first enters awareness. Mishara (1995) suggests that this may be due to a lack of coping strategies or the intensity of the experience. Telling and retelling the story gives a person a sense of control over that event. This is especially so after a traumatic event. In narrating a past trauma, the individual changes his or her relationship and meaning to that

trauma in the present (Mishara, 1995). However, Mishara (1995) maintains that this does not occur through the use of language alone, but by an “opening up” to the whole experience through a total “bodily self” attitude. This requires narration to link body and mind. The narration of the event makes it possible to actively assume a new viewpoint in which the self that experienced the event can be experienced as “other” to the present self (Mishara, 1995). This provides new perspective on the traumatic experience.

During narrative activity, a person can simultaneously take the role of narrator and “the narrated self” of the traumatic experience. Thus, the action of narration brings about a divide of the self. Mishara (1995) proposes that people are always simultaneously self and other, subject and object. Through the narrative act, the subject in the present can detach from the subject who suffered the traumatic experience. Through narration, people are able to transcend what was previously impossible. In this manner, they are able to overcome the experience. This allows the development and acquisition of new self-narratives, as well as allowing greater perspective of themselves.

2.2.3.1.3 The Implications of Narrative Psychology for Ecotherapy

Self-narratives are multi-levelled, incorporating a number of experiences. It is when they become thin that problems arise, as this limits the person (White, 1995). In these situations, certain stories will dominate thought, memory, and action, and in turn provide greater influence over the individual (Pauw, 2000). The person becomes removed from those stories containing joy, mastery, and competence. The dominant narrative suppresses these. Furthermore, it restricts and excludes the acquisition of new narratives.

A therapist should use the following steps to incorporate new narratives within an individual, to assist the individuals to overcome dominant narratives which are of little assistance:

- 1) Look for new descriptions of narratives.
- 2) Explore alternative explanations for current narratives.
- 3) Painful experiences need to be acknowledged, and thus the pain shared.
- 4) Find stories showing strength, survival, competence, joy, etc.
- 5) Release and reflect on previously neglected experiences.
- 6) Explore unique outcomes (Alternative stories).

These steps assist to decrease the power of the dominant problem saturated narrative. The person begins to see alternatives and therefore alternative narratives are created, which leads to a richer story. New stories and those previously forgotten are now incorporated to construct an ever richer self-narrative. White and Epston (1990) maintain that therapy is a process of re-storying an individual's life.

Narrative Psychology provides an important framework from which to work in ecotherapy. Participation in ecotherapy trails provides the chance to acquire new self-narratives containing mastery and competence. The wilderness is full of metaphors that represent narratives of many different types. These narratives can easily be acquired through interacting with the environment. Moreover, the wilderness allows the opportunity to remove an individual from a normal setting to one that is foreign. This automatically allows a shift in normal focus, which in turn provides the opportunity to grasp new perspectives of old narratives, and in the process form new ones.

Ecotherapy provides the occasion to share self-narratives with others, an opportunity which many people may never have had previously. This opportunity also allows new perspectives

to be developed because different individuals may interpret the same narrative differently. Similar experiences are not interpreted or understood in the same way by different individuals. People experiencing the same event will each provide a different account of that event (Pauw, 2000). Additionally, painful experiences can be shared with others and pain shared amongst the group, alleviating the individual. Under the facilitation of the ecotherapist, there is also the opportunity to restructure present narratives. This allows the individual to acquire new interpretations and change perspectives of old self-narratives.

2.2.4 Systems Theory

Systems theory maintains that all essential elements of an individual are elements of the whole system (Capra, 1997). The properties of a system arise because of the interactions and relationships between the system components, and are destroyed when the system is broken down into its individual elements. The system acts as a set of networks attempting to regulate the “amount of stability and change” (Campion, 1983, p. 11). The nature of the whole system is greater than the relative sum of the components of the system. These views have been adopted in psychology, most notably in Bronfenbrenner's Ecological Perspectives of Human Development and in Family Systems Theory. Discussions of these pertinent theories are presented in sections 2.2.4.1. and 2.2.4.2. respectively.

2.2.4.1 Ecological Perspective of Human Development

Ecological perspectives of human development contain an increasing body of literature concerned with the processes and conditions that affect human development in naturalistic settings. Bronfenbrenner (1979) argues that in the past developmental psychology has

focused predominantly on behaviour in contrived settings that are not always generalisable to settings that are more natural. He maintains that in order to understand human development, the entire environment where development occurs must be considered (Bronfenbrenner, 1979). This view incorporates those of systems theory presented above in section 2.2.4.

Bronfenbrenner (1979) suggests that at a fundamental level human development is shaped by increasingly complex reciprocal interactions between the child and the objects, events, and persons in his or her environment, where the child is considered an active participant. This notion argues that the multiple sources of the environment that a child experiences and interacts with, influence the child's development. Since development does not occur in isolation from other people, this is important to consider.

According to Bronfenbrenner (1979), the environment consists of five interconnected subsystems described as a set of nested structures, each inside the other like a set of Russian dolls. These subsystems, effecting the child's development, are the microsystem, mesosystem, exosystem, macrosystem, and chronosystem. The microsystem is a pattern of actions, social roles and interactions experienced by the developing child in his or her immediate environment (Bronfenbrenner, 1979). These particular settings include such examples as the family, school, and peer groups. The mesosystem is composed of the interactions of the various microsystems that the individual possesses. Bronfenbrenner (1979) describes the mesosystem as a system of microsystems. The exosystem consists of the interactions between contexts with which the child has no direct experience of, but directly influence the setting in which the child lives (Bronfenbrenner, 1979). For example, this may consist of either one of the parents' respective workplaces, or the family social network. Bronfenbrenner (1979) describes the macrosystem, comprising the microsystem, mesosystem, and exosystem, as a

blueprint for a particular culture or subculture. The macrosystem particularly refers to the belief systems, knowledge bases, customs, and life-styles that are associated with the respective cultures. Finally, the chronosystem consists of the change to individuals and his or her environment experienced over time (Bronfenbrenner, 1979).

2.2.4.2 Family Systems Theory

Systems theory argues that the individual's properties of a relative system can only be understood within the context of that whole system (Capra, 1997). The elements of a system possess meaning only in the context of their entire system, and are meaningless when examined in isolation. Psychology has adopted this ecological notion within family therapy, which regards the family as a system (Giles-Sims, 1983; Champion, 1985). Family systems theory places emphasis on the interactional nature of a family, stressing that those occurrences affecting individuals in a family influence the entire family's experiences (Meisels & Shonkoff, 1990).

The family is viewed as consisting of subsystems, for example parental, sibling, and spouse (Meisels & Shonkoff, 1990). This perspective maintains that family problems must be interpreted within the context of the family subsystems, where a family member's problems are regarded as the result of interactions within the family. In order to resolve these problems, the processes within the context of the family system must be analysed.

2.2.4.3 The Implication of Systems Theory for Ecotherapy

As in family therapy, systems theory also has an important role in ecotherapy because at a fundamental level humans are components of the earth system. In order to understand the psychological problems humans face, ecopsychologists require an understanding of humans within the context of the earth system and Gaia. By isolating humans from this system, the meaning and understanding of pertinent issues is lost. Systems theory argues that properties of the elements of the system are properties of the whole system. Humans are part of the earth system. Therefore, human psychological problems can be interpreted as the result of problems within the earth system.

Systems theory possesses important foundations from which to build ecopsychology and ecotherapy. However, systems theory can only really answer why there is a need for an ecologically focused psychology. It is unable to substantially answer how ecopsychology can achieve these goals. Furthermore, systems theory is not able to explain how the practice of ecotherapy is therapeutic and what particular mechanisms are responsible for its therapeutic qualities.

2.3 Contextual problems

Ecotherapy contains a number of contexts all of which may affect participants' experiences.

These can include such factors as:

- 1) The type of environment (e.g. a mountain versus a river gorge),
- 2) The participants (Survivors of Human Rights Violation, Youth at risk, Diversion Programmes, Street Children),

- 3) The duration of the trail (e.g. Three days, a week versus, or a month), and
- 4) The type of ecotherapy trail, (e.g. backpacking trail versus a base camp).

However, it could be argued that various other contexts could also be included. This may include for example the style and technique of the facilitator, trail preparations, participant expectations, and the follow-up intervention once the trail is complete. The therapeutic qualities of ecotherapy are therefore difficult to assess without including research that controls the effect of all contextual variables.

It is extremely difficult to define exactly what constitutes a natural environment. However, research suggests that people associate certain factors with natural environments (Mausner, 1996). Mausner's study established that prominent geological features, (e.g. mountains or rivers), and abundant natural elements, (e.g. trees in a forest), are closely associated with very natural environments. Her study indicated that these environments suggest "untouched" or "unspoiled" natural beauty (Mausner, 1996). The apparent "naturalness" of the environment is important as it may influence participants' experiences during the ecotherapy trail. This is yet to be verified in research.

Furthermore, different environment types are complicated to accurately define because they are highly variable. Both flora and fauna appear to change continually within different habitat types. Additionally, how does one define a specific environment when it is almost impossible to distinguish its boundary from another environment? Kaplan and Kaplan (1989) argue that humans have a clear concept of nature, yet the language to discuss it is generalised and lacks precision. Since the environment type has a profound effect on the psychological experiences of participants, ecotherapy needs to develop language to categorise the environment types associated with different psychological impacts on participants.

Different environments types possess varied projected meanings (Schell-Faucon, 2001). For example, a mountain may symbolise challenge, obstacle, spirituality, while a river gorge may symbolise birth cleansing, fertility, and protection (Schell-Faucon, 2001). These different projected meanings will therefore affect ecotherapy participants in a different way. The ecotherapy experience needs to be carefully planned to match the therapeutic goals for particular participants. Other environmental factors, for example weather and season, may also influence the ecotherapy experience. These aspects need careful consideration before the trail commences, as they affect the outcomes of ecotherapy.

Different participants require a different focus in ecotherapy intervention as their therapeutic needs differ. For example, an ecotherapy trail with survivors of human rights violation would have different goals to an ecotherapy trail for youth at risk. For the youth at risk there is more need to develop resilience. However, survivors of human rights violation would require more focus on such issues as trauma. These goals require a different type of ecotherapy intervention. At present, little, if any, research has determined whether ecotherapy is more effective for different participants and what types of ecotherapy trails are more suited to different participants.

The duration of the ecotherapy intervention has major influence on the impact of ecotherapy on participants. A longer ecotherapy trail allows more time to be spent in the natural environment and more time away from a possibly troubled environment (especially the case with participants who are youth at risk). Additionally, a longer duration means that pertinent issues can be dealt with in greater depth, and information obtained can be processed more efficiently. At present the N.P.A.T. Ecotherapy Programme use three or five day trails. Hattie, Marsh, Neill and Richards (1997) have found that ecotherapy programmes lasting

longer than 20 days had a greater therapeutic effect. However, research on N.P.A.T. ecotherapy programmes at present has not yet determined the optimum trail duration.

The type of ecotherapy trail also has an influence on the impact of ecotherapy. Ecotherapy trails can be conducted either from a base camp or as a backpacking type trail. Backpacking trails allow more time to commune with the natural environment in a more physical manner. A base camp trail however allows more time to discuss issues within the group. Both trail types have their benefits, which need to be matched with the relative goals of the participants of the trail, although this has not been verified through any research at present.

2.4 The Change Mechanisms of Ecotherapy

This section intends to outline and discuss the causal mechanisms that facilitate change through the medium of ecotherapy. These causal mechanisms are important to isolate and investigate, as they are responsible for the therapeutic qualities of ecotherapy. These mechanisms include such aspects as projection and metaphor, dissonance, reconnection to nature, group process, internal focus, and unfamiliar environments.

2.4.1 Projection and Metaphor

As stated earlier, wilderness is an environment unaffected by the ego, because it is in essence unaffected by man (Petrie, 1989). In addition, the natural environment is a rich source of metaphors. Rosenblatt (1994) defines metaphor as "... a figure of speech in which words or actions that literally denote one kind of object or idea are used in place of another, suggesting a resemblance or analogy". Since the natural environment is a rich source of metaphors, it

provides an ideal “hook” for the projection of the unconscious. Reflecting on the projected items allows participants to make what is unconscious conscious. This provides the opportunity for the unconscious and conscious to communicate. This is necessary for transcendence from one psychological state to another. Furthermore, if change is to occur, participants need to understand what is happening at an unconscious level.

The design of the ecotherapy experience is based on the fundamental belief that physical obstacles, challenges, and achievements are reciprocal to their psychological equivalents and are part of the same process (Robertson, 1999). This parallel process is due to the metaphorical representation of life challenges within the natural environment. Participants are able to metaphorically deliberate on their life challenges, through the assistance of the group, and the facilitation of the ecotherapist. This provides the participants with the opportunity to obtain greater awareness of their own personal abilities, develop new social skills, and connections to others, which leads to personal growth.

2.4.2 Dissonance

Within experiential learning models of ecotherapy, dissonance is considered to be an important causal agent of change. Cognitive dissonance is a state of psychological stress that occurs when a person simultaneously holds two cognitions (beliefs, thoughts, attitudes) that are inconsistent with each other (Festinger, 1962). Gass (1993) suggests that it is necessary to remove the person from a place of comfort into a state of dissonance for behavioural change to occur. Behavioural change occurs because individuals are motivated to reduce the state of dissonance, as it is uncomfortable. Ecotherapy removes participants from familiar settings, placing them into an unfamiliar setting, which creates a state of dissonance.

Anxiety is often an effect of a participant's state of dissonance. Systems theorists argue that an increase in anxiety can induce change (Mason, 1987). In the unfamiliar natural environment, a heightening of anxiety would be expected because of the stress caused by the new and unfamiliar experience. For many of the participants, it may be their first experience of the wilderness. Rational fears, such as that of animals, or the vulnerability induced by sleeping in a tent in the unfamiliar wilderness would most certainly heighten anxiety.

There are limitations to the theory of dissonance as a causal agent of behavioural change. It is difficult to establish when two cognitions are suitably inconsistent to cause a state of dissonance. Furthermore, cognitive dissonance is a highly subjective phenomenon, since what is dissonant to some people may be pleasant or paradoxical to others. Additionally, some people may choose to accept their shortcomings rather than alter their behaviour to release the tension. However, there is supporting literature for the role of dissonance in behavioural change, which requires the thorough investigation of its role in ecotherapy.

2.4.3 Reconnection to Nature

Ecopsychologists argue that renewing the connection between humans and nature is essential for both (Davis, 1998). Davis maintains that contact with nature is healthy and healing. This view has gained support from a variety of theoretical perspectives (Davis, 1998; Conn, 1998; Duncan, No Date; Rozak, 1995, Kaplan & Kaplan, 1989). In order to reconnect to nature, humans need to spend quality time in natural environments. Reconnection relates to Jung's argument that humans strive toward a state of wholeness. Since humans are part of the Earth system, reconnection to the system could be interpreted as "wholeness".

The process of reconnection to nature is a theoretical proposition from ecopsychology. There is a great deal of anecdotal evidence to support the proposition that reconnection to nature is therapeutic. This emphasises the importance of including reconnection as a possible mechanism of facilitating change in ecotherapy. However, currently a thorough scientific investigation of this mechanism has not yet been conducted, and is urgently needed.

2.4.4 Group Process

Group process is an important tool for the implementation of change in ecotherapy. Kimball and Bacon (1993) regard group process as the core of ecotherapy. Personality is largely shaped through contact, involvement, and exchange with others. Through repeated use of the group process, participants gain greater insight into their own behaviour (Kimball & Bacon, 1993). Therefore, in order to alter and reshape personality, it is useful to use group processes. In addition, this provides opportunities to develop interconnections with others through the empathic and nurturing qualities of the group (Robertson, 1999). Group process in ecotherapy allows participants to explore healthier ways to relate to others, while also providing a safe environment for healing to occur. Satisfying physical needs, healing, personal growth are all experienced in relation to, and with the support of the group. The effort of the wilderness experience also strengthens ties within the participant group, making exchanges easier.

2.4.5 Internal Focus

Wilderness areas improve the ability to focus internally. This is because there are fewer outward distractions than in normal environments (Duncan, No Date). The lack of outward distractions, and increased self-dependency, provide more time for inward self-reflection.

Duncan (No Date) argues that this experience improves self-concept. However, this statement is highly generalised and lacks the support of scientific verification. Furthermore, internal focus is not a specific quality associated with spending time in a natural environment. Although, when ecotherapy participants conduct a “solo experience”, greater internal focus would be anticipated. Nonetheless, improved internal focus accompanied with other change mechanisms may result in improvements to self-concept.

2.4.6 Unfamiliar Environment

The unfamiliar nature of the wilderness has been suggested as a possible reason why ecotherapy is therapeutic. Kimball and Bacon (1993) suggest that the novelty of an unfamiliar environment can facilitate growth. Ecotherapy removes participants from familiar environments placing them into situations, which are new and unique. Gass (1993) argues that this enhances the effects of the intervention because participants possess few predetermined expectations of an unfamiliar environment. It creates a safe environment for participants to explore personal issues. These qualities of the environment limit self-destructive behaviours, while freeing the participants’ resources for adaptation and change.

Furthermore, it has been argued that unfamiliar environments are more simple and uncomplicated (Walsh & Golins, 1976, as cited in Gass, 1993). Problems in such an environment are therefore more easily identified as they are presented more clearly. There are also no secondary issues that may complicate matters unnecessarily. Moreover, unfamiliar environments provide a situation that contrasts with participants general reality state (Walsh & Golins, 1976, as cited in Gass, 1993). This contrast allows participants to gain new perspective on themselves.

Research has shown that ecotherapy has had relative success with troubled youth as compared to other interventions. The individual's removal from a dysfunctional home environment interrupts prevailing interactive patterns that continue the problem behaviour (Bandoroff & Scherer, 1994). Other interventions do not remove individuals from their home environments, which may therefore be a contributing factor to the success of ecotherapy.

2.5 The Therapeutic tools of Ecotherapy

In order to implement change, various therapeutic tools are necessary. The practice of ecotherapy makes use of these therapeutic tools. How and why specific tools are used and the aim of using such a tool is discussed below. In ecotherapy, these include such practices as ritual, group sessions, rite of passage, and the solo experience.

2.5.1 Rituals

The use of ritual plays an important role in ecotherapy. Rituals play an important role in framing activities. Framing assists participants to recognise the connection between an activity and significant issues in their daily lives (Kimball & Bacon, 1993). The process of using rituals in activities stresses the importance of participation, while also making activities more meaningful to the participants. Furthermore, it is argued that rituals possess a transcendent function, which facilitates shifts in psychological states (Schell-Faucon, 2001). Cycles and symbols are used in the rituals also to assist in conveying meaning. Using appropriate framing techniques, rituals can assist change mechanisms such as projection, reconnection to nature, group process, and internal focus.

2.5.2 Group Sessions

As stated above, group process is an important mechanism of change in ecotherapy.

Ecotherapy provides many opportunities for participants to interact in groups. Participants take part in various exercises designed to increase interactions amongst each other. This may be achieved through walking as a group together through the “wilderness”, or by discussing various cycles within the system of life. Part of the ecotherapy intervention is to provide equal opportunities for all participants to share their personal experiences through providing feedback. This feedback may be either the participants’ own stories, or their ecotherapy experiences. This activity is important for participants’ respective self-narratives. The opportunity is presumed to be therapeutic, allowing participants to restructure self-narratives and gain new perspective.

2.5.3 Rite of Passage

Within the South African context, ecotherapy maybe regarded as a cultural “rite of passage” (Schell-Faucon, 2001). Rite of passage is an extremely powerful tool for inducing transformation and change. However, it is only so when linked meaningfully to participants cultural understandings. Undergoing the ecotherapy experience can transform participants if used in conjunction with cultural knowledge. This transformation allows participants' to reappraise their personal status, and to become more integrated within their respective communities (Schell-Faucon, 2001). Since participants enter a new phase of life after the ecotherapy experience, they require assistance. Their respective communities therefore have an important role to play in providing such assistance.

Robertson (1999) suggests that in the South African context, individual healing is interdependent with that of the community. The importance of the community relates to Bronfenbrenner's stressing of the importance of the environment in an individual's development. Since the community represents a macrosystem containing the fundamental elements of South African culture, individual growth is a product of community growth and development. Healing of the individual therefore becomes the healing of the community and vice versa (Robertson, 2000; as cited in Schell-Faucon, 2001). Within this background, the importance of incorporating and combining such traditional practices as rites of passage into ecotherapy can be seen. Rite of passage is also related to reconnection. Individuals are part of the community system. By undergoing a rite of passage they are accepted back into the community, renewing their personal connection to the community.

2.5.4 The Solo Experience

As part of the ecotherapy experience, all participants are required to conduct a "solo". The solo experience is an activity whereby the individuals spend 24 hours alone in the wilderness. Participants are given a backpack, sleeping bag and other essentials, and are required to stay away from camp, from sunrise to sunrise the next day. Participants are encouraged to take as few distractions as possible. These include items such as food, radios, and cellular telephones. This experience is an important component of ecotherapy. It provides the opportunity for participants to directly experience nature and the wilderness alone. Additionally, it amplifies the mechanisms of change in ecotherapy.

Without distractions, participants are able to project the unconscious onto the external environment, which can be reflected on at a later stage in the programme (This feedback time

is provided for in the ecotherapy programme schedule). Furthermore, a state of dissonance might well arise due to the unfamiliar environment and because of being alone. The solo experience also allows time to focus internally due to the lack of distractions.

2.6 The Efficacy of Ecotherapy

There is much support for ecotherapy as a psychological intervention within the current literature. These studies highlight the usefulness of ecotherapy as an intervention. The majority of these studies however have focused on either youth at risk or clinical populations. Much of the research is therefore not entirely applicable or generalisable to normal populations. Research needs to verify whether ecotherapy is an effective intervention for other groups, for example survivors of human rights violation. Furthermore, there is little research within South African contexts. These factors indicate the importance of the current study.

A meta-analysis of 96 different studies performed by Hattie, Marsh, Neill, and Richards (1997) indicated that ecotherapy does have a detectable therapeutic effect, particularly for programmes that run for more than 20 days. Furthermore, a number of studies have provided evidence of the efficacy of ecotherapy in improving self-esteem (Sveen & Denholm, 1997; Kelley, Coursey & Selby, 1997; Wheeler, Goldie & Hicks, 1998; Israel, 1998; Herbert, 1998; Higson-Smith, 2001). Ecotherapy programmes have been found to have an effect size of 0.26 for self-esteem compared to other educational programmes, which had an effect size of 0.19 (Hattie et al., 1997). Kelley et al. (1997) demonstrated that ecotherapy produced significant reductions in scores on the Anxiety and Depression subscales in the Brief Symptom Inventory (BSI) within clinical population suffering serious and persistent mental illness.

Moreover, Higson-Smith (2001) found improvements on self-esteem scales in participants on the N.P.A.T. ecotherapy programme. Ecotherapy programmes maintain their effects for a lasting period after the intervention is completed. Sveen and Denholm (1997) found significant differences between treatment and control groups, and that the treatment had lasting effects for a period of twelve months. Hattie et al. (1997) have also discovered support for the lasting effects of ecotherapy programmes in their meta-analysis.

Research and evaluation of ecotherapy programmes have been plagued with poor quality studies with serious methodological problems. These include such evaluation essentials as comparison and control groups, non-standardised intervention, no randomisation, and no longitudinal study of programme effects (Durrheim, 2002). Bandoroff (1989, as cited in Bandoroff & Scherer, 1994) maintains that support for wilderness therapy has been equivocal. He suggests that the studies are primarily quasi-experimental in design, plagued by threats of internal validity within samples. Many past evaluations of ecotherapy programmes have based their studies on anecdotal evidence, with the analysis of results being little more than a correlation examination (Hattie et al., 1997).

Hattie et al. (1997) suggest that a number of past evaluations can be regarded as little more than programme advertisements and that the emphasis on positive findings and ignoring negative evidence is disturbingly common. Furthermore, many studies have claimed significant effects based on qualitative evidence even when the quantitative evidence has not been statistically significant. Similarly, Scherl (1988, as cited in Ramsay, 1988) suggests that most ecotherapy research reported in the literature relates to outcome-based interpretations. Hattie et al. (1997) argue that many evaluators have become frustrated because they can not detect significant effects even though they sense major change. These studies are however

ignoring the major issue of statistical power. These studies are unable to obtain statistical significance, not because ecotherapy has no effect, but because of the small power of the studies due to the small sample size (Hattie et al., 1997).

A number of studies have made broad generalisations of improvements to self-concept and self-esteem after investigating the effects of specific self-concept dimensions (e.g. personal self-esteem) (Hattie et al., 1997). However, self-concept is dynamic and multifaceted, and regulates, mediates and reflects on on-going behaviour (Markus & Wurf, 1987). Self-concept consists of a knowledge and evaluative component (Campbell, Trapnell, Heine, Katz, Lavalley & Lehman, 1996). The knowledge component contains information pertaining to who and what the person is and represents, and the evaluative component is made up of self-esteem and self-beliefs (Campbell et al., 1996). Although self-concept can be changed (Markus & Wurf, 1987), it is unlikely that a shift in a specific dimension of self-concept is going to lead to overall changes.

Researchers argue on what elements of ecotherapy are responsible for its proposed therapeutic qualities. Ecotherapy possesses many possible causal agents all of which could be responsible for its psychological benefits. Scherl (1988, as cited in Ramsay, 1988) attempted an empirical evaluation of the psychological components of a wilderness experience and their dynamic interactions. She employed the repertory grid technique in order to provide patterns of the various dimensions of a wilderness experience over time. Her reliance on logbooks as her database however severely limited the validity of her information, because it failed to accurately capture the essence of the wilderness experience. The wilderness is an ecosystem where individual factors are interdependent. The system needs to be viewed holistically. It is

therefore difficult to break up individuals' experiences into various dimensions representing wilderness experience.

A number of researchers have attempted to avoid the wilderness context entirely. Instead, they have focused on identifying qualities of instructors that facilitate self-development and personal growth in participants (Easley, Roggensbuck & Ratz, 1985 in Ramsay, 1988; Hendy, 1975 in Ramsay, 1988; Sirois, 1986 in Ramsay, 1988). Research has determined that factors important in an instructor include warmth, degree of freedom, calmness, acceptance, supportiveness, and enthusiasm. Furthermore, it has been illustrated that instructors, on the 16 PF Inventory, were high on maturity, aggressiveness, enthusiasm, conscientiousness, and sensitivity ratings. Further studies have found high ratings on the reserved, bright, tender-minded, imaginative, forthright, and experimenting dimensions. Although these studies are of practical importance for facilitator selections and education, they do not however illustrate the unique contribution of the wilderness experience.

The ecotherapy literature indicates that the intervention requires further investigation. At present, few, if any definitive studies on the efficacy of ecotherapy programmes have been conducted. Studies incorporating informed evaluation principles are urgently required. The methodological weaknesses of past research in the ecotherapy field have been taken into consideration in the current study.

2.7 The Implications of Ecotherapy

The review of the literature indicates that there is a need to develop ecotherapy as a psychological intervention. Due to the influences of the Cartesian paradigm, traditional

psychology has tended to focus predominantly on the mind and neglected its relationship with the body (Capra, 1983; Robertson & Van Der Heyden, 2001). Furthermore, Roszak (1995) argues that psychology's understanding of human behaviour is limited to that within artificial man-made environments. Psychologists need to study the effects of natural environments on people. Ecotherapy potentially has a lot to offer the practice of psychology in general.

2.7.1 The Implications of Ecotherapy for South Africa

Trauma affects an individual's self-awareness (Cumes, 1998). Therefore, increases made to self-awareness and self-concept using ecotherapy can counteract those effects of trauma, which in turn can facilitate empowerment (Cumes, 1998). Should ecotherapy prove to be an effective psychological intervention it could be of great value to South Africa. Firstly, ecotherapy is a cost effective intervention as compared to traditional psychological therapy. Furthermore, since ecotherapy is a group intervention, it is compatible with South African cultural philosophies. It is also an accelerated means to provide psychological healing, and a viable alternative to one-to-one counselling. In addition, it provides the opportunity to level racial differences and social status, reinforcing connections with people from diverse backgrounds.

Ecotherapy allows the opportunity to incorporate South African cultural knowledge into Western psychology practices, thus forming a more meaningful and helpful psychology for the majority of South Africa. South Africa has a rich inheritance of natural areas. Therefore, it would be irrational not to attempt to make use of them. Furthermore, ecotherapy provides

the dynamic opportunity of combining therapeutic healing and development for communities and individuals, which is sorely needed in South Africa.

Hattie et al. (1997) have established that ecotherapy is an effective therapeutic intervention. At present however, no definitive evaluation of ecotherapy has been performed on South African ecotherapy programmes. Higson-Smith (2001) has performed an evaluation of the N.P.A.T. Ecotherapy Programme. This study however does contain methodological weaknesses that jeopardise the results obtained. These factors all emphasise the necessity for the undertaking of the current evaluation study.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter intends to outline the rationale and aims of the current study to evaluate the N.P.A.T. KZN Midlands Ecotherapy Programme. Secondly, the methodology used in the study will be presented and discussed. This includes an overview of the instruments used, and the translation procedures.

3.2 Rationale

The evaluation of various types of psychotherapy has been conducted through two formal means, namely efficacy and effectiveness studies. Efficacy studies focus on the measurable effects of any specific intervention in a treatment group while effectiveness studies ascertain the feasibility and measurable beneficial effects of a specific intervention across broad populations and in real-world situations (Nathan, Stuart, & Dolan, 2000; Seligman, 1996). The aim of efficacy studies is to maximise internal validity using such rigorous experimental procedures as random assignment, control groups, and the thorough selection of volunteer subjects. The best example of an efficacy study is the clinical trial. Effectiveness studies however aim to determine the generalisability and external validity of interventions, which is achieved by using quasi-experimental or correlational designs. The current research project incorporates the methodology of efficacy and effectiveness studies in an evaluation of therapeutic benefits of the N.P.A.T. KZN Midlands Ecotherapy Programme.

Ecotherapy programmes have been evaluated in the past. A meta-analysis of 96 ecotherapy studies (Hattie et al., 1997) suggests that ecotherapy does have a detectable therapeutic effect. Studies have also shown that ecotherapy enhances self-esteem and reduces the display of psychological symptoms (Sveen & Denholm, 1997; Kelley, Coursey & Selby, 1997; Wheeler, Goldie & Hicks, 1998; Israel, 1998; Herbert, 1998; Higson-Smith, 2001). Ecotherapy programme evaluations have been plagued by the reliance on anecdotal evidence as proof of ecotherapies effectiveness. Furthermore, many studies have had serious methodological flaws. At present, there has been no definitive evaluation of ecotherapy, and especially ecotherapy programmes within a South African context.

3.3 Aims of the Study

The project focuses on the N.P.A.T. KZN Midlands Ecotherapy Programme. There is a need to conduct an evaluation of the ecotherapy programme through scientific research, to verify the capabilities of ecotherapy as a psychological intervention as well as to evaluate the programme. The study focuses on participants' self-esteem and general psychological well-being as indications of the effectiveness of ecotherapy. Improvements in participants' self-esteem and a decrease in the manifestation of psychological symptoms within participants of the N.P.A.T KZN Midlands Ecotherapy Programme will display the effectiveness of the intervention.

Furthermore, research needs to determine which type of participant groups benefit from the ecotherapy programme. The N.P.A.T KZN Midlands Ecotherapy Programme is aimed at the reconciliation and healing of survivors of human rights violation. The present study intends to determine whether ecotherapy is an effective intervention for “survivors of human rights

violation”, focussing on participants relative improvements in self-esteem and general psychological well-being as indications of the effectiveness of the ecotherapy intervention.

3.3.1 Hypotheses

Firstly, it is hypothesised that participants will report a decrease in the manifestation of psychological symptoms. The SCL-90-R contains nine primary symptom dimensions: Somatisation, Obsessive-compulsive, Interpersonal sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism. The SCL-90-R also produces three global indices of distress; the Global Severity Index, the Positive Symptom Distress Index, and the Positive Symptom Total. A decrease in manifest psychological symptoms will be determined by a decrease in SCL-90-R symptom dimensions, and a decrease in global distress indices. The experimental group should show a significant decrease in manifest psychological symptoms from pre-test to post-test. This will be indicated by a significant decrease in SCL-90-R symptom dimension and global distress indices between the pre-test and the post-test. The control group should show no significant difference in manifest psychological symptoms between the pre-test and the post-test.

The second hypothesis is that improvements in participants' self-esteem will result from the ecotherapy programme. An increase in self-esteem will be determined by the significant improvement of group self-esteem results on the CFSEI-2 scales from the pre-test to post-test, in the experimental group. It is expected that the control group should show no significant difference between the pre-test and the post-test.

3.4 Programme Evaluation

Herman, Lyons Morris and Taylor Fitz-Gibbon (1987) maintain that a well planned and designed evaluation, thoughtfully analysed, can provide valuable information into how a programme operates. This information highlights initial problems in planning, and is necessary to determine the extent to which the programme serves the intended target area. Evaluation determines whether the programme is achieving its intended aims. If this is not so, the situation can be rectified. The programme evaluation indicates the strengths and weaknesses, the cost-effectiveness and potential productivity, and the direction for the future of the initiative.

Programme evaluation facilitates the setting of priorities and distribution of resources. This occurs through providing feedback on the progress of the programme, which allows project co-ordinators information on the current situation within the programme. It also allows the refinement and modification of the programme's structure and activities. The evaluation provides an indication of any possible redeployment of personnel and resources.

The information from a programme evaluation is important for policymakers, administrators, and programme implementers through all levels of the programme, to assess the quality and efficacy of the relative programme. This information is also important for programme funders because the programme evaluation provides accountability and transparency within the programme.

3.4.1 Formative versus Summative Evaluation

Programme evaluation can be conducted on a continuing basis, either as soon as the programme is initiated, or once the programme has been running for some period. This is achieved through either formative or summative evaluation. A formative evaluation is an ongoing evaluation within the programme, which provides continuous feedback for programme management (Neuman, 1997). Formative evaluation describes how the programme is currently operating, while also contributing ways in which to improve services. Summative evaluation is an evaluation performed once the programme is well established or on completion of the programme (Neuman, 1997). Summative evaluation questions the overall effectiveness and impact of the programme, indicating whether the programme should be continued in its current manner or not, while also providing possible improvements.

The current project incorporates components of both formative and summative evaluation. Since the N.P.A.T. KZN Midlands Ecotherapy Programme is an ongoing programme, the study is unable to perform a pure summative evaluation. The study does however question the overall effectiveness, and will contribute information that may assist the operation of the ecotherapy programme.

3.5 Evaluation Design

In social science, it is not always possible to conduct research where participants have been randomly assigned to different treatments. This has necessitated the development of quasi-experimental research designs. These alternative designs serve as approximations of true experimental designs (Rosenthal & Rosnow, 1991). In both true experiments and quasi-

experimental approaches, comparisons are drawn between groups that receive different or no treatment. However, in quasi-experimental designs, assignment to treatment groups is not random.

A quasi-experimental design was used because participants were not randomly assigned to the ecotherapy programmes. The evaluator had no part in group selection and therefore was unable to obtain random selection to groups. The time constraints of the evaluation and limited number of participants on the ecotherapy programme also necessitated the use of a quasi-experimental approach. The current programme evaluation was based on the pretest-posttest control group design where the design consists of an experimental group and an equivalent control group (Campbell, 1957) (Table 2). Campbell (1957) maintains that this design controls for main effects such as history, maturation, testing, and instrumentation de-pretest scores. These factors are all threats to the internal validity of an evaluation design. Since these factors are controlled for, the design is internally valid.

Campbell (1957) does however argue that this design is not externally valid. Therefore, a second and third experimental group with different subject types were incorporated into the design. The experimental groups were made up of the available and suitable participants on the N.P.A.T. KZN Midlands Ecotherapy Programme. The first experimental group consisted of clients of various NGO's in Pietermaritzburg, KwaZulu Natal. These subjects were survivors of human rights violations. The second experimental group consisted of volunteer caregivers from the NGO's involved in training to become ecotherapy programme facilitators. The third experimental group consisted of male adolescents from the SOS Children's Village, Pietermaritzburg, KwaZulu Natal. The NGO social worker in charge of the clients who made up experimental group 1 supplied other clients of hers who did not attend the ecotherapy

programme for the control group. The control group, also survivors of human rights violations, was matched to experimental group 1 for equivalent age, race and cultural group by the NGO social worker.

Table 3.1: Timing of observations and interventions

Group	Pretest	Treatment	Posttest (1 Month)
1) Experimental 1	O ₁	X	O ₂
2) Experimental 2	O ₁	X	O ₂
1) Experimental 3	O ₁	X	O ₂
3) Control	O ₁	Nil	O ₂

Where O = observation

X = experimental intervention

The experimental design is set out in Table 2. Experimental groups attended a three-day parallel ecotherapy treatment. The ecotherapy treatment for each experimental group was undertaken in the same environment, by the same facilitator, using the same process, but at different time periods. All groups (experimental and control) were administered the same outcome measures twice in a pretest and posttest one month later. Experimental groups were administered outcome measures before the commencing of the ecotherapy treatment and a month after completion of the programme. The control group attended no treatment. They were tested again one month later after the initial testing. The entire design allows the study to determine whether ecotherapy has a lasting effect.

3.5.1 Participants

The three experimental groups in the study were made up of participants of the KZN Midlands N.P.A.T. Ecotherapy Programmes, held at the Cromley Bank Game Farm, Colenso and La`bri, Pietermaritzburg, held over 2001 and 2002. Experimental group 1 was comprised of 20 clients of Non Governmental Organizations from Pietermaritzburg and Durban, KwaZulu Natal. Their mean age was 28.00 (SD = 8.48). The clients of these organisations are predominantly survivors of human rights violations during and after the Apartheid era. Experimental group 2 was comprised of 38 caregivers training to become ecotherapy programme facilitators for their respective NGO's. Their mean age was 29.52 (SD = 6.46). Experimental group 3 consisted of 10 male adolescents from the SOS Children's Village, Pietermaritzburg, KwaZulu Natal. Their mean age was 16.22 (SD = 1.39). The control group consisted of 16 clients of the NGO's who did not attend the ecotherapy programme intervention. Their mean age was 44.06 (SD = 12.39).

3.5.2 Translation

Due to the cross-cultural nature of the current study, participants were not all conversant in English. A translated Zulu version of both assessment instruments (CFSEI-2, SCL-90-R) was used when necessary. Shanahan (1998) developed a Zulu translated version of the SCL-90-R. Furthermore, he has conducted a preliminary validation of this instrument. This version was used in the current study. The CFSEI-2 has no Zulu translation, and therefore was translated for the study.

The CFSEI-2 was translated using the back translation method (See Appendix A1). Battle's (1992) original CFSEI-2 was translated into Zulu. Another translator who had not viewed the English CFSEI-2 then translated this version back into English. The new English translation was suitably equivalent to the original CFSEI-2. Although there are methodological weaknesses associated with this method, the back translation method does provide a quality check for vocabulary equivalence, and experiential and conceptual equivalence (Appendix A1). Werner and Campbell (1970, as cited in Shanahan, 1998) have reported successful use of the back translation method. Additionally, previous evaluations of the N.P.A.T. Ecotherapy Programme have made use of the back translation method for translations (Higson-Smith, 2001). This was the only option available due to financial restraints. Furthermore, bilingual assistants were on hand to explain instrument items to subjects where necessary.

3.5.3 Instruments

Evaluation of the three participant groups was determined through a pre-test and post-test using the Culture-Free Self-Esteem Inventory (CFSEI-2) (Battle, 1992) and the Symptoms Checklist 90 Revised (SCI-90-R) (Derogatis, 1983). These were combined with a basic demographic pre-test and post-test questionnaire to provide basic information of participants' backgrounds.

3.5.3.1 The Culture-Free Self-Esteem Inventories (CFSEI-2)

The CFSEI-2 is a 40-item self-report inventory measuring the individual's self-esteem. Battle (1992) defines self-esteem as "...the perception an individual holds of his/her own worth".

Individual's self-esteem comprises a number of components (Battle, 1992; Coopersmith, 1981). The CFSEI-2 provides three dimensions of participants' self-esteem: General, Social, and Personal, and includes a lie subtest. The "General" dimension covers over-all perceptions of self-worth. The "Social" dimension determines participants' perceptions of their self-esteem with respect to their peers. The "Personal" dimension provides an indication of participants' emotional hardness.

The instrument's items are divided into two groups; those for high and those for low self-esteem. Subject's responses are therefore forced; i.e. either "Yes" or "No". The instrument can be used for a wide range of age groups, possessing standardizations for 16 to 65 year old subjects. The CFSEI-2 Form AD for adults was used in the current study. The instrument is culture-free. Support for the culture-free nature of the instrument has been obtained (Carroll & Buhrow, 1994). The CFSEI-2 has been translated into several languages with no objections of cultural bias being suggested. Furthermore, research has shown that the CFSEI-2 is sensitive in detecting changes in self-esteem (Burnard & Una, 2001; Carter, 1995; Hammond, 2000).

3.5.3.1.1 Reliability

The 40-items for the CFSEI-2 (Form AD) were the result of a factor analysis of a pool of 85 items. Research indicates a high degree of internal consistency. Cronbach alpha's for dimensions are as follows: General – 0.78, Social – 0.57, Personal – 0.72, Lie subtest – 0.54. The Cronbach alpha's for dimensions for the current study were as follows: General – 0.70, Social – 0.61, Personal – 0.57, Lie subtest – 0.63. Although the Cronbach alpha values for the

current study are slightly lower than that suggested by Aiken (1982, as cited in Finchilescu, 2002) they are similar to the original CFSEI-2 Cronbach alphas.

Research into the Test-retest reliability of the CFSEI-2 has been conducted. Results from a study on 127 students in an educational psychology course indicated high test-retest correlations (Battle, 1992). The correlation for all students was 0.81, for males, 0.79, and for females, 0.82. Research conducted by Carroll and Buhrow (1994) on the correlations between the 13-item health inventory, taken from the Cornell Index, and the CFSEI-2 provided support for the reliability of the instrument. In their study, for men they found significant Pearson correlations with the health index for all three self-esteem subscales, and for women, significant Pearson correlations were found on two self-esteem subscales.

3.5.3.1.2 Validity

Content validity is obtained by the accurate development of a construct definition (Battle, 1992). Items can be developed which cover all aspects of that construct. The CFSEI-2 provides a clear definition of self-esteem, which all instrument items cover. Kroner and Sinha (1989) within their study obtained support for the discriminant validity of the subscales of the CFSEI.

Research shows that the CFSEI-2 correlates with other measures of personality indicating concurrent validity (Battle, 1992; Carroll & Buhrow, 1994). These include the Beck's Depression Inventory, and the Minnesota Multiphasic Personality Inventory (MMPI). Furthermore, research by Hayes and Drummond (1998) has indicated the convergent validity of the CFSEI with the Multidimensional Self-Esteem Inventory on a group of 76

undergraduate women. High agreement between the Coopersmith Self-Esteem Inventory and the CFSEI-2 has also been shown (Kozeluk & Kawash, 1990, as cited in Hayes & Drummond, 1998). Further research into the validation of the CFSEI-2 has been extensive and is displayed in the CFSEI-2 Manual.

3.5.3.2 The Symptoms Checklist – 90 Revised (SCL-90-R)

The SCL-90-R is a 90-item self-report symptom inventory. The instrument provides a reflection of the psychological symptoms for possible psychiatric and medical patients, measuring their current psychological symptom status. The SCL-90-R makes use of a 5-point scale (0-4) of distress where participants answer whether they have experienced the symptom from “*not at all*” to “*extremely*” in the last seven days.

The SCL-90-R is interpreted through nine primary symptom dimensions. These dimensions have been chosen through a combination of clinical and analytic research (Derogatis, 1983). The dimensions are: Somatisation, Obsessive-compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism. These symptoms were obtained through a rational selection of symptom clusters and ensuing empirical validation by factor analysis (Derogatis & Cleary, 1977b, as cited in Shanahan, 1998). Derogatis (1983) provides the following definitions of the SCL-90-R items:

- 1) Somatisation reflects the distress arising from perceptions of bodily dysfunction.
- 2) Obsessive-Compulsive reflects symptoms that are closely identified with the clinical syndrome of the same name.
- 3) Interpersonal Sensitivity focuses on feelings of personal inadequacy and inferiority, particularly in comparison with others.

- 4) Depression reflects a broad range of both cognitive and somatic correlates of clinical depression.
- 5) Anxiety reflects symptoms associated clinically with manifest anxiety.
- 6) Hostility reflects thoughts, feelings, and behaviours characteristic of angry affect.
- 7) Phobic Anxiety focuses on the more pathognomic and disruptive manifestations of phobic behaviour, particularly agoraphobic symptoms.
- 8) Paranoid Ideation represents paranoid thinking characterised by projective thought, hostility, suspiciousness, grandiosity, centrality, fear of loss of autonomy, and delusions.
- 9) Psychoticism represents a range of severity, from interpersonal alienation to first-rank symptoms of schizophrenia.

The SCL-90-R also produces three global indices of distress; the Global Severity Index (GSI), the Positive Symptom Distress Index (PSDI), and the Positive Symptom Total (PST). The GSI combines information on all symptom dimensions and the intensity of the distress, while the PSDI is a measure only of the intensity of symptoms and the PST is a count of the number of symptoms only. These Global indices provide the instrument with greater flexibility in the assessment of a subject's psychological status. Derogatis (1983) suggests that the GSI is the best single indicator of distress, and should be used in most cases when only a single summary score is needed.

The SCL-90-R has been found to be sensitive in detecting change after therapeutic intervention for a wide range of therapy types (Chandler, Bodenhamer-Davis, Holden, Evenson, & Bratton, 2001; Hernandez-Reif, Field, Krasnegor, & Theakston, 2001; Coelho, Ramos, Prata, & Barros, 2000; Schauenberg & Strack, 1999; Vonk, Thyer, 1999; Athorp, 1998).

3.5.3.2.1 Reliability

Internal consistency indicates homogeneity within the measurement of each symptom construct, while test-retest reliability indicates stability over time (Derogatis, 1983). Results show that the internal consistency for all dimensions of the SCL-90-R, and the test-retest reliability of the instrument are all high and well within acceptable limits. The results of these studies are reported in the SCL-90-R Manual (Derogatis, 1983).

For the SCL-90-R dimensions the Cronbach alpha's were as follows; Somatisation – 0.86, Obsessive-compulsive – 0.86, Interpersonal Sensitivity – 0.86, Depression – 0.90, Anxiety – 0.85, Hostility – 0.84, Phobic Anxiety – 0.82, Paranoid Ideation – 0.80, and Psychoticism – 0.77. For Test-retest reliability the correlations were as follows; Somatization – 0.86, Obsessive-compulsive – 0.85, Interpersonal Sensitivity – 0.83, Depression – 0.82, Anxiety – 0.80, Hostility – 0.78, Phobic Anxiety – 0.90, Paranoid Ideation – 0.86, and Psychoticism – 0.84. For the current study the Cronbach alpha's for the SCL-90-R items were as follows; Somatisation – 0.85, Obsessive-compulsive – 0.77, Interpersonal Sensitivity – 0.78, Depression – 0.84, Anxiety – 0.84, Hostility – 0.72, Phobic Anxiety – 0.77, Paranoid Ideation – 0.62, and Psychoticism – 0.77. These Cronbach alpha values are all within acceptable limits (Aiken, 1982, as cited in Finchilescu, 2002)

3.5.3.2.2 Validity

The SCL-90-R has been shown to possess a high degree of validity. Rickels and Rock (1976, as cited in Derogatis, 1983) have contrasted the SCL-90-R dimension scores with those of the Minnesota Multiphasic Personality Inventory (MMPI). Results indicated a high degree of

convergent validity. Similar studies have been undertaken by Boleloucky and Horvath (1974, as cited in Derogatis, 1983). The symptom dimensions correlated highly with those of the Middlesex Hospital Questionnaire (MHQ). Results showed correlations varying from 0.36 to 0.92.

Construct validity represents the degree to which there is correlation between operations of measurement and what the theoretical constructs claim to measure (Derogatis, 1983).

Construct validity in the SCL-90-R have been demonstrated using a hypothetical focus on the internal structure of the instrument and its correlation with dimensions (Cleary & Derogatis, 1977a, as cited in Derogatis, 1983). This empirical analysis matched theoretical structure well on almost all dimensions. Results from this study can be obtained from the SCL-90-R Manual (Derogatis, 1983).

3.5.4 Procedure

The CFSEI-2, SCL-90-R, and demographic pre-test were administered to each of the subjects of the three experimental groups before the ecotherapy intervention commenced.

Experimental group 1 and 2 and control group completed their questionnaires at the N.P.A.T. KZN Midlands ecotherapy programme headquarters, Pietermaritzburg. Experimental group 3 completed their questionnaires at the SOS Children's Village, Pietermaritzburg. Subjects were instructed to answer all questions as honestly as possible, and not to communicate with anyone else while doing so. Subjects not fluent in English were given questionnaires translated into Zulu. There were also people, bilingual in Zulu and English, on hand to provide assistance where needed. Once the questionnaires had been completed, subjects

(excluding the control group) were then instructed on the schedule for the ecotherapy programme.

The post-test was conducted one month after completion of the ecotherapy programme.

Experimental group 1 and 2 and control group were given self-addressed envelopes to post back questionnaires to the evaluator after completing them one month after the ecotherapy programme. This procedure may affect the evaluation results because of subject noncompliance and drop out. However, this was necessary because the evaluator had no further contact with all the subjects in experimental group 1 and 2 and the control group. Experimental group 3 completed their posttest at the SOS Children's Village, Pietermaritzburg one month after completion of the ecotherapy programme.

The results were analysed for significant differences between experimental and control groups on the pretest and posttest. The pretest and posttest results for the experimental and control groups were compared using repeated measures analysis of variance (ANOVA). The design was a 4x2 factorial design with one repeated measure factor (two levels: pretest and posttest) and one between subjects factor (four levels: Experimental group 1, Experimental group 2, Experimental group 3, and Control group).

3.6 Ethics

Research ethical concerns start and end with the researcher. His or her moral code is therefore the best protection against conducting an unethical study (Neuman, 1997). Ethical research should be a fundamental consideration to a well designed and effective programme evaluation. Ethical issues are extremely important within the evaluation, because the

credibility of the programme evaluation hinges on the professionalism shown in the conduction and execution of the evaluation report. The researcher needs to consider such factors as obtaining voluntary informed consent from participants. Informed consent means that participants have been given information pertaining to the purpose of the research, the expected duration, procedures to be followed, foreseeable risks, benefits to participants, how confidentiality and anonymity will be preserved, compensation should any harm result, contacts for information with regard to rights of participants, that participation is voluntary, the right to terminate participation, and the right to receive a copy of the signed consent form (Cone, 2001). In the current study, the researcher obtained informed consent from all subjects. All subjects also signed a letter of confidentiality.

3.6.1 Deception

Social science has an extensive history of deception in research (Neuman, 1997; Cone, 2001). Cone (2001) argues that to a certain extent deception occurs in all research conducted, and is sometimes a necessary component in order to obtain valid results. The issue here however rests on the fact that deception should occur in no greater amount than is necessary for the effective conduction of the study. Sieber (1992 as cited in Cone, 2001) argues that deception can be justified in some cases. She suggests that deception may be necessary in order to achieve random assignment of participants, to study the responses to low frequency events, to obtain valid data where there is no risk to participants, and to gather information that would otherwise be impossible as it would not be shared under normal circumstances, for example due to its embarrassing nature. These issues have been considered within the current study. Due to the nature of the study, there is no need for deception. Participants were not totally informed of the focus of the research project as this may have led to bias. However, group

results and information pertaining to the nature of the study will be available to participants on completion of the study.

3.6.2 Debriefing

Debriefing is the process of informing participants of the exact nature of the study once they have taken part, helping to minimize harm, which may have been a necessary component of the study. It also includes informing participants that their reactions are a normal response to the conducted study. Kazdin (1998, as cited in Cone, 2001) suggests that debriefing should occur if the research contains any deception or if any crucial information is withheld during the study. The importance of debriefing should be proportional to the risk of harm because of participating in the study. At a minimum, it should return participants to the same level of psychological functioning as before the study. The researcher should therefore consider following up the progress of the study participants. With regard to the present study, the N.P.A.T. KZN Midlands Ecotherapy Programme has a follow-up intervention after the ecotherapy intervention. This should have been sufficient since the subjects should have experienced no harm as a direct result of the evaluation.

3.6.3 Privacy, Anonymity and Confidentiality

Social science research usually necessitates the invasion of the particular research participation group's privacy. This is not only through the crossing of personal boundaries in obtaining private information, but also through exposing that particular private information to the public. Researchers should therefore take care to avoid actions that lead to the reduction of the participants' personal autonomy. The ethical researcher must respect the rights of study

participants at all times, invading their personal territory only as a necessary means to accomplish the study. Participants' privacy in the current study was protected through maintaining anonymity and confidentiality. Anonymity and confidentiality were preserved through not disclosing participants' identities once data had been gathered. Anonymity was achieved through the use reference numbers on all questionnaires; participants' names were not recorded. Moreover, keeping information private once collected preserved confidentiality. All results released were in a collated form. No individual information was released in a way that certain responses could be linked back to specific study participants.

CHAPTER 4

RESULTS

4.1 Introduction

In this section, the descriptive results for the Symptoms Checklist-90-Revised (SCL-90-R) and Culture-Free Self-Esteem Inventory 2 (CFSEI-2) will be presented. This will display differences both between and within the experimental and control groups. These differences were then tested for significance using repeated measures analysis of variance (ANOVA). The design was a 4 x 2 factorial design with one repeated measure factor (two levels: pretest and posttest) and one between subjects factor (four levels: Experimental Group 1 (EG1), Experimental Group 2 (EG2), Experimental Group 3 (EG3), and Control Group (CG)).

4.2 Differences in Global Symptom Index on the SCL-90-R for Experimental and Control Groups

The Global Severity Index (GSI) combines information on the number of psychological symptoms displayed and the intensity of the distress (Derogatis, 1983). Derogatis (1983) suggests that the GSI is the best index to use as a summary score. Although the GSI is only a summary of results, it provides a useful starting point from which to analyse the effects of the ecotherapy programme. The GSI results for experimental and control groups for the pretest and posttest are summarised in Figure 4.1.

The GSI mean pretest results for EG1 ($M = 75.00$, $SD = 7.60$) and EG2 ($M = 67.04$, $SD = 8.54$) were greater than their respective mean posttest results (EG1: $M = 69.00$, $SD = 8.94$; EG2: $M = 61.13$, $SD = 9.67$). The GSI mean pretest results for EG3 ($M = 57.10$, $SD = 6.52$) and the CG ($M = 76.00$, $SD = 5.70$) were only slightly greater than their respective mean posttest results (EG3: $M = 57.00$, $SD = 4.69$; CG: $M = 75.71$, $SD = 6.46$).

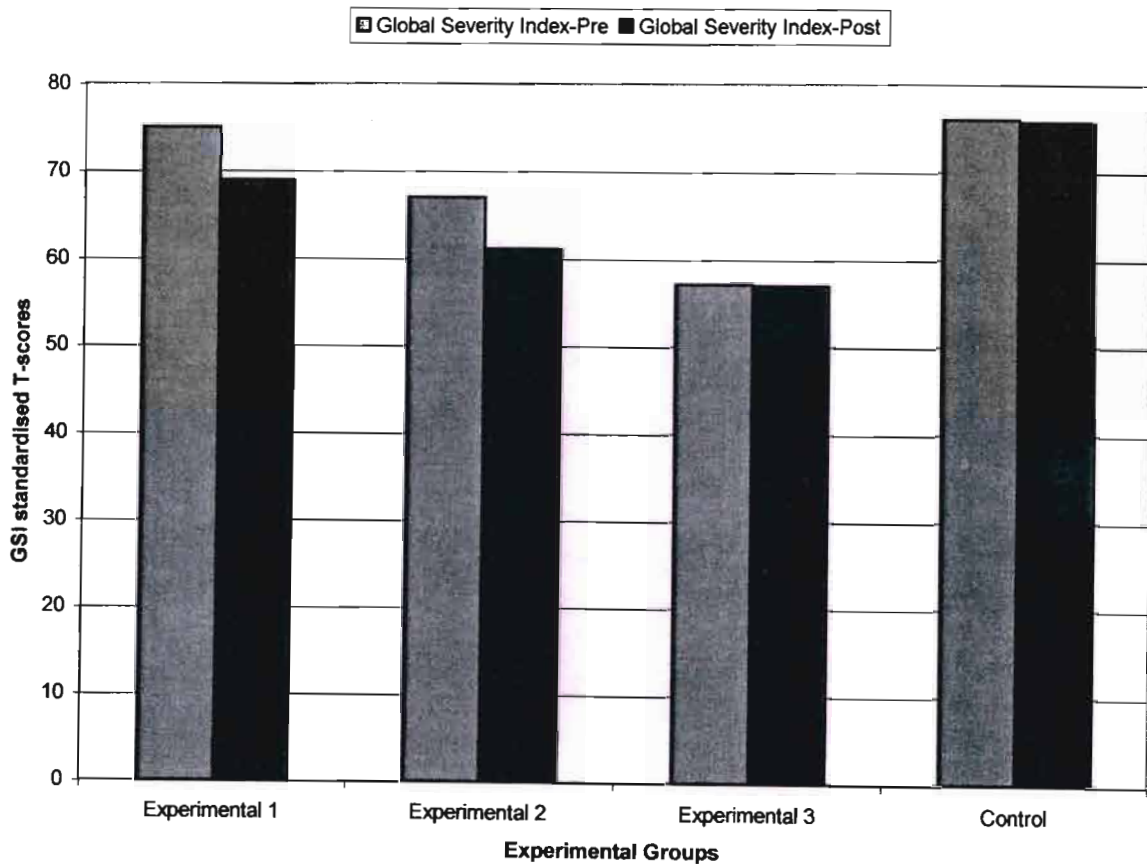


Figure 4.1: SCL-90-R Global Severity Index compared for pretest and posttest for Experimental and Control Groups

The repeated measures ANOVA was significant for the within group factor ($F = 4.472$, $p < .05$) displaying that pretest mean results for all groups were significantly different from posttest mean results for all groups. The GSI pretest mean ($M = 69.78$, $SD = 9.74$) for all groups was higher than that for the posttest ($M = 66.23$, $SD = 10.49$). The repeated measures

ANOVA also revealed that there were significant differences between groups ($F = 30.477$, $p < .001$). For all groups, the Tukey HSD post hoc tests showed a significant difference between EG1 and EG2 ($p < .001$), and EG1 and EG3 ($p < .001$). EG2 ($p < .001$) and EG3 ($p < .001$) were also both significantly different from CG. EG2 and EG3 were also significantly different from one another ($p < .05$). These differences suggest sampling differences between experimental and control groups. The interaction effect for GSI and group was however not significant ($F = 1.563$, $p < .211$).

4.3 SCL-90-R dimension results for Experimental and Control Groups

A summary of the SCL-90-R mean standardised item scores for Experimental Group 1, Experimental Group 2, Experimental Group 3 and Control Group are presented in the following figures (Figure 4.2 to Figure 4.10). The same 4 x 2 factorial design with one repeated measure factor (two levels: pretest and posttest) and one between subjects factor (four levels: EG1, EG2, EG3, and CG) was used to test differences for the SCL-90-R dimensions.

EG1 (pretest: $M = 66.00$, $SD = 9.29$; posttest: $M = 60.61$, $SD = 10.19$) and EG2 (pretest: $M = 59.46$, $SD = 7.65$; posttest: $M = 58.60$, $SD = 5.99$) both showed a decrease in means from pretest to posttest on the Somatisation dimension (Figure 4.2). The CG also showed a decrease in mean Somatisation dimension score from pretest to posttest ($M = 70.56$, $SD = 8.57$; $M = 66.29$, $SD = 13.09$). However, EG3 showed an increase in somatisation dimension score from pretest to posttest ($M = 54.80$, $SD = 7.81$; $M = 58.60$, $SD = 4.60$).

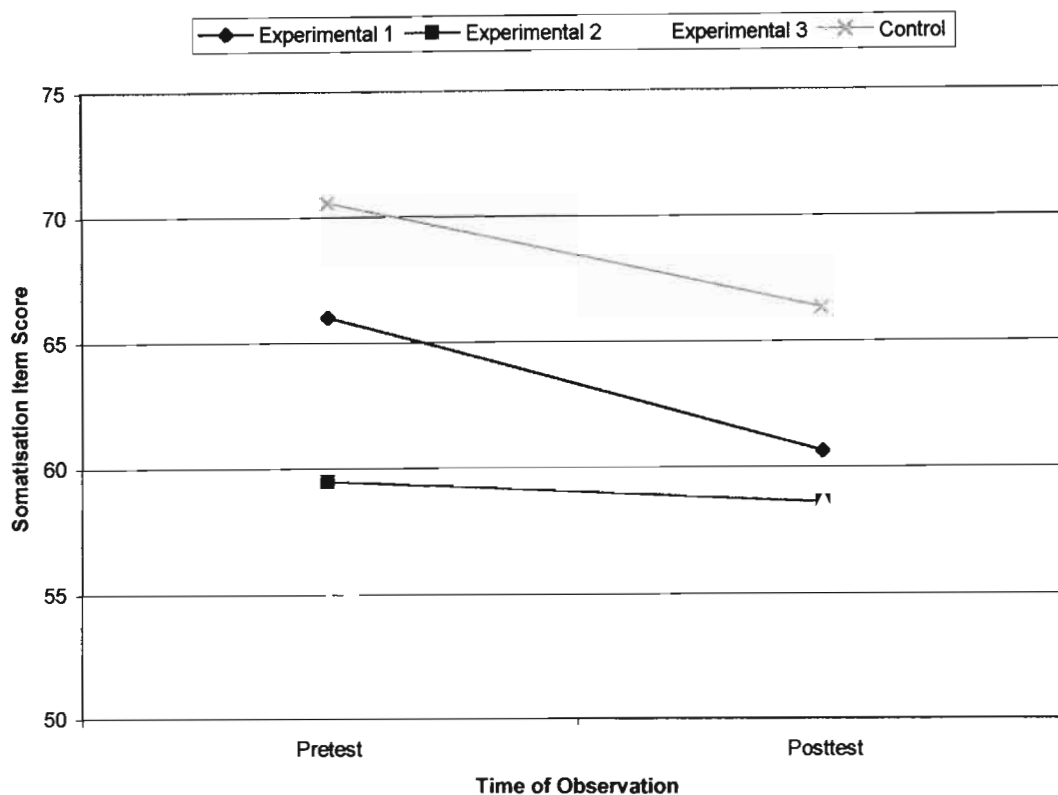


Figure 4.2: SCL-90-R Somatisation dimension mean results compared for pretest and posttest for Experimental and Control Groups

The repeated measures ANOVA was not significant for the within group factor ($F = .697, p < .408$). The repeated measures ANOVA however revealed that there were significant differences between groups ($F = 9.804, p < .001$). For all groups, the Tukey HSD post hoc tests showed a significant difference between EG2 and CG ($p < .001$), and EG3 and CG ($p < .001$). These differences suggest sampling differences between experimental and control groups. The interaction effect for the Somatisation dimension and group ($F = 1.840, p < .153$) was not significant.

All experimental groups showed a decrease in Obsessive-compulsive dimension scores from pretest to posttest (EG1, pretest: $M = 72.35, SD = 7.15$; posttest: $M = 67.62, SD = 8.10$; EG2, pretest: $M = 63.43, SD = 8.44$; posttest: $M = 58.20, SD = 7.86$; EG3, pretest: $M =$

55.50, SD = 5.11; posttest: M = 54.10, SD = 3.70) (Figure 5.3). However, CG showed no decrease on the Obsessive-compulsive dimension as is clearly shown in Figure 4.3.

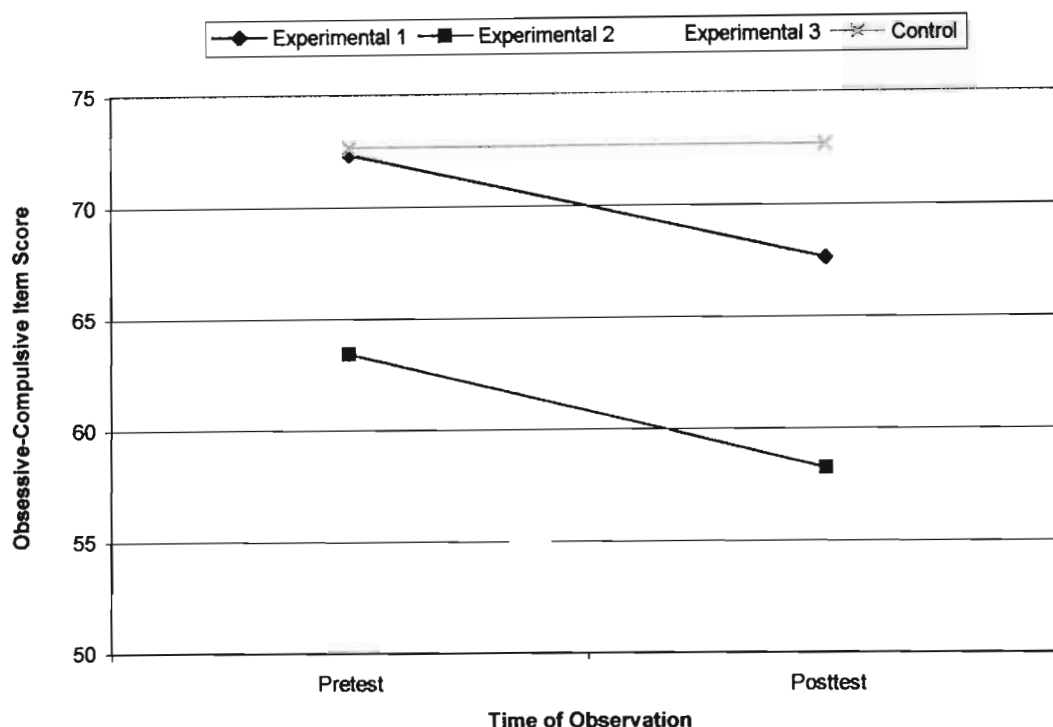


Figure 4.3: SCL-90-R Obsessive-compulsive dimension mean results compared for pretest and posttest for Experimental and Control Groups

The repeated measures ANOVA was significant for the within group factor ($F = 5.019$, $p < .05$) displaying that pretest mean results for all groups were significantly different from posttest mean results for all groups on the Obsessive-compulsive dimension. The Obsessive-compulsive dimension pretest mean ($M = 66.76$, $SD = 9.46$) for all groups was higher than that for the posttest ($M = 63.65$, $SD = 9.94$). The repeated measures ANOVA also revealed that there were significant differences between groups ($F = 32.765$, $p < .001$). For all groups, the Tukey HSD post hoc tests showed a significant difference between EG1 and EG2 ($p < .001$), and EG1 and EG3 ($p < .001$). EG2 ($p < .001$) and EG3 ($p < .001$) were also both

significantly different from CG. These differences suggest sampling differences between experimental and control groups. The interaction effect for Obsessive-compulsive dimension and group was however not significant ($F = 1.034, p < .386$).

Interpersonal Sensitivity dimension means decreased for all experimental groups from pretest to posttest (EG1, pretest: $M = 70.05, SD = 9.15$; posttest: $M = 65.62, SD = 11.55$; EG2, pretest: $M = 63.00, SD = 9.60$; posttest: $M = 56.80, SD = 8.21$; EG3, pretest: $M = 52.90, SD = 6.32$; posttest: $M = 51.80, SD = 7.08$) (Figure 4.4). However, the means for the pretest ($M = 71.50, SD = 9.77$) and posttest ($M = 71.71, SD = 7.95$) increased slightly for the CG (Figure 4.4).

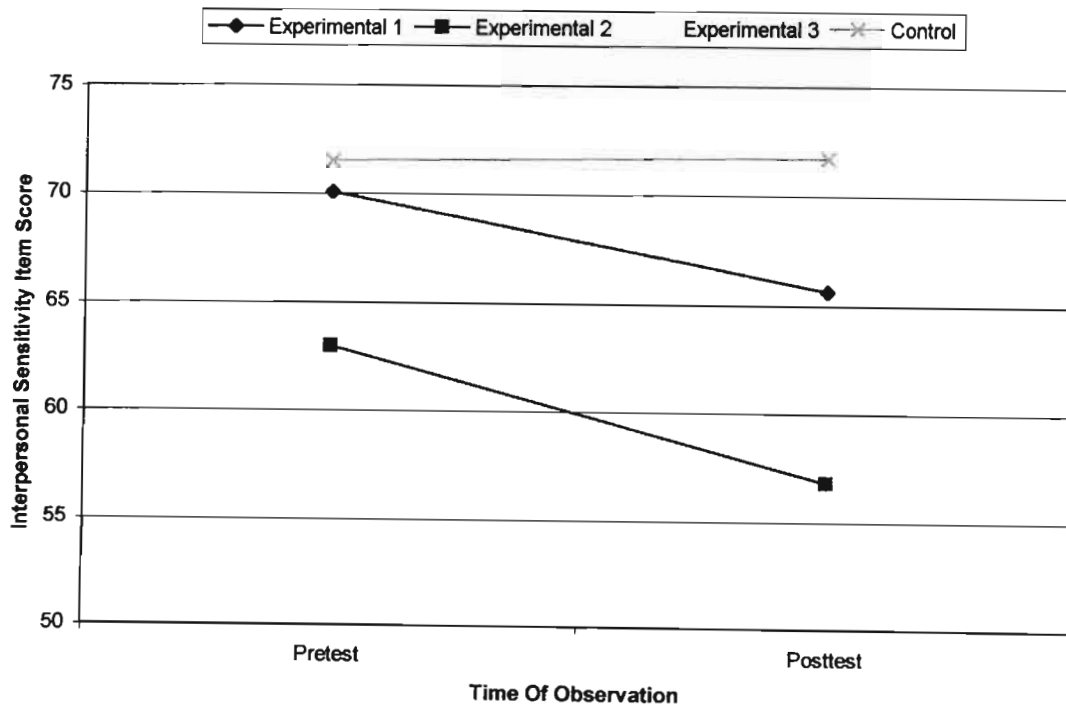


Figure 4.4: SCL-90-R Interpersonal Sensitivity dimension mean results compared for pretest and posttest for Experimental and Control Groups

The repeated measures ANOVA was not significant for the within group factor ($F = 2.540$, $p < .408$). The repeated measures ANOVA however revealed that there were significant differences between groups ($F = 9.804$, $p < .001$). For all groups, the Tukey HSD post hoc tests showed a significant difference between EG1 and EG2 ($p < .01$), and between EG1 and EG3 ($p < .001$). EG2 and CG ($p < .001$), and EG3 and CG ($p < .001$) were also significantly different. These differences suggest sampling differences between experimental and control groups. The interaction effect for the Interpersonal Sensitivity dimension and group ($F = .675$, $p < .572$) was not significant.

All groups, experimental and control, showed a decrease in mean Depression dimension scores (EG1, pretest: $M = 71.70$, $SD = 8.36$; posttest: $M = 67.00$, $SD = 8.08$; EG2, pretest: $M = 62.57$, $SD = 8.80$; posttest: $M = 60.20$, $SD = 7.50$; EG3, pretest: $M = 57.40$, $SD = 9.63$; posttest: $M = 54.80$, $SD = 3.55$; CG, pretest: $M = 74.06$, $SD = 7.11$; posttest: $M = 71.29$, $SD = 6.46$) (Figure 4.5).

The repeated measures ANOVA was significant for the within group factor ($F = 5.127$, $p < .05$) displaying that pretest mean results for all groups were significantly different from posttest mean results for all groups. The Depression dimension pretest mean ($M = 66.82$, $SD = 10.29$) for all groups was higher than that for the posttest ($M = 63.85$, $SD = 9.02$). The repeated measures ANOVA also revealed that there were significant differences between groups ($F = 19.879$, $p < .001$). For all groups, the Tukey HSD post hoc tests showed a significant difference between EG1 and EG2 ($p < .001$), and EG1 and EG3 ($p < .001$). EG2 ($p < .001$) and EG3 ($p < .001$) were also both significantly different from CG. These differences suggest sampling differences between experimental and control groups. The

interaction effect for Depression dimension and group was however not significant ($F = .712$, $p < .550$).

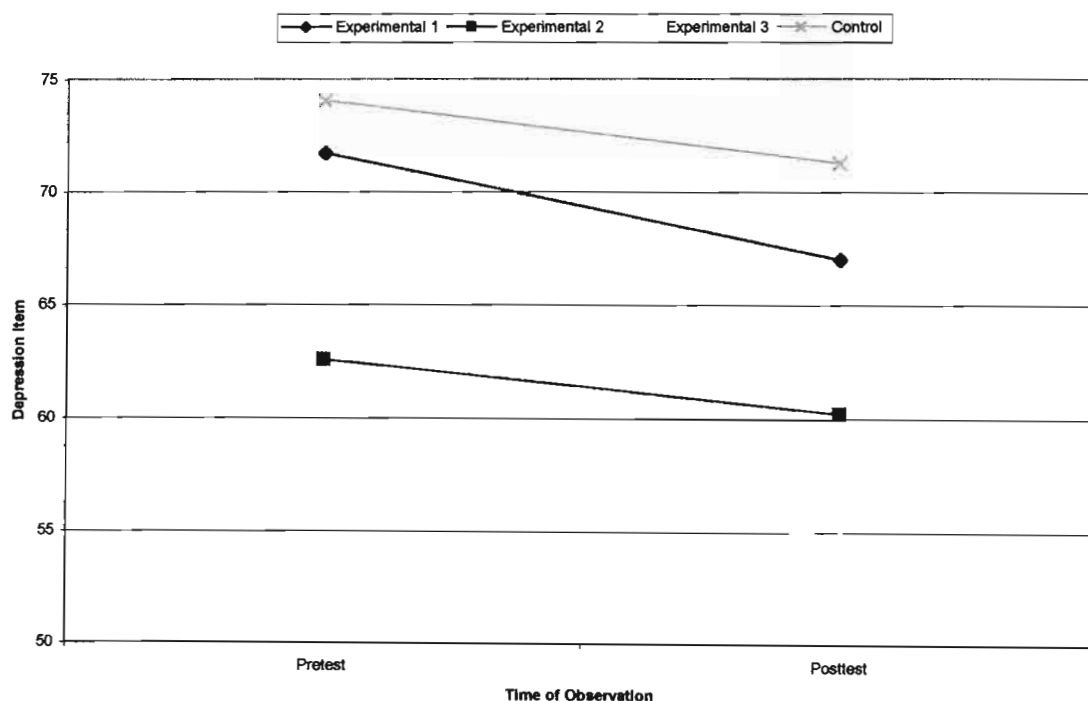


Figure 4.5: SCL-90-R Depression dimension mean results compared for pretest and posttest for Experimental and Control Groups

EG1, EG2 and CG all had a decrease in mean Anxiety dimension scores (EG1, pretest: $M = 70.45$, $SD = 9.02$; posttest: $M = 65.39$, $SD = 9.60$; EG2, pretest: $M = 60.14$, $SD = 9.68$; posttest: $M = 56.67$, $SD = 8.66$; CG, pretest: $M = 73.06$, $SD = 7.43$; posttest: $M = 71.00 = 7.49$) (Figure 4.6). However, EG3 showed an increase in mean Anxiety item score (pretest: $M = 56.00$, $SD = 7.42$; posttest: $M = 57.30$, $SD = 4.52$) (Figure 4.6).

The repeated measures ANOVA was not significant for the within group factor ($F = 2.635$, $p < .111$). The repeated measures ANOVA however revealed that there were significant differences between groups ($F = 24.957$, $p < .001$). For all groups, the Tukey HSD post hoc

tests showed a significant difference between EG1 and EG2 ($p < .01$), and between EG1 and EG3 ($p < .001$). EG2 and CG ($p < .001$), and EG3 and CG ($p < .001$) were also significantly different. These differences suggest sampling differences between experimental and control groups. The interaction effect for the Anxiety dimension and group ($F = .959$, $p < .420$) was not significant.

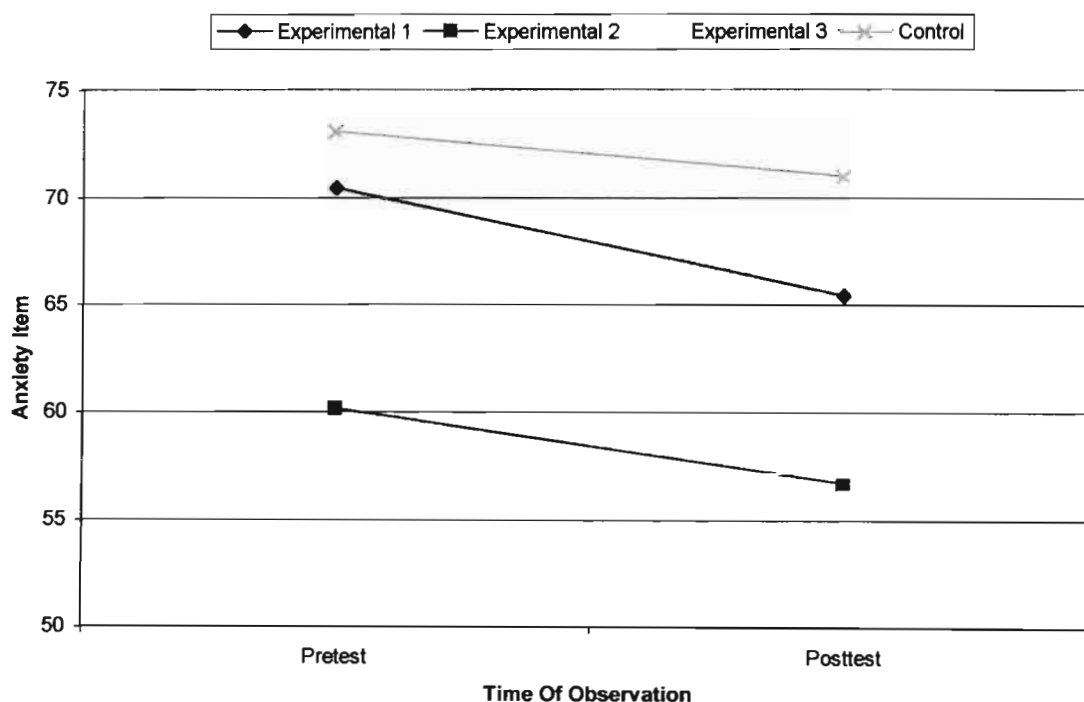


Figure 4.6: SCL-90-R Anxiety dimension mean results compared for pretest and posttest for Experimental and Control Groups

EG1 and EG2 both showed a decrease in mean Hostility dimension scores (EG1, pretest: $M = 62.95$, $SD = 12.09$; posttest: $M = 59.00$, $SD = 11.40$; EG2, pretest: $M = 58.79$, $SD = 10.38$; posttest: $M = 53.73$, $SD = 8.67$) (Figure 4.7). EG3 and CG both showed increased mean Hostility dimension scores (CG, pretest: $M = 68.69$, $SD = 11.10$; posttest: $M = 70.71$, $SD = 7.37$; EG3, pretest: $M = 51.30$, $SD = 7.79$; posttest: $M = 52.30$, $SD = 4.69$) (Figure 4.7).

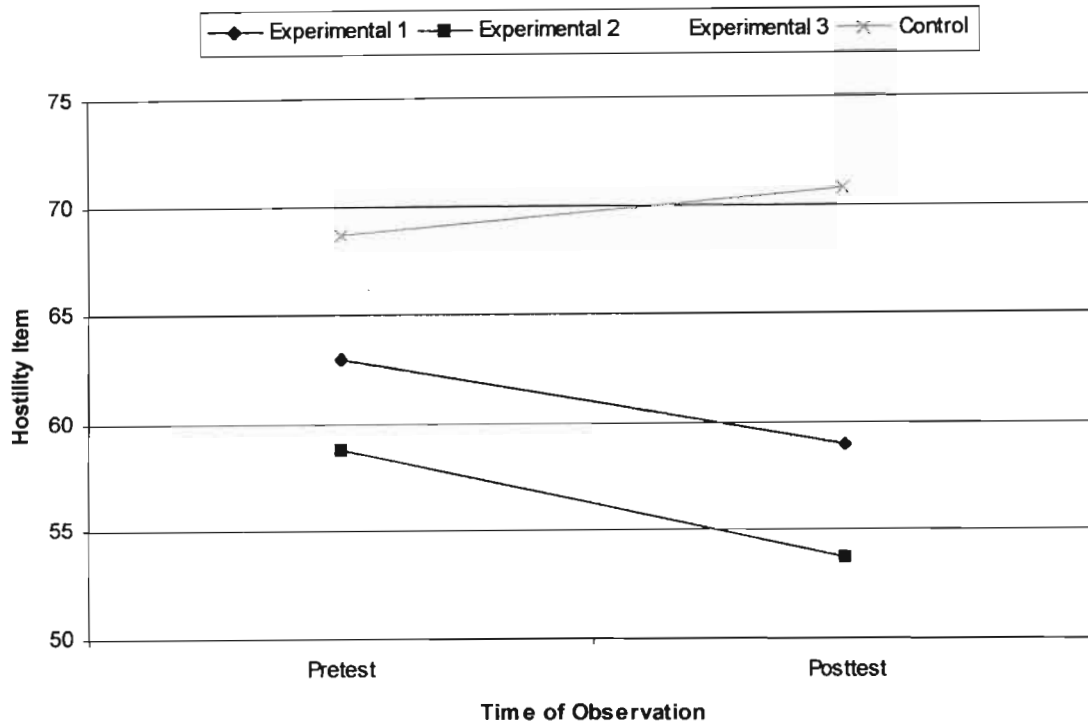


Figure 4.7: SCL-90-R Hostility dimension mean results compared for pretest and posttest for Experimental and Control Groups

The repeated measures ANOVA was not significant for the within group factor ($F = .213$, $p < .646$). The repeated measures ANOVA however revealed that there were significant differences between groups ($F = 18.103$, $p < .001$). For all groups, the Tukey HSD post hoc tests showed a significant difference between EG1 and EG3 ($p < .01$), and between EG1 and CG ($p < .01$). EG2 and CG ($p < .001$), and EG3 and CG ($p < .001$) were also significantly different. These differences suggest sampling differences between experimental and control groups. The interaction effect for the Hostility dimension and group ($F = .798$, $p < .501$) was not significant.

EG1 and EG2 both showed a decrease in mean Phobic Anxiety dimension scores (EG1, pretest: $M = 68.60$, $SD = 7.27$; posttest: $M = 64.46$, $SD = 9.21$; EG2, pretest: $M = 58.50$, SD

= 11.02; posttest: M = 55.07, SD = 9.64) (Figure 4.8). EG3 and CG both showed increased mean Phobic Anxiety dimension scores (CG, pretest: M = 71.38, SD = 6.56; posttest: M = 72.36, SD = 6.27; EG3, pretest: M = 56.20, SD = 6.03; posttest: M = 59.30, SD = 6.17) (Figure 4.8).

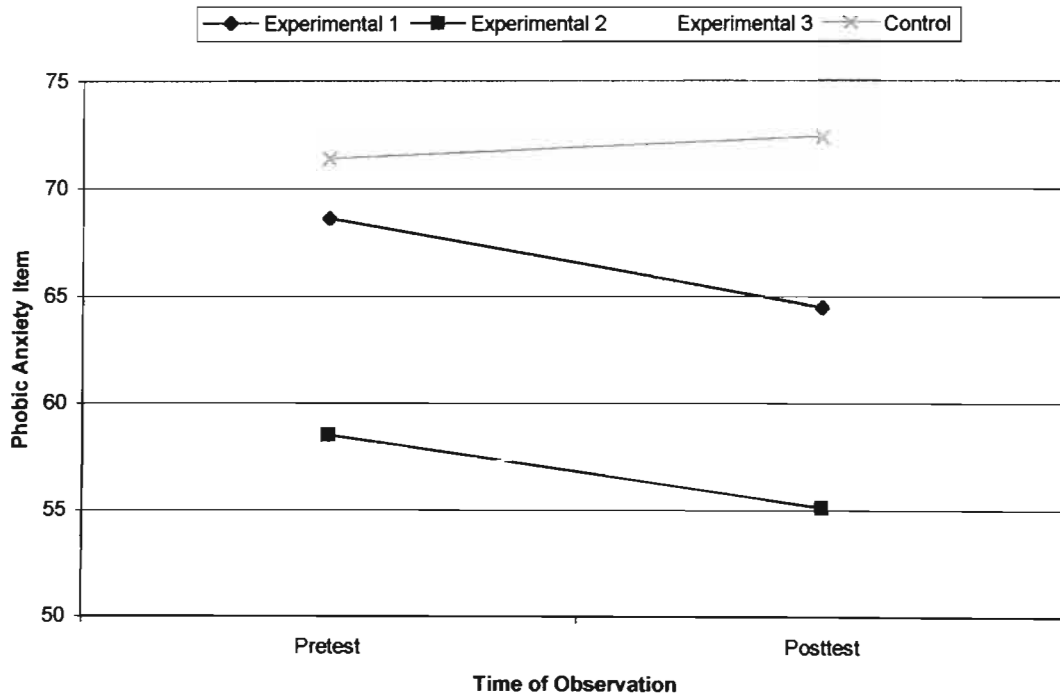


Figure 4.8: SCL-90-R Phobic Anxiety dimension mean results compared for pretest and posttest for Experimental and Control Groups

The repeated measures ANOVA was not significant for the within group factor ($F = .033$, $p < .857$). The repeated measures ANOVA however revealed that there were significant differences between groups ($F = 30.793$, $p < .001$). For all groups, the Tukey HSD post hoc tests showed a significant difference between EG1 and EG2 ($p < .001$), and between EG1 and EG3 ($p < .001$). EG2 and CG ($p < .001$), and EG3 and CG ($p < .001$) were also significantly different. These differences suggest sampling differences between experimental and control

groups. The interaction effect for the Phobic Anxiety dimension and group ($F = .864, p < .466$) was not significant.

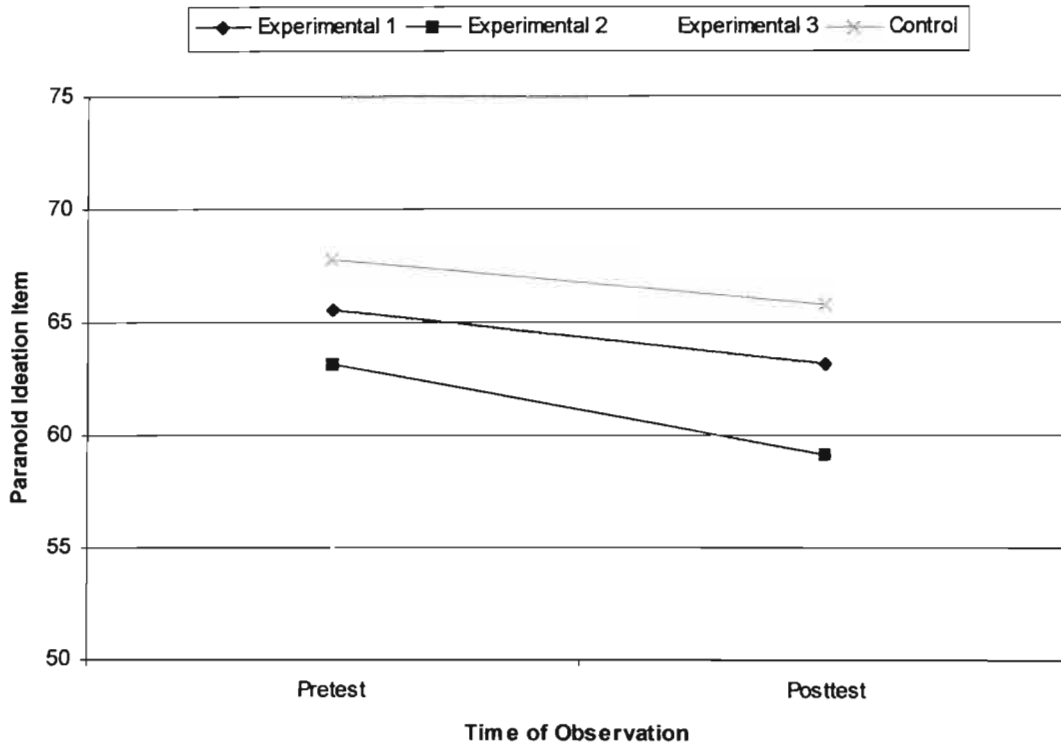


Figure 4.9: SCL-90-R Paranoid Ideation dimension mean results compared for pretest and posttest for Experimental and Control Groups

All groups, experimental and control, showed a decrease in mean Paranoid Ideation dimension scores (EG1, pretest: $M = 65.50, SD = 10.96$; posttest: $M = 63.15, SD = 9.55$; EG2, pretest: $M = 63.11, SD = 9.03$; posttest: $M = 59.07, SD = 9.26$; EG3, pretest: $M = 54.80, SD = 5.41$; posttest: $M = 52.60, SD = 7.07$; CG, pretest: $M = 67.81, SD = 8.39$; posttest: $M = 65.79, SD = 11.06$) (Figure 4.9).

The repeated measures ANOVA was not significant for the within group factor ($F = 2.889, p < .096$). The repeated measures ANOVA however revealed that there were significant

differences between groups ($F = 10.254, p < .001$). For all groups, the Tukey HSD post hoc tests showed a significant difference between EG1 and EG3 ($p < .001$), and between EG2 and EG3 ($p < .05$). EG3 and CG ($p < .001$) were also significantly different. These differences suggest sampling differences between experimental and control groups. The interaction effect for the Paranoid Ideation dimension and group ($F = .054, p < .983$) was not significant.

EG1, EG2 and EG3 all showed a decrease on mean Psychoticism dimension scores from pretest to posttest (EG1, pretest: $M = 73.70, SD = 7.63$; posttest: $M = 70.15, SD = 9.90$; EG2, pretest: $M = 64.39, SD = 11.54$; posttest: $M = 58.27, SD = 0.08$; EG3, pretest: $M = 56.20, SD = 7.16$; posttest: $M = 55.40, SD = 5.25$) (Figure 4.10). CG showed an increase in mean Psychoticism dimension score (pretest: $M = 71.25, SD = 7.99$; posttest: $M = 72.21, SD = 7.02$) (Figure 4.10).

The repeated measures ANOVA was not significant for the within group factor ($F = 1.133, p < .292$). The repeated measures ANOVA however revealed that there were significant differences between groups ($F = 21.360, p < .001$). For all groups, the Tukey HSD post hoc tests showed a significant difference between EG1 and EG2 ($p < .001$), and between EG1 and EG3 ($p < .001$). EG2 and CG ($p < .001$), and EG3 and CG ($p < .001$) were also significantly different. These differences suggest sampling differences between experimental and control groups. The interaction effect for the Psychoticism dimension and group ($F = .333, p < .801$) was not significant.

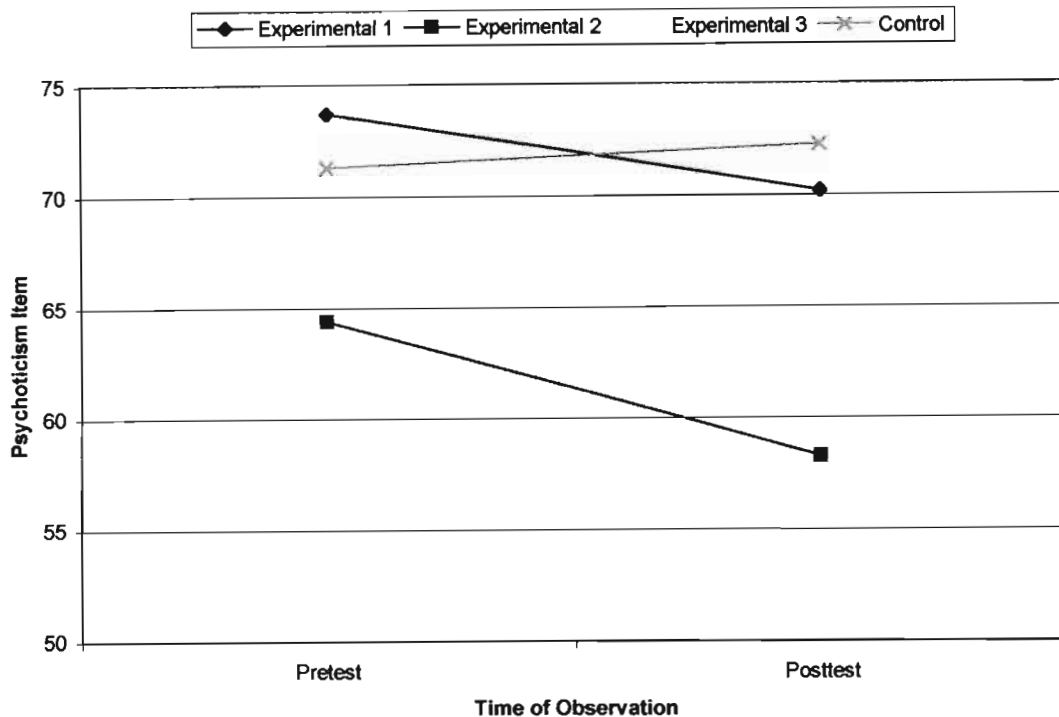


Figure 4.10: SCL-90-R Psychoticism dimension mean results compared for pretest and posttest for Experimental and Control Groups

4.4 Differences in Self-Esteem scores on the CFSEI-2 for Experimental and Control Groups

The CFSEI-2 provides a total self-esteem score. This score is obtained through the addition of the social, general, and personal self-esteem scores from the CFSEI-2. Pretest and posttest CFSEI-2 self-esteem scores for experimental and control groups are summarised in Figure 4.11. All groups, including the control group, showed an increase in self-esteem from the pretest to the posttest (EG1, pretest: $M = 20.31$, $SD = 3.28$, posttest: $M = 22.31$, $SD = 3.28$; EG2, pretest: $M = 24.40$, $SD = 2.80$, posttest: $M = 25.80$, $SD = 4.68$; EG3, pretest: $M = 17.80$, $SD = 3.33$, posttest: $M = 19.00$, $SD = 4.57$; CG, pretest: $M = 17.86$, $SD = 4.06$, posttest: $M = 20.57$, $SD = 3.18$).

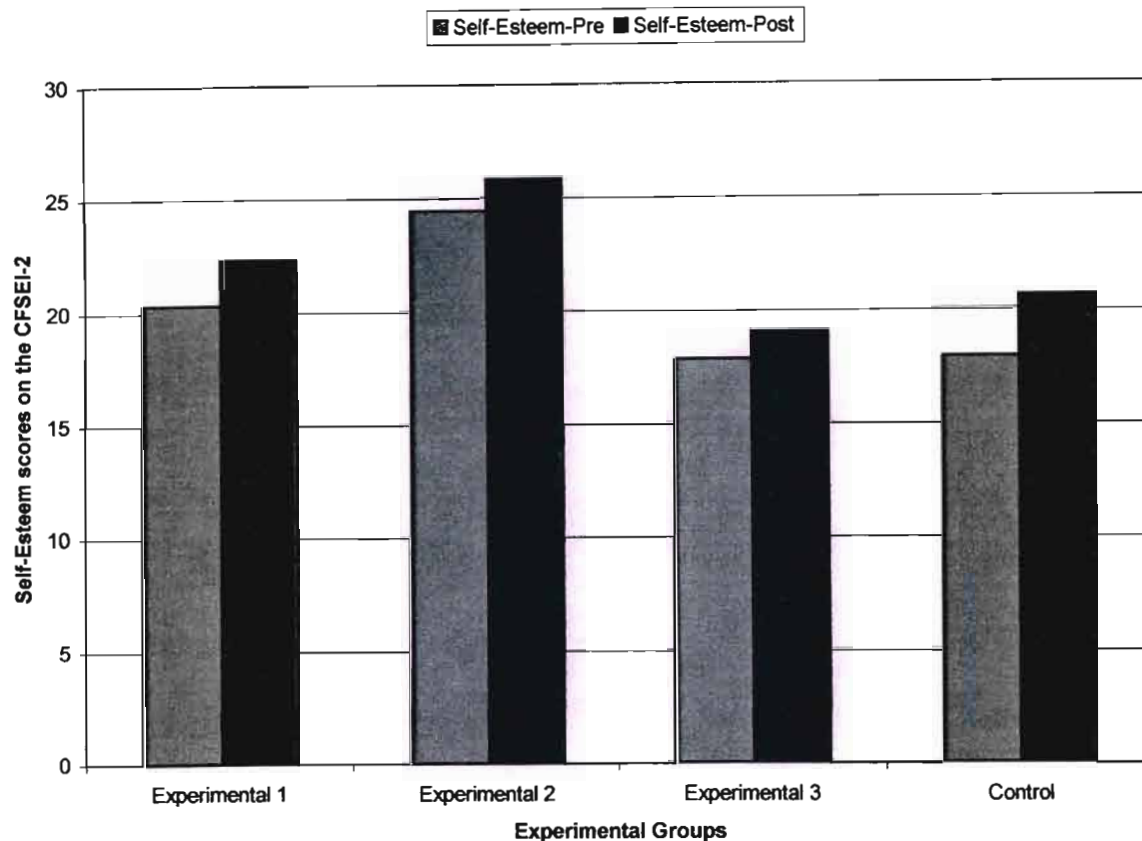


Figure 4.11: Self-Esteem scores on CFSEI-2 compared for pretest and posttest for Experimental and Control Groups

The repeated measures ANOVA was significant for the within group factor ($F = 6.270$, $p < .05$) displaying that pretest mean results for all groups were significantly different from posttest mean results for all groups. The CFSEI-2 self-esteem pretest mean ($M = 20.81$, $SD = 4.42$) for all groups was lower than that for the posttest ($M = 22.21$, $SD = 4.62$). The repeated measures ANOVA also revealed that there were significant differences between groups ($F = 17.631$, $p < .001$). For all groups, the Tukey HSD post hoc tests showed a significant difference between EG1 and EG2 ($p < .01$), and EG2 and EG3 ($p < .001$). EG2 ($p < .001$) was also both significantly different from CG. These differences suggest sampling differences between experimental and control groups. The interaction effect for self-esteem and group was however not significant ($F = .222$, $p < .881$).

4.5 CFSEI-2 results for Experimental and Control Groups

A summary of the CFSEI-2 mean dimension scores for Experimental Group 1 (EG1), Experimental Group 2 (EG2), Experimental Group 3 (EG3) and Control Group (CG) are presented the following figures (Figure 4.12 to Figure 4.14). The same 4 x 2 factorial design with one repeated measure factor (two levels: pretest and posttest) and one between subjects factor (four levels: EG1, EG2, EG3, and CG) was used to test differences for the CFSEI-2 dimensions. Results for the repeated measures ANOVAs will also be presented to display which CFSEI-2 dimensions were affected by the ecotherapy programme.

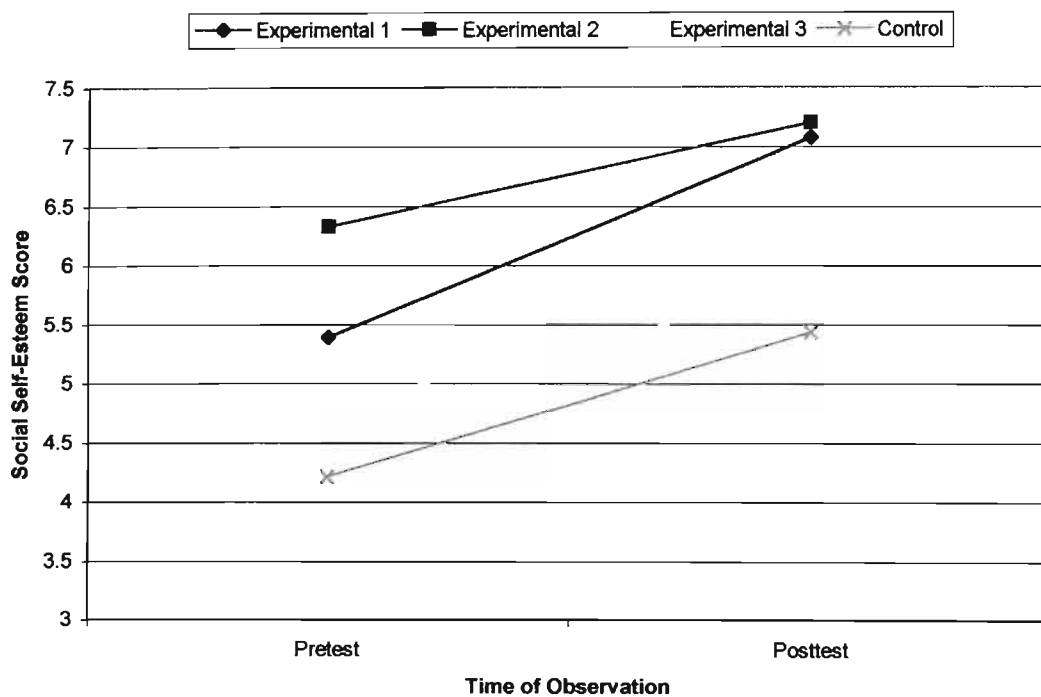


Figure 4.12: CFSEI-2 Social Self-Esteem mean results compared for pretest and posttest for Experimental and Control Groups

All experimental groups and the control group showed an increase in mean Social self-esteem scores (EG1, pretest: $M = 5.39$, $SD = 0.87$, posttest: $M = 7.08$, $SD = 0.95$; EG2, pretest: $M =$

6.33, SD = 0.90, posttest: M = 7.70, SD = 1.37; EG3, pretest: M = 4.80, SD = 1.48, posttest: M = 5.80, SD = 1.40; CG, pretest: M = 4.21, SD = 1.42, posttest: M = 5.43, SD = 0.51) (Figure 4.12).

The repeated measures ANOVA was significant for the within group factor ($F = 28.257, p < .001$) displaying that pretest mean results for all groups were significantly different from posttest mean results for all groups. The Social self-esteem pretest mean ($M = 5.31, SD = 1.35$) for all groups was lower than that for the posttest ($M = 6.42, SD = 1.33$). The repeated measures ANOVA also revealed that there were significant differences between groups ($F = 16.330, p < .001$). For all groups, the Tukey HSD post hoc tests showed a significant difference between EG1 and EG3 ($p < .05$), and EG1 and CG ($p < .001$). EG2 was significantly different from CG ($p < .001$), and EG3 ($p < .001$). These differences suggest sampling differences between experimental and control groups. The interaction effect for Social self-esteem and group was however not significant ($F = .679, p < .569$).

All experimental groups showed an increase in mean General self-esteem scores from pretest to posttest (EG1, pretest: $M = 5.39, SD = 0.87$, posttest: $M = 10.15, SD = 2.30$; EG2, pretest: $M = 11.67, SD = 1.95$, posttest: $M = 12.20 \pm 2.68$; EG3, pretest: $M = 4.80, SD = 1.48$, posttest: $M = 5.80, SD = 1.40$) (Figure 4.13). CG however showed a pronounced decrease in the mean general self-esteem score from pretest to posttest (pretest: $M = 8.93, SD = 2.02$, posttest: $M = 5.43, SD = 0.51$) (Figure 4.13).

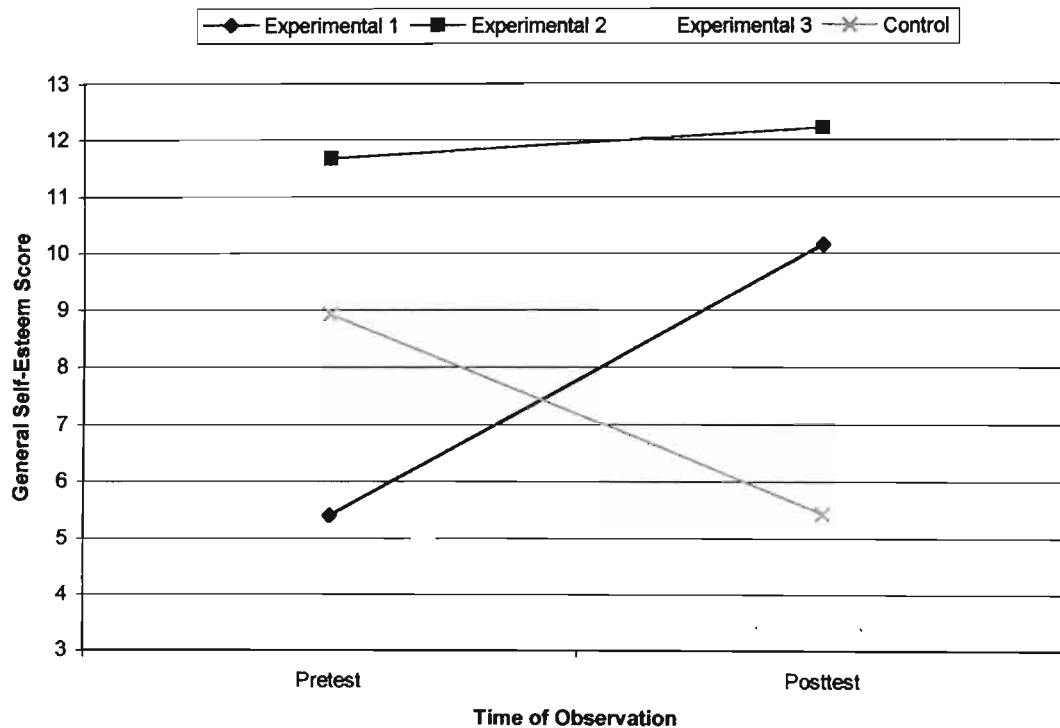


Figure 4.13: CFSEI-2 General Self-Esteem mean results compared for pretest and posttest for Experimental and Control Groups

The repeated measures ANOVA was significant for the within group factor ($F = 4.133$, $p < .05$) displaying that pretest mean results for all groups were significantly different from posttest mean results for all groups. The General self-esteem pretest mean ($M = 8.46$, $SD = 3.57$) for all groups was lower than that for the posttest ($M = 8.63$, $SD = 3.52$). The repeated measures ANOVA also revealed that there were significant differences between groups ($F = 32.765$, $p < .001$). For all groups, the Tukey HSD post hoc tests showed a significant difference between EG1 and EG2 ($p < .001$), EG1 and EG3 ($p < .001$), and EG2 and EG3 ($p < .001$). EG2 ($p < .001$) and EG3 ($p < .01$) were also both significantly different from CG. These differences suggest sampling differences between experimental and control groups. The interaction effect for General self-esteem and group was significant ($F = 25.584$, $p < .001$).

The pretest and posttest group by General self-esteem score estimated marginal 95% confidence intervals for EG1 were significantly different (pretest: Lower Bound: 4.73, Upper Bound: 6.04; posttest: Lower Bound: 6.46, Upper Bound: 7.69). Furthermore, The pretest and posttest group by General self-esteem score estimated marginal 95% confidence intervals for CG were significantly different (pretest: Lower Bound: 8.03, Upper Bound: 9.83; posttest: Lower Bound: 4.37, Upper Bound: 6.48). These results were the primary reason for the significant interaction since EG2 and EG3 had an overlap in pretest and posttest group by General self-esteem score estimated marginal 95% confidence intervals displaying no significant difference.

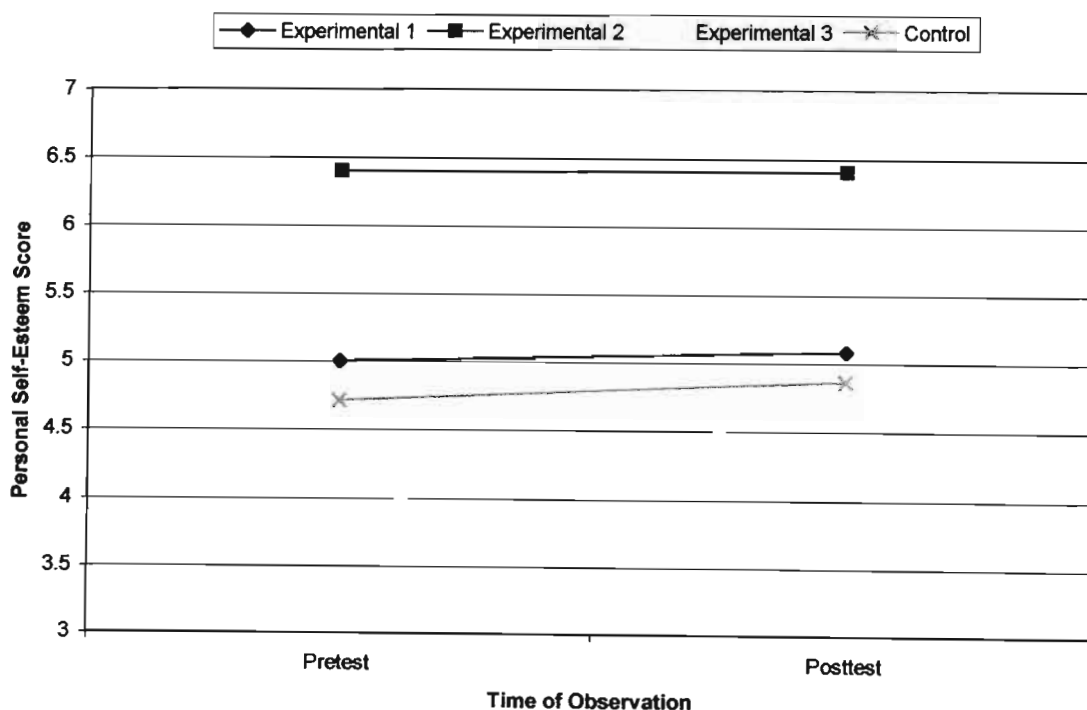


Figure 4.14: CFSEI-2 Personal Self-Esteem mean results compared for pretest and posttest for Experimental and Control Groups

EG1 and EG3, and CG showed an increase in mean Personal self-esteem scores (EG1, pretest: $M = 5.00$, $SD = 1.08$, posttest: $M = 5.08$, $SD = 1.55$; EG3, pretest: $M = 3.90$, $SD =$

1.60, posttest: $M = 4.70$, $SD = 2.06$; CG, pretest: $M = 4.71$, $SD = 1.98$, posttest: $M = 4.86$, $SD = 1.88$) (Figure 5.14). EG2 should no difference between pretest and posttest mean personal self-esteem scores (pretest: $M = 6.40$, $SD = 1.30$, posttest: $M = 6.40$, $SD = 1.60$) (Figure 4.14).

The repeated measures ANOVA was not significant for the within group factor ($F = .595$, $p < .444$). The repeated measures ANOVA revealed that there were significant differences between groups ($F = 8.196$, $p < .001$). For all groups, the Tukey HSD post hoc tests showed a significant difference between EG1 and EG2 ($p < .01$). EG2 was also significantly different from EG3 ($p < .001$) and CG ($p < .01$). These differences suggest sampling differences between experimental and control groups. The interaction effect for Personal self-esteem and group was however not significant ($F = .267$, $p < .849$).

CHAPTER 5

DISCUSSION

5.1 Overview of Results

The results will now be discussed in a systematic manner in accordance with their respective presentation in the results chapter. The general results did not support either of the posed hypotheses. Repeated measures analysis of variance (ANOVA) showed there was no statistically significant increase in self-esteem, or decrease in psychological symptomatology in any of the experimental groups after the ecotherapy programme. Possible explanations for these results will be discussed in the ensuing sections.

5.1.1 Global Symptom Index results on the SCL-90-R for Experimental and Control Groups

The 4 x 2 factorial design repeated measures ANOVA showed significant differences for the within group ($F = 4.472, p < .05$) and between group factors ($F = 30.477, p < .001$) for the GSI. The finding for the within group factor shows that there is a significant difference between pretest means and posttest means for all experimental groups and the control group on the GSI. However, this significant result does not indicate the influence of the ecotherapy programme on the GSI since it is a comparison of summed pretest and posttest GSI means for all groups, which includes the control group results. The significant findings for the between group factor is the result of sample differences between the experimental and control groups. However, since the interaction effect for GSI and group was not significant, there is no support for the hypothesis that the ecotherapy programme decreases the manifestation of

psychological symptoms. Figure 5.1 shows that there is a slight decrease in posttest GSI means for EG1 and EG2.

5.1.2 SCL-90-R dimension results for Experimental and Control Groups

As for the GSI, in general the results for the SCL-90-R dimensions did not provide support for the hypothesis that ecotherapy decreases the report of manifest psychological symptoms. Only the Obsessive-Compulsive dimension ($F = 5.019, p < .05$) and the Depression dimension ($F = 5.127, p = .05$) had significant within group factors. However, as stated already, these findings are a comparison of summed pretest and posttest means for all experimental and control groups. Since the control group scores are included in this statistic, these findings have no relevance for evaluating the effects of the ecotherapy programme.

Significant findings for between group factors were obtained for all SCL-90-R dimensions (Somatisation dimension: $F = 9.804, p < .001$; Obsessive-compulsive dimension: $F = 32.765, p < .001$; Interpersonal Sensitivity: $F = 9.804, p < .001$; Depression dimension: $F = 19.879, p < .001$; Anxiety dimension: $F = 24.957, p < .001$; Hostility dimension: $F = 18.103, p < .001$; Phobic Anxiety dimension: $F = 30.793, p < .001$; Paranoid Ideation: $F = 10.254, p < .001$; Psychoticism dimension: $F = 21.360, p < .001$). However, these significant findings for the between group factor for all SCL-90-R dimensions are the result of sample differences between the experimental and control groups.

As for the GSI, none of the SCL-90-R dimensions had significant interaction effects for the specific dimension and group. These results do not support the hypothesis that the ecotherapy programme decreases the manifestation of psychological symptoms.

5.1.3 Self-Esteem results on the CFSEI-2 for Experimental and Control Groups

The 4 x 2 factorial design repeated measures ANOVA showed significant differences for the within group ($F = 6.270, p < .05$) and between group factors ($F = 17.631, p < .001$) for the CFSEI-2 Self-Esteem scores. The finding for the within group factor shows that there is a significant difference between pretest means and posttest means for all experimental groups and the control group on Self-Esteem scores. However, this significant result does not indicate the influence of the ecotherapy programme on Self-Esteem since it is a comparison of summed pretest and posttest Self-Esteem means for all groups, which includes the control group results. The significant findings for the between group factor is the result of sample differences between the experimental and control groups.

Since the interaction effect for Self-Esteem and group was not significant, there is no support for the hypothesis that the ecotherapy programme increases Self-Esteem. The trend in Figure 4.11 shows that Self-Esteem scores improved for all groups, experimental and control, from the pretest to the posttest. Therefore, the ecotherapy intervention had no effect on experimental group participants.

5.1.4 CFSEI-2 dimension results for Experimental and Control Groups

As for the total CFSEI-2 Self-Esteem scores, in general the results for the CFSEI-2 dimensions did not provide support for the hypothesis that ecotherapy increases Self-Esteem. Only the Social self-esteem dimension ($F = 28.257, p < .001$) and the General self-esteem dimension ($F = 4.133, p < .05$) had significant within group factors. However, as stated already, these findings are a comparison of summed pretest and posttest means for all

experimental and control groups. Since the control group scores are included in this statistic, these findings have no relevance for evaluating the ecotherapy programme.

Significant findings for between group factors were obtained for all CFSEI-2 dimensions (Social self-esteem dimension: $F = 16.330$, $p < .001$; General self-esteem dimension: $F = 32.765$, $p < .001$; Personal self-esteem: $F = 8.196$, $p < .001$). However, these significant findings for the between group factor for all CFSEI-2 dimensions are the result of sample differences between the experimental and control groups.

Only the General self-esteem dimension had a significant interaction effect ($F = 25.584$, $p < .001$). However, this significant interaction was mainly the result of the pronounced increase in the General self-esteem dimension in EG1 from pretest to posttest and an equally pronounced decrease in the General self-esteem dimension in CG from pretest to posttest. Little can be determined from these significant findings. In general, the CFSEI-2 dimension results do not support the hypothesis that the ecotherapy programme increases self-esteem.

5.2 Contextualising Evaluation Results within the Ecotherapy Literature

The findings in the current study have implications for both the N.P.A.T. KZN Midlands Ecotherapy Programme and ecopsychology theory in general. Many theorists have claimed that human physical and mental health is connected to people's relationship with the natural environment (Conn, 1998; Davis, 1998). Furthermore, ecopsychologists maintain that ecotherapy can improve psychological health (Conn, 1998; Davis, 1998; Glendinning, 1995; Greenway, 1995; Metzner, 1995; Shepard, 1995). Research has supported these theoretical claims, but for only for specific areas of psychological symptomatology (Kelley et al., 1997;

Hattie et al., 1997). Research has also provided evidence for the effectiveness of ecotherapy in improving self-esteem (Sveen & Denholm, 1997; Kelley, Coursey & Selby, 1997; Wheeler, Goldie & Hicks, 1998; Israel, 1998; Herbert, 1998; Higson-Smith, 2001). However, the current evaluation study has not found statistically significant evidence for the effectiveness of the ecotherapy intervention for either self-esteem, or psychological symptomatology.

The theoretical claims that ecotherapy improves psychological health were unfounded in the current study, as there was no decrease in the manifestation of psychological symptomatology on the SCL-90-R from the pretest to the posttest. Theoretical claims that ecopsychology and ecotherapy improve psychological health are not specific as to which areas of human psychology are affected by ecotherapy, and what constitutes psychological health. Conn (1998) merely claims that human physical and mental health is connected to the preservation of a mutually enhancing relationship with the natural world. This statement is generalised and therefore extremely difficult to operationally define and test empirically. Davis (1998a) argues that disconnection from nature has resulted in such psychological symptoms as alienation, denial, numbness and despair. These symptoms of alienation, denial, numbness and despair however could be attributed to a number of other causes far more prevalent in modern society (e.g. poverty) and are not necessarily the result of disconnection from nature. However, it cannot be claimed that disconnection from nature is not a contributing factor to these symptoms of alienation, denial, numbness and despair, as this cannot be refuted at present.

Research has obtained support for the effectiveness of the ecotherapy intervention for psychological symptomatology (Kelly et al., 1997; Hattie et al., 1997). Kelly et al. (1997)

found significant effects on scores for Anxiety and Depression subscales on the Brief Symptom Inventory. However, these findings were for a clinical population, which does not necessarily generalise to a normal population. Hattie et al. (1997) found ecotherapy to have a high effect on personality dimensions such as the reduction of aggression, emotional stability, achievement motivation, internal locus of control, maturity and reduction in neurosis. These findings were obtained through the meta-analysis of a number of different studies on different types of participants (youth-at-risk to business managers), and therefore are generalisable. However, improvements on personality dimensions do not necessarily equate to improved psychological health.

Theoretical ecopsychology needs to rigorously define what psychological health is and means before it can be empirically and accurately tested. The SCL-90-R is a general psychological symptomatology inventory and therefore is unable to identify more intricate psychological changes, which might occur after the ecotherapy intervention. A more rigorous definition of psychological health can be more accurately tested using a more specific psychological inventory. However, the current findings using the SCL-90-R are an important start to exploring the effectiveness of ecotherapy and ecopsychology given its current state.

As for evaluation findings for the SCL-90-R, the CFSEI-2 showed no significant difference between pretest and posttest results. This suggests that the ecotherapy intervention had no effect on participants' self-esteem. Past research has supported claims that ecotherapy is effective in improving self-esteem (Hattie et al., 1997; Sveen & Denholm, 1997; Kelley et al., 1997; Wheeler, Goldie & Hicks, 1998; Israel, 1998; Herbert, 1998, Higson-Smith, 2001). However, Hattie et al. (1997) argue that many studies have only investigated the effects of specific dimensions of self-concept (e.g. personal self-esteem) and then made sweeping

claims of improvements to self-concept and self-esteem in general. Self-concept is dynamic and multifaceted (Markus & Wurf, 1987). It regulates, mediates and reflects on-going behaviour. Additionally, self-concept is involved in maintaining motivation, and interprets and categorises all self-relevant actions and experiences (Markus & Wurf, 1987). Therefore, sweeping generalisations cannot be made after the significant findings on only a few self-concept dimensions after an ecotherapy intervention.

The current study made use of the CFSEI-2, which is a general self-esteem inventory. The CFSEI-2 however does provide more specific dimensions of self-esteem (e.g. Social, Personal, and General self-esteem). However, even these self-esteem dimensions are generalised. The non-significant findings could therefore be attributed to the non-specific nature of the CFSEI-2. However, if evidence that ecotherapy improves self-esteem is to be obtained, research needs to begin with more generalised self-esteem inventories. By the process of elimination, the specific areas of self-concept, if any, that ecotherapy is effective for will be identified. This will however require further investigation.

5.3 Discussion of Evaluation Results

Three possible areas have been identified that could possibly account for the non-significant findings. These areas are statistical power, experimental design, and dependant measures and relevant outcomes (including translation). This section intends to account for and discuss the evaluation results obtained in the current study with specific reference to statistical power, experimental design, and dependant measures and relevant outcomes. In doing so, the section will also identify the limitations of the current evaluation study and possible future areas of study, which require further investigation.

5.3.1 Statistical Power

Hattie et al. (1997) report that there have been many studies in which the difference between pretest and posttest has not been statistically significantly different, yet the authors have claimed that the effect is obvious. Many studies have obtained trends in the predicted directions that are not statistically significant and then assumed a significant effect based on other qualitative data (Hattie et al., 1997). Hattie et al. (1997) suggest that this emphasis on positive findings and ignoring negative evidence is disturbingly common in the ecotherapy literature.

Evaluators have become frustrated since they can sense major change but are unable to obtain statistically significant effects for their respective studies. However, the majority of these studies have failed to consider the major issue of power of the study (Hattie et al., 1997). Lachenicht (2002) defines power as "... the probability of correctly rejecting a false null hypothesis" (p. 232). Power is dependant on the probability of incorrectly rejecting the null hypothesis, sample size and the expected magnitude of the difference between pretest and posttest means (Hattie et al., 1997). An experiment with greater power has more chance of rejecting a false null hypothesis than does one with less power (Lachenicht, 2002). Most ecotherapy studies have to make use of very small sample sizes. The power is compromised by this small sample size.

Therefore, the non-significant results obtained in the current study could be attributed to power problems due to sample sizes in experimental and control groups. The current study made use of repeated measures ANOVA's to attempt to improve the power of the study. Repeated measures ANOVA increases power because it is able to reduce the error variance

by removing variation in scores due to differences between individuals in study groups (Tredoux, 2002). The increase in power through use of repeated measures ANOVA in the current study were still however not able to sufficiently improve power to account for the small sample sizes. Hattie et al. (1997) suggest the use of meta-analysis to overcome the problems of power in ecotherapy research. However, since the N.P.A.T. KZN Midlands ecotherapy programme is still in its infancy, it will take time to implement such an evaluation study. The current study was unable to utilise such methodology due to time and financial constraints.

5.3.2 Experimental Design

The evaluation literature in ecotherapy is riddled with poor quality studies with serious methodological weaknesses as has been discussed in Chapter 2. The essentials of any evaluation should be comparison and control groups, a standardised intervention, randomisation, and longitudinal study of programme effects (Durrheim, 2002). This section will present the strengths and limitations of the current experimental design in comparison to previous studies. Areas that require future attention and possible improvements to the experimental design that require consideration will also be discussed.

In the current study, the use of a quasi-experimental design and non-random sampling meant that results would not be internally valid or generalisable to a normal population. To accommodate for this the research design included three experimental groups comprised of different types of participants to improve the internal validity and generalisability.

Furthermore, the quasi-experimental design causes problems for the interpretation of ANOVA interaction effects since results could be due to differences between participant

groups and not the ecotherapy intervention. However, the quasi-experimental design was necessary because the researcher was not involved in the selection of participants for the ecotherapy programmes. In addition, the limited period to conduct the evaluation and the small number of suitable groups attending the ecotherapy programme, since the N.P.A.T. KZN Midlands Ecotherapy Programme is still in a development stage, forced a quasi-experimental design. For future research, it is advisable that the researcher has a greater role in the selection of participants for ecotherapy programmes. This will also allow greater opportunity for the manipulation of experimental groups to aid the research design.

In an evaluation of the N.P.A.T. ecotherapy programme, Higson-Smith (2001) obtained similar self-esteem findings for the ecotherapy intervention to that obtained in the current study (Figure 4.11). The current study found a significant difference ($F = 6.270, p < .05$) for the within group factor for self-esteem between the pretest and posttest, with the self-esteem pretest ($M = 20.81, SD = 4.42$) lower than the posttest ($M = 22.21, SD = 4.62$) result suggesting improvement in self-esteem in the posttest. This finding however is meaningless to the ecotherapy programme because it includes the control group results. Furthermore, since Higson-Smith (2001) had no control group in his study, there is doubt placed on his results as well. The purpose of having a control group in the research design is to compare to equivalent groups (experimental and control) where one is exposed to the intervention and the other not. This allows the researcher to determine whether the intervention has any effect if only the experimental groups show a difference on the posttest. In the current study, experimental group 1 (EG1) was matched to an equivalent control group (CG). Tukeys HSD post hoc tests showed in general that there was no significant difference between EG1 and CG. The results of the study were therefore strengthened by the inclusion of a control group.

In Higson-Smith's (2001) study, participants were administered a post-test immediately after the completion of the ecotherapy intervention. This could however give an unclear indication of the effects of the ecotherapy intervention. Marsh, Richards, and Barnes (1986b, as cited in Hattie et al., 1997) warn of a "post-group euphoria" which may affect the results of self-reports immediately following the completion of the ecotherapy intervention. The current study avoided "post-group euphoria" by testing participants one month after completion of the ecotherapy intervention, and further strengthening the results obtained.

In the current study, posttesting was conducted with self-addressed envelopes back to the evaluator. The questionnaires were completed one month after completion of the trail, and then posted back to the evaluator. This was necessary because once the trail was completed the evaluator had no further contact with the ecotherapy trail participants. The N.P.A.T. KZN Midlands Ecotherapy Programme do run follow-up interventions but these were not at the correct intervals for the testing to be conducted. The follow-up interventions are also informal and therefore not the correct place to answer questionnaires. The posttest was therefore completed under different circumstances to the pretest (The pretest was conducted in a classroom at the N.P.A.T. KZN Midlands Ecotherapy Programme, headquarters prior to the intervention). This may have affected the results obtained. It would have been better to have conducted the pretest and posttest under the same conditions. Furthermore, the self-addressed envelopes meant that not all participants returned their questionnaires. The questionnaire rate was however good and over 65% were returned. This also may have affected results because participants who had a more meaningful experience on the ecotherapy intervention would have been more likely to return their questionnaires, which may have skewed the evaluation results. Since there were no statistically significant findings in the current study for the

effects of the ecotherapy programme, these issues have little relevance, but are worth noting for future research.

The N.P.A.T. KZN Midlands Ecotherapy Programme interventions vary between three and five days in length. However, Hattie et al. (1997) in their meta-analysis determined that ecotherapy programmes lasting more than 20 days were more effective than those that ran for a shorter period were. The current study was unable to study this variable since there were no longer ecotherapy programmes from which to compare results. The length of the intervention therefore may be of importance and explain the non-significant findings. This important issue needs further investigation.

5.3.3 Dependant measures and relevant outcomes

Although evaluation findings using the SCL-90-R and CFSEI-2 showed no statistical significance between pretest and posttest means on the ecotherapy intervention, this however does not necessarily suggest that the ecotherapy intervention is not effective. The SCL-90-R and CFSEI-2 cover only two general outcome variables, psychological symptomatology and self-esteem. Although these non-significant results on the SCL-90-R and CFSEI-2 have already been attributed to possible power problems, the ecotherapy programme may be more effective for other outcome variables.

Hattie et al. (1997) determined in their meta-analysis that ecotherapy was most effective for outcome variables that were related to a sense of self-control and self-regulation, responsibility, and self-assurance. Any increase in any of these outcome variables could be associated with and lead to an indirect increase in self-esteem, as well as decreased report of

manifest psychological symptomatology. Therefore, sweeping generalisations from previous research could have led to the erroneous claims that ecotherapy is an effective intervention for psychological health and self-esteem. These outcome variables however could be indirectly affected by improvements to other outcome variables. This can only be determined through further research.

5.3.3.1 Translation

Many of the participant's spoke only Zulu, and no English. Although the SCL-90-R and CFSEI-2 were both translated into Zulu, there might also have been response problems because many of the participants were not altogether literate, even in Zulu. Subjects were therefore unable to accurately respond to the instruments. Therefore, any quantitative study making use of psychological instruments would have suffered, no matter how well the instrument was translated. This problem could be avoided by using more cross-cultural and individual qualitative studies using a verbal interview rather than a written response. However, this type of methodology will still not provide an overarching evaluation of the effectiveness of the ecotherapy intervention.

Greenway (1995) argues that a language for ecopsychological phenomena needs to be developed. Peoples' ecotherapy experiences are not easily explained and expressed in language that is more traditional. Therefore, these experiences are not easily reflected in responses to more traditional psychological inventories. Furthermore, subjects with limited fluency in English would be even more hampered in responding to psychological inventories.

Extending on this limitation, there is a need to develop ecopsychology-based instruments that are more able to quantify ecopsychological phenomena. However, this type of instrument will only be able to be developed through more explorative qualitative studies.

5.4 Conclusion

The results of the evaluation found that the N.P.A.T. KZN Midlands Ecotherapy Programme had no effect on any of the experimental groups for the report of manifest psychological symptoms or self-esteem. This however does not necessarily suggest that the ecotherapy programme is not effective. In this study, these findings, as has already been discussed, could be attributed to power problems. In addition, as has been discussed previously, the ecotherapy intervention may affect other outcome variables more than those evaluated in the current study, which can only be determined through future research. The study has provided other important issues that require consideration for future research. The research findings also have implications for ecopsychology theory in general and the N.P.A.T. KZN Midlands Ecotherapy Programme, which require consideration for future research and the facilitation of the ecotherapy programme.

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APPENDIX

TRANSLATION

A.1.1 Introduction

A brief overview of the theory of translation and the predominant methodological models used will be reviewed in this chapter. This component of any cross-cultural study is vital because all ensuing research is dependant on the quality of the translation. This process is no simple undertaking due to a number of factors that will be considered in this section. In recent years, there have been significant methodological gains in the field of translation. These gains are predominantly the result of increased interest and research in cross-cultural psychology. However, Rogler (1989) argues that despite improvements made in translation methodology, there has been little effort to adopt these methods into cross-cultural research in general. I will now introduce the basic translation theory and discuss the more commonly used translation methods.

A.1.2 Casagrande's Four Translation Types

Translation has many forms and is not purely the translation of meaning from one language to another. Casagrande (1954, as cited in Brislin, 1980) maintained that there are four main types of translation. These are:

- 1) Pragmatic translation,
- 2) Aesthetic and poetic translation,

- 3) Ethnographic translation, and
- 4) Linguistic translation.

Pragmatic translation is primarily concerned with accurate translation of information from the source language. For example, this type of translation is used for the translation of technical documents such as machine repair manuals. In this situation, the subtleties of language (e.g. aesthetic form) are unimportant. In contrast, with aesthetic and poetic translation the translator needs to incorporate affect, emotion and feelings portrayed alongside actual meaning. This type of translation is predominantly required in the translation of literature. Ethnographic translation attempts to interpret and explain information in terms of the cultural context of the source and target languages. Translators need to pay specific attention to the context in which the relative phrases and words are used. Linguistic translation is concerned with the precise structure of the target language. This includes such factors as the correspondence of semantics, linguistic structure, and grammatical form.

It is seldom that a single translation can be categorised into one of Casagrande's four translation types (Brislin, 1980). However, awareness of the different categories does assist in setting goals and priorities when planning a translation.

A.1.3 The Equivalence Dilemma

The fundamental goal of a translation is to ensure equivalence between the source and target language instruments. Since equivalence possesses various components, John (1996) has described it as a multi-dimensional concept. This makes it almost impossible to achieve all

types of equivalence in the translation, and compromises need to be made in the interpretation process. The following types of equivalence should be considered as guidelines for up holding the quality of a translation. The different forms of equivalence will be discussed in the following section.

A.1.3.1 Vocabulary Equivalence

As part of the translation process, it is necessary to ensure that the words used in the target language are equivalent to that of the source language. A dictionary translation is not sufficient for vocabulary equivalence since the language used in dictionaries is not commonly spoken or used (Sechrest, Fay, & Zaidi, 1972). This may prevent respondents from understanding the translated instrument and cause inaccuracy in their item responses.

A.1.3.2 Grammatical and Syntax Equivalence

Although it is most important to ensure that the meaning is maintained in the translation, it is also important to obtain equivalence in the grammar and syntax of the individual items. Translations that are not sound grammatically may result in instrument items being misunderstood. Grammar errors may also cause respondents to lose confidence in the instrument and consequently answer items poorly (Shanahan, 1998).

A.1.3.3 Idiomatic Equivalence

Idiomatic expressions like metaphors and colloquialisms are difficult to translate. However, Sechrest et al. (1972) maintain that the avoidance of idioms can lead to arduous phrasing of instrument items. They suggest that the best solution is to use idioms equivalent in familiarity and frequency of use, and meaning. This can be assisted with the use of "decentering" which will be discussed in a later section.

A.1.3.4. Experiential Equivalence

Experiential equivalence is concerned with ensuring that the translation should employ experiences that are equally familiar within the respective cultures. For example, in general African cultures are not as weight conscious as European cultures (Gillis, Elk, Ben-Anne, & Teggin, 1982). Therefore, an item regarding weight loss may receive different responses due to cultural distinction.

A.1.3.5 Conceptual Equivalence

The translator needs to make certain that concepts used are equivalent between the respective cultures. Sechrest et al. (1972) suggests that two potential problems may arise. Firstly, the items may appear to have adequate translations, yet not achieve equivalence of the underlying concepts implied by the words. Secondly, the concepts familiar in one culture may not be as frequently used in the other.

A.1.3.6 Technical Equivalence

Technical equivalence is dependant on whether the manner and method of data collection affects the results between two cultures. This includes such factors as the style of data collection and the manner in which the instrument is administered (By interview, or written responses). Gillis et al. (1982) advise that an interrogative collection style may be experienced as offensive in many African cultures. Additionally, Shanahan (1998) recommends that study groups who have a limited education may experience problems with written responses.

A.1.3.7 Criterion Equivalence

It is important that the translated instrument is able to distinguish between different groups of the same culture on the specific criteria tested by the original instrument. If the translated instrument measures self-esteem, it must be able to distinguish between high and low self-esteem groups. Predictive and concurrent validity both depend on the criterion equivalence of the translated instrument. Relating to criterion equivalence, metric equivalence is concerned with whether the psychometric properties of an instrument extend across to the translated instrument, and essentially share the same structure (Berry, 1980).

A.1.4 Translation Problems

Four broad types of translation problems have been identified in the cross-cultural psychology literature (Brislin, 1970, as cited in Shanahan, 1998, Werner & Campbell, 1970,

as cited in Shanahan, 1998, Sechrest et al., 1972). These will be discussed in the following section.

The first category of problems concerns the orientation of research subjects to the research being conducted. It is common practise to provide subjects with an explanation of the background and rationale of the study. It is important to ensure that these explanations are equivalent to those given to all other subjects. The second translation problem, relating to the first, involves the translation of the instrument instructions. It has been noted that little attention is generally paid to this aspect of translation (Sechrest et al., 1972). The lack of content and redundancy in brief instructions can obstruct the attainment of a satisfactory translation.

Thirdly, translation problems have been identified with the manner in which item instruments are phrased in both the target and source languages. It is important that the phrasing of items is comparable in both instruments, including such factors as idiomatic and experiential equivalence. This is especially important for instruments that have open-ended questions since even slightly different phrasing may lead to different responses. Sechrest et al. (1972) maintain that this problem has received more attention than others in the literature. However, they argue that little attention has been paid to the actual complexities of this issue.

The final translation problem concerns the actual translation of subjects' responses, which is especially important in interview, projective tests and open-ended question scenarios. Likert scale responses are not as heavily affected since responses have effectively been translated already. It is however important to ensure that response categories for the Likert scales are

appropriate for the target language. For example, Likert scale categories may not have equivalent graduated distinctions in the target language.

A.1.5 Translation Methods

A number of methods for high quality and equivalent translations have been reported in the literature. However, Brislin (1970, as cited in John, 1996) points out that researchers have failed to adequately make use of these methods. In the literature, the most widely used method is the direct translation. This technique is an extremely poor technique and is highly flawed. Direct translation disregards equivalence and does not assess the translation quality (Butcher & Pancheri, 1976, as cited in Shanahan, 1998). The ensuing section will review the more accepted translation methods. Each method has strengths and weaknesses, while also addressing different aspects of equivalence (Brislin, 1980).

A.1.5.1 Back Translation

Back translation requires two translators who are bilingual in the source and target languages required for the study. Firstly, one of the bilinguals translates the instrument from the source language to the target language. The second bilingual then translates the target instrument back into the source language having not viewed the original version of the instrument. This generates two copies of the instrument in the source language. The researcher then analyses the two versions for equivalence. If they are equivalent, the researcher can infer that the translated target language instrument is equivalent to the original instrument.

There are however methodological weaknesses in the back translation technique. Brislin (1970, as cited in John, 1996) describes three issues, which require careful consideration when using the back translation method:

- 1) Bilingual translators may have shared rules for translating non-equivalent words and phrases that respondents of the target instrument would not understand.
- 2) The translators may be able to make sense of a poor quality translation due to his or her knowledge of the respective language. The translator may then compensate for these weaknesses in his or her back-translation.
- 3) The first bilingual to translate the source may retain forms of the source language in the translation. These would be recognised by the second bilingual, but not by the target respondents.

There have been studies, which have reported successful use of back translation (Werner & Campbell, 1970, as cited in Shanahan, 1998). Back translation certainly does provide an important check of the quality of vocabulary equivalence, and an indication of the experiential and conceptual equivalence in the translation. However, it does not reliably detect equivalence at all levels. By using this method alongside others that will be discussed shortly, a high quality translation can be obtained.

A.1.5.2 The Committee Approach

This method attempts to eliminate the methodological weaknesses of the back translation approach. The committee approach requires a committee of bilinguals in a similar procedure to that used in back translation. All members of the committee review the translation process.

The benefit of this technique is that other members of the committee should notice mistakes in the translation made by any member of the committee. However, members of the committee may not be adequately critical of one another's translations through which weaknesses can arise. This may be due to professional or cultural reluctance (Brislin, 1980).

A.1.5.3 The Decentering Method

The method of decentering was first developed by Werner and Campbell (1970, as cited in Shanahan, 1998). This method revises both source and target versions of the instrument. Decentering aims to emphasise instrument meaning. This is achieved through the revision of the original instrument to allow for the use of equivalent colloquialisms and idioms in the source and target languages. Decentering combined with back translation provides a smoother transition from the source to target languages, while also increasing equivalence. Sechrest et al. (1972) describes decentering as "the ultimate solution to the problem of translation" (p. 53), and as a means to avoid cultural and linguistic biases.

A.1.5.4 The Bilingual Method

With this method of translation, a group of bilingual subjects complete both the target and source versions of the instrument. The results are then correlated against each other, where a high positive correlation is an indication that the two versions of the instrument are equivalent to one another. The bilingual method can easily identify discrepant items. This is repeated until the desired level of equivalence is achieved.

There are however, weaknesses in the bilingual method. A bilingual subject sample is an atypical sample group. This group is probably not a true representation of the sample groups that the translated instrument is intended. Bilingual respondents are able to draw on their knowledge of both target and source languages to make sense of poorly translated items, leading to a misevaluation of the quality of the translated instrument.