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AN EXPLORATION OF HIGH SELF CONTROL SCORES AMONG SOUTH AFRICAN UNIVERSITY STUDENTS

THESIS

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ABSTRACT

The Rosenbaum Self Control Schedule is a self - report instrument developed to assess individual tendencies to apply self - control methods to the solution of behavioral problems. Tested on Hebrews and English - speaking Americans, it was found to transfer easily from one situation to the other. When administered in a battery of self - report questionnaires to South African university students it was found that while means of the total sample were similar to those reported overseas, the means of black and white students within the sample were significantly different from each other, with black students having higher self - control scores than the white students in the study and higher than those reported in previous studies.

The study was repeated in this research project using a larger group of black students. The finding of significantly higher self - control scores was replicated. This finding was not due to response set, either acquiescence or social desirability, although black subjects were found to be more subject to social desirability response set. Distributions of the samples showed a group of low scoring white subjects for which there was no equal in the black sample.

The findings suggest that black university students in South Africa have high levels of learned resoursefulness. This may be due to a selection process reflecting the relative difficulty with which black students reach university level - difficulties relating to student unrest, educational and financial limitations and economic and social drawbacks so that only those students with moderate to exceptional levels of problem solving stategy skills do succeed. Such individuals should be good candidates for cognitive therapies.

Item and factor analyses showed the SCS to be psychometrically adequate for the white group but were much less conclusive for the black sample. In this group, a lower Cronbach's alpha was obtained and the factor analysis was less clear.

TABLE OF CONTENTS

CHAPTER 1 SELF CONTROL - A REVIEW.....1
1.1 INTRODUCTION.....1
1.2 THEORETICAL PERSPECTIVE.....5
1.2.1 Drive and Impulse Theories.....5
1.2.2 Behaviorism and Behavior Modification.....7
1.2.3 Social Learning Theory.....9
1.2.4 Cognitive Restructuring Therapies.....11
1.2.4.a Rational Emotive Therapy (Ellis).....13
1.2.4.b Self Instructional Training (Meichenbaum).....16
1.2.4.c Cognitive Therapy (Beck).....17
1.2.5 Cognitive Structuralism.....19
1.2.5.a Vygotsky.....21
1.2.5.b Piaget.....23
1.2.5.c Flavell.....27
1.2.5.d Guidano and Liotti.....29
1.3 SELF CONTROL - THE CONCEPT.....34
1.3.1 Awareness.....35
1.3.2 Intervention.....37
1.3.3 Self.....38
1.3.3.a Locus of Control.....39
1.3.3.b Learned Helplessness.....39
1.3.3.c Self Efficacy.....40
1.3.4 Will.....42
1.3.4.a Mastery Orientation.....43
1.3.5 Hardiness.....52
1.3.6 Resilience.....55
1.3.7 Life Themes.....57
1.3.8 Learned Resoursefulness.....59
1.3.9 Summary.....64
1.4 THE SELF CONTROL SCHEDULE.....67
1.4.1 Validity.....68
1.4.2 Reliability.....73
1.4.3 Normative Data.....75
1.4.4 Factor Analysis.....76
1.4.5 Acquiescence Response Set.....81
1.4.6 Summary 82
1.5 CONCLUSIONS.....83

CHAPTER 2 PROBLEM AND HYPOTHESES.....85

2.1 THE PROBLEM.....85
2.1.1 Spurious Results.....88
2.1.2 Exploration of the Etiology and Characteristics of Self Control.....92
2.2 THE HYPOTHESES.....93
2.2.1 Hypothesis 1.....93
2.2.2 Hypothesis 2.....93
2.2.3 Hypothesis 3.....94
2.2.4 Hypothesis 4.....94
2.2.5 Hypothesis 5.....95

CHAPTER 3 THE PILOT STUDY.....97
3.1 INTRODUCTION.....97
3.2 METHOD.....97
3.2.1 Administration.....97
3.2.2 Interviews.....98
3.2.3 Validity.....99
3.2.4 Replication.....100
3.2.5 Exploration.....101
3.3 RESULTS.....102
3.3.1 Normative Data.....102
3.3.2 Distribution.....102
3.3.3 Validity.....103
3.3.4 Replication.....107
3.3.5 Exploration.....108
3.4 CONCLUSIONS.....111

CHAPTER 4 THE MAIN STUDY.....115
4.1 INTRODUCTION.....115
4.2 METHOD.....116
4.3 RESULTS.....117
4.3.1 Replication of Previous Results.....122
4.3.2 Item Analysis.....126
4.3.3 Validity.....134
4.3.4 Acquiescence Response Set.....142
4.3.5 Social Desirability Response Set.....143
4.4 CONCLUSIONS.....148

APPENDICES.....155
Appendix 1 The Self-Control Schedule.....155

Appendix 2 Pilot Study Questionnaire.....159
Appendix 3 Structured Interview Schedule.....166
Appendix 4 Social Desirability Scale.....168
Appendix 5 Item Analysis, White Rhodes Sample.....170
Appendix 6 Item Analysis, Black Fort Hare Sample....171
Appendix 7 Item Analysis, Black Fort Hare Sample, New Scale.....172
Appendix 8 Factor Analysis, White Rhodes Sample.....173
Appendix 9 Factor Analysis, Black Fort Hare Sample..175

BIBLIOGRAPHY.....177

LIST OF TABLES

1. Table 1 Correlations Between SCS and Irrational Beliefs Test.....69
2. Table 2 Rosenbaum's Conceptual Catagories.....79
3. Table 3.1 SCS Scores for Pilot Study.....107
4. Table 4.1 Meam Age.....118
5. Table 4.2 Mean Self Control Scores.....122
6. Table 4.3 Analysis of Variance.....124
7. Table 4.4 Results of Item Analysis of Blacks.....130
8. Table 4.5 Results of Item Analysis of Whites.....133
9. Table 4.6 Rhodes Whites Rotated Factor Loadings Pattern.....136
10. Table 4.7 Fort Hare Blacks Rotated Factor Loadings Pattern.....138
11. Table 4.8 Mean SDS Scores.....145

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CHAPTER ONE

SELF CONTROL - A REVIEW

1.1 INTRODUCTION

The concept of self control is an attempt to deal with the philosophical question of human will versus the determining influence of circumstances. In general, we believe that people have the facility of choice and that they can be held responsible for the choices that they makes. At the same time, we tend to view the world in terms of cause and effect so that any occurrence is seen as having some forgoing determining circumstance or happening. These two concepts of free will and the determining influence of cause and effect are contradictory. Yet we firmly believe in both (Edwards, 1967).

Self control implies that people are capable of directing their own behavior. It also implies the need to overcome forces of circumstances both personal and environmental (Karoly and Kanfer, 1982, pg 576). It is thus a concept that helps us to deal with the contradiction inherent in the issue of free will versus determinism. We understand that people

are able to influence their own behavior while at the same time recognizing that both personal and outside influences must also be considered. People do have both choice of and responsibility for their actions but these actions take place in a context that influences them. Self control then implies self direction.

Self direction or self management (Karoly and Kanfer, 1982) does not mean, for the purposes of this thesis, the perhaps more common understanding of self control where people who exhibit self control either stop themselves from doing what they want to do or force themselves to do something they do not want to do. We are not speaking of people forced by their socialization, their superegoes or whatever, to behave in a way that is diametrically opposed to their greatest desires. Rather, self control is taken to mean directing one's behavior in such a way as to achieve one's own personal goals - to overcome the forces within oneself or one's social and physical environment that would prevent the achievement of these goals.

Psychology has tended to lean more towards determinism in the past and to take less cognizance of people's free will.

Behavior was seen as determined by inner drives, environmental stimuli or biophysical states. More recently, though, greater attention has been paid to the influence that people have on their own behavior. This attention has centred on people's cognitions or thoughts so that acknowledgement has been taken of the common experience that what we think about a situation affects our behavior. Two people in the same situation will behave differently according to the meaning that the situation has for each. A young man who thinks that his national service will be an opportunity to perform his patriotic duty will behave differently to the one who thinks it will be a degrading waste of four years of his life. One may report on intake day, while the other may leave the country. Both received their call up papers, both, by law, must obey but because of what they think about the situation, their behavior is very different.

The cognitive behavioral school of psychology began to suggest that not only can people influence their own behavior through the medium of their thoughts but that people are able to influence their thoughts and the subsequent effect on their behavior. Thus people can learn to recognize that what

they think can influence their behavior. They can learn that certain types of thought lead to certain behaviors. They can learn that they can change their behavior so that it becomes the behavior necessary to achieve their desired goal by changing the way they think about themselves, their behavior and the desired goal.

Today the development of constructivism has led to an understanding of self control as one expression of a complex interaction between the individual's construction of reality and the personal response to that perceived reality. Rather than the cause and effect concept of people's irrational or dysfunctional thoughts leading inevitably to maladaptive behavior, the most recent emphasis is more on a self organizing process, developmental and open-ended in nature, where metacognitions are integrated with emotional and behavioral processes (Mahoney, 1987).

So by self control we do not negate the influences inherent in individuals and in their environment that have an effect on their behavior but we do say that people are able to influence their own behavior so as to deal effectively with the forces that prevent them achieving what they hope to

accomplish. People are not pawns in the hand of circumstances, neither are they all powerful, all responsible. Rather, they are a force themselves, able to act on their circumstances both within themselves and in their social and physical environment.

1.2 THEORETICAL PERSPECTIVE

1.2.1 Drive and Impulse Theories

Following on the question of will vs circumstance, psychology has looked for the explanation of human behavior both within the individual and in outside forces, or the environment. For many years psychologists proposed theories based on impulses or drives which originated within people and which were inferred from their overt behavior and then used as explanations for the same behavior (Bandura 1977). For example, Freud's understanding of drives looked within people for a basis for human behavior, allowing him to conceive of human thinking as composed of primary and secondary processes. The former were psychological expressions of underlying basic drives, assumed to be largely unconscious, present at birth, innate. They were seen to be more

primitive modes of thinking, manifested in dreams, but also present during waking life. Thinking at this level followed the pleasure principle - the seeking of pleasure and avoidance of pain. The secondary process involved the reasonable and acceptable ways in which the underlying basic drives were controlled and permitted expression according to the demands of the outside world. They were characteristic modes of preconscious and conscious thinking and followed the reality principle. Repressed drives constituted the dynamic unconscious, resisting conscious expression because of their unacceptability (Rowe, 1980).

A theory based on drives such as Freud's faces several basic problems. Human behavior is enormously complex and varied. Different situations, different people, different times all seem to produce a variety of behavior that would indicate a much more complex cause than a simple basic impulse or drive. Such an understanding may be helpful in interpreting past events but cannot be used to predict future ones and is of limited help in changing psychological behavior. Any theory must be evaluated on the basis of it's effectiveness in providing a context for changing actual psychological functioning. A drive theory does very poorly by this

criterion.

1.2.2 Behaviorism and Behavior Modification

In behaviorism the understood cause of behavior is attributed to external influences. Extensive analysis was possible because this approach invites empirical research. Much was learnt about stimulus conditions and response patterns. However, there were problems with this understanding of behavior too. Many people have difficulty reconciling the image of a robot-like, environmentally controlled human being with the creative, often stubbornly unresponsive individual we all know as man. There were ethical problems of power, visions of brainwashing and control. Behaviorism also argues against the popular understanding of personality traits. If behavior is elicited by the environment, the behavior must be situation specific and not consistent within the individual personality.

On the clinical front, behavioral models had begun to prove effective in the treatment of behavioral problems. Wolpe reported in 1958 the effective treatment of neurotic anxiety using learning principles (Wilson and O'Leary, 1980).

Wolpe's treatment of systematic desensitization is based on learning principles. Eysenck in 1959 defined behavior therapy as the application of modern learning theory to the treatment of behavioral and emotional disorders. He saw behavioral therapy as an applied science, testable and falsifiable. At the same time, Skinner was extending his operant principles to human problems. None of these theorists saw cognitive events as more than accompanying learned behavior; never the cause or determining factor (Wilson and O'Leary, 1980).

More recently, though, cognition has come to be seen as playing a crucial mediating role. The cognitive behavior modification approach considers that the cognitive or symbolic processes are important in the development, maintenance and modification of abnormal behavior (Wilson and O'Leary, 1980). Clinical therapy rests largely on changing the faulty thought patterns that led to clinical disorders. Behavior modification deals largely with teaching people how to carry out change programs themselves. Procedures of self monitoring, where the client keeps accounts of his own behavior, of contracting, where clients make deals with themselves, of reinforcement, where clients reinforce

themselves for desired behavior, have been developed. Self control skills such as relaxation training, desensitization, covert sensitization, and delay of gratification have become known. The concept is based upon the idea that a client can be made aware of the nature of his problem, set goals for change and learn to practise more functional behavior until it becomes automatic and slides out of conscious thought.

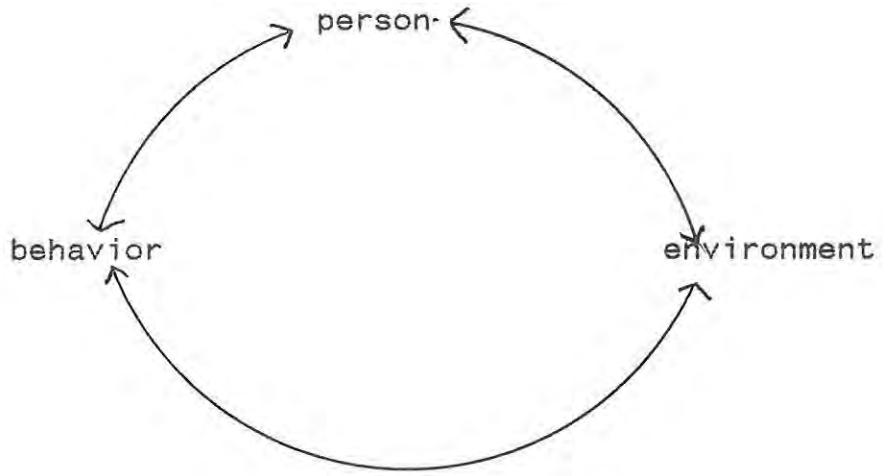
The importance of this approach is the integration of the determining factors of man's behavior both within the individual and without. Behavior is influenced by the environment (the behavioral aspect of the approach) and by the subjective cognitions of the individual (the cognitive aspect of the approach).

1.2.3 Social Learning Theory

More recently, it has been proposed that behavior is best understood as the result of interaction between the person and the situation instead of one or the other (Bowers in Bandura, 1977).

Bandura (1977) suggested a process of reciprocal determinism

where behavior was best understood not only in terms of both personal and environmental influence, but also in terms of the influence of each on the other. Individuals not only act in response to their own interpretation of the situation, nor only in response to environmental stimuli but individuals have their own way of understanding the environment and act on their environment to change it.



> "In the social learning view, people are neither driven by inner forces, nor buffeted by env ironmental stimuli. Rather, psy chological functioning is explained in terms of a continuous reciprocal interaction of personal and env ironmental det erminants. Within this approach, symbolic, vicarious and self regulatory processes assume a prominent role" (Bandura, 1977, pg 11).

The influence of the environment was thus seen as influenced by the cognitive processes of individuals themselves which, in turn, had a reciprocal influence upon the environment.

Social learning theory (Bandura, 1977, Mischel, 1973) advanced the concepts of individual subjective perception of events, interpretations and attributions of one's own behavior, thought patterns, self statements and cognitive strategies. Individual behavior came to be understood in terms of the process of interaction with the environment and idiosyncratic ways of interpretation. Behavior was not, then, a direct response to stimulation, as radical behaviorism suggests, or the result of innate drives or impulses as the psychoanalytic approach would suggest. The social learning paradigm sees behavior as emerging out of the meeting of the physical, social and psychic worlds.

1.2.4 Cognitive Restructuring Therapies

Recent developments in our understanding of psychological functioning in a social context grew out of the practice of cognitive restructuring therapies. These therapies were distinguished by their simultaneous endorsement of cognitive processes and their respect for the functional promise of experimentally developed behavioral procedures (Mahoney and Gabriel, 1987).

The cornerstone of this approach is the concept of cognitions as conscious thought, inner dialogue (Meichenbaum, 1977) or self statements. The client is seen as a conscious being who talks to itself constantly. There is a continuous stream of conscious thoughts which form part of everyone's every day experience. These thoughts themselves have the power to influence behavior.

> "Men are disturbed not by things but by the views they take of them." (Epicetus, AD 60)

This influence is not always recognised by the client but during the therapeutic process one can become aware of what one's internal dialogue is saying and how it influences one's behavior. Such awareness can lead to modification of thoughts that lead to dysfunctional behavior. What is important about the concept of cognitions or self statements is its recognition of the idiosyncratic view which each individual has of the world and how this affects behavior. Thus two different people may look at the same situation in very different ways, depending on their own internal dialogue. This is an obvious improvement on the S - R approach of radical behaviorism.

Cognitive restructuring refers to the process of change of cognitions assumed to be the determinants of dysfunctional behavior. This model of change involves the basic idea of restructuring or reconceptualization where, before any change, the client and the therapist find a middle ground of understanding. Clients are led to see their own behavior in terms of the therapist's understanding of the situation, which is, in this case, one utilizing the concept of the influence of cognitions upon behavior and their reciprocal effect on the environment as outlined above. Once this reconceptualization takes place, clients are able to check out their self statements and behavior for thoughts and behaviors that are incompatible with their new understanding. New self statements lead to new behaviors which again have an impact on the client's cognitive structures. How far - reaching and how long - lasting this change becomes will also be influenced by how the clients view the reactions of significant others to their now overt behavior and other resultant consequences.

1.2.4.a Rational Emotive Therapy (Ellis)

Perhaps the best known cognitive restructuring therapy is

Albert Ellis' (1962) Rational Emotive Therapy (RET). This is based on the assumption that irrational (and therefore, maladaptive) self statements are the cause of most emotional disturbance. These assumptions or self statements are said to be irrational because they are distortions of objective reality. Thus it is not experience but the client's perception of experience that causes neurotic disorders.

> "Anxiety includes not only the person's estimation of the real danger involved in the **situation** which he is in, but also his objective appraisal of his probable **ability** to cope with this situation, and his guesses as to which **solutions** might be best to get him out of this presumably dangerous situation. Going further, anxiety includes the individual's moralistic, highly pessimistic evaluations of **himself**, and his implied or stated conclusion that **he** will never be able to handle this or any other similar dangerous situation. Anxiety, moreover, invariably includes an unprovable overgeneralization: namely that because the individual **has** not as yet figured out a good solution to the danger that he thinks is threatening him, and perhaps because he **has** not been able to cope satisfactorily with similar dangers in the past, he **never** will be able to do so, and therefore is a rotten **person** (Ellis, 1962, pg 148).

Assumptions such as the above are thus seen to lead to self-defeating self statements which will, in turn, adversely affect the individual's behavior. In his therapy, Ellis starts with the underlying cognitive structures and works

with the client to identify them and then modify them, resulting in new self statements that lead to more rewarding behavior.

Ellis' RET is weakened by his emphasis on a dozen personally selected irrational beliefs which he assumes to be the basis for all irrational thought. There is no evidence that most neurotics share these particular irrational assumptions. These are Ellis' ideas about what is troubling the client. Many clients claim that they do not hold the beliefs that Ellis has chosen and for some clients they are quite irrelevant. Ellis' irrational beliefs tend to be very global and do not allow for the situationally specific dysfunctional behavior that is characteristic of most people (Wilson, 1980). For example, some people may want people to love them, particularly specific significant others, but few care, as Ellis claims, that everyone must love them.

Similarly, some clients may hold extremely high standards for certain areas of their lives but few feel as Ellis would have it, that they must be perfect in all that they do. Ellis' contribution is the notion of the primary role of cognitive processes in clinical disorders. At the same time, his

theory lacks a formal theoretical model that could be used as a guide for empirical research. While his work provides a methodology for therapy that has proved very useful, it lacks a clear theoretical explanation of the actual process itself. For this reason, it is less useful for guiding empirical research.

1.2.4.b Self Instructional Training (Meichenbaum)

Meichenbaum (1977) developed a form of cognitive restructuring which he called self instructional training. His work grew out of RET, specifically the concept that irrational self talk caused emotional disturbance and out of Luria's (1976) work where children's behavior was thought to be first regulated by the instructions of other people, then by overt self instructions which were ultimately internalized as covert self instruction. Self instructional training begins with training the client to identify and become aware of maladaptive thoughts. Then the therapist models appropriate behavior while verbalizing effective action strategies such as appraisal of task requirements, self instructions that guide graded performance, self statements that stress personal adequacy and counteract worry over

failure and covert self-reinforcement for successful performance. Then the client performs the target behavior accompanied first by verbal self instruction, encouragement and reinforcement and later by covert rehearsals. The therapist provides feedback and support (Wilson,1980).

Self instructional training has proved to be a fairly effective therapy for treating anxiety related problems and improving the cognitive functioning of schizophrenics (Wilson, 1980).

1.2.4.c Cognitive Therapy (Beck)

Although Beck's cognitive therapy shares the common goal of the development of rational adaptive thought patterns with RET and self-instructional training, it developed independently. Like other cognitive restructuring therapies, cognitive therapy helps clients to become aware of their thoughts, to learn to identify inaccurate or distorted thoughts and to replace these by accurate, more objective cognition. Therapist feedback and reinforcement are seen as a necessary part of the process. The specific procedures used tend to be both behavioral and cognitive in nature.

Beck's therapy developed through the treatment of depression and has been found to be fairly effective. (Wilson,1980)

Beck's therapy emphasizes distortions in thought patterns and the effect on self statements. He refers to automatic thoughts which spring from maladaptive assumptions and beliefs. This focus is quite different from Meichenbaum's emphasis on the absence of specific, adaptive cognitive skills and responses. For Meichenbaum, maladaptive self statements point to a deficit in systematic problem solving skills and a need to become more socially competent in the broad sense. For Beck as for Ellis, there is a need to examine the irrational belief systems. Beck operates on two levels, the level of self statements that influence behavior and the level of belief systems that give rise to self statements. Even so, Beck's treatment is focused more specifically on particular maladaptive thoughts rather than the total change in the client's philosophical outlook that Ellis feels is necessary. Beck notes that "if a patient's incorrect assumptions or personal mythology are not related to his difficulties, it is not necessary to change them" (Beck, 1976, pg 247). Beck's automatic thoughts are surface thoughts easily available to the conscious. In contrast,

Ellis' irrational beliefs lie behind these self statements or what Meichenbaum refers to as internal dialogue, at another, deeper, level corresponding more to Piaget's concept of cognitive structure. The resultant self statement while often not at the forefront of the individual's attention is readily available at a conscious level.

All of these therapies rely upon the social learning conceptualization of behavior therapy as proposed by Bandura (1977) although they tend to limit their focus to the role of maladaptive thought patterns. Introspection of self statements is never seen as sufficient: corrective behavioral procedures are usually integrated into treatment programs in recognition of the importance of the reciprocal determinism between cognitive and environmental factors. The client's belief about his possible future success creates the social environment that now maintains his behavior.

1.2.5 Cognitive Structuralism

We have come to the point where people's behavior is seen as determined by their subjective interpretation of their environment, their understanding of how their world works and

the thoughts that arise therefrom. Cognitive structuralism seeks to go one step further by attempting to understand the organizational processes of human experiences that place restrictions on the functional capacities of man. This is done by the argument that environments are **proactively construed** by the individual.

> "The relationship between an organism and its world entails a complex and dynamic reciprocity of influence. Cognitive theorists....have challenged extreme environmentalism and the implied linear model of causality by asserting that humans respond only to their dynamic representational models of the world, rather than to any "true" reality as such" (Mahoney and Gabriel, 1987, pg 40).

This approach has resulted from a curious blend of concepts from psychology, systems theory and evolutionary epistemology. The word curious is used in the Oxford dictionary sense of surprising. Constructivism is a blend of what are often seen as three disparate disciplines. Psychology is the study of man's behavior, physics, from which systems theory appears to come, is the study of the physical world, and evolutionary epistemology deals more with biology, specifically genetics. Once one is familiar with constructive theories, it seems natural that all three of these fields should be refering to the same thing - man as a

biological being, a part of the whole of nature - but perhaps as a result of the common approach of education today, psychology, physics and genetics are usually seen as three very different fields. Constructivism brings them together in a most exciting group of concepts. The common ground of these diverse approaches is the concept of a central cognitive and symbolic mechanism which is involved in behavior change.

1.2.5.a Vygotsky

Vygotsky (1928) is known for his separation of the genetic and the societal influences on the cognition of the child and his understanding of the development of the child in terms of qualitative changes in the form of behavior and the transformation of some such forms into others. Vygotsky understood the development of knowledge in terms of structures or psychological operations. The structure develops in terms of definite laws at certain stages of the development of the child, influenced by the cultural experience of the child. Development, then, is influenced by the biological and the social.

> "Only at a certain level of the internal development of the organism does it become possible to master any of the cultural methods. Also an organism internally prepared absolutely requires the determining influence of the environment in order to enable it to accomplish that development." (Vygotsky, 1928, pg 423)

Language, a social influence, was seen as intimately tied into problem solving and symbolization. The tie between language and cognition becomes less apparent as the child develops and the process becomes internalized, changing from audible talking, through mumbling and whispering to silence. The silence indicates internalized speech, not the absence of speech. This private speech was seen as important in self guidance and self regulation and becoming more and more important to self regulation as the child developed. (Kendall, 1983, pg 244)

What we understand from Vygotsky then is that people's understanding of knowledge is built up, in a developmental way, through a process that incorporates both genetic and societal influences. The child of six months is genetically developmentally incapable of having an understanding of "I must be perfect in all things or I am worthless". Given certain societal influences, a child of

twelve may well have formed that "knowledge". Language, the social influence, becomes internalized and becomes the symbolization of "knowledge". It is used in self guidance and self regulation, not only in personal and social problem solving as described in the instructional training model.

1.2.5.b Piaget

The concept of restructuring implies certain philosophical outlooks or world views. These can be changed in the therapy situation. Such outlooks have come to be understood as cognitive structures in cognitive theory (Meichenbaum, 1977). The idea of cognitive structures has long been suggested in psychology. Piaget's work with children has provided comprehensive data about the kinds and amounts of data that go into the creation of cognitive structures that deal with processes like perception or memory. Piaget's genetic epistemology provides a comprehensive model for dealing with people's perceptions of their environment as understood by cognitive theorists. This theory which deals so well with the process of intellectual growth within a general theory of knowledge suggests that we construct knowledge by active interaction with the environment. Piaget

studied the child's construction of reality at different stages of development and this lead to the concepts of structure, function and cognitive content. For Piaget, all knowledge was organized into cognitive structures which are transformed qualitatively as development occurs. Such transformations occur through the unchangeing functions of assimilation and accommodation (Phillips, 1981). Content was seen as less important than structure. Piaget saw the reorganization of cognitive structure as passing through four major stages, each qualitatively different from each other but similar from person to person at the same stage. The stage of development would be reflected in all contents so that the child in the first stage of development would have typical thought in the areas of conservation, seriation, moral judgement and interpersonal understanding. (Kendall, 1983, pg 200-202)

How people view any situation can be understood in terms of a cognitive structure built up as a function of both their genetic level of development and their experience in the world. Clients who are convinced they are socially inadequate and whose conviction affects all their social behavior have developed this cognitive understanding as a

result of their experiences at various levels of development throughout their lives. Irrational self statements are often found to be hangovers from earlier experiences and no longer applicable. If these dysfunctional cognitive structures are challenged, people may come to see what was quite rational in childhood is no longer appropriate. New experiences change cognitive structures in the way Piaget proposed in his model.

The concept which has proved most useful is that of structures which remain, even though their content may change. Structures are stable features of an organism.

> "The organism **inherits** a genetic program that gradually, (through a process called "maturation") provides the biological equipment necessary for **constructing** a stable internal structure out of its experiences with its environment." (Phillips, 1981, pg 9)

Once a structure is set up it is relatively stable. Piaget suggests that cognitive development proceeds through four major stages/structures: sensorimotor, preoperational, concrete operational and formal operational. Once a stage emerges, it will contribute to the eventual formation of a higher, more developed stage but it does not disappear.

However, the content associated with a given stage at a given time can disappear. Structures are relatively stable and applicable in many situations (assimilation). They change in response to a new environment where they can no longer function (accommodation). Assimilation and accommodation are joined in a reciprocal relationship where each continually influences the other. New material changes the structure (provided the individual has matured to the appropriate stage) and a changed structure effects the material within it (the experience of looking at old memories in a new light). This reciprocal relationship Piaget calls equilibration and was the inspiration for the theory in the first place and remains its overarching principle (Phillips, 1981). It refers to a process of attaining equilibrium between external intrusions and the activities of the organism. This process allows the revision of established structures to incorporate new experiences and increased maturity. As an individual develops, established structures change both qualitatively and quantitatively with existing structures absorbed into higher order structures.

1.2.5.c Flavell

Flavell (1979) has contributed the concepts of metacognition and cognitive monitoring. Metacognition refers to cognitions about cognitive phenomena or what we know about what we know. The implication is that one can teach a person to know about memory, comprehension and other cognitive enterprises. Metacognition is seen as playing an important role in oral communication of information, oral persuasions, oral comprehension, reading comprehension, writing, language acquisition, attention, memory, problem solving, social cognition and various types of self control and self instruction.

The concept of self regulation ties in with the concept of cognitive monitoring. Cognitive monitoring refers to the process of monitoring or regulating thoughts. Flavell's model of metacognitive monitoring involves four classes of phenomena: metacognitive knowledge, metacognitive experiences, goals and strategies. Metacognitive knowledge is a person's stored knowledge that sees people as cognitive creatures with diverse cognitive tasks, goals, actions and experiences. Metacognitive experiences refer to any

conscious cognitive or affective experiences that accompany and pertain to any intellectual enterprise (such as knowing that one does not understand something). Goals refer to the objects of cognitive enterprise while strategies refer to the cognitions employed to achieve them. Metacognitive knowledge consists of knowledge or beliefs about what affects the course and outcome of cognitive enterprises (that one can remember things better if one writes them down). Metacognitive knowledge is not fundamentally different from other knowledge. It can be activated in many ways either consciously or unconsciously. It is seen as having several effects on cognitive enterprises, on selection, evaluation, revision or abandonment of cognitive tasks, goals or strategies in light of their relationship with one another and one's own abilities and interests. It effects experiences of self, tasks, goals and strategies and aids interpretation of meaning and implications of metacognitive experiences. Metacognitive knowledge, like other knowledge is based on experience and the implication here is that changing experience both qualitatively and quantitatively affects metacognitive knowledge. Thus people can be exposed to experiences that enable them to improve their understanding of their own knowledge. (Flavell, 1979)

These concepts help us to understand the process whereby an individual holds one world view and not another and how a therapist can help clients by guiding them through an experience, towards cognitive structures, cognitive knowledge, that will influence their behavior. The concept of metacognition recognizes that individuals can "know" about cognitive processes in the same way that they "know" about anything.

1.2.5.d Guidano and Liotti

The concepts of interacting genetic and social influence upon knowledge, cognitive structure, metacognition and cognitive monitoring come together in recent propositions that structure and function are interdependent and isomorphic. Guidano and Liotti (1983) propose a model of individual knowledge organization.

> "The main aspect of mental functioning is no longer forming and breaking up of associative ties but rather the active processing of expectations, hypotheses and theories" (pg xi).

Theirs is a descriptive model of a "systems of relations" some of which are theories or beliefs concerning self

identity, images and emotional schemata, attitudes towards reality, procedures of problem solving. Such cognitive structures are maintained through the principle of congruity as suggested by Pilbram (1971). This principle rests upon the assumption that individuals strive towards congruence in their perception of the world. They perceive those things which fit into their view of the world. Dissonance, where two perceptions conflict, causes discomfort so that the perception will be changed until consonance is achieved.

Thus is provided a conceptual framework for the maturation process and environmental influences which integrates the ideas of Vygotsky, Piaget and Flavell. Self knowledge develops through action - by progressively and actively developing concepts and theories about self. The organism's interaction with the surrounding environment precedes knowledge development and is prerequisite to it. A child learns to know by exploring and actively interacting with its environment including people.

> "Through their interest in the child, and through the child's knowledge of his own body, which he gradually acquires, he can learn that he is a person. This phenomenon, known as the 'looking glass effect' is so defined by Popper: "Just as we learn to see ourselves in a mirror, so the child

> becomes conscious of himself by seeing his reflection in the mirror of other people's consciousness of himself'" (Guidano and Liotti, 1983, pg 16).

But remember that the organism selectively chooses the content of knowledge. It actively selects and constructs rules and concepts about itself and others. Maturational changes actively influence the conditions of learning (social interaction) and the organization of knowledge's content.

Guidano and Liotti's model provides explicit ideas for the formation of important cognitive structures. Consider the development of the sense of self or personal identity. Personal identity is defined thus:

> "The gradual and unitary process that begins with the biological individuation of the self at birth and proceeds during the course of development toward psychological individuation (recognition of the self, self-conceptualization during childhood, etc) reaches the stage of conceptual and abstract formalization represented by personal identity" (Guidano and Liotti, 1983, pg 59).

Personal identity therefore cannot be considered a separate conceptual structure, but rather the result of the continuous relationship existing between tacit self knowledge which

determines and regulates the initial patterns of perception, feeling and reality categorization - and the conscious conception that individuals have of themselves and with which they attempt to explain and interpret what they are experiencing. Personal identity is not defined once and for all but rather accepts continuous feedback from ongoing self perception and self evaluation which in turn effect and are effected by the individual's interaction with his or her world.

Personal identity is defined and maintained by the structures of self identity and self esteem. Self identity refers to the overall pattern of traits and attitudes that is readily available to the conscious. It is the outcome of the over all structured relationships that exist between the various domains of beliefs constituting a person's knowledge, beliefs like duties, values, causality etc.

Self esteem refers to the degree of congruence between beliefs concerning "value" and ongoing estimates of ones own behavior and emotions. A part of self esteem is a definition of the range of emotions which are recognized as part of ourselves, how such emotions are labeled and

controlled and in what circumstances and in what manner it is possible to express them. One may not recognize certain feelings as their own emotions because the emotional range congruent with their self image is rather limited.

Personal identity directs research plans, consisting of models that simulate and anticipate reality. One's personal identity and the corresponding attitude towards reality define the selective attention and problem solving strategies that will be used in the process of making sense of the world. In this case, some structural knowledge organizations (i.e. personal identity) are seen to be hierarchically above others (i.e. attitudes towards reality).

Guidano and Liotti's model shows the influences of various theories, namely systems theories (Bertalanffy, in Goldenberg, 1980), evolutionary epistemology (Piaget, in Phillips, 1981), autopoisis (Prigogine, in Mahoney and Gabriel, 1987) and social learning (Bandura, 1967) and attachment theories (Bowlby, in Guidano and Liotti, 1985) and as such it is a good example of current thinking in the field. It is a complex model which appears to adequately account for the process of cognitive development, as we

experience it. It is especially relevant to the concept of self control because of its emphasis on the etiology and development of personal identity. Personal identity or sense of self's importance to self control will be further discussed in the next section. In addition, this model contributes to our knowledge in that it describes adequately the development of cognitive schemata like self control indicating future areas of research. For example, the emphasis on attatchment and detachment phases suggests the importance of the influence of significant others upon the construction of cognitive structures. This model serves as a guide to thought and research, providing a fairly comprehensive explanation of personal knowledge and the motivation that supplies.

1.3. SELF CONTROL - THE CONCEPT

Self control has been defined as self direction intended to achieve personal goals, the overcoming of the forces within oneself, or one's social or physical environment that would prevent the achievement of these goals.

Mikulas (1986) explains self control as made up of four

totally interrelated components: awareness, intervention, sense of self, and sense of will.

> "First the person is aware of some less preferred behavior and/or sequence of events leading to a less preferred behavior. Then the person utilizes some intervention strategy to stop or alter the less preferred behavior and /or to increase the probability of a desired alternative. And all of this is associated with a subjective sense of self and will as the agent and action of the awareness and intervention.... a person's capabilities and perceptions of her or his self control are continuously changing with changes in awareness, behavioral skills, and sense of self and will. Self control as an acquired capacity is thus not static, but may be evolving, becoming more general, moving earlier in the behavioral chain, and so forth" (pg 289).

1.3.1 Awareness

When Mikulas refers to awareness, he refers to

> "subjective conscious noticing of the contents of consciousness, including sensations, feelings and thoughts....not thinking but the conscious noticing of the thoughts" (pg 289).

Awareness is necessary before the problem can be defined, before coping skills can be brought in. Self control by definition requires consciousness of the problem, of the

steps required for change before will can be exerted to achieve the desired goal. Awareness is fostered in feedback techniques of behavior modification such as keeping records, biofeedback, feedback from friends or the therapist, and practicing doing the behavior while focusing attention on it.

Awareness is also fostered by providing a conceptual model that facilitates thinking about or labeling behaviors (cognitive restructuring). Awareness is influenced by affect. Affect associated with a behavior may keep it out of consciousness, distort perception and/or distort the recall of it. Affect can be changed by psychotherapy, behavioral techniques or meditation. Self control is enhanced as self awareness is moved earlier and earlier in the behavioral chain. Control is easier when the individual first starts to become tense or angry before the tension and anger have a chance to take over. As the person becomes increasingly aware of a certain chain of events, they can notice the first signs of the sequence and step in and change it with less effort. Then as the point of intervention moves earlier, the behavior pattern changes to a more desired one, in turn effecting the senses of self and of will, (See self efficacy, section 1.3.3.c, learned resourcefulness, section 1.3.8,

hardiness, section 1.3.5, resilience, section 1.3.6, below)

1.3.2 Intervention

Intervention refers to the self control action of the subject as opposed to actions by others or different actions by the subject. Intervention may involve altering a behavior chain, stopping a behavior, and/or encouraging an alternative behavior. Sometimes all that is necessary is that the person become aware or motivated and then an intervention tactic already in the person's repertoire is sufficient. Often new techniques must be learnt. Behavior modification offers procedures in relaxation, affect control, alteration of thought patterns and imagery. Self observation and evaluation, goal setting, self reinforcement and punishment, environment management, and help seeking techniques have already been developed. Intervention can be approached in a less specific manner with cultivation of objective awareness of one's actions, thoughts and feelings and how they interact with each other, other people and various situations. There can be a relaxation of body, mind and approach to living. One can work towards gradually developing an unconditional acceptance of one's self while simultaneously recognizing the

desirability for change based on a plan of action that may often need to be revised. Intervention techniques can be learnt in therapy, both individual and group, workshops, school programs or from books or video tapes.

Learning intervention strategies often increases awareness, allowing intervention to occur earlier and earlier in the behavioral chain. Successful interventions may lead to enhanced self esteem and increased sense of will.

1.3.3 Self

The "self" aspect of self control is largely a phenomenological one. Self control by definition involves both a sense of awareness and volitional activity. Self knows what self is thinking and doing and acts to change behavior.

Mikulas (1986) points out that we know that we do not always perceive accurately. Self knows then what self is thinking and doing to the extent that perceptions are not distorted in order to protect self's sense of himself. Distortions can affect awareness of the problem, or of the possibilities of

successful change or control. Secondly, Rotter's (1966) work on locus of control has shown that one gets better self control effects when self believes, accurately or not, that he or she is capable of doing what is desired, rather than the results depending on chance or the intervention of powerful others.

1.3.3.a Locus of Control

A person with an internal locus of control sees both positive and negative events as the result of her own actions. Someone with an external locus of control perceives consquences of their actions as wholely or partially due to influences outside of his control. Literature on attribution in therapy (Mikulas, 1986) has shown that a person gets greater and more lasting attitude and behavior changes if that person attributes the changes to themself, than if the person attributes the changes to external agents or special situations.

1.3.3.b Learned Helplessness

Seligman's theory of "learned helplessness" (Wilson, 1980)

states that a person who is subjected to uncontrollable aversive consequences learns that his or her responses are futile and comes to expect that future responding will be similarly futile. Because of these expectations, the person will no longer initiate self control interventions, even when behavioral consequences are controllable. Accordingly, it is the individual's belief that determines the development of helpless behavior, rather than the uncontrollable contingency. It is not necessary for an individual to be actually exposed to the uncontrollable adversive consequences themselves. Information about an uncontrollable consequence is sufficent. They need only believe that any possible action on their part would have no effect on the outcome. Learned helplessness can result in severe emotional and motivational effects including depression, extreme passivity, anxiety, and stress.

1.3.1.c Self Efficacy

Bandura's (1977) concept of self efficacy also supports the importance of an individual's beliefs in the probable success of self control strategies.

> "Expectations of personal efficacy will determine whether coping behavior will be initiated, how much will be expended and how long it will be sustained in the face of obstacles and aversive experiences. Persistence in activities that are subjectively threatening, but in fact, relatively safe, produces through experiences of mastery, further enhancement of self efficacy and corresponding reductions in defensive behavior. Expectations of personal efficacy are derived from four principal sources of information: performance, accomplishments, vicarious experience, verbal persuasion and physiological states" (pg 191).

Efficacy here refers to personal efficacy. Efficacy expectations reflect the subjective estimate that one has the ability to cope successfully. Efficacy expectations play a major part in the initiation, generalization and maintenance of coping behavior. Personal efficacy does not refer to outcome expectations which focus on beliefs in the outcome of intervention.

Self efficacy is primarily affected by performance attainments and also by vicarious experience, verbal/social persuasion and physiological states.

Together, the concepts of locus of control, learned helplessness and self efficacy indicate that self control is maximized by facilitating the personal beliefs that one can

execute the required behaviors which lead to somewhat predictable outcomes and that one can gain control over various events. The sense of self as an agent in control is emphasized. This does not mean that because a person may believe that intervention is possible that he or she will always engage in it. Some other line of events may appear more appealing.

1.3.4 Will

The sense of will is very integrated with the sense of self. If self believes he or she is able to succeed, he or she is more likely to be motivated to try.

Will requires a desire for change. As stated previously, a belief in personal efficacy is not a guarantee of self control behavior. Many people who smoke really believe they can stop any time they please. It is clearly in their best interests to do so. Still they continue smoking. They say they enjoy smoking, and they may not want to gain weight; they prefer the current state of affairs. Creating a will for change often follows increased awareness. Starting a new program is often very difficult. Later on, the increased self

efficacy and reinforcement from positive consequences will help in maintaining self control behavior but in the beginning a new set of behaviors may demand time and energy that is not readily available, the timing may be off in that it is a particularly difficult time to change. Incentive programs such as contingency contracting where the person rewards himself or herself for carrying out the program may help.

What is important to remember is that will is but one aspect of self control and as such, it is constantly interacting with the sense of self, awareness and intervention to enable the individual to increasingly direct his or her own behavior towards the achievement of his or her personal goals.

1.3.4.a Mastery Orientation

Dweck and Leggett (1985) have presented a research based model that accounts for mastery - oriented and helplessness patterns in terms of underlying psychological processes. Dweck and Leggett characterized the helpless pattern as an avoidance of challenge and a deterioration of performance in the face of obstacles. By contrast, individuals who

displayed the mastery orientation patterns are characterized by the seeking of challenging tasks and the maintenance of effective striving under failure. The patterns can be observed in situations where children are allowed initially to succeed and then set up for failure. During the success situation both helpless and mastery - oriented children display effective problem - solving strategies. Verbalizations of both groups show them to be equally interested in and engaged with the task. However, with the onset of failure, two distinct patterns emerge.

Helpless children begin to report negative self cognitions, attributing their failures to personal inadequacy, such as deficient intelligence, memory or problem solving ability. They do not expect to succeed in spite of the fact that they have just experienced success. They express negative affect, reporting aversion to the task, boredom and anxiety despite the fact that shortly before they had been quite pleased with the task and situation. They engage in task - irrelevant verbalizations, usually of diversionary or self - aggrandizing nature. Instead of concentrating their resources on attaining success they attempt to bolster their image in other ways. Helpless children show marked

decrements in performance upon the onset of the failure trials. Although all of the helpless children had demonstrated their ability to employ mature and useful strategies, a sizable number no longer so. They view their difficulties as failures, indicative of low ability and insurmountable. They appear to view further effort as futile and perhaps, as their defensive maneuvers suggest, as further documentation of their inadequate ability.

The mastery - oriented children display markedly different behavior. They view the unsolved problems as challenges to be mastered through effort. They engage in extensive solution - orientated self - instruction and self - monitoring. They appear to maintain an unflagging optimism that their efforts will be fruitful, with nearly two thirds spontaneously offering statements of positive prognosis. They maintain their positive affect toward the task or in some cases display heightened positive affect with the advent of difficult problems. Most mastery-oriented children maintain their problem-solving strategies at or above prefailure levels with some (25%) increasing the level of performance, actually teaching themselves new, more sophisticated hypothesis-testing strategies.

These patterns have also been documented in adults and in natural settings. Dweck and Legget's (1985) research suggests that

> "whereas helpless individuals appear to focus on their ability and its adequacy (or inadequacy) mastery-oriented ones appear to focus on mastery through strategy and effort; whereas helpless individuals appear to view challenging problems as a threat to their self esteem, mastery-oriented ones appear to view them as opportunities for learning something new" (pg 258).

Research with children showed that those who avoid challenge and show impairment in the face of difficulty are initially equal in ability to those who seek challenge and show persistence. Some of the brightest, most skilled individuals exhibit the maladaptive pattern. It is not simply those with weak skills or histories of failure who avoid difficult tasks and who prove fragile in the face of difficulty.

The differing behavior patterns have been found to reflect different goals. The goals are performance goals and learning goals. The individual with performance goals is concerned with gaining favorable judgements of their competence. Those with learning goals are concerned with increasing their competence. Holding one or other of these

goals fosters different response patterns. A focus on performance goals creates a vulnerability to the helplessness pattern, while the pursuit of learning goals (competence enhancement) in the same situation promotes the mastery-orientation.

The goal an individual pursues creates a framework for interpreting and responding to events that occur. The same event may have an entirely different meaning and impact if it occurs within the context of a learning versus a performance goal. Individuals adopting different goals approach a situation with different concerns, ask different questions and seek different information. In short, their cognitions are radically different. Individuals with a performance goal are concerned with measurement of their ability. "Is my ability adequate or inadequate?" Within such a framework outcomes will be the chief source of information relevant to this concern and thus failure outcomes readily elicit the helpless attribution that ability is inadequate. Individuals with a learning goal are concerned with increasing their ability and extending their mastery. Their cognitions deal with these issues. Failure becomes an indication that the current strategy is insufficient to the task and requires

upgrading or revision. The self monitoring and self instruction of the mastery oriented individual are direct implementations of this information in pursuit of future goal success. The differing behavior patterns are natural outgrowths of their goals. Effort or expenditure were also found to be interpreted according to the different goals and their consequent frameworks. High effort implies low ability to an individual concerned with performance goals and low effort implies high ability. If a task is easy, one must be clever. If a task is hard one is obviously incompetent. Effort per se implies a lack of ability. Those individuals with learning goals, by contrast, view effort as a means or strategy for activating or manifesting their ability for mastery. High effort represents a mastery strategy and would signify that one was harnessing one's resources for mastery.

> "Performance goals create a context in which outcomes (such as failures) and input (such as high effort) are interpreted in terms of their implications for ability and its adequacy. In contrast, learning goals create a context in which the same outcomes and input provide information about the effectiveness of one's learning and mastery strategies" (pg 261).

Similarly affect is influenced by the different goal frameworks. Experiencing failure or effort exertion within a

performance goal implies a low ability judgement and poses a threat to self esteem, causing anxiety, depressed affect and a sense of shame. Alternatively, individuals might adopt a more defensive, self protective posture by devaluing the task or expressing boredom or disdain. All these affects are typical of helpless subjects in the failure situation. However, failure in the learning goal framework means simply that the task requires more effort and ingenuity for mastery. For some, this presents the promise of a more satisfying mastery experience, expressed in heightened positive affect. The continued belief that effort leads to success engenders determination and increased efforts. Exerting effort within the learning goal framework brings its own rewards. Thus events that produce negative or depressed affect within one goal framework produce positive effect and heightened engagement within the other.

In much the same way, behavior is influenced by the holding of either performance or learning goals. Task choice is made on the basis of maximized goal success and affect with minimized goal failure and negative affect. Thus within a performance goal the ideal task would be one that maximized positive judgements and pride in ability while minimizing

negative judgements, anxiety and shame. Challenging tasks provide the greatest threat; tasks requiring little effort provide the least threat and are chosen by performance-oriented individuals. Individuals with learning goals tend to chose tasks that maximized the growth and ability and the pride and pleasure of mastery - challenging tasks. Another area of behavior affected is the quality of performance in the face of failure. Within the framework of performance goals failure reflects lack of competence, such that it appears that further effort is not likely to bring about success. Also, effort may be slackened because of a belief that greater effort will only go to confirm low ability or incompetence. The effort needed for mastery is thus in conflict with the performance goal so that just when effort is most needed it is likely to be defensively withheld. In addition, anxiety over goal failure may divide attention, inspire escape wishes and interfere with concentration and effective strategy. Conversely, the learning goal is conducive to increased effort. There is no conflict between the effort requirements of the task and the requirements of the goal, as effort is both the means of mastering the task and of maximizing goal attainment. Affect generated by failure within this group is likely to be a heightened

interest and determination, and this can only help task mastery. The intrinsic rewards of such a situation further increase the likelihood of the behavior being repeated.

Thus it is shown how the holding of certain goals directly influences cognitive and affective processes and behavioral patterns so that the holding of a learning goal is more likely to lead to task mastery than the holding of a performance goal. Dweck and Legget further show that the adoption of one goal over another rests upon implicit theories of intelligence. Individuals who believe that intelligence is incremental, that it is malleable, increaseable and controllable pursue the learning goal of increasing their competence. Individuals who believe intelligence is a fixed entity are more likely to pursue performance goals. Implicit beliefs about ability predict whether individuals will be oriented toward developing their ability or toward documenting the adequacy of their ability. The implicit belief that intelligence is a fixed entity appears to lead to the adoption of performance goals and maladaptive behavior patterns aimed at preserving personal esteem.

Dweck and Legget suggest that the model is applicable to both the social and moral domains. Within the social domains individuals may follow performance or learning goals based upon their implicit beliefs in the nature of social competence. Individuals who believe social competence to be a fixed entity will follow behavior patterns designed to avoid challenging social situations which may carry the risks of negative affect and highlight their lack of ability.

Dweck and Legget's clarification of helpless and mastery-oriented individuals, their goals and implicit theories contributes significantly to our understanding of self control, fleshing out considerably the previously vague concept of will as suggested by Mikulus (1986) or the comparitively simplistic idea of irrational thoughts proposed by Ellis. Further, the connection between self, self esteem and self control is more clearly drawn than is the case with Beck's concept of automatic thoughts.

1.3.5 Hardiness

When Kobasa (1979) speaks of hardiness, she is referring to the individual who can withstand a life style characterized

by high levels of stress without succumbing to the illnesses that are usually associated with it. She found that such individuals tended to have certain characteristics. The first of these she describes as a greater sense of control over what occurs in their lives, rather than a feeling of powerlessness in the face of external forces. A hardy person would tend to have (A) decisional control, or the capability of autonomously choosing among various courses of action to handle the stress, (b) cognitive control, or the ability to interpret, appraise, and incorporate various sorts of stressful events into an ongoing life plan and, thereby, deactivate their jarring effects; and (c) coping skills, or a greater repertory of suitable responses to stress developed through a characteristic motivation to achieve across all situations. Decisional control corresponds closely to Mikulas' (1986) sense of self as discussed above. He sees a sense of self in the self control context as involving a sense of awareness and volitional activity. Cognitive control corresponds to awareness as discussed by Mikulas. Similarly coping skill corresponds closely to intervention. Kobassa further hypothesized and found that people under stress who feel committed to the various areas of their lives will remain healthier than those who are alienated. She

enlarges on this to emphasize that "staying healthy under stress is critically dependent upon a strong sense of commitment to self" (pg 4). Lastly, Kobassa found that persons under stress who view change as a challenge will remain healthier than those who view it as a threat. She explains this by stating that persons who feel positively about change are catalysts in their environment and are well practiced at responding to the unexpected" (pg 4). One is reminded of Meichenbaum's (D'Zurilla and Nezsu, 1982) concept of problem solving set. Meichenbaum suggested that effective coping performance under stress was associated with the adoption of an appropriate "problem solving set". "The more competent individuals tended to accept the stress situation and view it positively as a challenge or "problem to be solved" whereas the less effective individuals were more likely to perceive the situation negatively as a threat or aversive experience" (pg 207). Viewing adversity as a challenge involves a strong sense of self or self efficacy (Bandura, 1977), - a belief in one's own ability to deal effectively with many different and new problems. Again this ties in with Dweck and Legget's (1985) research on helpless and mastery oriented individuals as discussed above.

It is clear that Kobassa's hardy individual is one that displays self control in the sense that has been discussed in this thesis. Kobassa found that such individuals were healthier, less likely to suffer from the negative aspects of a stressful lifestyle.

1.3.6 Resilience

Let us consider the concept of resilience. Resiliance is a concept developed to explain the high performance of certain "at risk" children who do not succumb to the influence of a highly negative environment. (Werner, 1982) studied the offspring of schizophrenics. He was looking to see, among other things, if there was evidence that schizophrenia was hereditary. What he did discover, was the children of schizophrenics often suffered severe neglect at the hands of their parents or substitute caregivers. Even so, some of those who endured the worst treatment grew up to be quite normal adults. These children and ones like them have come to be called "invulnerable children" and the study of their coping mechanisms and the factors that have contributed are relevant to this study.

Murphy and Neuchterlein (in Segal and Yahres, 1978, pg 285) surveyed the literature on invulnerable children and compiled a profile. They discovered that these children are socially skillful and enjoy good relations with both peers and relations. They have high regard for themselves. They see themselves as in control of themselves and their lives. They tend to be reflective rather than impulsive. They exhibited good self control. They are seen to be motivated from within. Teachers report that they compare with highly motivated middle class children. They are goal directed, eager to learn, doing more than is required of them and participating fully in class discussions. They take responsibility for their own actions and can defer immediate gratification in the interests of long term goals. In short, the profile of the resilient or invulnerable child is a duplicate of the individual who exhibits self control, high self esteem and self efficacy, internal locus of control and who is familiar with problem solving strategies.

Murphy and Moriarty (1982) suggest that the environment of the at-risk child elicits the development of skills that enable the gratification of frustration. A difficult environment, especially when coupled with high regard from a

significant other can encourage the development of problem solving skills. Or, as Mikulas put it, a strong sense of self and will along with a wide repertoire of coping skills or awareness and intervention skills lead to effective self control, the direction of behavior towards the achievement of personal goals.

1.3.7 Life Themes

Csikszentmihalyi and Beattie (1979) studied the concept of "life theme". The life theme is behind the coherence in form and purpose that makes one life uniquely different from one another. It becomes the basis for the individual's fundamental interpretation of reality and way of coping with that reality. It provides continuity in the development of a creative structuring of goals and means. The life theme has its origin in a fundamental source of psychic stress for that person during childhood, for which that person wished resolution above all else. The desire for resolution leads to adaptive efforts resulting in identification of a problem. How the problem is viewed suggests a line of solution. The method of solution depends on skills the person can learn from his environment. This process results in the affective

and cognitive gestalt or life theme. For example, a child was hit by a car and seriously injured when eight years old. The fault was the driver's, a female physician who rushed the child to hospital and took care of him, but without revealing her responsibility for the accident. She also convinced the child's parents, poor immigrants, not to involve the authorities. The family ended up paying all costs including the doctor's bills themselves. This incident became the basis for the child's views on law and minority group rights. The child grew up to study law and economics and to fill various posts in government where he consistently upheld the rights of minority groups. The personal theme is nested within the family theme. Objective socioeconomic conditions do not completely determine the future of a person. The cognitive attributions that develop within the family to interpret and give meaning to those objective conditions will greatly effect the structure of a person's coping pattern.

This research finding is relevant to our discussion in that it describes the development of a most fundamental and personally important cognitive structure. It differs from the concepts provided so far in that it introduces the element of a personal psychic crisis such that the coping

skills which develop, develop in response to that crisis, in the same manner previously described for self control. So far we have limited our definition of self control to behavior directed towards achieving personal goals. Csikszentmihalyi and Beattie's research suggests the background and formation of these goals and the source of the energy required to provide the will or motivation. The concepts of resilience, of problems solving set, of hardiness all share the setting of difficult circumstances and the development of problems solving strategies to be used to overcome those difficulties. This common factor of challenge suggests the requirement of some sort of psychic stress for the growth of self control.

1.3.8 Learned Resourcefulness

Learned resourcefulness is a concept that arises out of Meichenbaum's stress - innoculation program whereby individuals are instructed in cognitive and behavioral skills (self - monitoring, problem - solving skills, emotion regulation, etc.) which enable them to cope effectively with stressful events. Meichenbaum found that persons who have acquired these skills develop the belief that they can

effectively deal with manageable levels of stress. This concept consists of both a set of beliefs and skills and self control behaviors. Rosenbaum (1988) understands learned resourcefulness to be a personality repertoire - not a personality trait, but a set of behaviors, cognitions and affects in constant interaction with the social and physical environment of the person. It is a dynamic, multifaceted process and as such can be both a cause and an effect of behavior. The statements a person makes about himself can influence how others react to him while these reactions can modify future statements.

Coping with stress inevitably involves self regulation. Stress occurs when an individual is unable to fall back on reflex or automatic action sequences or when such actions are in conflict (Rosenbaum, 1988). The individual becomes aware of what was previously reflex or automatic and evaluates it as pleasant or noxious, positive or negative according to personal or situational values. This evaluation process interrupts the performance of targeted tasks. Thus stress occurs when a lack of action skills interrupts the functioning of an individual; a person's level of learned resourcefulness is based upon the extent such interferences

occur. A person with high learned resourcefulness is able to carry out targeted behavior without stressful interruptions while a person of low learned resourcefulness is not.

Rosenbaum (1988) suggests that the self regulatory process consists of three phases. During the representation phase the individual experiences an automatic reaction, either cognitive or emotional, to a perceived change in himself or his environment. Automatic reactions originate in deeply rooted cognitive self schema. The next phase, the evaluation phase, involves conscious evaluation of the initial automatic reaction's meaning for the individual - firstly whether it is positive or negative and secondly whether anything need or can be done to minimize adverse effects or maximize potential benefits. The final phase, the action phase, consists of coping itself, an active response to minimize the negative effects of the interruption.

Rosenbaum (1988) suggests that learned resourcefulness has no impact on the initial phases, the representational and evaluational phases of automatic reaction and personal evaluation. His research has shown that people of both high and low learned resourcefulness do not differ in their

initial reactions to stress, nor in their evaluation of the negative import of a stessor on their well being, i.e. they feel pain as much as a person with low resourcefulness and they recognize danger as well. The difference lies in how they cope with their emotional and cognitive reactions. Thus learned resourcefulness differs from hardiness or locus of control or problem solving set in that these factors affect the evaluation phase where the individual decides whether the stressor has a positive or negative effect for him. Self efficacy is more involved with learned resourcefulness in that it is likely to be highest when necessary coping skills for a particular situation are present. High resourceful individuals are those who use more self control methods during a stessful situation. This has been supported by research involving pain (Rosenbaum, 1980b), seasickness (Rosenbaum and Rolnick, 1983), epilepsy (Rosenbaum and Palmon, 1984), and childbirth (Groves, 1986). (See section 1.4.1)

Rosenbaum's concept of learned resourcefulness refers to the step in the self control process where the individual becomes aware of the need for self direction. He understands this as the etiology of stress. Stress occurs when a lack of

personal coping strategies interupts the automatic functioning of an individual. Dweck and Legget's concept of mastery orientation refers to the point where an individual encounters failure. They appear to be refering to the same thing but Rosenbaum is saying that people with high levels of learned resourcefulness do not encounter stress because their level of skills is such that they do not get interrupted by an inability to cope. Dweck and Legget are saying that in the face of failure, individuals react according to inherent beliefs so that they either use their considerable skills or not. This does not negate Rosenbaum's concept but goes beyond it, dealing with the inevitable occurence when even a person with high levels of coping strategies runs into a new or exceptionally difficult problem.

Rosenbaum (1988) suggests that resourcefulness is acquired during childhood through informal training and cites studies (Block and Block, 1983, Mischel, 1984) that show that personality repertoires similar to learned resourcefulness have been found in children. Meichenbaum (1977) described its development during "stress innoculation" in adults. Rosenbaum sees it as part of the normal development of healthy individuals. Meichenbaum developed the idea in

therapy for distressed clients. The ideas are not exclusive and both contribute considerably to the idea of a dynamic process that enables individuals to achieve their own goals.

1.3.9 Summary

There is a common theme that runs through the literature dealing with various aspects of self control and it is this: self control is behavior that occurs when certain variables are present in certain situations. These variables include stress, inherent beliefs, sense of self, a repertoire of intervention skills and awareness. All of these facets are effected by and effect each other in a dynamic ongoing process that exists in the context of a human genetic maturation plan situated within a given environment.

Stress is a recognized part of the self control process. Stress in itself is a widely recognized threat to modern man. It can effect health, both mental and physical, adversely. Stress is a facet of everybody's everyday life. Our examination of the self control process shows us that stress is not necessarily negative. It can be handled, and provides the opportunity for acquiring coping life skills as the

studies on hardiness, life themes and resilience have shown. Such skills have the effect of alleviating stress.

It appears from the literature, particularly the study by Dweck and Leggett (1988), that a mastery orientation , a belief that ability is malleable and increaseable, controllable and incremental is a deciding factor in the effect of stress. Such a belief presents itself as viewing problems as a challenge (Dweck and Legget, 1988, Meichenbaum, 1977). Individuals who see problems as a challenge are more likely to adopt a mode of behavior condusive to the increased effort success requires. The value of problem solving strategies in themselves is well documented (Kendall, 1981, Meichenbaum, 1977, Rosenbaum, 1988). The wider the repertoire, the greater the chances of success. Rosenbaum explains stress as occuring when an individual is unable to fall back on reflex or automatic action sequences, when a lack of action skills interrupts the functioning of an individual. Problem solving skills can be learned in many ways, through experience, vicariously, through books or tapes in the same way that anything is learned (Kendal, 1981, Meichenbaum, 1977, Guidano and Liotti, 1983, Flavell, 1979). Most of the literature describes work in a theraputic context

but Rosenbaum suggests that the acquisition of coping skills occurs naturally in normal people in normal conditions. Piaget and Guidano's work would tend to support this.

Sense of self, self efficacy, and locus of control reflect and are reflected by all other aspects of self control. One gets better self control effects when one believes, rightly or wrongly, that one is capable of doing what is desired. Expectations of personal efficacy will determine whether coping behavior will be initiated, how much effort will be expended and how long it will be sustained in adversive conditions (Bandura, 1977). People with a helpless orientation fail because self esteem becomes the issue at stake (Dweck and Legget, 1988). Perception becomes distorted if reality threatens self (Mikulas, 1986).

Perception is important because self control implies self awareness as much as volition. Awareness of the process of self control, of the role of stress, beliefs, problem solving strategies and especially of self are necessary for self control to happen. Awareness, in a sense, is the first step of dealing with stress. Awareness is a problem solving strategy as one attempts to get closer and closer to the

start of the behavior chain (Mikulas, 1986), until the strategy becomes automatic. Awareness involves insight into the beliefs that lie behind our goals (Dweck and Legget, 1988) and into the importance of self esteem.

A review of the literature indicates that self control is a dynamic process, an upward spiral, fed by stress, alleviated by awareness and a wide repertoire of problem solving skills and facilitated by a strong sense of self and a belief in the incremental nature of ability.

1.4 THE SELF CONTROL SCHEDULE

With the increasing use of self control methods in research and in therapy, there was a need for a reliable and valid instrument to assess individual differences in the tendency to employ self control behaviors.

In 1980, Michael Rosenbaum of Haifa University, Israel, developed a self-report instrument to assess individual tendencies to apply self control methods to the solution of behavioral problems. (See appendix 1). The 36 items included in the final version of the Self Control Schedule

describe (a) the use of cognitions and self statements to control emotional and psychological responses, (b) the application of problem solving strategies, (c) the ability to delay immediate gratification and (d) perceived self efficacy. The questions are rated on a six point scale that indicates the extent to which the subject evaluates the item as characteristic of themselves.

1.4.1 Validity

Validity refers to the question, "Does the test measure what it is claimed to measure"? In the case of the SCS, the question of validity translates to the question "Does the SCS successfully measure individual differences in the tendency to apply self - control methods to the solution of problems?

Rosenbaum (1980a) found that the more a subject reported the use of self control methods, the less he believed in external control of his behavior as measured by Rotter's (1966) I-E Scale ($r = -.40$, $p<.01$). He also found that subjects who reported greater application of self control methods were less likely to hold irrational beliefs as measured by Jones' (1968) Irrational Beliefs Test.

Table 1

Correlations Between SCS and Irrational Beliefs Test (n = 111)

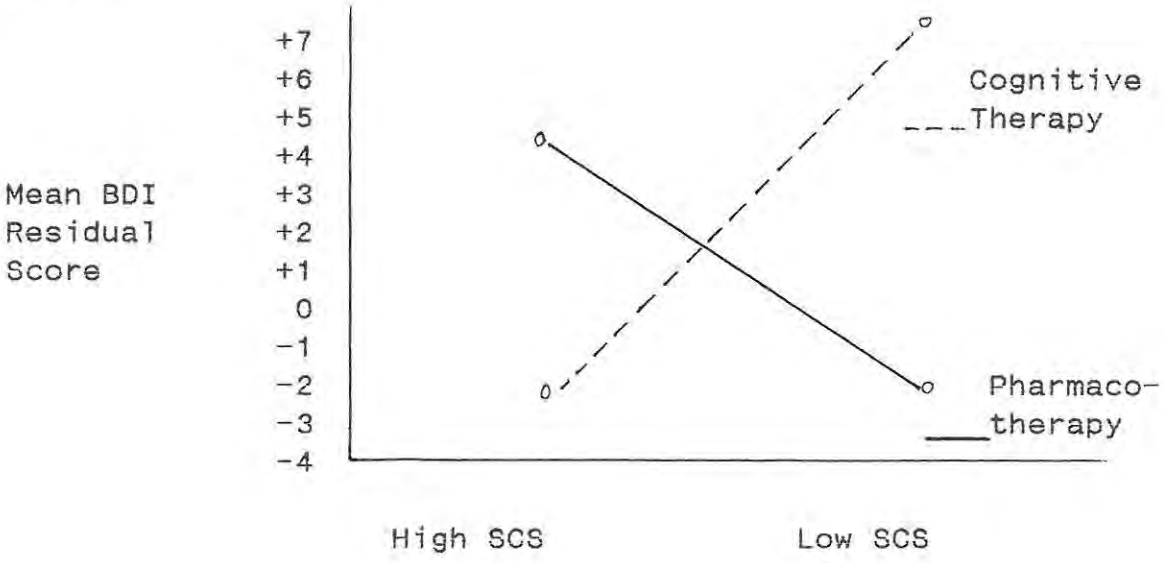
Irrational Beliefs Test Scales	r with SCS
Demand for Approval	-.37***
High Self Expectations	-.37***
Blame Proneness	-.29***
Frustration Reactivity	-.38***
Emotional Irresponsibility	-.07
Anxious Overconcern	-.20*
Problem Avoidance	-.21**
Dependency	-.32***
Helplessness	-.19*
Perfectionism	-.29***
Total Score	-.48***

* p < .05
** p < .01
*** p < .001.

Comparison with each of the MMPI subscales showed that only the G factor, assumed to measure self control, covaried with the SCS (r = .30, p < .001). High self control scorers were found to be able to tolerate a pain stressor significantly longer than low self control scorers (f(1,36) = 9.88, p < .005) and perceived having greater control over painful feeling (f(1,36 = 5.07, p < .05). The SCS has also been found (Simons et al., 1985) to be useful in predicting the response to cognitive therapy of depression, with patients entering cognitive therapy with relatively high SCS scores

doing better than patients with low SCS scores. Patients with low SCS scores did better in a pharmacotherapy group.

Figure 1



McCroskey and Richmond (cited by Redden et al, 1983) argued that

> "as communication apprehension increases, self-control tends to decrease. As might be expected, people high in self-control tend to be more calm, more composed, more in control in general, and be less afraid of communicating. People who are low in self-control are more likely to be high communication apprehensives. They are afraid to talk and communicate because they are insecure and lack control over their emotional states. They may withdraw from communication so that they do not lose control over their emotions and say things they do not mean" (p 81).

Redden et al (1983) found a significant (negative) relationship between the SCS and McCroskey's (1980) measure of Communication Apprehension ($r = -.37$, $p < .001$).

Riordan (1986) found significant correlations between SCS and locus of control as assessed by Levenson's IPC scales. (Internal locus of control and SCS scores, $r = .29$, $p < .001$, chance locus of control and SCS scores $r = -.29$, $p < .001$, $n = 226$).

Rosenbaum and Rolnick (1983) found that seasick individuals with high SCS scores showed less performance deficits than seasick individuals with low SCS scores ($t = 2.14$, $SD = 30$, $p < .05$) while reporting retrospectively more specific and extensive use of self control methods to cope with their seasickness ($t = 3.30$, $SD = 30$, $p < .01$).

Rosenbaum and Palmon (1984) reported that epileptics who score high on the SCS were found to cope more effectively with their seizures than did epileptics who scored low. SCS scores among subjects with medium and low frequency seizures were correlated with 3 adjustment measures: Depression as measured by the Beck Depression Inventory (Beck, 1971), ($r =$

.48, $p < .01$), Anxiety as measured by the A State (state anxiety intensity at specific points in time) component of the State - Trait Anxiety Inventory (Spielberger, Gorsuch, Smira and Lushene (1970) ($r = -.55$, $p < .01$), and Level of Coping with Disability as measured by Linkowski's (1971) Acceptance of Disability Scale ($r = .60$, $p < .001$) ($n = 33$). The high scorers reported that they used more self control methods during their coping with the psychological consequences of an epileptic seizure than did low scorers.

Rosenbaum and Ben Ari (1986) found that dialysis patients with high resourcefulness as measured by the SCS were more likely to delay gratification by following a fluid restriction regime than were patients with low resourcefulness ($r(53) = -.68$, $p < .001$, $r(53) = -.41$, $p < .001$, $r(48) = -.39$, $p < .01$) when the figures in brackets after r refer to n).

The studies cited above provide strong evidence that the SCS is a valid instrument for testing the use of self control statements among individuals undergoing a stressful event.

Validity is a problem when dealing with subjects who differ

from the subjects upon whose results a scale has been developed and tested. The studies cited above used Hebrew subjects mainly. Redden et al. used American subjects. Riordan used mainly white South African subjects. The validity of the SCS for black South African has not been established and cannot be assumed.

1.4.2 Reliability

Reliability refers to the question, "How accurately or how consistently does a test measure whatever it does measure over time." One measurement of reliability is the test/retest situation where one seeks to determine the probability that if the same individual were to be tested twice, the score would be the same. It can more simply, and less accurately be measured using a split-half method whereby the correlation between the scores on the two halves of a test is found and corrected for the effects of halving. The split-half method benefits from having the same conditions at both tests. Reliability is important in that it effects the use to which the result may be put. A variable measured with low reliability will not show correlations with other variables, even though such a correlation may, in fact,

exist. In other words, two variables which are perfectly correlated will not show this if the reliability of the measuring instruments are low. Rosenbaum (1980a) reports no significant differences on test/retest mean scores, with a Pearson correlation between the two testing periods of .86 ($p < .01$) indicating a fairly high stability of test scores over a four week period.

Internal consistency is a desirable characteristic of a test, measuring the extent to which the items of a test discriminate in the same direction as the total score of a test (Nachmias and Nachmias, 1981). Cronbach's alpha is the mean of all possible split-half coefficients and is seen as one measurement of the reliability of an instrument. A high (7+) alpha indicates that the instrument is internally consistent, and thence, reliable.

Rosenbaum (1980a) reports alpha co-efficients of .81, .84, .80, .78, and .80. These levels of reliability can be considered satisfactory. Similarly, Redden, (1983) reports coefficents of .81 for males, .83 for females and .82 for the total sample. These results are equally satisfactory.

It appears that the SCS may be considered reliable for Hebrew and American subjects. There is no evidence that the SCS is reliable for South African subjects. It is necessary that the reliability of the SCS for the South African context be ascertained before any results obtained can be interpreted.

1.4.3 Normative Data

Rosenbaum reports means for Israeli student ranging from 23 to 27 with means for males reported as 23.1 (SD=12,4), 25.6 (SD=22.4), and 26.1, (SD=24.0) and means for females as 24.6 (SD=23.2), 26.1 (SD=21.2), and 27.2 (SD=25.1). Although females showed a slight tendency to score higher than males, t-tests revealed no significant differences between the means across the sexes.

Redden (1983) reports a mean of .61 (SD=.60) for males and of .83 (SD=.62). The difference between the means was found to be significant using a 2-tailed t-test ($t = -5.3$, $df = 982$, $p < .001$).

Rosenbaum (1980) reports means of American students as males 25.9 (SD=20.6) and females 27.5 (SD=20.6).

Rosenbaum (1980a) got means of 31.3 (SD=23.2) for a sample of men whose mean age was 50,5 years, who are reported as approximating a cross section of Israeli population as far as level of education is concerned (10 years on average).

Rosenbaum (1986) reports on a study by Lewinsohn and Alexander (in preparation) using American subjects with a mean age of 63.7 (SD=7.9) years who showed a mean SCS score of 24,6 (SD=15,62). These last two studies are of note because they deal with older subjects from a variety of backgrounds. Most other studies have used university students for subjects.

The studies reported show relatively similar means and standard deviations with the exception of the Redden study which used a different method of computing the SCS scores. This is also the only study to report significant differences between male and female subjects.

1.4.4 Factor Analysis

Factor analysis is a statistical technique used to examine the underlying relationships of the variables in a

questionnaire. It determines, through the use of correlations of data obtained, the possibility of reducing the number of components of the questionnaire to a smaller set of theoretically meaningful factors, Thus factor analysis is applied to a large bank of data in order to reduce and summarize these findings in a theoretically meaningful way. Ideally there should be a minimum loss of information. However, there is always a tension between simplifying a concept and the number of concepts or factors involved. As the number of factors is reduced, so the items used in it's makeup allow for more diversity or widening of the conceptual or theoretical understanding of it.

The factor loading indicates the correlation between the variable and the factor. A high loading indicates a strong relationship between the variable and the factor on which it leads, that the variable is a strong definer of the factor. When one does a factor analysis of a questionnaire, one is hoping for a small number of factors with a minimum number of items that score strongly on two or more factors. Ideally the items should cluster on the various factors with each item loading strongly on that factor, and very weakly or not at all on other factors.

Factor analysis is used to investigate the extent to which the findings derived through it's use substantiate the theoretical underpinnings of it's construction. Usually a questionnaire is constructed so as to measure some theoretical concept - in this case self control.

Rosenbaum (1980a) describes the schedule as based on four concepts. Eleven items are said to assess the tendency to employ problem solving strategies, four to assess perceived ability to delay immediate gratification, nine to assess general expectations for self efficacy and twelve to assess the use of cognitions to control emotional and physiological sensations. Unfortunately, he does not tell us which items assess which concept. Upon examination the items themselves appear to fall into these categories quite easily so that for the purposes of this study they are assumed to be as shown in the following table.

Table 2

Rosenbaum's Conceptual Categories

Category	Questions
Use of cognitions to control emotional and physiological sensations	2, 3, 5, 6, 13, 21, 23, 25, 26, 30, 31, 36
Perceived ability to delay gratification	1, 18, 22, 29
General expectations for self efficacy	4, 8, 9, 14, 16, 19, 24, 27, 35
Tendency to employ problem solving strategies	7, 10, 11, 12, 15, 17, 20, 28, 32, 33, 34

Factor analysis should show, by determining the level or correlation between the results obtained for each of these items when they are administered, whether his components of self control hang together in the expected way. Ideally then, a factor analysis of data gained from the SCS would show four factors and each of the items loading on each factor would fall under titles that reflect Rosenbaum's concepts of self control used to generate the schedule items.

Redden et al (1983) report a factor analysis on the SCS that yielded six factors which correspond closely to the four content areas previously mentioned. They were as follows: for males, planful behavior, mood control, control of unwanted thoughts, pain control, impulse control and delay of immediate gratification and for females, planful behavior and impulse control, control of unwanted thoughts, delay of immediate gratification, mood control, pain control and personal efficacy. Comparing the male and female structures gave essentially the same factors but the extraction order and consequently the size of the factors differed. The factors themselves were not very strong with only three of the male and eight of the female loadings in the very good range of .6. Redden and al. then were not able to report a clear, strong factor structure but their factors do tend to support Rosenbaum's stated components of self control, albeit weakly.

Gruber and Wildman (1987) report a factor analysis of the SCS that involved systematically reducing the number of factors until only stable factors emerged. A stable factor was one upon which at least three items loaded saliently, i.e. at least three items had factor loadings of at least 0.45 and

were at least 0.10 higher from their loading on any other factor. Three factors emerged: problem - focused coping, mood and pain control and externality (referring to the need for outside help which corresponds negatively to belief in one's self control ability. The actual loadings are not given, but the article does support the concepts of self control except that percieved ability to delay gratification has been integrated in with some other factor.

These findings support Rosenbaum's conceptualizations fairly well. A literature search did not reveal any other reports of factor analyses of the SCS.

1.4.5 Acquiescence Response Set

A response set is the tendency to answer all questions in a specific direction regardless of the question's content. It can introduce considerable bias into the results of a questionnaire and must be considered during the construction phase of any questionnaire and whenever interpreting results derived from use of a questionnaire.

Acquiescence response set refers to bias introduced as a

result of the tendency to agree with items regardless of content. Dijkstra (1982) discusses research that shows evidence of acquiescent response set among black Americans and lower class subjects.

Acquiescence response effect is usually controlled by providing an equal number of negatively and positively directed items in any questionnaire. Problems have been encountered developing negatively worded questions and care must be taken to insure that reversing the item does not subtly alter its meaning (Altemeyer, 1981).

The SCS has eleven negatively and twenty-five positively worded questions. In view of the findings in the literature, it is reasonable to suggest that acquiescent response set may be a factor to be considered when using the SCS especially with lower class subjects or blacks.

1.4.6 Summary

In conclusion, the literature on the Self Control Schedule, (Rosenbaum, 1980, Redden, 1983) indicates it to be a reliable and valid instrument to assess individual

differences in the tendency to employ self control behaviors among Israeli and American subjects but there does not appear to be any record of it's use with South Africans. Factor analysis shows some support for the conceptual validity of the SCS. The SCS is possibly vulnerable to acquiescence response set.

1.5 CONCLUSIONS

A review of the literature dealing with self control suggests that self control, when defined as self direction for the achievement of personal goals is a cognitive construct built up in an idiosyncratic context of personal experience. The person, his environment and his behavior influence each other in a form of reciprocal determinism. The person, through cognitions or thoughts proactively constructs his own reality and acts in accordance with it. This behavior effects the environment, both physical and social. The results of the behavior again influence personal interpretation of the experience. The environment is influenced by, and influences, both the individual and behavior. Just as irrational or dysfunctional thoughts can have an adverse effect on thought, cognitive problem solving strategies can

be beneficial. The latter can be learnt, taught, known, much as any knowledge is, either in the 'normal' everyday experience or in therapy. Personal knowledge can be as simple as the use of self praise, or as complex as a cognitive scheme like personal identity. The process of self control is an ongoing, dynamic one involving awareness, intervention, self and will. Awareness and intervention skills are necessary to conscious direction. Sense of self and sense of will, involving concepts such as self efficacy, mastery orientation and learned resourcefulness, play an important part in motivation. Self control occurs within a context of stress and works to alleviate it.

Rosenbaum's Self Control Schedule appears to be a reliable and valid instrument for assessing the individual tendencies to employ problem solving stategies. Before it is used in a South African context it's reliability and validity should be checked. Further factor analysis is indicated and the problem of acquiescence response set should be addressed.

CHAPTER TWO

PROBLEM AND HYPOTHESES

2.1 THE PROBLEM

In 1986, Rosenbaum's Self Control Schedule was given to a student sample at Rhodes University, South Africa to examine it's interrelationships with two other measures. The first was the self-report Social Interaction Self Statement Test developed by Zweig and Brown (1985). Subjects read an account of a meeting with a member of the opposite sex, are asked to imagine themselves to be the person they are reading about, and to indicate their self-talk from a checklist of self-statements. The test was modified from that developed by Glass, Merluzzi, Biever and Larson (1982) in which subjects participated in a live interaction with a member of the opposite sex before completing the checklist. It was hypothesized that subjects who scored high on the SCS would be better at managing social anxiety and would therefore report a lower level of anxiety on the Social Interaction Self Statement Test.

The second questionnaire was Levenson's (1976)

multidimentional locus of control test which provides separate measures on the extent to which individuals believe significant events are under their own internal control, or under the control of powerful others, or chance. It was hypothesized that high SCS scorers would feel more in control of their lives and that there would be a positive correlation between internality of locus of control and SCS scores. Rosenbaum, (1980a) reported a correlation of -.40 between SCS scores and scores of Rotter's internal-external scale.

These three questionnaires, Rosenbaum's Self Control Schedule, Zweig and Brown's Social Interaction Self Statement Test and Levenson's LIPC Test were administered to the entire first year psychology class at Rhodes University. Students completed the scales in small groups of 9 to 12 in controlled conditions under the supervision of a test administrator who followed written instructions as to test administration. The total sample was 222. First language was English for 214, Afrikaans for 9, and an African language for 14. There were 92 males and 130 females. Ages ranged from 17 to 22. The sample included 16 black students making it possible to examine whether there were racial/cultural differences in response to the scales.

Using t-tests, the scores of these blacks were compared with those of the 184 whites. T-values of less than 1.0 indicated that there was no difference between the scores of blacks and whites with regard to locus of control as measured by the LIPC scale. There were also no significant differences in the level of social anxiety between the two groups. The only significant difference between the black and white groups was between the mean SCS scores which measured the tendency to use self control strategies (t = 3.17, df = 194, $p < .002$). The mean for the white sample was 24.71 (SD=19.17) and for the black sample was 42.0 (SD=19.9). To control for the possible effect of age and sex, a sample was drawn up consisting of pairs matched for both variables. Once again significant differences were found only for the SCS scores. There was no significant difference found for locus of control or social anxiety, but there was for social control (t = 2.77, df = 25, $p < .01$). Once again means for whites (M=21.33, SD=16.07) were similar to those reported in the literature, while those for blacks were noticeably higher (M=41.33, SD=21.50).

The results indicate that black university students at Rhodes University, as a group, tend to employ problem solving

strategies to a greater extent than university students in Israeli or American universities as well as white students at the same university. These findings pose two implications for future research. The first suggests that the findings are spurious, the result of poor experimental technique. The second is that, as a group, black students at Rhodes University provide a good sample for an exploration of the backgrounds, cognitive structures and profiles of high self control strategy users.

2.1.1 Spurious Results

There are several arguments against the validity of the finding of unusually high scores among black students at Rhodes University.

Firstly, there is the lack of data confirming the adequacy of the SCS for use in the South African context, especially for use with black subjects. South African society is very complex. It is composed of many different cultures whose differences have been encouraged under the political policies of the last half century. There is no one South African culture unless it be one of multiculturalism. This

characteristic is in striking difference to the blending of cultures in both Israel and the United States of America in the same period. It could certainly be argued that an instrument like the SCS cannot be transferred from such different cultures without first establishing its parametric validity and reliability.

In addition, it can be argued that the SCS is particularly vulnerable to the effect of response set when used with black university students at a largely white university. It has already been pointed out that the SCS is vulnerable to the effect of acquiescence response set due to the imbalance in the number of negatively and positively directed items in the questionnaire. It has also been shown that American studies have indicated that acquiescence response set has been found to be associated with class and race. It is quite possible, therefore, that the higher SCS scores among black students at Rhodes University is the result of acquiescence response set.

It can also be argued that the findings indicate a higher incidence of social desirability response set among black students at Rhodes University. Social desirability response set refers to the tendency to respond in a socially desirable

way. Each item in a questionnaire can be located upon a social desirability dimension. Research shows (Dijkstra, 1982) that the tendency to give socially desirable answers is a stable personality trait. In addition, the stronger the possibility of a socially desirable response on any particular item, the larger the effect. Social desirability effects tend to vary with sex, age, race, education and income.

It is possible that the black students in the sample are particularly vulnerable to social desirability response set. It is true that most of the results reported in the literature are based on university students. However, it is possible that some black South African students might be particularly vulnerable to the effect of filling in forms for the university department from which they receive their marks, coming as they do from markedly different backgrounds with respect to income, education and race.

Black students at Rhodes University study in English, their second language. It is my own experience and that of my colleagues that black first year psychology students have difficulty speaking, understanding and writing English. It

is possible that the English version of the SCS is inappropriate for this particular sample.

Youth in South Africa live in a society which actively discourages social contact between whites and blacks outside of the workplace. The two cultures, although influenced by each other, could be said to be developing separately. Few black youth have any contact with whites or white South African culture before their university experience. It could be argued that black and white university students come from very different places and possibly hold very different world views. It is quite possible than that the items in a self report questionnaire such as the SCS might well have very different meaning for black students than for white students. Thus, aside from the meaning that misunderstanding might prompt, it is possible that, in the light of very different cultures and experiences, various questions have different connotations or subtle differences in meaning for the two groups.

2.1.2 Exploration of the Etiology and Characteristics of Self Control

Psychological research tends to focus on dysfunction and poor performance. We study the problems in psychological functioning to the exclusion of the normal as though normal funtioning were less interesting or less important. The sample of high self control strategy users provides a unique opportunity to explore something of the etiology and process of self control. The literature provides considerable knowledge of technique and theory of self control but very little research appears to have taken place regarding the actual development and process of self control. What can we learn from high SCS scorers about the environment that fosters the growth of self control strategies? How and at what stage did this growth take place? What is the role of self esteem or personal identity in the use of self control? Does self control appear to be a personal trait or is it situationally specific? These are just some of the many questions whose answers might lie in research exploring the background, performance and profiles of a group of high SCS scorers.

2.2 HYPOTHESES

In an attempt to explore the higher than expected findings of SCS scores for South African blacks the following hypotheses are proposed:

2.2.1 Hypothesis 1

The findings are the result of using an invalid and unreliable instrument. The SCS has not been psychometrically assessed for use with South African subjects and may not be measuring what it was intended to measure. The validity and reliability of the SCS with black South African subjects especially must be established before any findings derived from it's use can be interpreted meaningfully. This may be done through personal interviews with high and low scorers in a pilot study, through a replication of the findings, through the analyses of internal consistency and meaning by means of item analysis and factor analysis.

2.2.2 Hypothesis 2

The findings are the result of acquiescence response set.

Spuriously high results have been obtained as a result of unidirectionally worded scales. This effect may be heightened by a culturally based vulnerability. The SCS could be altered so that there are an equal number of negatively and positively scored questions.

2.2.3 Hypothesis 3

The findings are the result of social desirability response set. Black South African university students may tend to ascribe to themselves socially favorable aspects of behavior and deny unfavorable aspects on self-rating psychological inventories. A social desirability scale could be administered at the same time as the SCS.

2.2.4 Hypothesis 4

The findings are the result of different meaning derived from schedule questions. Black students may understand the questions in a different way than do white students either because of language difficulties or due to the influence of differing cultural backgrounds. Factor analysis should clarify the conceptualization behind each item on a schedule.

The black and white sample results could be factor analysed. Obtaining different results for the two groups would indicate that the items on the questionnaire have different meaning for blacks than for whites.

2.2.5 Hypothesis 5

The findings are an accurate measurement of the greater use of self control self statements. If hypotheses 1 to 4 are not confirmed, hypothesis 5 will be explored in several ways. A pilot study will be used to explore the issues of stress, resiliance and life theme as mentioned in the literature and to feel out the variables of background, especially parental attitudes or guidance. These are variables that the literature indicates as important to the development of self control strategies and ones that might be expected to differ from culture to culture. The SCS will be administered to black students at a black university to see if the results differ which would indicate that the results pertain only to black students at Rhodes University, and are not generalized to the black population as a whole.

CHAPTER THREE

THE PILOT STUDY

3.1 INTRODUCTION

There are two possible ways to explain the finding that black students at Rhodes University tend to employ problem solving strategies to a greater extent than do white students at the same university. The first suggests that the findings are spurious, the result of poor experimental technique. The second is that black students at Rhodes provide a good sample for an exploration of the backgrounds, cognitive structures and profiles of high self control strategy users. Thus a pilot study was indicated for several reasons. It was necessary to ascertain whether the findings were likely to be replicated. Some idea of the validity of the SCS for black South African subjects was necessary. It was important to check for obvious misunderstandings of the content of the questionnaire items. In addition, an opportunity for feeling out the possibility of an "anxious to please" characteristic among black respondents that might indicate an obvious bias of results due to acquiescence response set or social desirability response set was sought. A pilot study afforded

a chance to check out a wide range of theoretically possible etiologies and characteristics of self control that might provide a focus for an exploration of the background and development of the individual characterized by the frequent use of problem solving strategies to achieve personal goals. For these reasons the SCS was administered to a small number of first year psychology students and then subjects were chosen for interviews on the basis of their SCS scores.

3.2 METHOD

3.2.1 Administration

The SCS was administered to 32 first year psychology students at Rhodes University, the same university at which the previous study had been conducted. Students completed the questionnaire in small groups of 9 to 12 in controlled conditions. It was administered under the supervision of test administrators following written instructions as to test administration as the middle part of a three sectioned questionnaire (see appendix 2). The first section dealt with sex, race, language, age, university major and minor subjects and the race of the administrator. The second section was

the SCS. The third section asked for feedback about the questionnaire.

3.2.2 Interviews

Students were selected to be interviewed on the basis of sex, race, and SCS score. A female white high scorer, a female white low scorer, a male white high scorer, four male white low scorers, a male black high scorer, a female black high scorer and a female black low scorer were chosen as representative of the various groups of students. There were no male black low scorers in the sample. Four male white low scorers were chosen in a attempt to explore the phenomenon of a large group of male white low scorers which had no corresponding male black low scorers group. The mean for the black group was 21 with a range of 5 to 45, while the mean for the white group was 16 with a range from -45 to 49. The average age of both groups was 19 years.

The interviews followed an informal structured interview schedule (see appendix 3) which the interviewer filled in. The interviewer used the opportunity to probe where the meaning of an answer was not clear. Throughout, the

interviewer was alert for possible misunderstandings of items in the questionnaires or instructions about filling in the questionnaire. The interview began with a question about the request for "race of administrator" used in the first section of the questionnaire. There had been considerable evidence of misunderstanding this question. This was chosen as the first question as it emphasized the helping aspect of the interviewee/interviewer relationship and hopefully, by it's impersonal flavour, helped to put the interviewee at ease.

3.2.3 Validity

Validity is usually measured by taking correlation coefficients from large samples. Establishing validity by a small sample such as the pilot study is a relatively informal method of checking. Special interest was taken in determining whether the subjects on an individual level appeared to live up to their SCS scores of high or low tendencies to use self control strategies. The interviewer went through the second section of the questionnaire, the SCS, stopping at responses from either extreme of the Likert scale. If the subject had indicated that this was very characteristic, very descriptive of themself or very

uncharacteristic, very undescriptive of themself, the item was read out to them and they were asked where they had learned to act in this way. The rationale behind this was that such an extreme response might indicate some definite incident, experiences or feelings that could be readily accessed. The opportunity was also taken to check for possible evidence of unusual desire to please.

3.2.4 Replication

It was decided to use the pilot study to ascertain if the previous results could be replicated. A replication of the previous high scores among South African black university students, especially in such a small sample would indicate that the phenomenon was real.

Self control scores were calculated and a simple data description obtained. A t-test was run to determine if the difference between the black and white group scores was significant.

3.2.4 Exploration

The next section consisted of two questions designed to explore the idea that blacks at Rhodes University had to overcome greater obstacles than whites to get to university. The literature, especially that on resilience (Segal and Yahres, 1978, Murphy and Moriarty, 1976) and on learned resourcefulness (Rosenbaum, 1988) appears to suggest that life obstacles and stress are an important part of the development of goal directed problem solving strategies. It is possible that the previous findings are an indication of the greater difficulties that a black youth would experience in reaching tertiary education levels.

The last section dealt with the concept of life themes as a cognitive structure as suggested by the research conducted by Csikszentmihalyi and Beattie (1979). Students were asked about influences on the choice of a university education, parental expectations and ambitions and the role that books and stories as cultural models played. These were all found to be significant variables in the formation of a goal directed life theme by Csikzentmihalyi and Beattie.

A question on concern with anonymity was included. The placement at the end was designed to end off with a nonthreatening and "interviewer as helper" tone.

3.3 RESULTS

3.3.1 Normative Data

The SCS was administered to 32 first year psychology students at Rhodes University. There were 14 males and 18 females. Nine subjects described themselves as black, 19 as white, 1 as coloured and 3 as Indian. English was the home language to 21 subjects and an African language for eight (4 Sotho, 3 Xhosa, 1 Zulu). The mean age was 21,6, SD = 8,37, and ranged from 18 to 64. It was decided to drop the 64 year old woman as she had very atypically high scores and skewed the results considerably in such a small sample.

3.3.2 Distribution

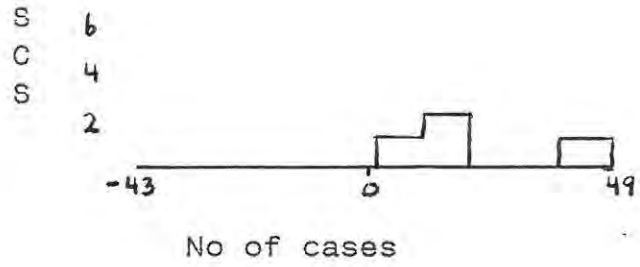
Histograms of the black and white scores showed a large group of low scorers in the white group that was not present in the black group.

Histogram 3.1

Black and White SCS Scores

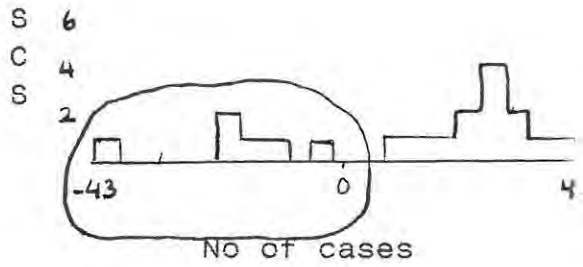
Black

n = 8



White

n = 19



This finding indicates that the very low means of whites might be due to the presence of a large group of low scorers that is not present in the black group.

The histogram of the black sample has a peak near the middle of the distribution. No similar configuration occurs in the histogram of the white sample. With such a small sample there is a high possibility that this is a chance effect.

3.3.3 Validity

The results of the interviews showed little difference between blacks and whites but some difference between high

and low scorers. The impression gained was that among these subjects race was not a factor in SCS scores. High scorers of both races spoke of examples set by parents, of the use of self - statements in self control behavior. High scorers, regardless of race gave impression of having a strong sense of self and of direction.

High scorers tended to indicate the choice of university as the solution to a psychic crisis as understood by Csikzentmihalyi and Beattie (1979). Reasons given included wanting a PhD to prove that just because one is black, one is not necessarily stupid. One student wanted to be a social worker to help children who had suffered from family breakdown as she had. One female from a very conservative home wanted the opportunity for a growth experience. Low scorers seemed to be more influenced by parental pressure to succeed and the perceived need for financial reward and success.

These findings do not suggest that the scale is invalid for South African blacks. Students who were interviewed in the pilot study responded very differently in accordance with their SCS scores. High scorers appeared highly self -

motivated with clear goals and considerable insight into themselves, their problems and how they intended to deal with them. Low scorers appeared to have a weak or confused sense of self and spoke more in terms of parent's and society's expectations. One interesting difference was the reported incidence of some sort of psychic crisis, such as Csikzentmihalyi and Beattie describe, in the life of high scorers interviewed. These incidents appeared to be relevant to the subject in his/her present circumstances and to exert influence on everyday life. Three of the four high scorers reported such a crisis when asked to explain extreme scores on the SCS while only one of the five low scorers did. The impression gained in talking about the influence of these crises was that a potentially damaging psychological event had, through the attitude of the subject, become an impetus for self directed behavior that was still effective years later and that had become a part of the individual's mode of interacting with the world. This finding is in striking contrast with the attitudes of low scorers who seemed to have very weak ideas of who they were and what they wanted and why they were following their present course of action to achieve their goals. The impression gained was that these low scoring students were at university because somebody else

thought it would be a good method to achieve goals that that other individual felt were worthwhile. The subject themselves seemed to have simply adopted a parent's or some other individual's goals for them as well as the method best suited to achieve those goals.

The interviewer at no time found that blacks felt a greater need to make socially desirable answers. High scorers of either race appeared very selfconfident and assured in manner while low scorers appeared considerably less so.

This impression was very strong and seemed to be totally independent of race. Black high scorers sounded uncannily like white high scorers and both seemed very different indeed to low scorers of either race. They seemed to form two different groups, each quite striking in itself.

The relationship between high SCS scores and such reported attitudes and behavior supports and adds to the conceptual basis for the SCS. Interviews with individual subjects confirmed the level of use of self control strategies indicated by their SCS score.

3.3.4 Replication

Mean SCS scores for the whole sample were 16,12, SD = 23,52, for males 9,9, SD = 29,30 and for females 21,23, SD = 16,69. Blacks had a mean score of 21.12, SD = 15.03 and whites a mean score of 16, SD = 25.59.

Table 3.1

SCS Scores for Pilot Study

n = 27	M	SD
Total Sample	16,12	23,52
Males	9,92	29,30
Females	21,23	16,69
Blacks	21,12	15,03
Whites	16	25,59

These means indicate that it is males and whites who tend to get low scores on the SCS. The means for the whole group, for males and for whites are lower than those mentioned in the literature (See section 1. 4.3). The means for blacks and for females seem more in line with those given in previous studies. The mean for blacks was found to be higher than that of whites.

A t-test was run to determine if the difference between the black and white group's SCS scores was significant. It was not (t = ,53, df = 25, p<,6037).

The means for blacks were found to be in the expected direction but not significantly so. However the sample size is so small (n = 27) that the finding can not be taken as final.

3.3.5 Exploration

There is some indication of the greater incidence of obstacles among black respondents. Blacks chose Rhodes University at which to study because of the relative absence of disruptions of classes due to student unrest. This was volunteered by all blacks, both high and low scorers, but never mentioned by white students. Student unrest has had a particularly disruptive effect on black education in recent years. There have been academic boycotts both in the high schools and at Fort Hare University that have resulted in losses of class time extending from several weeks to the entire year. This situation has existed for several years causing major disuptions in the lives and careers of students

such as those in this study. In addition, students at high schools and universities in many communities have been involved in civil unrest and violence both between rival political groups and between political groups and the South African Police and the South African Defence Force. Arrests and detention of youth under the State of Emergency have been common. The choice of a white university like Rhodes is an excellent example of a problem solving strategy as the sort of political disruptions described are much less common, virtually unknown there. In a sense, black students at Rhodes have already undergone a selection process based on the level of use of at least one self control strategy.

In comparison, there appeared to be a lack of obstacles among low white male scorers in particular. These subjects appeared to have come from a socio-economic background where attendance at university is taken for granted, where there are no financial problems and where parents are most willing to provide support for an extended preparation for a career. This finding should be located in the context of the wide disparities in life style, income and opportunity that are endemic to the South African scene. Generally speaking, black youth in South Africa are subject to the effects of

poverty, poor housing, poor health, and an inadequate education system, all of which are virtually unknown to white youth. This does not necessarily mean that the blacks in our study are necessarily more disadvantaged than the whites but there is some indication that this might be the case as some blacks mentioned financial difficulties as an obstacle to attending university. It can be expected that black students would need to display a higher level of personal resourcefulness to reach university level than would white students.

There was no perceptible pattern regarding parental attitudes towards school or future success or parental guidance or examples in reading. The finding that all parents valued an education highly might be no more than an effect of selection since all subjects are embarking on a university career.

High scorers claimed they read more than the required reading for school while low scorers said that they did not. This is the only variable that supported the findings of Csikzentmihalyi and Beattie (1979).

Nowhere was evidence found that the items had been misunderstood or that the respondents held a different

understanding of the concepts behind the questions. Probing item answers confirmed that in all cases the command of English of those interviewed was sufficient to cope with the questions in the SCS.

There was considerable confusion concerning the question concerning race of administrator. Respondents did not seem to be able to differentiate between administrator and the person to whom the questionnaire was presented (themselves). It was decided to leave this question out in the main study.

Although one subject had indicated in the feedback section of the questionnaire that the questionnaire should be anonymous, none of those interviewed said that putting their name on the paper bothered them. It had been necessary in the pilot study since subjects were going to be chosen to be interviewed but it was decided to leave personal identification a voluntary matter in the main study.

3.4 CONCLUSIONS

The above findings lead to the following conclusions.

1. The distribution histograms suggest the presence of a group of low white scorers that must bring down the mean of the white group. If the previous study had a similar group of low white scorers which was not present in the black group, it would account to some extent for the significant difference in SCS scores by race. A comparison of the distributions of SCS scores by race in the main study will show if the distribution of the pilot study is typical or due to its small sample size.

2. It appears from the results of the interviews that the SCS is valid for use with South African subjects both white and black. This would indicate that the finding that black South Africans have a greater tendency to utilize problem solving strategies than do white South Africans is real and not the result of using an instrument that is not valid.

3. The fact that the results were not replicated in the pilot study suggests that perhaps the finding of higher SCS scores among blacks was an anomaly and not a consistent trend or that the SCS is not a reliable instrument. The size of the sample minimizes the importance of this finding.

4. It is possible that the finding that blacks at Rhodes University have higher SCS scores may be due to the selection effect of testing those students who have used the problem solving strategy of chosing a white university to avoid student unrest. The inclusion of a large sample of students from Fort Hare, a centre for much of the student unrest, will address this possible problem.

5. The finding that blacks at Rhodes University have higher SCS scores may be due to selection effect. Only those blacks with higher than usual personal resources are likely to overcome the disadvantages particular to the black population, disadvantages of poor education, low income, and political instability that prevent most blacks from reaching university level. This is supported by the finding that there is no group of low scorers among the black sample comparable to that found in the white sample. It does not negate the finding that black university students tend to have higher levels of self control, it merely helps to explain why this might be so.

6. The interviews show a tendency to use a psychic crisis as a motivating factor for goal directed behavior as described

by Csikzentmahalyi and Beattie among high scorers and not among low scorers. Only one other variable mentioned by Csikszentmahalyi and Beattie, reading more than required by school, is found to be reported by high scorers and not low scorers. This supports, in part at least, their concept of life theme and adds to our understanding of the dynamics of the self control process (See section 1.3.7).

7. There does not appear to be any evidence that blacks tend to be more prone to social desirability or acquiescence response set than whites. However since this is a fairly subtle effect evidenced as a statistical effect on large samples and since it has been found among American blacks and low income groups, it was decided to continue with the plan to test for response set effect in the main study.

CHAPTER FOUR

THE MAIN STUDY

4.1 INTRODUCTION

The main study addresses a range of factors that challenge the finding that black students at Rhodes University obtained significantly higher SCS scores than white students. It clears the way for further research into the process of self control and how this process may differ by culture. The following issues are addressed. Perhaps the result is anomalous. Perhaps the SCS is invalid in the South African context. Perhaps the finding is biased by response set. Perhaps the finding is a result of different meanings attributed to the items on the SCS by subjects from different cultures. The result has been derived from a sample of black students at a white university. Are these students perhaps different, in some way, from students who attend black universities? If so, do the scores reflect a type of selection process? Perhaps age and sex are factors. Each of these possibilities are investigated in this study in order to obtain a clearer understanding of the finding.

4.2 METHOD

Two scales and a short questionnaire to determine sex, race, first language, and age were administered to the entire first year psychology class at Rhodes University in October, 1987.

The first scale was the SCS. At the same time a scale developed by Crowne and Marlowe, (1960) (appendix 4) specifically to determine statistical deviance due to social desirability in the nonpathological population was administered. This scale is claimed to discriminate between the effects of item content and the need of subjects to present themselves in a socially desirable (or undesirable) light. Crowne and Marlowe (1960) report an internal consistency coefficient for the final form of the scale, using Kuder - Richardson formula 20 as ,88 and a test/retest correlation of ,89. The scale was correlated with 17 MMPI validity, clinical and derived scales and the authors conclude that their scale reflects the need of subjects to respond in culturally sanctioned ways. The scale itself is now twenty - eight years old and the items in it are perhaps unsophisticated for today's youth. It was chosen because of its rigorous development, availability and ease of

administration.

Students completed the questionnaire in controlled conditions. A second batch of questionnaires was sent to Fort Hare, a university with an almost entirely black student population, to be administered under the same conditions. At the time, the university was experiencing student unrest and the questionnaires could not be administered in the class situation. The questionnaires were therefore administered individually by graduate psychology students to first year psychology students according to written instructions on test administration.

4.3 RESULTS

In all, the questionnaire was administered to 267 subjects of which 138 were white Rhodes students, 29 were black Rhodes students and 100 were black Fort Hare students. There were 120 males and 147 females. There were 129 black and 138 white students.

English was the first language of 135 subjects with the remainder speaking Sotho (12), Xhosa (90), Zulu (15), or

other (14). One subject did not complete this part of the questionnaire. (Throughout the study, results will show slightly different "n" or "df" values reflecting incomplete questionnaires).

The mean ages of the various groups can be seen in Table 1 below.

Table 4.1
Mean Age

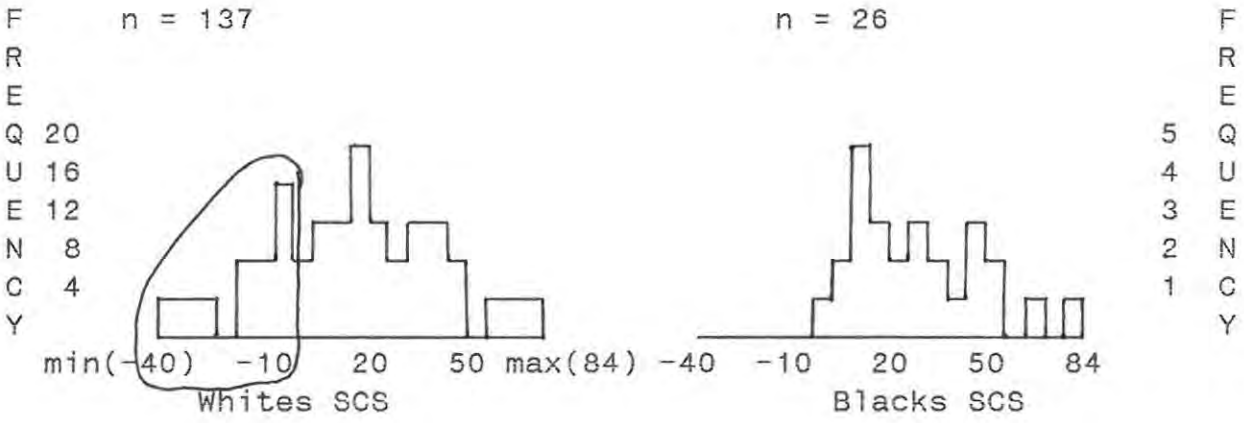
	Mean Age	SD
Total Sample	21,27	4,43
Rhodes Whites	19,76	3,23
Fort Hare Blacks	23,07	4,30
Rhodes blacks	22,42	7,03

Black students tended to be somewhat older than white students and black students at Fort Hare were older, on average than blacks at Rhodes. The age difference between black and white students reflects the different education systems in South Africa where blacks start school at age seven rather than, as whites do, at age six. Civil unrest has cost many blacks a year or more of schooling.

An analysis of the distribution of self control scores using histograms of the three subsamples shows the presence of a large low scoring group (n = 20/137) of subjects in the white sample that was not present in the black samples. Histograms of the two black groups are very similar.

Histogram 4.1

A Comparison of the Distribution of Rhodes White and Rhodes Black Self Control Scores



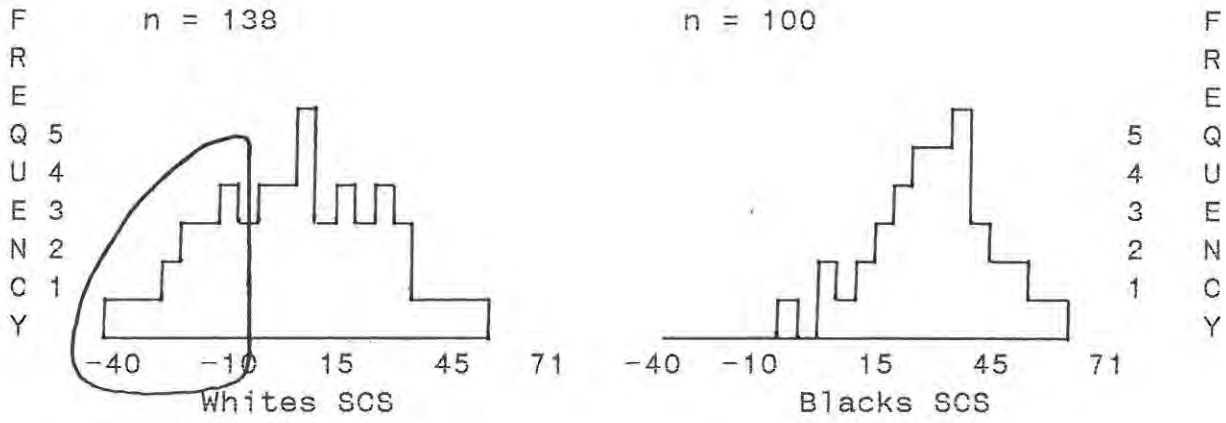
The circled area represents a group of low scoring white subjects with no corresponding group in the black sample.

Histograms comparing Rhodes whites and Fort Hare blacks also show the presence of a large group (n = 24/138) of white

subjects with very low scores with no comparable black group.

Histogram 4.2

Comparison of the Distribution of Rhodes Whites and Fort Hare Blacks SCS Scores

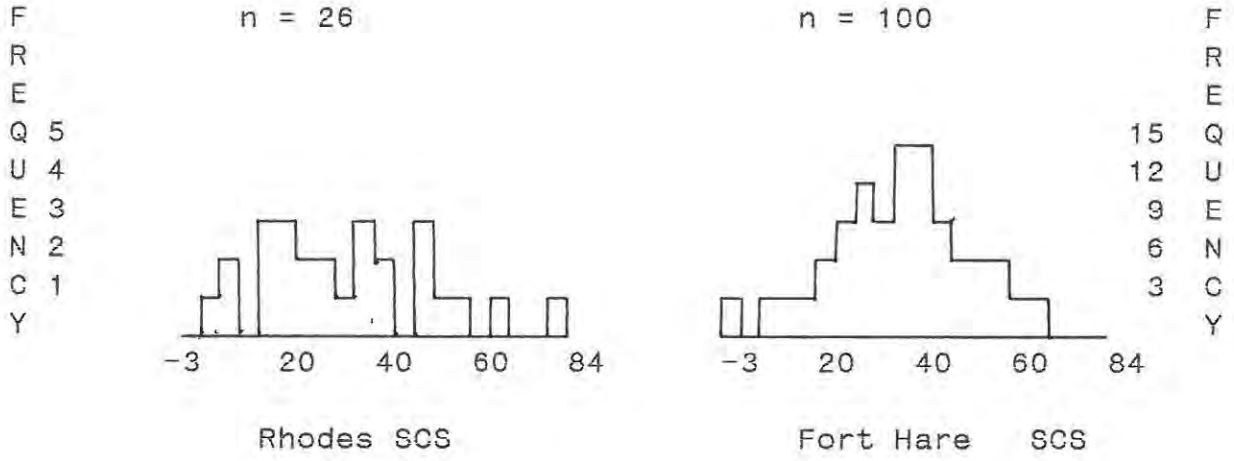


Once again, the circled area represents a group of low scoring white subjects with no corresponding group in the black sample.

Histograms of the mean SCS scores for Rhodes blacks and Fort Hare blacks are similar, with the larger sample (Fort Hare) approaching the normal curve and the smaller sample (Rhodes) slightly flatter.

Histograms 4.3

Comparison of the Distribution of Self - Control Scores of Rhodes Blacks and Fort Hare Blacks



The distribution of scores indicates the presence of a large group of low scorers among the white sample that is not present in either of the black groups.

This group lowers the mean of the white group. This finding replicates and validates the finding in the pilot study that there exists among white students at Rhodes a large group of students who are attending university at their parent's behest and who have no real personal goal or ambition beyond financial security. A comparable group does not exist among the black student population due to the relative difficulty

in overcoming financial, educational and socioeconomic obstacles. Black students are often financed by the contributions of an entire family who would be unlikely to choose someone lacking in motivation, direction or self control.

4.3.1 The Replication of Previous Findings

The SCS scores from the sample at Rhodes and Fort Hare universities were calculated and the means for various groups obtained. These are given in Table 4.2 below.

Table 4.2

Mean Self Control Scores

	SCS Score	SD	Max	Min
Total Sample	23,03	22,24	-40	84
Rhodes Whites	14,63	23,32	-40	71
Fort Hare Blacks	32,72	15,47	-11	68
Rhodes Blacks	30	21,66	-3	84
Males	24,58	22,21	-38	84
Females	21,75	22,27	-40	71

The mean SCS scores reveal that, while the mean of the total sample is very similar to those reported in the literature,

(See section 1.4.3), the white group has a considerably lower mean and both black groups have higher means than have been reported for American and Israeli students. Males have slightly higher means than females. Standard deviations generally fall in line with results reported in the literature.

A 3 - way analysis of variance was performed using race, age and sex on the entire sample of students from both universities to ascertain the role that age and sex play in the results. The previous study had reported significant differences between black and white SCS scores using pairs matched for age and sex. Four age groups were chosen, 18 years or less (n = 62), 19 and 20 years (n = 95), 21 to 25 years (n = 71), and 26 years and older (n = 33).

The analysis of variance showed significant F-values for race only ($p<001$). F - values for age, sex, and the interactions of age and sex, age and race and age and sex and race were not significant.

Table 4.3

Analysis of Variance - Age, Sex, Race and Self Control Scores

Source	Sum of Squares	df	Mean Square	F	P
Age	250,42430	3	83,47477	,20	,8969
Sex	,99691	1	,99691	,00	,9611
Race	6797,62974	1	6797,62974	16,22	,0001
A/S	1768,69770	3	589,56590	1,41	,2413
A/R	283,64070	3	94,54690	,23	,8785
S/R	594,34055	1	594,34055	1,42	,2348
A/S/R	1479,24376	3	493,08125	1,18	,3192

This analysis establishes very clearly that race is a factor determining SCS scores at Rhodes University and Fort Hare University and that age and sex are not significant factors.

In order to test how the SCS results compare with those administered in 1986, the means of Rhodes whites and Rhodes blacks were compared and a t-test used to gauge any significant differences. Similar results would indicate that black South African students tend to employ more problem solving strategies than white South African students.

A significant difference between the mean SCS scores for

Rhodes whites and Rhodes blacks was found (t = 3,11, df = 161, p<,01). The previous results have been replicated. This supports the findings.

The scores of Rhodes whites and Fort Hare blacks were compared and a t-test used to gauge significant differences in order to compare white subjects with a large (97) sample of black subjects. Previous work had been done with a small sample of black students taking first year psychology at Rhodes.

A significant difference was found between the mean scores of Rhodes whites and Fort Hare blacks (t = -7,01, df = 234, p<,001) indicating that the phenomenon is neither the result of using a small sample of black students, nor a reflection of the selection process of using a sample of students who chose to go to a white university to avoid student unrest (See section 3.3.5). It supports the finding of higher SCS scores among black South African students.

As a further test, the scores of Rhodes blacks and Fort Hare blacks were compared and a t - test used to gauge any significant differences to ascertain the extent to which

black students at Rhodes were representative of black students country - wide.

No significant difference was found between the mean SCS scores for Rhodes blacks and Fort Hare blacks (t = -,60, df = 31,9, p<,5518). It appears that, as far as SCS scores are concerned, the two black samples are similar. Rhodes black students are not more likely to use problem solving strategies simply because they are the sort of students who choose their university on the grounds that they are less likely to have their studies interrupted (See section 3.3.5). They are very similar to students who choose to go to a university that has experienced much unrest.

The previous finding which indicated a significant difference by race of SCS scores is thus replicated. Evidence supports the previous finding of higher self control scores among black South African university students than among white South African university students.

4.3.2 Item Analysis

Internal consistency, the extent to which the items of a test

discriminate in the same direction as the total score of a test, is one measurement of the reliability of an instrument. Cronbach's (1951) alpha is the mean of all possible split - half coefficents and a high alpha (,7+) is considered a desirable characteristic of a test, indicating adequate reliability.

Separate item analyses were carried out on the Rhodes white and Fort Hare black samples. The rational is that, since the two groups are culturally very different, the SCS could possibly be more reliable for one than for the other. It is also hoped to clarify the findings of reliability so that they might be compared with alphas quoted in the literature (Redden, 1983, Rosenbaum, 1980a). If unacceptably low alphas are found, items with poor correlations could be dropped in an attempt to raise the alpha to acceptable levels, thereby creating a revised scale more suitable for the South African context. New SCS scores could be computed using the revised scale and compared to see if the difference in SCS scores for blacks and whites is still at a significant level.

An item analysis of data from the 1986 study consisting of SCS scores collected from 221 white first year psychology

students at Rhodes University was carried out to assess the internal consistency of the SCS with South African subjects (See appendix 5). An acceptable alpha of ,83 was found. Each of the items in the schedule was found to contribute to the schedule in some way, either by contributing to the alpha or by providing a hedge against response set. The item analysis revealed 7 items whose coefficents were less than .3. These were items 6, 8, 14, 21, 24, 28 and 35. Of these, the last three, 24, 28 and 35, were found to contribute to the alpha and were returned for that reason. Items 6, 8, 14 and 21 are all negatively directed items and indeed make up more than one third of the negatively directed items. By removing these we raise the alpha of the questionnaire from .8361 to .8473. Since the SCS is already acceptable, if not good, and the increase realized by dropping these items is so slight (.0112), the items were returned to the schedule. It is more important to avoid problems due to response set than to increase an already good alpha slightly.

A second item analysis was carried out on data consisting of SCS scores collected from the 97 black first year psychology students from Fort Hare University. (See Appendix 6) A less

acceptable alpha of ,52 was found. This alpha could be raised to ,63 by omitting seven items, (3, 6, 19, 21, 23, 30, and 36) three of which are negative and thus important for preventing aquiescence response set.

The seven items whose deletion allows the alpha of the item analysis of the Fort Hare sample to rise (See Appendix 7), were analysed to see if they presented any theme.

Table 4.4 shows the items grouped according to Rosenbaum's themes (see section 1.4.4) with the correlation of each item with the total scale.

Table 4.4

Results of Item Analysis of Blacks by Rosenbaum's Catagories

Cognitions		Delayed Gratification		Self Efficacy		Problem Solving	
item	r	item	r	item	r	item	r
2	,2599 !	1	,2095 !	4	,2872 !	7	,1875 !
3	,0717 *!	18	,2226 !	8	,3602	10	,4451
5	,3335	22	,4204	9	,4141	11	,2305 !
6	,0626 *!	29	,3107	14	,3144	12	,3153
13	,2052 !			16	,2777 !	15	,5519 !
21	,1952 *!			19	,1211 *!	17	,2324 !
23	,1254 *!			24	,2338 !	20	,1664 !
25	,4123			27	,4717	28	,2166 !
26	,3280			35	,2330 !	32	,1704 !
30	,0364 *!					33	,2094 !
31	-,0293 !					33	,1154 !
36	,0217 *!						

* items whose removal raises the alpha
! items whose r is less than ,3

It is apparent that six out of the seven fall on the subscale of "Use of Cognitions to Control Emotional and Physical Sensation" (See section 1.4.4). They comprise six out of twelve items of that scale. In addition, a further three of twelve items of that scale fail to reach a correlation of ,3 between the items on the subscale "Use of Cognitions to Control Emotional and Physiological Sensation" and the questionnaire as a whole when used with the black Fort Hare students.

This finding suggests that the nature of self control is slightly different for this group. In particular, those items listed on the subscale "Use of Cognitions to Control Emotional and Physical Sensation" are used differently or not at all by this group. The low alpha suggests that the black understanding of self control is not well expressed by the items in the SCS. Further study of the actual strategies used would improve our understanding and make the SCS more useful for use with this group.

A similar analysis of the Rhodes white sample gives quite different results. In this case, three of the scales, "Use of Cognitions to Control Emotional and Physical Sensation", "Perceived Ability to Delay Gratification" and "Tendency to Employ Problem Solving Strategies", stand up fairly well, indicating that the conceptualization by Rosenbaum of the phenomenon of self control is shared by the subjects of the study. However, there are problems with the fourth scale, "General Expectations for Self Efficacy". Only two of the items in "Use of Cognitions to Control Emotional and Physical Sensation" are less than ,3. On the subscale dealing with

Self Efficacy, only two of nine items have ratings above ,3. This indicates that the items on the scale of Self Efficacy do not reflect the self control methods of South African whites. A question is raised about the overall psychometric properties of the scale and about the relationship of the efficacy items to the other items. It is possible that an error has been made in the original conceptualization of self efficacy as an important component of self control by Rosenbaum. These results may only reflect the importance of self efficacy with white South Africans. Comparison of the result of this item analysis with others based on samples from other countries may answer both of these questions. Unfortunately no reference to this kind of detail has been found in the literature.

Table 4.5

Results of Item Analysis by Whites Using Rosenbaum's Categories

Cognitions		Delayed Gratification		Self Efficacy		Problem Solving	
2	,4919	1	,4912	4 -,1044	!	7	,4336
3	,3862	18	-,1742	8 -,1304	*!	10	,4678
5	,4040	22	,5827	9 -,0961	!	11	,3660
6	,0021	*! 29	,2790	14 -,0483	*!	12	,4040
13	,4775			16 ,2873	!	15	,4493
21	,0898	*!		19 ,2349	!	17	,4650
23	,4102			24 ,4032		20	,4870
25	,5174			27 ,4875		28	,4870
26	,5396			35 ,0317	!	32	,5386
30	,3872					33	,4133
31	,4298					34	,3683
36	,3420						

* Item whose removal raises the alpha
! Items whose r is less than ,3

There appears to be a difference by race in the extent to which the SCS is a reliable instrument for use in the South African context. The SCS is better suited for use with white subjects. The question arises whether the results would be replicated if the new scale with seven less items, developed as a result of the item analysis of the black sample, were administered instead of the old one. The results of the total sample (made up of white Rhodes, black Rhodes and black Fort Hare students) were recalculated, omitting the seven

items whose omission was necessary to raise the alpha to an acceptable ,63 level. Group means were recalculated and a t-test used to determine any significant difference in the SCS scores by race.

The t-test indicates a significant difference between the SCS scores of the black and white subjects using the revised SCS (t = 9,01, df = 235, p >,0001). This supports the finding of a difference in self control by race and indicates that the finding is not due to a lack of reliability of the SCS when used in the South African context.

4.3.3 Validity

Hypothesis 4 concerns the effects that different interpretations attributed to items on the SCS by members of the black and white groups might have on the results. It is possible that the differences in interpretation might be due to language difficulties or to culturally based connotations. Whatever the cause of different interpretations in meaning by race or culture, a factor analysis would be helpful in identifying the presence of such differences. Factor analysis is a statistical technique that allows the

condensation of a large bank of data into a few factors. In the context of a questionnaire, it can be used to determine the extent to which the factors fall in line with the original conceptualizations of the developer of the scale. If the factors, upon examination, appear to follow the stated concepts used by the developer, it indicates that the people who took the test understood the items in it in much the way that the developer intended. Should the factors apparently hold some other meaning than that described by the developer, it would appear that the test is not measuring what it was intended to measure. Such a circumstance might come about if the cultures of the developer and those to whom it is administered are so different as to have largely divergent understandings of the topic being investigated or if those taking the test for some reason do not understand the questions and answer in a random way. For this reason, separate factor analyses were computed on the samples from black Fort Hare University students and white Rhodes University students. In the interests of clarity, no specific number of factors was specified. Fourteen factors were found for blacks and twelve for whites. It is beyond the scope of this thesis to do a detailed analysis of the findings of the two factor analyses (see appendices 8 and 9)

but a brief look at the rotated factor matrixes for both groups shows marked differences in the extent to which they appear to reflect Rosenbaum's subscales (See section 1.4.4). This difference does not seem to be related to the differences found in the item analysis.

Table 4.6

Rhodes Whites Rotated Factor Loadings Pattern

Factor	Loading	Item	Rosenbaum's Category
1. Delayed Gratification			
1	,762	29	Delayed Gratification
2	,670	18	Use of Cognitions
3	-,667	22	Delayed Gratification
4	-,529	11	Problem Solving
2. Coping with Depression			
1	,777	15	Problem Solving
2	,693	17	Problem Solving
3	,601	5	Use of Cognitions
3. Controlling Thoughts and Feelings			
1	,722	6	Use of Cognitions
2	,695	21 *	Use of Cognitions
3	,595	4	Self Efficacy
4. Coping with Pain			
1	,901	31	Use of Cognitions
2	,881	23 *	Use of Cognitions
5. Planful Behavior			
1	,692	36 *	Use of Cognitions
2	,516	33	Problem Solving
3	,501	12	Problem Solving
6. Use of Visualizations			

	1	,689	2	Use of Cognitions
	2	,686	1	Delayed Gratification
7.	Impulse Control			
	1	,836	27	Self Efficacy
	2	,648	28	Problem Solving
8.	Self Efficacy			
	1	,828	14	Self Efficacy
	2	,701	19 *	Self Efficacy
9.	Coping with Outside Pressure			
	1	,711	8	Self Efficacy
	2	,571	30 *	Use of Cognitions
10.	Self Efficacy			
	1	-,680	16	Self Efficacy
	2	,578	3	Use of Cognitions
	3	,538	25	Use of Cognitions
11.	Self Esteem			
	1	,793	24	Self Efficacy

---

* items deleted to raise the alpha of the SCS with Fort Hare blacks.

\# Rosenbaum's categories were:

1. Use of cognitions to control emotional and physiological sensation
2. Perceived ability to delay gratification
3. General expectations for self efficacy
4. Tendency to employ problem solving strategies.

Examination of the meaning of the questions that load on each factor in the factor analysis of whites indicates a theme that is meaningful in terms of the theory but as Table 4.7 indicates, these largely fail to coincide with Rosenbaum's concepts or categories. This finding can be compared to the weak factors that Redden et al (1983) report (see section

1.4.4). Redden reports six factors that correspond closely to Rosenbaum's four content areas. The factors have rather weak loadings with only three of the male and eight of the female within the good range of .6 or better. Gruber and Wildman (1987) report three factors: a) problem - focused coping, b) mood and pain control, and c) externability (i.e. "the need for outside help to get rid of some of my bad habits"), Loadings were not reported. Our findings indicate a considerably less cohesive scale possibly due to the different method employed (see section 1.4.4). They still support Rosenbaum's initial conceptualizations and loadings on the various factors are good.

Table 4.7

Fort Hare Blacks Rotated Factor Loadings Pattern

Factor	Loading	Item	Rosenbaum's Category
1. Planful Behavior			
1	,683	12	Problem Solving
2	,664	10	Problem Solving
3	,656	33	Problem Solving
4	,643	15	Problem Solving
2. Using Cognitions/Self Efficacy			
1	,811	31	Use of Cognitions
2	,667	35	Self Efficacy
3	,591	23 *	Use of Cognitions
4	,540	16	Self Efficacy

3.	???			
	1	,697	4	Self Efficacy
	2	,619	32	Problem Solving
	3	,509	21 *	Use of Cognitions
4.	Impulse Control			
	1	,780	26	Use of Cognitions
	2	,699	27	Delayed Gratification
	3	,592	17	Problem Solving
5.	Planful Behavior			
	1	-,802	7	Problem Solving
	2	,760	29	Delayed Gratification
	3	,505	13	Use of Cognitions
6.	???			
	1	,754	36 *	Use of Cognitions
	2	,733	18	Delayed Gratification
7.	???			
	1	,785	3 *	Use of Cognitions
	2	,630	11	Problem Solving
8.	???			
	1	,87	34	Problem Solving
9.	???			
	1	,855	1	Delayed Gratification
10.	???			
	1	,794	25	Use of Cognitions
11.	???			
	1	,808	28	Problem Solving
12.	???			
	1	-,321	5	Use of Cognitions
	2	,835	30	Use of Cognitions
13.	???			
	1	,804	24	Self Efficacy
14.	???			
	1	,810	9	Self Efficacy

* Items deleted to raise the alpha of the SCS with Fort Hare blacks.

Rosenbaum's categories were:
1. Use of cognitions to control emotional and physiological sensation
2. Perceived ability to delay gratification
3. General expectations for self efficacy
4. Tendency to employ problem solving strategies

The factor analysis of the SCS scores of the Fort Hare black sample reveals a very different grouping of the items. There are many factors with few items in each and there is no discernible pattern reflecting Rosenbaum's concepts or categories. The factors are very difficult to interpret in terms of meaning, much more so than is the case with the Rhodes white sample. For example, factor 12 has loadings of -,321 and ,835 of items dealing with the use of cognitions even though factor 2 has items with loadings of ,811 and ,591 reflecting essentially the same thing. Even the single items can not be logically titled in that there is no apparent reason in terms of the meaning of the content of the item that separates it from other items on the scale. Items 13 and 14 both deal with self efficacy, yet have very high loadings of .8 on separate factors.

The factor analysis of the black sample, then, does not

support Rosenbaum's conceptualizations of the SCS. It indicates that the items of the questionnaire provide some different meaning when used with South African blacks. This could be due to a different understanding of the topic, or difficulty understanding the items in the questionnaire. Since the subjects were university students who did much of their studying in English it seems that the latter explanation is unlikely. Therefore the factor analysis of the Fort Hare students indicates conceptual problems with the meaning of the items in the questionnaire when used with South African blacks. The SCS was developed within western culture and appears to function fairly well conceptually within the western white sample in South Africa but falls short when used with the black population, even those attending university.

Items marked * are those whose omission raised the alpha of the SCS in the Fort Hare black sample item analysis. It is clear that these items form no factor or meaning unit of their own either for the Fort Hare black or Rhodes white samples. This suggests that they correlate poorly for no meaningful or specific reason.

4.3.4 Acquiescence Response Set

Acquiescence response set refers to bias introduced from the tendency to agree with items regardless of content. It has been found to be influenced by race and class (Dijkstra, 1982). Acquiescence response effect is usually controlled by providing an equal number of negatively and positively directed items in a questionnaire. Since the SCS has eleven negatively and twenty - five positively worded questions and since the sample is one with widely divergent class and race, it is possible that acquiescence response set might influence results.

Changing the SCS to have an equal number of positively and negatively directed questions could be done in two ways. The first involves changing the wording of some items in the questionnaire so that the direction is altered from positive to negative. Altemeyer (1981) warns that such reversal may alter the meaning of the question subtly. The other method involves dropping some of the positively directed items until there is an equal number of positively and negatively directed items. This method was chosen. Items which scored badly on the Fort Hare item analysis were felt to be those

least contributing to the clarity of the results and so the 14 items with the lowest correlations (all ,2300 or less) were dropped from the questionnaire.

The SCS scores of the white Rhodes, black Rhodes and black Fort Hare student samples using the scale revised for acquiescence response set were computed and compared. A t - test was applied to detect significant differences between the means of two race groups.

Using the revised scale gave a mean SCS score for blacks of 15,16 and for whites of 4,13. The t - test showed s significant difference in SCS scores between whites and blacks ($\underline{t}$ = 6,13, $\underline{df}$ = 262, $\underline{p}$<,001).

The results show that aquiescence response set is not a factor in explaining the significantly higher SCS scores for the blacks in our sample.

4.3.5 Social Desirability Response Set

Social desirability response set refers to bias introduced as a result of the tendency of subjects to respond in a socially

desirable way. Each item in a questionnaire can be located upon a social desirability dimension and the stronger the possibility of a socially desirable response on any particular item, the larger the possible effect. The tendency to give socially desirable responses is a stable personality trait which tends to vary with sex, age, race, education and income (Dijkstra, 1982). It is possible that the results of the previous study were effected by social desirability response set because of the discrepancy in race, education and income of the subjects. For this reason, it was decided to administer a scale developed to measure social desirability at the same time as the SCS.

The Crowne Marlowe Social Desirability Scale (SDS) was administered at the same time as the SCS. Scores were computed and compared.

Table 4.8

Mean SDS Scores

n = 263	mean	SD
Total sample	-1,49	10,45
Whites	-6,09	9,51
Blacks	3,40	9,12
Males	- ,86	10,63
Females	-2,02	10,30
Fort Hare blacks	3,92	9,14
Rhodes blacks	1,51	8,93

The means show that whites tend to show less need to present themselves in a socially desirable light than do blacks.

A t-test was used to detect significant differences between the SDS scores of the white Rhodes sample and the black Rhodes sample to see if there were any significant differences in the tendency to use socially desirable responses by race. Such a difference would suggest social desirability effect in the results of the SCS in the previous study.

A t-test showed a significant difference between the SDS scores of Rhodes whites and Rhodes blacks (t = 3,82, df = 157, $p<,001$). Black students were more likely to use

socially desirable responses than were white students.

A t-test was applied to detect a significant difference between the means of SDS scores of the white Rhodes sample and the black Fort Hare sample which would indicate differences in the tendency to use socially desirable responses by race. A significant difference between the SDS scores of Rhodes whites and Fort Hare blacks (t = -7,98, df = 228, p<,0001) was found.

A t-test was applied to detect a signifacant difference between the mean SDS scores of the black Rhodes University sample and the black Fort Hare University sample to determine the effect of university on the results. No significant difference between the SDS scores of Rhodes blacks and Fort Hare blacks (t = -1,22,df = 122, p<,2262) was found.

The difference between white and black social desirability scores is significant. Blacks in South Africa are more prone to bias derived from a need to present themselves in a socially desirable light.

It is possible that the higher social desirability scores for

blacks reflects on SCS scores so that the higher SCS scores for blacks were the result of black students answering items on the questionnaire in such a way as to appear more socially desirable.

Pairs (n = 60) matched for age and SDS scores were compiled. There were 30 blacks and 30 whites. Of the blacks 13 came from Fort Hare and 17 came from Rhodes. There were 26 males and 34 females. The mean age of both groups was 21.

To determine if the finding that blacks had higher SCS scores than whites was entirely due to social desirability effect, age and SDS scores were held constant. Any differences found would not reflect social desirability tendencies.

A t-test showed a significant difference between blacks and whites in self control scores when social desirability scores and age were held constant (t = 2,23, df = 57, p <,0297).

It is apparent that the difference in SCS scores between whites and blacks can not be entirely ascribed to social desirability effect although it obviously has an influence. The significance level of the difference between the SCS

scores of whites and blacks is much lower when social desirability effect is held constant, although the means of 28,8 (SD = 20.9) for blacks and 16.7 (SD = 20.8) for whites suggest that the smaller sample size may be responsible.

4.4 CONCLUSIONS

It has been found that black students at Rhodes University have significantly higher self control as measured by Rosenbaum's (1980) Self Control Schedule than do white students. The SCS itself has been found to be suitable for white students but only barely adequate for black university students. A population of high scoring individuals suitable for studying the process and the phenomenon of self control has been identified.

The replication of the findings indicates that the discovery was an on - going phenomenon that may tell us something about the nature of self control.

The distribution of SCS scores in the black and white groups suggests that one reason for the higher means for black students is the presence of a large group of students with

unusually low self control in the white group. Comparison of histograms indicates that this subsample is not found in the black group. The literature gives means of between 23 and 27 for Israeli and American university students, whereas this study obtained a mean of 14,63 for white students and means of 30 and 32,72 for black students. This result supports the conclusion that it is more difficult for blacks to achieve entrance to university than it is for whites as was found in the interviews in the pilot study. Black students, with many disadvantages uncommon to white youth, such as student unrest, financial problems, civil unrest and violence, (See section 1.4.3) and substantially poorer education (Burman, 1986) display higher levels of learned resourcefulness. White youth with parental and financial support appear to have much lower levels. The lower means for whites than those given for students in Israeli and American universities, indicates that such a group of low scorers is indeed unusual internationally. The means for blacks are higher generally than those mentioned in the literature, suggesting that more in the way of personal resources is needed to achieve university status for this group. Once again, the interviews in the pilot study bear this out. This study supports the suggestion in the literature that stress

is an intregal part in the process of the development of personal resourcefulness.

It does not seem to matter whether the student chose to avoid student unrest in deciding upon a university or not with regard to SCS scores. Black student samples from both universities had equally high means for self control, indicating that the phenomenon observed at Rhodes University is probably countrywide. The study confirms that age and sex are not factors in the higher SCS scores for whites.

This study indicates that higher self control scores for blacks cannot be explained by either acquiescence response set nor social desirability response set. It shows that social desirability response set is higher for black South Africans than for white South Africans and must be considered in interpreting the results of any similar studies using self report scales such as the SCS.

Item analysis has shown the SCS to be reliable for whites in the South African context but less so for blacks. A revised scale with adequate internal consistency also indicates significant differences between the mean scores of the two

groups indicating that the finding cannot be ascribed to an unreliable instrument.

Factor analyses of the data found very different factors for the two groups. The factors for the white group followed the conceptualizations given by Rosenbaum but the factors for the black group appear to be very different in a random sort of way that suggests that there is no cohesive or definite reason for the difference. The items do not factor out into a precise and cohesive, but different pattern. There is no real pattern for the black group, indicating that the SCS does not adequately conceptualize self control for that group. Perhaps personal resourcefulness is based on different strategies to those given in the SCS. The findings on the item analysis for the subscale "Use of Cognitions to Control Physical and Physiological Sensation" support this. The item analysis points out that the subscale is very weak, indicating an area where blacks and whites may differ in their conceptualizations of self control or at least, in the methods that they use.

The finding (in the pilot study) that the black subjects were able to understand the items in the questionnaire even though

they were using a second language suggests that the difference in meaning does not come from misunderstanding. The results might be clearer if a translated version of the SCS were used for blacks, especially for subjects who have not reached the level of familiarity with English necessary to attempt attending a university where instruction is given in the English medium. For the purposes of this study, however, the issue of a second language is not relevant.

The item and factor analyses indicate that the SCS is pschometrically inadequate for use with black South Africans. Even the revised scale with an alpha of ,63 is very weak and the factor analysis indicates serious problems with the meaning of Rosenbaum's concepts of self control. It would be useful to have a South African version of the questionnaire.

The western understanding of self control as typified by the white group and outlined in the literature appears to be different to an African understanding. Our literature, presenting as it does, the western conceptualizations of self control would be enriched by the African understanding. Black university students have been identified as a group especially suited for research into the development of high

levels of self control. Phenomenological and quantitative studies of the backgrounds and experiences of high black scorers could reveal common factors useful in the development of self control generally or in the therapy situation. Self control can be taught and learnt. It plays a vital role in cognitive therapy. The more we know about it's nature and the process of it's development, the more effective we can be in therapy. In addition, the introduction of new ways of understanding self control would broaden the usefulness of cognitive therapy in South Africa. This area would also benefit from a South African version of the SCS.

The findings of higher levels of personal resourcefulness for blacks has implications for clinical practice in South Africa. It has been shown that patients entering cognitive therapy with relatively high SCS scores do better than patients with low SCS scores (Simons, 1985 and Rosenbaum, 1989). Blacks with high SCS scores might be particularly suitable for cognitive therapy. Strategies developed to cope with the disadvantages of a poor educational system, or poverty are available to solve other problems.

In summary, this study has shown that in South Africa, black

university students have higher levels of learned resourcefulness than do white university students. It has been shown that blacks in South Africa are prone to social desirability response set. A possible sample for future research into the development of high learned resourcefulness has been identified, the study of which would possibley enrich our understanding of the process of self control. Rosenbaum's Self Control Schedule has been shown to be a reliable and valid instrument in the South African context only for white South Africans. There is a need for the development of a Self Control Schedule based on Rosenbaum's concepts that can be used with black South Africans.

Appendix 1

THE SELF-CONTROL SCHEDULE

Directions: Please indicate how characteristic or descriptive each of the following statements is of you by using the code below.

+3 Very characteristic of me, extremely descriptive
+2 Rather characteristic of me, quite descriptive
+1 Somewhat characteristic of me, slightly descriptive
-1 Somewhat uncharacteristic of me, slightly undescriptive
-2 Rather uncharacteristic of me, quite undescriptive
-3 Very uncharacteristic of me, extremely undescriptive

For each statement record your response by writing the appropriate number (with its + or - sign) in the box next to it.

==========

1. When I do a boring job, I think about the less boring parts of the job and the reward that I will receive once I am finished.

2. When I have to do something that is anxiety arousing for me, I try to visualise how I will overcome my anxieties while doing it.

3. Often by changing my way of thinking I am able to change my feelings about almost everything.

4. I often find it difficult to overcome my feelings of nervousness and tension without any outside help.

5. When I am feeling depressed I try to think about pleasant events.

6. I cannot avoid thinking about mistakes I have made in the past.

+3 Very characteristic of me, extremely descriptive
+2 Rather characteristic of me, quite descriptive
+1 Somewhat characteristic of me, slightly descriptive
-1 Somewhat uncharacteristic of me, slightly undescriptive
-2 Rather uncharacteristic of me, quite undescriptive
-3 Very uncharacteristic of me, extremely undescriptive

7. When I am faced with a difficult problem, I try to approach its solution in a systematic way.

8. I usually do my duties quicker when somebody is pressuring me.

9. When I am faced with a difficult decision, I prefer to postpone making a decision even if all the facts are at my disposal.

10. When I find that I have difficulties in concentrating on my reading, I look for ways to increase my concentration.

11. When I plan to work, I remove all the things that are not relevant to my work.

12. When I try to get rid of a bad habit, I first try to find out all the factors that maintain this habit.

13. When an unpleasant thought is bothering me, I try to think about something pleasant.

14. If I smoked two packages of cigarettes a day, I would probably need outside hekp to stop smoking.

15. When I am in a low mood, I try to act cheerful so my mood will change.

16. If I had the pills with me, I would take a tranquilizer if I felt tense and nervous.

17. When I am depressed, I try to keep myself busy with things that I like.

18. I tend to postpone unpleasant duties even if I could perform them immediately.

+3 Very characteristic of me, extremely descriptive
+2 Rather characteristic of me, quite descriptive
+1 Somewhat characteristic of me, slightly descriptive
-1 Somewhat uncharacteristic of me, slightly undescriptive
-2 Rather uncharacteristic of me, quite undescriptive
-3 Very uncharacteristic of me, extremely undescriptive

19. I need outside help to get rid of some of my bad habits.

20. When I find it difficult to settle down and do a certain job, I look for ways to help me settle down.

21. Although it makes me feel bad, I cannot avoid thinking about all kinds of possible catastrophes in the future.

22. First of all I prefer to finish a job that I have to do and then start doing the things that I really like.

23. When I feel pain in a certain part of my body, I try not to think about it.

24. My self-esteem increases once I am able to overcome a bad habit.

25. In order to overcome bad feelings that accompany failure, I often tell myself that it is not so catastrophic and that I can do something about it.

26. When I feel that I am too impulsive, I tell myself "stop and think before you do anything".

27. Even when I am terribly angry at somebody, I consider my actions very carefully.

28. Facing the need to make a decision, I usually find out all the possible alternatives instead of deciding quickly and spontaneously.

29. Usually I do first the things that I really like to do even if there are more urgent things to do.

30. When I realise that I cannot help but be late for an important meeting, I tell myself to keep calm.

+3 Very characteristic of me, extremely descriptive
+2 Rather characteristic of me, quite descriptive
+1 Somewhat characteristic of me, slightly descriptive
-1 Somewhat uncharacteristic of me, slightly undescriptive
-2 Rather uncharacteristic of me, quite undescriptive
-3 Very uncharacteristic of me, extremely undescriptive

31. When I feel pain in my body, I try to divert my thoughts from it.

32. I usually plan my work when faced with a number of things to do.

33. When I am short of money, I decide to record all my expenses in order to plan more carefully for the future.

34. If I find it difficult to concentrate on a certain job, I divide the job into smaller segments.

35. Quite often I cannot overcome unpleasant thoughts that bother me.

36. Once I am hungry and unable to eat, I divert my thoughts away from my stomach or try to imagine that I am satisfied.

Appendix 2

PILOT STUDY QUESTIONNAIRE

August 11, 1987

Dear Student,

This questionnaire is part of a pilot study for research on self-control. I am trying the questionnaire out first on a few students in order to sort out any problems that might effect the main research project.

Participation is obviously voluntary, but it would really help if you would fill in your answers as carefully and honestly as poasible and return the questionnair. You can be sure that your questionnaire will be kept quite confidential and I shall be happy to discuss any problems you might have had with it.

Thanks,

Susan Riordan

SELF CONTROL RESEARCH PROJECT

1. Code number [ ][ ][ ][ ]

2. Sex 1 Male
2 Female [ ]

3. Race 1 Black 2 Chinese
3 Coloured 4 Indian
5 White 6 Other [ ]

4. First language 1 Afrikans 2 English
3 Sotho 4 Xhosa
5 Zulu 6 Other [ ]

5. Age in years [ ][ ]

6. Today's date [ ][ ][ ][ ][ ][ ]

7. Majors 1._____
2._____

Other subjects 1._____
2._____
3._____

8. Name _____

9. Race of administrator 1 Black 2 Chinese
2 Coloured 4 Indian
5 White Other [ ]

THE SELF-CONTROL SCHEDULE

Directions: Please indicate how characteristic or descriptive each of the following statements is of you by using the code below.

+3 Very characteristic of me, extremely descriptive
+2 Rather characteristic of me, quite descriptive
+1 Somewhat characteristic of me, slightly descriptive
-1 Somewhat uncharacteristic of me, slightly undescriptive
-2 Rather uncharacteristic of me, quite undescriptive
-3 Very uncharacteristic of me, extremely undescriptive

For each statement record your response by writing the appropriate number (with its + or - sign) in the box next to it.

==========

1. When I do a boring job, I think about the less boring parts of the job and the reward that I will receive once I am finished.

2. When I have to do something that is anxiety arousing for me, I try to visualise how I will overcome my anxieties while doing it.

3. Often by changing my way of thinking I am able to change my feelings about almost everything.

4. I often find it difficult to overcome my feelings of nervousness and tension without any outside help.

5. When I am feeling depressed I try to think about pleasant events.

6. I cannot avoid thinking about mistakes I have made in the past.

7. When I am faced with a difficult problem, I try to approach its solution in a systematic way.

8. I usually do my duties quicker when somebody is pressuring me.

+3 Very characteristic of me, extremely descriptive
+2 Rather characteristic of me, quite descriptive
+1 Somewhat characteristic of me, slightly descriptive
-1 Somewhat uncharacteristic of me, slightly undescriptive
-2 Rather uncharacteristic of me, quite undescriptive
-3 Very uncharacteristic of me, extremely undescriptive

9. When I am faced with a difficult decision, I prefer to postpone making a decision even if all the facts are at my disposal.

10. When I find that I have difficulties in concentrating on my reading, I look for ways to increase my concentration.

11. When I plan to work, I remove all the things that are not relevant to my work.

12. When I try to get rid of a bad habit, I first try to find out all the factors that maintain this habit.

13. When an unpleasant thought is bothering me, I try to think about something pleasant.

14. If I smoked two packages of cigarettes a day, I would probably need outside hekp to stop smoking.

15. When I am in a low mood, I try to act cheerful so my mood will change.

16. If I had the pills with me, I would take a tranquilizer if I felt tense and nervous.

17. When I am depressed, I try to keep myself busy with things that I like.

18. I tend to postpone unpleasant duties even if I could perform them immediately.

19. I need outside help to get rid of some of my bad habits.

20. When I find it difficult to settle down and do a certain job, I look for ways to help me settle down.

+3 Very characteristic of me, extremely descriptive
+2 Rather characteristic of me, quite descriptive
+1 Somewhat characteristic of me, slightly descriptive
-1 Somewhat uncharacteristic of me, slightly undescriptive
-2 Rather uncharacteristic of me, quite undescriptive
-3 Very uncharacteristic of me, extremely undescriptive

21. Although it makes me feel bad, I cannot avoid thinking about all kinds of possible catastrophes in the future.

22. First of all I prefer to finish a job that I have to do and then start doing the things that I really like.

23. When I feel pain in a certain part of my body, I try not to think about it.

24. My self-esteem increases once I am able to overcome a bad habit.

25. In order to overcome bad feelings that accompany failure, I often tell myself that it is not so catastrophic and that I can do something about it.

26. When I feel that I am too impulsive, I tell myself "stop and think before you do anything".

27. Even when I am terribly angry at somebody, I consider my actions very carefully.

28. Facing the need to make a decision, I usually find out all the possible alternatives instead of deciding quickly and spontaneously.

29. Usually I do first the things that I really like to do even if there are more urgent things to do.

30. When I realise that I cannot help but be late for an important meeting, I tell myself to keep calm.

31. When I feel pain in my body, I try to divert my thoughts from it.

32. I usually plan my work when faced with a number of things to do.

+3 Very characteristic of me, extremely descriptive
+2 Rather characteristic of me, quite descriptive
+1 Somewhat characteristic of me, slightly descriptive
-1 Somewhat uncharacteristic of me, slightly undescriptive
-2 Rather uncharacteristic of me, quite undescriptive
-3 Very uncharacteristic of me, extremely undescriptive

33. When I am short of money, I decide to record all my expenses in order to plan more carefully for the future.

34. If I find it difficult to concentrate on a certain job, I divide the job into smaller segments.

35. Quite often I cannot overcome unpleasant thoughts that bother me.

36. Once I am hungry and unable to eat, I divert my thoughts away from my stomach or try to imagine that I am satisfied.

DEBRIEFING

This section gives you an opportunity to give some feedback to the researcher about your experience in answering these questionnaires.

Use this scale to answer the questions below.

5 Yes, definately
4 Yes
3 Unsure/neutral
2 No
1 Definately not

1 I had difficulty with alot of the questions because I do not understand English so well.

2 There were too many questions and I found it hard to concentrate or got very bored.

3 I answered the questions carefully and honestly.

4 I did not always answer honestly because I was concerned about other people seeing my answers.

5 I found the questions too personal.

6 I found some of the questions threatening--they made me feel anxious or worried.

Please write any comments that you feel would help the researcher in the future.

Thank you for taking part. Your comments and feedback are valuable in helping to improve future research.

Appendix 3

STRUCTURED INTERVIEW SCHEDULE

1 What did you think when you were asked for "race of adminstrator"? _____

2 Do you think this item is confusing?_____

3 Have you any suggestions for improving it?_____

Scores

Go throug +3s. Ask where they learned to act in this way

eg. innate_____
upbringing home_____
school_____
example of significant other_____
bibliotherapy_____
dunno_____
other_____

N.B. Search for different interpretations/meanings of questions.

Test thesis that blacks who make it to Rhodes need extra self-control to overcome obstacles.

1 How did you manage to come to Rhodes? Would it have been easier to go to Fort Hare?_____
parental sacrifices_____
hard work_____
luck_____
taken for granted_____
other_____

2 What stood in the way of your going to university?
political situation_____
financial problems_____
poor educational opportunites_____
lack of self motivation_____
other_____

Test thesis that life themes are cognative structures whereby the solution to personal existential problems is suggested by parents through expectation of a sucessful career image.

1 What influenced you to choos a university education?

personal psychic crisis_____

self motivation_____

future rewards_____

parental pressure_____

other_____

2 Did your parents expect you to do well in school? What was their attitude toward school and school work? If you got a good or bad grade what was their response?

_____

_____

_____

_____

3 Did your parents ever say to you when you were little anything about what your future could or should be like? Did they have any image of you in the future?

_____

_____

_____

4 Did your parents ever read to you as a child? Tell you stories? Did you read more than the reading required at school?

_____

_____

_____

_____

Anonymity

Were you worried about anonymity and giving your name?

_____

Appendix 4

SOCIAL DESIRABILITY SCHEDULE

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to you personally. Enter a T (for true) or an F (for false) in the box provided.

1. Before voting I thoroughly investigate the qualifications of all the candidates.

2. I never hesitate to go out of my way to help someone in trouble.

3. It is sometimes hard for me to go on with my work if I am not encouraged.

4. I have never intensely disliked anyone.

5. On occasion I have had doubts about my ability to succeed in life.

6. I sometimes feel resentful when I don't get my way.

7. I am always careful about my manner of dress.

8. My table manners at home are as good as when I eat out in a restaurant.

9. If I could get into a movie without paying and be sure I was not seen I would probaby do it.

10. On a few occasions, I have given up doing something because I thought too little of my ability.

11. I like to gossip at times.

12. There have been times when I felt like rebelling against people in authority even though I knew they were right.

13. No matter who I'm talking to, I'm always a good listener.

14. I can remember "playing sick" to get out of something.

15. There have been occasions when I took advantage of someone.

16. I am always willing to admit it when I make a mistake.

17. I always try to practice what I preach.

18. I don't find it particularly difficult to get along with loud mouthed, obnoxious people.

19. I sometimes try to get even rather than forgive and forget.

20. When I don't know something I don't at all mind admitting it.

21. I am always courteous, even to people who are disagreeable.

22. At times I have really insisted on having things my own way.

23. There have been occasions when I felt like smashing things.

24. I would never think of letting someone else be punished for my wrong doings.

25. I have never been irked when people expressed ideas very different from my own.

26. There have been times when I was quite jealous of the good fortune of others.

27. I have almost never felt the urge to tell somone off.

28. I am sometimes irritated by people who ask favors of me.

29. I have never felt that I was punished without cause.

30. I sometimes think when people have a misfortune, they only got what they deserved.

31. I have never deliberately said something that hurt someone's feelings.

Appendix 5
ITEM ANALYSIS, WHITE RHODES SAMPLE

Number of cases = 221 Mean = 144,45
Number of items =36 Standard Deviation = 18,6826
Alpha = ,8361 (No response taken as missing information)

Item Statistics

Item	Response Mean	Response SD	Correlation
1	4,1946	1,2660	,4116
2	4,1946	1,2147	,4315
3	4,3258	1,3083	,3264
4	2,8507	1,5522	,3182
5	3,9636	1,4137	,3471
6	3,8190	1,4628	,2454
7	4,4932	1,1663	,4321
8	4,2579	1,4083	,2852
9	3,6063	1,5237	,3670
10	4,2000	1,2409	,4002
11	4,2091	1,3454	,3311
12	3,8045	1,3592	,3763
13	4,2636	1,3185	,3815
14	2,9587	1,7395	,2296
15	3,7182	1,5027	,3935
16	2,0812	1,4044	,3570
17	4,1955	1,3355	,4033
18	4,2000	1,3501	,3503
19	2,5409	1,3458	,3814
20	4,1227	1,1341	,3992
21	3,1591	1,6125	,1566
22	4,3470	1,3907	,5053
23	4,1324	1,2100	,3834
24	4,9409	,9844	,2777
25	4,6500	1,1389	,4566
26	4,4817	1,2114	,5131
27	4,1881	1,5229	,4269
28	4,3257	1,3231	,2854
29	3,6514	1,3804	,3535
30	4,2477	1,3244	,3619
31	4,0968	1,2378	,4013
32	4,6820	1,0909	,4906
33	4,0092	1,4369	,3527
34	4,0138	1,1921	,3174
35	3,8433	1,3586	,2048
36	3,6544	1,3962	,3035

Appendix 6
ITEM ANALYSIS, BLACK FORT HARE SAMPLE

Number of cases = 99 Mean = 152,17
Number of items = 36 Standard Deviation = 12.6248
Alpha = ,5209 (No response taken as missing information)

Item Statistics

Item	Response Mean	Response SD	Correlation
1	4,5253	1,3197	,2095
2	4,7273	1,1590	,2599
3	4,1313	1,4959	,0717
4	3,2424	1,7029	,2872
5	4,6162	1,4265	,3335
6	4,2626	1,5687	,0626
7	5,1616	1,1131	,1875
8	3,5455	1,7686	,3602
9	2,7879	1,5797	,4141
10	4,9697	1,4247	,4451
11	4,9394	1,3539	,2305
12	4,8788	1,2639	,3153
13	4,6465	1,3937	,2052
14	3,5455	2,2678	,3144
15	4,3131	1,3601	,5519
16	2,8384	1,6885	,2777
17	4,7576	1,2943	,2324
18	3,1919	1,5693	,2226
19	3,7172	1,8297	,1211
20	4,7677	1,2191	,1664
21	4,2727	1,3984	,1952
22	4,8990	1,2163	,4204
23	3,4242	1,6481	,1254
24	4,8384	1,2992	,2338
25	4,1919	1,3974	,4123
26	4,7980	1,1692	,3280
27	4,6667	1,3171	,4717
28	4,5455	1,3944	,2166
29	3,0505	1,5996	,3107
30	4,2929	1,4863	,0364
31	3,6566	1,6852	-,0293
32	5,0303	1,2734	,1704
33	4,5455	1,4234	,2094
34	4,6364	1,3810	,1154
35	3,4747	1,6372	,2330
36	3,1414	1,6226	,0217

Appendix 7
ITEM ANALYSIS, BLACK FORT HARE SAMPLE - NEW SCALE

Number of cases = 99 Mean = 129,07
Number of items = 36 Standard Deviation = 12,4526
Alpha = ,6318 (No response taken as missing information)

Item Statistics

Item	Response Mean	Response SD	Correlation
1	4,5253	1,3197	,2473
2	4,7273	1,1590	,3004
3	4,1313	1,4939	,0291
4	3,2424	1,7029	,2915
5	4,6162	1,4265	,3468
6	4,2626	1,5687	,0539
7	5,1616	1,1131	,2053
8	3,5455	1,7686	,3001
9	2,7879	1,5797	,4760
10	4,9697	1,4247	,4867
11	4,9394	1,3539	,2744
12	4,8788	1,2639	,3539
13	4,6465	1,3947	,2012
14	3,5455	2,1678	,2082
15	4,3131	1,3601	,5323
16	2,8384	1,6885	,2916
17	4,7576	1,2943	,2524
18	3,1919	1,5693	,2466
19	3,7172	1,8297	,0170
20	4,7677	1,2191	,1913
21	4,2727	1,3984	-,0785
22	4,8990	1,2163	,4417
23	3,4242	1,6481	-,0711
24	4,8384	1,2992	,2770
25	4,1919	1,3974	,3845
26	4,7980	1,1692	,3528
27	4,6667	1,3171	,4886
28	4,5455	1,3944	,3080
29	3,0505	1,5996	,3050
30	4,2929	1,4863	,0391
31	3,6566	1,6852	-,2065
32	5,0303	1,2734	,2392
33	4,5455	1,4234	,2413
34	4,6364	1,3810	,2187
35	3,4747	1,6372	,2759
36	3,1414	1,6226	-,0803

FACTOR ANALYSIS, WHITE RHODES SAMPLE

Sorted Rotated Factor Loadings

Factors	1	2	3	4	5	6	7	8
Question								
29	0,762	0.000	0.000	0,000	0,000	0,000	0,000	0,000
18	0,670	0,000	0,000	0,000	0,000	0,000	0,000	0,000
22	-0,667	0,000	0,000	0,000	0,000	0,000	0,000	0,000
11	-0,529	0,000	0,000	0,000	0,000	0,000	0,000	0,251
15	0,000	0,777	0,000	0,000	0,000	0,000	0,000	0,000
17	0,000	0,693	0,000	0,000	0,000	0,000	0,000	0,000
5	0,000	0,601	0,000	0,000	0,297	0,349	0,000	0,000
6	0,000	0,000	0,722	0,000	0,000	0,000	0,000	0,000
21	0,000	0,000	0,695	0,000	0,000	0,000	0,000	0,000
4	0,000	0,000	0,595	0,000	0,000	0,370	0,000	0,000
31	0,000	0,000	0,000	0,901	0,000	0,000	0,000	0,000
23	0,000	0,000	0,000	0,881	0,000	0,000	0,000	0,000
36	0,000	0,000	0,000	0,000	0,692	0,000	0,000	0,000
33	0,000	0,000	0,000	0,000	0,516	0,000	0,000	0,000
12	0,000	0,000	0,000	0,000	0,501	0,328	0,000	0,000
2	0,000	0,000	0,000	0,000	0,000	0,689	0,300	0,000
1	0,000	0,000	0,000	0,000	0,000	0,686	0,000	0,000
27	0,000	0,000	0,000	0,000	0,000	0,000	0,836	0,000
28	0,000	0,000	0,000	0,000	0,000	0,257	0,648	0,000
14	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,828
19	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,701
8	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
30	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
16	0,000	0,000	0,353	0,000	0,000	0,000	0,000	0,000
3	0,000	0,000	0,258	0,000	0,000	0,000	0,000	0,000
25	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
24	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
9	0,000	0,000	0,307	0,000	0,000	0,000	0,000	0,000
26	-0,280	0,000	0,000	0,000	0,000	0,000	0,442	0,000
7	-0,347	0,000	0,000	0,000	0,000	0,359	0,271	0,000
10	-0,490	0,000	0,000	0,000	0,299	0,289	0,000	0,000
32	0,000	0,000	0,000	0,000	0,445	0,000	0,000	0,000
20	-0,344	0,349	0,000	0,000	0,000	0,000	0,000	0,000
34	0,000	0,000	0,000	0,000	0,431	0,360	0,000	0,000
35	0,289	-0,274	0,448	0,000	0,000	0,000	0,000	0,000
13	0,000	0,423	0,000	0,000	0,496	0,361	0,000	0,000

Factors	9	10	11	12
Question				
29	0,000	0,000	0,000	0,000
18	0,000	0,000	0,000	0,000
22	0,000	0,000	0,000	0,000
11	0,000	0,000	0,000	-0,340
15	0,000	0,000	0,000	0,000
17	0,000	0,000	0,000	-0,293
5	0,000	0,000	0,000	0,000
6	0,000	0,000	0,000	0,000
21	-0,304	0,000	0,000	0,000
4	0,000	0,000	0,000	0,000
31	0,000	0,000	0,000	0,000
23	0,000	0,000	0,000	0,000
36	0,000	0,000	-0,314	0,000
33	0,000	0,000	0,000	0,000
12	0,000	0,000	0,000	0,000
2	0,274	0,000	0,000	0,000
1	0,000	0,000	0,000	0,000
27	0,000	0,000	0,000	0,000
28	0,000	0,000	0,000	0,000
14	0,000	0,000	0,000	0,000
19	0,000	0,000	0,000	0,000
8	0,711	0,000	0,000	0,000
30	0,571	0,000	-0,400	0,000
16	0,000	-0,680	0,000	0,000
3	0,000	0,578	0,000	0,000
25	0,420	0,538	0,000	0,000
24	0,000	0,000	0,793	0,000
9	0,000	0,000	0,000	0,529
26	0,000	0,000	0,000	0,437
7	0,000	0,279	0,000	0,000
10	0,000	0,000	0,000	0,000
32	0,000	0,000	0,439	-0,377
20	0,258	0,000	0,354	0,000
34	0,000	0,339	0,000	0,000
35	0,000	0,000	0,000	0,000
13	0,000	0,000	0,000	0,296

The obove factor loading matrix has been rearranged so that the columns appear in decreasing order of variance explained by factors. The rows have been rearranged so that for each successive factor, loadings greater than ,5000 appear first. Loadings less than ,2500 have been replaced by zero.

Appendix 9
FACTOR ANALYSIS, BLACK FORT HARE SAMPLE

Sorted Rotated Factor Loadings

Factors	1	2	3	4	5	6	7	8
Question								
12	0,683	0,000	0,000	0,000	0,000	-0,343	0,000	0,000
10	0,664	0,000	0,000	0,000	0,000	0,000	0,000	0,000
33	0,656	0,000	0,000	0,000	0,000	0,000	0,000	0,000
15	0,642	0,000	0,000	0,000	0,000	0,000	0,000	0,000
31	0,000	0,811	0,000	0,000	0,000	0,000	0,000	0,000
35	0,000	0,667	0,000	0,000	0,000	0,000	0,000	0,000
23	0,348	0,591	0,000	0,000	0,000	0,296	0,000	0,000
16	0,000	0,540	0,000	0,000	0,000	0,000	0,291	0,000
4	0,000	0,000	0,697	0,000	0,000	0,000	0,321	0,000
32	0,000	0,000	0,619	0,000	-0,280	0,000	0,000	0,000
21	0,000	0,000	0,509	0,000	0,000	0,000	0,000	0,356
26	0,000	0,000	0,000	0,780	0,000	0,000	0,000	0,000
27	0,000	0,000	0,000	0,699	-0,260	0,000	0,000	0,000
17	0,000	0,000	0,000	0,592	0,000	0,000	0,000	0,000
7	0,000	0,000	0,000	0,000	-0,802	0,000	0,000	0,000
29	0,000	0,000	0,000	0,000	0,760	0,000	0,000	0,000
13	0,326	0,000	0,325	0,000	0,505	0,000	0,000	-0,303
36	0,000	0,000	0,000	0,000	0,000	0,754	0,000	0,000
18	0,000	0,000	0,000	0,000	0,000	0,733	0,000	0,000
3	0,000	0,000	0,000	0,000	0,000	0,000	0,785	0,000
11	0,000	0,000	0,000	0,000	0,000	0,000	-0,630	0,337
34	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,807
1	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
25	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
28	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
5	0,314	0,000	0,000	0,000	0,000	0,000	0,000	0,000
30	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
24	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
9	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
14	0,000	0,000	0,336	-0,336	0,000	0,000	0,000	0,273
8	0,000	0,000	0,481	0,000	0,000	0,000	0,000	0,000
2	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
20	0,000	0,447	0,000	0,000	0,000	-0,318	0,000	0,000
22	0,000	0,000	0,000	0,415	0,000	0,000	0,000	0,000
6	0,000	0,000	0,251	0,299	0,000	0,000	0,412	0,490
19	0,446	0,000	0,000	0,000	0,000	0,000	0,418	0,273

Factor	9	10	11	12	13	14
Question						
12	0,000	0,000	0,000	0,000	0,000	0,000
10	0,000	0,000	0,000	0,000	0,000	0,000
33	0,000	0,000	0,000	0,000	0,000	0,000
15	0,341	0,000	0,000	0,000	0,000	0,000
31	0,000	0,000	0,000	0,000	0,000	-0,257
23	0,000	0,000	0,000	0,000	0,000	0,000
16	0,000	0,000	0,267	0,000	0,000	0,000
4	0,000	0,000	0,000	0,000	0,000	0,253
32	0,000	0,000	0,000	0,000	0,000	0,000
21	0,000	0,000	0,000	0,321	-0,259	0,000
26	0,000	0,000	0,000	0,000	0,000	0,000
27	0,000	0,000	0,000	0,000	0,000	0,000
17	0,435	0,000	0,000	0,000	0,000	0,000
7	0,000	0,000	0,000	0,000	0,000	0,000
29	0,000	0,000	0,000	0,000	0,000	0,000
13	0,000	0,000	0,000	0,000	0,000	-0,279
36	0,000	0,000	0,000	0,000	0,000	0,000
18	0,000	0,000	0,000	0,000	0,000	0,274
3	0,000	0,000	0,000	0,000	0,000	0,000
11	0,000	0,000	0,000	-0,287	0,000	0,000
34	0,000	0,000	0,000	0,000	0,000	0,000
1	0,855	0,000	0,000	0,000	0,000	0,000
25	0,000	0,794	0,000	0,000	0,000	0,000
28	0,000	0,000	0,808	0,000	0,000	0,000
5	-0,306	0,000	0,503	-0,321	0,000	0,000
30	0,000	0,000	0,000	0,835	0,000	0,000
24	0,000	0,000	0,000	0,000	0,804	0,000
9	0,000	0,000	0,000	0,000	0,000	0,810
14	0,000	0,000	0,000	0,310	0,000	0,000
8	0,396	-0,438	0,000	0,329	0,000	0,000
2	0,380	0,496	0,387	0,000	0,000	0,000
20	0,000	0,000	0,267	0,000	0,268	0,000
22	0,000	0,268	0,000	0,325	0,456	0,000
6	0,000	0,000	0,000	0,000	0,000	0,000
19	0,000	-0,269	0,278	0,000	0,000	0,000

The above factor loading matrix has been rearranged so that the columns appear in decreasing order of variance explained by factors. The rows have been rearranged so that for each successive factor, loadings greater than ,5000 appear first. Loadings less than .2500 have been replaced by zero.

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