

**UNDERSTANDING THE MEDIATION OF PAIN IN THE
EXPERIENCE OF COMPETITIVE ROWING:
A RORSCHACH STUDY**

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ABSTRACT

The staff at the High Performance Centre requested that a study to be conducted that would use the Rorschach Inkblot Test to assess fifteen members (mean age 23.60 years) of the male rowing team. The central research problem pertains to an investigation into the rower's unique perceptions of pain and its link to performance. Sport and pain have a varied and complex relationship. Athletes have to undergo certain amounts of discomfort in order to reach specific goals while training. Pushing the body to its limits is an important factor of the training process and can often lead to painful sensations. The sporting context often encourages athletes to define what can be considered an unhealthy attribute as part of the self. The rowers as well as the training staff have noticed that the athletes themselves view the pain encountered in the sporting environment as an indicator of performance. This specific study was able to help both the rowers and the training staff at the High Performance Centre to better understand the role that pain is playing within the rowers and

its impact on their performance. The Rorschach Inkblot Test was used as the measurement instrument in an attempt to gain insight into the specific way these athletes cognitively mediate information regarding pain. The Rorschach protocols were administered; coded and interpreted using the Comprehensive System developed by John Exner. The Rorschach played an important role in uncovering specific findings and explored certain commonalities that arose within the sample in relation to the rower's cognitive mediational processes. The results indicated that mediation among the target group of rowers was found to be generally adequate, however on instances unusual forms of mediation became apparent. A misinterpretation of pain does not occur, due to the presence of an avoidant style the affective nature of pain is blocked and therefore cannot impact the rowers negatively.

Keywords: Cognitive Triad, Comprehensive System, Exner, Form Quality, Lambda, Mediation, Pain, Sport, Rorschach, Rowing.

TABLE OF CONTENTS

	Page
ABSTRACT	
CHAPTER ONE: INTRODUCTION TO THE STUDY	
1.1. Rationale for Research	1
1.2. The Research Question	2
1.3. Justifications, Aims and Objectives of the Study	3
1.4. Structure of the Research Report	4
CHAPTER TWO: PAIN AND ROWING	
2.1. Introduction	5
2.2. Definition	5
2.2.1. Biological Factors	6
2.2.2. Psychological Factors	7
2.3. Types of Pain	8
2.3.1. Exertion Pain	8
2.3.2. Injury Pain	9
2.3.3. Positive Pain	9
2.4. Theories of Pain	9
2.4.1. The Gate Control Theory of Pain	10
2.5. The Role of Pain	12
2.5.1. Pain in Everyday Life	12
2.5.2. Pain in the Sporting Context	13
2.6. Pain Tolerance	14
2.7. Utilization of Pain	15

2.8. The Painless Zone	16
2.9. Memory and Pain	17
2.10. The Psychological Management of Pain	18
2.10.1. Cognitive Strategies	18
2.10.1.1. Imagery	18
2.10.1.2. Focus	19
2.11. The Role of Social Science in Sport	20
2.12. Conclusion	21

CHAPTER THREE: THE RORSCHACH METHOD: A THEORETICAL OVERVIEW

3.1. Introduction	23
3.2. The Rorschach	23
3.3. The Comprehensive System	24
3.4. Approach to Analysis	25
3.5. Rorschach Clusters	26
3.5.1. The Cognitive Triad	26
3.5.2. Cognitive Mediation	27
3.5.3. Mediation Variables	28
3.6. Sequential Search Strategy	28
3.7. Conclusion	30

CHAPTER FOUR: METHODOLOGY

4.1. Introduction	31
4.2. Participants	31
4.2.1. Selection Criteria	31

4.2.2. Demographic Variables	32
4.3. Data Collection Procedures	35
4.3.1. Data Collection Location	35
4.3.2. Rorschach Method	35
4.4. Data Analysis	37
4.5. Ethical Considerations	38
4.6. Conclusion	39

CHAPTER FIVE: RESULTS

5.1. Introduction	40
5.2. Mediation Cluster	40
5.2.1. Description	40
5.2.2. Mediation Variables	41
5.3. Mediation Variables Results	42
5.4. Descriptive Statistics for Sample	43
5.5. Mediation Prerequisites	44
5.5.1. Number of Responses (R)	44
5.5.1.1. Description	44
5.5.1.2. Data	45
5.5.2. Lambda (L)	45
5.5.2.1. Description	45
5.5.2.2. Data	46
5.5.3. Obsessive Style Index (OBS)	47
5.5.3.1. Description	47
5.5.3.2. Data	47
5.6. Mediation Cluster Variables	48
5.6.1. XA% and WDA%	48
5.6.1.1. Description	48

5.6.1.2. Data	48
5.6.2. FQ none	50
5.6.2.1. Description	50
5.6.2.2. Data	50
5.6.3. X-%	50
5.6.3.1. Description	50
5.6.3.2. Data	51
5.6.4. FQ- frequency	52
5.6.4.1. Description	52
5.6.4.2. Data	53
5.6.5. S- frequency	54
5.6.5.1. Description	54
5.6.5.2. Data	54
5.6.6. Popular (P)	55
5.6.6.1. Description	55
5.6.6.2. Data	55
5.6.7. FQ+	56
5.6.7.1. Description	56
5.6.7.2. Data	57
5.6.8. X+%	57
5.6.8.1. Description	57
5.6.8.2. Data	58
5.6.9. Xu%	58
5.6.9.1. Description	58
5.6.9.2. Data	59
5.6.10. Relationship between X+%, X-%, Xu% and S-%	60
5.7. Other Variables of Interest	61
5.7.1. Erlebnistypus (EB) and Experience Actual (EA)	61
5.7.2. The D and Adjusted D Score	62
5.7.3. Reflections and the Egocentricity Index	62

CHAPTER ONE

INTRODUCTION TO THE STUDY

Pain as a sensation is clearly linked to consciousness. One can be extremely happy or peacefully asleep, but it is pain that epitomizes awareness. Being painfully aware is the complete opposite of being blissfully unaware, but painful unawareness is a contradiction in terms. Pain is experienced at the beginning of human life and is usually the last sensation felt by human beings (Harth, 1982).

1.1. RATIONALE FOR RESEARCH

This research was undertaken in response to a request from The High Performance Centre. They requested that a study be conducted concerning the experience and meaning of pain within the rowing team. This request stemmed from an observation by the training staff, and the rowers themselves, that during training and competitive events the rowers use pain as an indicator of success. That is, the rowers use the sensation of pain as a way in which to measure the success of their training or their level of exertion.

The High Performance Centre is an institution that aims to train athletes from a young age to succeed as professional sportsmen or woman. Therefore, they are interested in research that increases their understanding of various aspects of functioning at play within the sporting context. The High Performance Centre asked that this research be conducted in an attempt to gain a better understanding of how the athletes function psychologically in relation to the experience of pain. The High Performance Centre has extensive research on the physical aspects of pain and its impact on the athlete, but little research exists on the psychological aspects of pain and its related processes.

Within this research report the way that the rowers experience the sensation of pain will be linked to the specific way in which these endurance athletes mediate information around the pain, and around performance in the sporting arena.

The Rorschach will be used as the measurement instrument in this study. The Rorschach will provide insight into the specific way these athletes cognitively mediate information regarding the experience of pain. This specific study explores the manner in which a group of rowers mediate the information on offer to them in the athletic environment. The study begins with the hypothesis that endurance athletes, especially rowers, will mediate information in a certain manner, and that this mediation style will affect the athlete's perception of physiological pain.

1.2. THE RESEARCH QUESTION

How do rowers mediate information regarding the experience of pain in the sporting environment? The study will aim to answer this question through the use of the Rorschach Inkblot test (also known as the Rorschach). After the administration of the Rorschach to the rowers the protocols will be coded, scored and interpreted according to the Comprehensive System (designed by Exner, described in detail later in this research report). The data obtained from the mediation cluster will be interpreted and linked to the way in which the rowers are mediating pain within the sporting environment. Thus, the study attempts to provide a better understanding of how pain is used by the rowers in the sporting environment.

1.3. JUSTIFICATION, AIMS AND OBJECTIVES OF THE STUDY

The training staff of the High Performance Centre requested the assistance of Dr Maurice Aronstam at the University of Pretoria in understanding the rowers experience of pain in the sporting arena. The initial concept was to conduct a study that would use the Rorschach to assess the members of the rowing team. The central research problem pertains to an investigation into the rower's unique perceptions around pain and its link to performance.

This specific study will assist both the rowers and the trainers at the High Performance Centre in their understanding of the rower's experience of pain. The multi-disciplinary team at the High Performance Centre will be able to understand the role that pain plays within the psychological functioning of the rowers and its impact on their performance.

The role of the High Performance Centre is to maximize the performance of athletes through the use of different techniques, both physiologically and psychologically. Through this study the High Performance Centre will gain a better psychological understanding of the athlete's cognitive mediational processes. The High Performance Centre currently selects their athletes purely on the athlete's physiological profile. This study may be able to give rise to information regarding the psychological makeup of these athletes. In the future, along with other research, this information may help to select the athletes based on both physiological and psychological criteria.

My personal motivation for this study lies in my interest and passion for sport; this can be linked to my admiration and fascination with the Rorschach. When Dr Aronstam approached me and asked if I was interested in taking part in the study, I immediately accepted his offer. My mentor always told me that one should only embark on research which one is interested in. My interest in this topic has acted as my driving force which has helped me to successfully complete the research study.

1.4. THE STRUCTURE OF THE RESEARCH REPORT

The research report begins with an in-depth literature study that has been divided into two chapters. Chapter two is a theoretical explanation of the nature and role of pain in its various forms. Chapter three is dedicated to an explanation of the Rorschach Inkblot Test. Exner's Comprehensive System is discussed and the mediation cluster in particular is described in detail.

Chapter four addresses the methodology of the study. Information regarding the selection of participants and the demographic variables of the study are discussed. The data collection procedures of the Rorschach are described. The data analysis program utilized, the Rorschach Interpretation Assistance Program (RIAP), will be discussed as well the method of interpretation utilised. The manner in which data analysis was conducted, and the method followed in the analysis are also described in the methodology chapter. Issues related to ethical consideration are discussed at the end of the chapter.

The results obtained from the sample are discussed in chapter five. The chapter is structured in such a manner that each variable that forms part of the mediation cluster is discussed individually. The sample mean for each specific variable, as well as the range of these variables are discussed and interpreted with regards to all mediation variables.

The final chapter comprises of a discussion of the results, and recommendations based on the findings of the study. This chapter firstly addresses the findings of the Lambda, followed by the mediation cluster findings in relation to the sample. The findings are linked to the athlete's perception of pain within the sporting environment. The rationale for structuring the chapter in this manner was to begin with the actual finding of the sample in relation to mediation. This would be followed by a discussion on how these finding were in fact impacting these rowers perception of pain in their sporting environment. The benefits of the actual study are discussed and followed by recommendations that might be of significance to future research.

CHAPTER TWO

PAIN AND ROWING

2.1. INTRODUCTION

Pain as a sensation is clearly linked to consciousness. One can be extremely happy or peacefully asleep, but pain is the sensation that epitomizes awareness. Being painfully aware is the complete opposite of being blissfully unaware, but painful unawareness is a contradiction of terms. Pain is experienced at the beginning of human life and, is usually the last sensation felt by human beings (Harth, 1982).

Rowing is seen as a strength based endurance sport where pain plays an important role. The literature describes the sport of rowing as an internally focused sport where individual balance, timing and movement are of extreme importance. The sport of rowing has a variety of disciplines and formats. The rowers may take part in individual or team events. The sport combines physical power, aerobic power, anaerobic power, mental toughness and rowing technique, which need to work in harmony if the athlete wishes to be successful. Pain is an ever present sensation for rowers and forms an integral part of the sport (Jarek, Jaak, & Toivo, 2005).

2.2. DEFINITION

Pain in its most basic form is described as the activation of specific nerve fibres that signal the occurrence of tissue damage. Cognitive, behavioural, and affective states often accompany the sensation of pain. Pain can influence thoughts, behaviour and feelings in a magnitude of ways. Pain in certain instances can be purely biological, but on occasions can have an emotional component. Psychological and cultural factors can strongly influence a person's experience of pain (Gurung, 2006).

Pain has been defined as both an unpleasant sensation and an emotional experience which is associated with potential or actual tissue damage, or is described in terms of such damage. Pain can be seen as being subjective, as an unquestionable sensation that is always unpleasant and hence can be seen as an emotional experience. In a contrast to most sensations, pain has a compelling quality. It advises us to protect our bodies from specific forms of harm, to take care of injuries and to preserve our lives (Skevington, 1995).

Pain can also be seen as an extremely complex phenomenon which is biological in nature. Many individuals consider pain unjustly in a purely negative light and therefore link it only with illness or damage. Within the sporting environment, pain becomes an expected and often unpopular companion of the competitive athlete (Prokop, 2000).

What all the above descriptions of pain have in common is an assertion that pain consists of two factors: the sensation and the person's reaction to that sensation. In this view, psychological factors and biological causes are of equal importance (Brannon & Feist, 2007).

2.2.1. Biological Factors

Pain is perceived, transmitted and sensed as a result of a distinctive part of the nervous system called the nociceptive system. The nociception process consists of different stages that are built on complex anatomical networks and chemical mediators. The stages are:

- Transduction: stimulus gets translated into electrical activities at the nerve endings.
- Transmission: within the sensory nervous system the transduced impulses are propagated.

- Modulation: a number of neural influences modify the nociceptive transmission.
- Perception: transduction, transmission and modulation result in the cognitive-emotional experience of pain (Pargman, 1999).

2.2.2. Psychological Factors

In the specific moment that pain is perceived, the nature of the pain becomes not just a physical sensation but a psychologically experienced phenomenon consisting of intrapsychic and social aspects. The initial perception of the pain leads to a psychologically motivated chain of events that are reactive in nature. These events, unlike the biologically driven nociceptive system, give meaning to the experience of the pain (Pargman, 1999).

A revised definition for pain was developed by the International Association for the Study of Pain. The definition was revised to include not only the biological nature of pain but also the psychological dimension of pain.

An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage. *Note:* Pain is always subjective. Each individual learns the application of the word through experiences related to injury in early life.... Many people report pain in the absence of tissue damage or any likely pathophysiological cause; usually this happens for psychological reasons. There is usually no way to distinguish their experience from that due to tissue damage if we take the subjective report. If they regard their experience as pain and if they report it in the same way as pain caused by tissue damage, it could be accepted as pain. This definition avoids tying the pain to the stimulus (International Association for the Study of Pain, 1979 cited in Kugelmann, 1998, p.194).

When the pain that is experienced by an individual is classified as being inappropriate or as having a negative connotation associated with it a strong psychological/emotional component can be introduced. This factor is also true for instances of positive association with pain. In the sporting arena these positive and negative connotations can have a distinctive influence on the athlete's performance over the long period of his/her career. The pain can sometimes stimulate the athlete to give a better performance than expected and therefore can lead to atypical emotions (i.e. positive emotions) that may enable the athlete to achieve greater success later in his/her career. This is however totally dependant on the athlete's unique personality structure and on the specific situation encountered (Prokop, 2000).

2.3. TYPES OF PAIN

Pain is undoubtedly seen as a qualitative experience and hence cannot be quantified. Within the sporting context pain is experienced in a variety of forms.

2.3.1. Exertion Pain

Exertion pain is often associated with sport and has been described as a pain that is of relatively short duration and that is voluntary in nature. The athlete is in control of the actions leading to the experience of pain. This type of pain can lead to the experience of positive emotions such as feelings of satisfaction, improved performance, a heightened sense of well being and increased self-efficacy. Exertion pain helps to facilitate the athlete's sporting efforts by reinforcing these efforts to aspire to higher achievements during training and competitions (Moore, 2007).

2.3.2. Injury Pain

Injury pain is seen as being negative and discouraging. It is seen as a risk to the physical well being and motivation of an athlete. Injury pain tends to lead to a loss in self confidence and motivation; it increases anxiety and can lead to increased fear of the sporting context (Moore, 2007).

2.3.3. Positive Pain

Although pain is usually seen as something that is intrinsically aversive, it can be perceived positively. Pain has been described by athletes as a source of satisfaction and inspiration. The pain leads to positive emotions and thoughts that indicate effort and facilitate performance and sporting well being (Moore, 2007).

2.4. THEORIES OF PAIN

There exist two groups of theories on the biological mechanisms of pain. The first group is classed as classical theories of pain and is focused on one or two aspects of pain, mainly on less clinical and on more anatomical facts. The classical theories remain important due to the fact that they deal with issues surrounding sensory coding and the complexity of pain. The second group of theories attempts to combine neuroanatomical, physiological and clinical data into a comprehensive schema. It is in this schema that the specific mechanisms of pain are explicitly examined (Price, 1988).

Classical theories of pain include:

- Specificity Theory
- Pattern Theory
- Summation Theory
- Sensory Interaction Theory (Price, 1988).

The current theories of pain are:

- Parallel Processing Theory
- Sequential Processing Theory
- Gate Control Theory (Price, 1988).

For this specific study I have chosen the Gate Control Theory of pain to be the basic theoretical base for understanding pain. The reason for the choice is that the Gate Control Theory of pain has a direct link to psychological processes that take place in the presence of pain.

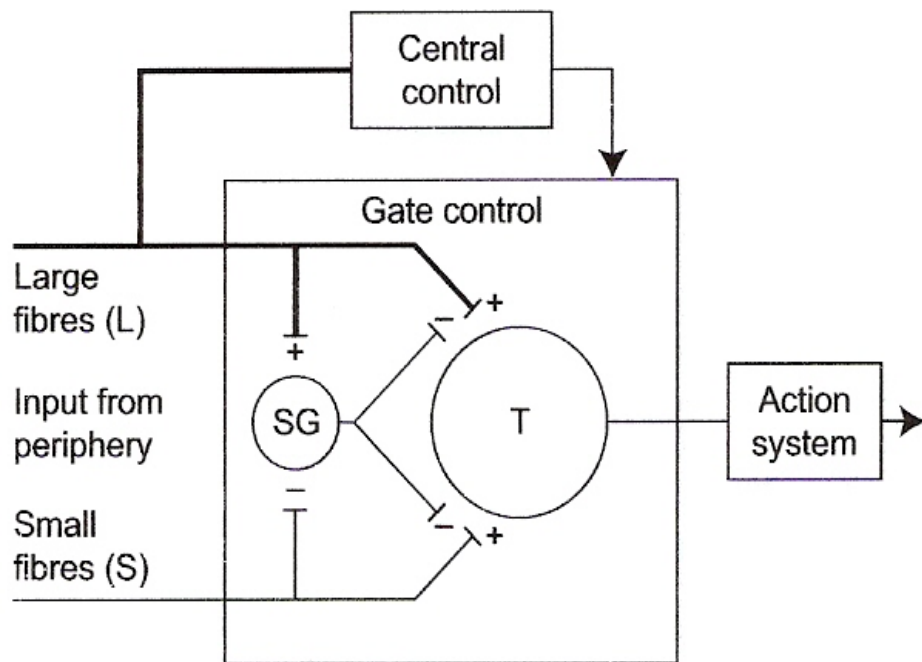
2.4.1. The Gate Control Theory of Pain

In 1965 Melzack and Wall developed a new theory related to the understanding of pain and its associated processes called the Gate Control Theory (GCT). According to the GCT pain occurs as a result of a complex interaction that takes place between afferent and efferent signals in the nervous system. These signals converge on the gate control mechanism of the spinal cord (Stam, 1998).

The main tenants of the Gate Control Theory are as follows:

- The transmission of nerve impulses from afferent fibres to the spinal cord transmission cells is controlled by a mechanism located in the dorsal horns known as the spinal gating mechanism.
- The relative amount of energy present in the large-diameter (L) and small-diameter fibres has a direct impact on the spinal gating mechanism. When energy or activity is present in the large fibres it tends to inhibit transmission or close the gate. The presence of activity in the small fibres facilitates transmission or opens the gate.

- The spinal gating mechanism is directly influenced by descending nerve impulses from the brain.
- The unique system consisting of large-diameter, rapidly conducting fibres, known as the control trigger, plays a role in the activation of selected cognitive processes that influence the modulating properties of the spinal gating mechanism.
- When the output of the spinal cord transmission cells (T) exceed a critical level the action system is activated. The action system is seen as the neural areas that form the basis of the sequential, complex patterns of behaviour and the experience characteristic of pain (Sternbach, 1986).



(Price, 1988, p. 217).

Psychological factors such as past experience, attention and emotions influence the way in which the pain is perceived and/or responded to. These psychological factors act on the gate control system along with the above mentioned afferent and efferent signals (Stam, 1998).

The GCT integrates the psychological and physiological aspects of pain. Although the GCT is a biologically based theory it acknowledges the role of three psychological dimensions:

- Sensory discrimination: this dimension involves the information that is concerned with the intensity and location of the relevant painful stimulus.
- Motivational affective: information about the aversive aspects of the painful stimulus is carried out by this dimension.
- Cognitive evaluation: in this dimension, mental evaluation of the pain stimulation is addressed (Whitmarsh & Alderman, 1993).

The GCT provided a new understanding for pain. Pain is seen as a process that can be depicted in diagrammatic form. Thus pain is seen as a technical process but the description includes psychological aspects.

2.5. THE ROLE OF PAIN

2.5.1. Pain in Everyday Life

Pain can be viewed as being both objective and subjective in nature. Each individual learns about pain through experiences linked to injuries or hurt occurring in early life. Pain plays the role of indicating when something is wrong inside the body. Pain can take many forms,

ranging from physical pain that is felt in body tissues to emotional pain that cannot be measured. The presence of pain involves both physiological and psychological aspects. Reactions to pain vary according to the role the pain plays at the specific moment it is encountered (Stam, 1998).

The earlier definitions of pain convey the idea that there exists a relationship between tissue damage and a certain level of unpleasant sensory or emotional experience. There exist two explanations surrounding the relationship that is apparent between the actual damage of tissue and the everyday biological function of pain. The first explanation sees pain as a warning device. In any form it is perceived as being unpleasant and harmful and therefore warning the biological body of danger. Secondly, pain can be seen as a mechanism designed for recuperative healing. The pain presents itself as an indicator that the body needs time to recuperate and heal some aspect that has been damaged or that has the potential for damage (Price, 1988).

2.5.2. Pain in the Sporting Context

Sport and pain have a varied and complex relationship. Athletes have to undergo certain amounts of discomfort in order to reach specific goals while training. Pushing the body to its limits is an important factor in the training process and can often lead to painful sensations (Hill, 2001).

Pain can have both a negative and positive influence on sport. Pain is seen as a symptom that the athlete cannot fail to perceive and is also unable to biologically ignore; which then serves as a warning device regarding actual or potential tissue damage. It is due to this biological nature of pain that decisive limits are enforced onto the athlete's capabilities to practice and perform at the highest level. The pain is not only seen as a pathological symptom but is furthermore perceived as a biological sensory instrument of vital importance (Prokop, 2000).

Athletes view pain differently to non-athletes. They view pain as something to be overcome rather than something to be feared. There exists a higher self-efficacy and greater perceived ability to manage pain among athletes. Athletes use a variety of cognitive coping strategies to deal with the experience of pain. The increased level of efficacy linked with the cognitive pain coping structures lead to a heightened level of pain manageability (Manning & Fillingim, 2002).

Pain and suffering are seen as private, internal events. Athletes can experience pain in a variety of ways. Certain athletes are extremely sensitive to pain while others seem to be able to block it out. Differences in body composition due to genetics can help to explain these variations. Reaction to pain can also be linked to previous experiences in similar conditions, due to learning about how one should respond to pain signals. For some athletes the pain is used as motivation and is therefore utilised by the athlete to reach his optimum level of achievement, while other athletes use the pain as an indication of fatigue (Singer, 1986).

2.6. PAIN TOLERANCE

The pain tolerance level represents the point at which the athlete will withdraw from unbearable pain. The pain can be tolerated until the athlete feels he cannot allow the painful sensation to continue (Skevington, 1995).

A routine aspect of sport performance for many athletes is the tolerance of pain. Pain and suffering are internal and private events that cannot be directly observed or assessed by clinicians. The ability to persevere in activities when fatigue and pain are present is of vital importance in the athletic environment. Internal psychological mechanisms and chemical substances restrict activity; it is therefore of importance to know the extent to which conscious psychological behaviour functions influence performance (Singer, 1975).

Suppression of fatigue and pain becomes of extreme importance as the activities demand greater effort or as the duration of the activities increase. Feelings of well being and a lack of pain during strenuous competitive situations have been reported by athletes, this may result in bodily injury as the body may be ignoring warning signals (Fobes, 1989).

The athlete's ability to tolerate pain is associated with the following variables:

- The expectation that pain can and will be tolerated;
- A strong goal orientation;
- A context characterised by survival;
- The ability to focus on the sport over the pain;
- The inherent assumption that the pain only has to be tolerated for a certain duration (Pargman, 1999).

In a study conducted by Ryan and Kovavic (1996) it was found that contact sport athletes were able to tolerate acute pain for longer periods of time than non-contact sport athletes. Both the groups of athletes, regardless of contact nature, were found to be able to tolerate more acute pain than non-athletes (Straub, Martin, Williams, & Ramsey, 2003).

2.7. UTILISATION OF PAIN

As discussed above, the sporting context athletes are able to endure certain levels and types of pain. The athlete over time is able to decide which pains to ignore and which type of pain to listen and respond appropriately to. Many highly motivated athletes can endure almost any amount or kind of pain. The successful athlete is one who can utilise the pain experienced through the sporting activity in a positive way, but inversely is able to acknowledge when the pain being experienced is an indicator of harm or potential damage to the body (Williams, 1986).

Certain endurance athletes such as rowers use the pain that they are experiencing as an indication of the success of their performance. They feel a need to perceive the pain, and they focus their attention on it, using it as a driving force. Without the pain these athletes feel that they are not achieving the optimum level of performance. The ability to withstand pain and/or the presence of mental strength are desirable attributes when one considers the impact they have on persistence and achievement in sport (Singer, 1986).

The regulation of mental performance is based on certain cognitive states of preparedness that need to meet task conditions. When appropriate levels of arousal and affect occur these conditions are optimised. Unfavorable arousal levels are associated with poor performance, thus approximating the optimal activation level for the specific activity is important. Many endurance athletes focus their attention internally on the pain as an indicator of the efficacy of their work and thus their success. Through focusing on the pain they are concentrating their attentional resources on it, which in turn brings about a zone of peak performance (Fobes, 1989).

2.8. THE PAINLESS ZONE

Within the sporting context it is believed that different zones of experiencing exist. These zones are best described as strange phenomenon that occurs within all sporting practices. According to Clarkson (1999, p.43) there exist four zones of experiencing that the athlete may encounter during a sporting event, namely:

- The arousal zone: A short burst of sudden arousal taking place in a single performance or as part of a performance. This zone is usually linked with anger or other emotions added to the initial experience.
- The painless zone: This zone is associated with a short-term painless experience where the pain seems to be temporarily numbed.

- The flow zone: In this zone the body and the mind are in perfect harmony, they complement each other. The arousal and concentration is high and the pain is minimally perceived.
- The long-term zone: This zone is more of an emotionally driven zone. The athlete takes long term goals and emotionally laden decisions into account while competing (Clarkson, 1999).

2.9. MEMORY AND PAIN

Different individuals will label specific sensations in a variety of ways. These labels trigger specific schemata that the individual has stored in memory over time. A schema is a cognitive structure stored in memory that represents specific organised information or knowledge surrounding a particular concept, such as pain. Schemas are seen as theories that individuals possess that help to guide the ways that new information is absorbed, remembered and inferred in relation to past experiences (Skevington, 1995).

Research in the field of cognitive psychology has shown that painful sensations are stored as sensory schemas in memory. These pain schemas are later utilised to recall certain attributes linked to similar pain sensations. The schema incorporates certain beliefs around the relationship that exists between the body and the mind, including sensations, symptoms, emotions and physical limitations (Skevington, 1995).

Schemas are generated when individuals draw certain inferences from information that is on offer to them. In the sporting context the athlete is being constantly bombarded with a variety of information. When the sensation of pain is experienced it is linked to already existing cognitive structures in memory. The outcome of the experience is linked with the perception or sensation of pain. If the pain was present when the athlete's outcome was positive, then the sensation of pain becomes a pleasant experience and is stored in the

schema as such. However if the sensation of pain is linked to a negative outcome or injury then it is stored in memory as a bad sensation (Skevington, 1995).

2.10. THE PSYCHOLOGICAL MANAGEMENT OF PAIN

Pain is seen as a serious warning symptom that can place a decisive limit on the athlete's capabilities and performance. Addison et al (1998) developed an integrative approach with the purpose of linking the psychological sensation of pain to a two-stage process of cognitive consideration and a series of behavioural responses that mediate certain extrinsic and intrinsic factors with certain cognitive coping strategies (Straub et al., 2003).

The suppression of pain and fatigue in the sporting context increases in importance as both the demands of the task and the task duration increase. Athletes often report that in the absence of pain, feelings of well-being are experienced even under strenuous conditions (Fobes, 1989).

2.10.1. Cognitive Strategies

2.10.1.1. Imagery

One of the most dominant mental training tools that athletes utilise is mental imagery. This technique can be compared to weight training as it strengthens the mental capacity of the athlete. These mental activities include acts that the athlete employs to motivate, focus, intensify, and build confidence. In certain instances the athlete may make use of pain imagery; in this form of imagery the athlete focuses on the pain and on what is causing it and this allows him to utilise the pain as an indicator of success (Taylor & Wilson, 2005).

According to Pavio's functional model imagery plays both a role in the cognitive and motivational processes of the athlete that mediate sport related behaviours. Motivationally

it can represent control over emotional laden situations and plays a part in goal-orientated behaviours. Imagery in regards to the cognitive processes of the athlete can focus on performance related aspects of the situation such as strategy or on motor skills necessary for performance (Basson, 2004).

2.10.1.2. Focus

A commonly utilised cognitive strategy to desensitise sensations of pain is that of distraction. Athletes distance themselves from pain through the act of disassociation by concentrating on things other than the pain. Some may listen to music, think about their families or even use their imagination. Elite athletes internally focus their attention on the pain and this is used as a measurement of work efficiency, the pain is used as an indicator of success. These athletes associate with the pain objectively and this results in them being able to emotionally dissociate from the pain (Straub et al., 2003).

Dissociation and association both play a role in the management of pain. The athlete either chooses to avoid the pain through the process of ignoring it (dissociation) or focuses on the pain and makes appropriate changes in accordance to the pain (association).

The pain-sport attentional matrix classifies four main focusing actions that need to be mastered by athletes, to perform optimally.

- Associating to both pain and sport: when pain is felt the athlete knows that the technique is being performed successfully.
- Dissociating from both pain and sport: athletes' focus is sacrificed in order to manage the pain. This allows for psychological detachment from the activity.
- Dissociating from pain while associating to sports performance: the pain is perceived as routine,; if not, pain becomes distracting and inhibits performance.

- Associating to pain while dissociating from sport: this is important in the management of over exertion and injury, and is utilised to assess physical functioning (Taylor & Wilson, 2005).

In a study conducted by Kress (1999) in which he studied the cognitive strategies utilised to manage pain by Olympic cyclists, he uncovered through the use of inductive content analysis several higher order themes that can be linked to the psychological management of pain. Kress noted that pain, preparation, mental skills, mind and body, optimism and control all played important roles in the cyclists' perception and management of the pain (Straub et al., 2003).

Spink (1988) found that cognitive strategies based on dissociation resulted in marked pain reduction and improved swim time in association with no-strategy conditions (Straub et al., 2003).

The above mentioned pain management techniques are of importance to this specific study in that they may prove valuable in trying to understand how the athletes utilise the pain experienced in sports.

2.11. THE ROLE OF SOCIAL SCIENCE IN SPORT

In the past all attempts that were made to improve an athlete's performance were linked to the physiological realm. Training methods, physiology and nutritional factors formed the basis of athletic preparation. However with the emergence of sport psychology the input, influence, and importance of the athlete's psychological aspects are being noticed. The unique relationship that exists between the psychological processes that take place within the athlete and their link to performance has been the focus of interest in a substantial body of research (Moore, 2007).

Institutions such as the High Performance Centre have been set up across the globe with the purpose of assessing and training athletes in a holistic fashion. They are committed to assessing the athlete from the viewpoint of a variety of health professions and sport practices. They have multi-disciplinary teams consisting of sport coaches, physiotherapist, doctors, nutritionists, physiologists, bio-kineticists and psychologists. This team works together to train the athlete in a multitude of areas, which will eventually help with his/her development as an elite athlete. Psychology as a social science has been included in the over-all assessment and training of these athletes. The aim is to gain a better understanding of the psychological processes that are associated with the sporting environment.

According to Hogg and Hayden (1997) the experience of pain in sport has received little attention as a research topic. This fact can largely be attributed to the relative young nature of the field of sport psychology. Sport psychology as a discipline tends to ignore the value of qualitative research; this is due to the perception that pain is a qualitative experience that cannot be easily quantified (Moore, 2007).

The High Performance Centre requested that this research to be conducted in an attempt to gain a better understanding of how the athletes function psychologically in relation to pain. The HPC has extensive research on the physical aspects of pain and its impact on the athlete, but on the psychological aspects of pain and its related processes no research currently exists.

2.12. CONCLUSION

This chapter started with a definition of pain in general and how it can be viewed in the sporting context. The manner in which pain is dealt with in sport and the techniques used to manage it have been addressed. The positive and negative roles that pain plays in the sporting environment were discussed. It is at this level that the rowers situated at the High Performance Centre are utilising the pain experienced in their training as an indicator for

success. The High Performance Centre's staff and trainers found that the rowing team uses the pain that they experience while training as an indicator of the success of the session; the pain is used as a motivating variable, which is then used as a driving force in training and competition. The phenomenon around the rowers' perception and usage of pain is solely based on the observations of the training staff and psychologists involved with the rowers. This study plays a role in assisting the High Performance Centre's staff to gain a better psychological understanding of how the rowers are mediating the information concerning pain in the sporting context. This added knowledge can be used to improve training techniques, and in the selection of the rowers themselves.

In the past pain has been measured through a variety of measures, often including self-report questionnaires such as the McGill pain questionnaire. For the purpose of this study the Rorschach will be used in an attempt to explore the manner in which these athletes mediate the information regarding pain in the sporting context.

CHAPTER THREE

THE RORSCHACH METHOD: A THEORETICAL OVERVIEW

3.1. INTRODUCTION

A brief history of the Rorschach Inkblot Test will be presented in this chapter, followed by an explanation of Exner's Comprehensive system for interpreting the Rorschach. The basic tenants of the Comprehensive System will be discussed, as well as the relevance of the Mediation cluster to the study.

3.2. THE RORSCHACH

In 1921 Herman Rorschach's Inkblot Test was presented to the professional public. Since its introduction the Rorschach has generated great interest, and has been extensively considered in psychological research. The ten inkblots are administered in a standardised manner that evokes certain responses. These responses will later be coded, scored and sequentially compiled and will eventually be utilised as the basis for numerous calculations. The calculations give rise to data that forms the interpretive substance of the actual test. This substance yields enough information for valid and useful descriptions of the psychology of the individual to be constructed (Exner, 1993).

The Rorschach, when considered as a cognitive structuring task consists of uniform inkblot stimuli, standardised administration, and formal interpretive guidelines. These aspects allow the Rorschach to be seen as an objective assessment technique. The test is not only viewed as a problem-solving device which gives rise to objective assessment of an individual's cognitive structure, but also plays a part in the subjective assessment of thematic imagery (Smuts, 2002).

Wiener (1998) believes that the Rorschach evokes responses that involve processes of association, symbolisation and attribution that go beyond the basic stimulus features of the inkblots (Wiener, 1998).

The relevance of two key considerations needs to be addressed when explaining the nature of the Rorschach as an assessment instrument. Firstly, the process of projection that occurs when individuals attribute their own internal characteristics to the external blot stimuli. This process of projection takes place without justification and conscious awareness. Secondly, ambiguity plays an important role and is closely linked to the basic structure of the stimuli and the tangible nature of the subject's task at hand (Smuts, 2002).

3.3. THE COMPREHENSIVE SYSTEM

In 1968 The Rorschach Research Foundation was established. The institution's primary aim was to conduct a comparative analysis of the five major approaches to the Rorschach method in use at the time. The Foundation initially wanted to validate the Rorschach method empirically. They excluded aspects and applications of the Rorschach that were found to be invalid and unreliable. This allowed the foundation to make empirically sound contributions to administration, scoring and interpretation of the assessment instrument. It was as a result of this research foundation that the Comprehensive System was developed. The main motivation for the development of the Comprehensive System was the need for a method of interpretation that was built around consistent administration, adequate norms, and reliable scoring. Essentially, the system provided a psychometrically sound way to assess and administer the Rorschach (Macklin, 2003).

The Comprehensive System was developed by John Exner in the 1960's. For more than three decades Exner was the executive director of Rorschach workshops. These workshops focused on the Rorschach and developed a standardized system for its interpretation (Wiener, 1998).

The Comprehensive System is built on three main foundations:

- Standardized administration
- Objective and reliable coding
- A representative norm base (Exner, 1993).

These foundations make the Comprehensive System a reliable way to assess an individual's personality structure and level of psychological functioning. Exner's system may be used to clinically diagnosis a variety of conditions that are related to personality functioning (Wiener, 1998).

In this specific study the Rorschach will be administered, coded and interpreted using the Comprehensive System method. The Comprehensive System is seen as a relatively scientific system for analysing the Rorschach Inkblot Test. It is seen as a quantitative, statistical way of interpreting the previously qualitatively interpreted assessment tool. The Rorschach will identify specific variables and will explore certain commonalities that may arise within the sample in relation to personality structures as well as cognitive structures and functioning (Smuts, 2002).

3.4. APPROACH TO ANALYSIS

A wide range of thorough data analysis is generated when interpreting the Rorschach using the Comprehensive System. Included in this data is the interpretation of structural variables, content themes, sequence analyses and certain test behaviours (Smuts, 2002).

Although all the data will be analysed, the nature of the study is such that only certain data will be utilised in the interpretation. The Comprehensive System allows for data interpretation to be divided into different clusters. The cognitive mediation cluster is the main concern of this study and in-depth attention will be given to this cluster.

3.5. RORSCHACH CLUSTERS

The data obtained by the Comprehensive System's interpretation of the Rorschach falls into a number of clusters. These clusters are as follows: Affect, Capacity for Control, Self Perception, Interpersonal Perception and the Cognitive Triad (that consists of Information Processing, Mediation and Ideation). These clusters relate to specific characteristics of the personality. Each cluster is comprised of specific variables that in turn relate to certain psychological components or functions (Exner, 1993).

3.5.1. The Cognitive Triad

According to the Comprehensive System, the cognitive activities of an individual consist of three clusters. Information Processing, Mediation and Ideation are collectively known as the cognitive triad. Information Processing involves the mental procedures that take place whenever information is inputted. The mental operations that occur when inputted information is translated or identified are known as Cognitive Mediation. Ideation refers to the thinking process that takes place after the relevant inputs have been identified and leads to conceptualisation of the information that has been translated through mediation (Exner, 1993).

The above mentioned clusters have been shown to be relatively independent of each other, although all three operations are related in the perceptual-cognitive process that takes place. The result of the specific operations in one element can have a direct influence on the operations in either of the other two clusters (Exner, 1993).

For the purpose of this study, the Cognitive Mediation cluster has been selected by the researcher as the cluster that will be interpreted and then later linked to the rowers' unique perceptions of pain in the sporting environment. The unique manner in which the rowers are mediating pain in their training and competition environments was the original area of curiosity which led to the initiation of the research study.

According to the staff at the HPC the rowers perceive the pain that arises from the strenuous sporting techniques as being an indicator for success. The rowers are mediating the pain in such a way that they are translating the normally painful sensation into something that is of value to them. This mediational activity is leading to behaviour that is not common in everyday life. The rowers are embracing the pain and are attempting to maintain the pain experienced. This is serving as a motivating force and helps to improve performance.

3.5.2. Cognitive Mediation

This specific cluster focuses on how certain information and experiences are identified and translated. The process of mediation requires some level of reconciliation or mediation between the images or information that have been stored in memory and the actual stimulus perceived. Through the interpretation of this cluster the Rorschach assesses reality testing. In its interpretation the Rorschach seeks to flesh out more precise information around the person's mediational activity, especially the level at which mediation is marked by common, uncommon, or inaccurate translations (Exner, 1993).

The Mediation cluster addresses to what extent the mediational activities of the individual lead to behaviour that is appropriate for the situation, or to what extent the mediational activities lead to behaviour that is inappropriate to the situation. Through interpretation of this cluster one is able to see if mediational dysfunction occurs in a noticeable pattern and if any severe mediational impairment exists. The overall mediational orientation towards conventional translations of inputs is identified through examining the mediation cluster (Exner, 1993).

3.5.3. Mediation Variables

In order for mediation to be interpreted the prerequisites, R (number of responses), Lambda (the openness to experience) and OBS (Obsessive Style Index), need to be addressed. The variables that need to be reviewed when interpreting mediation include:

- XA%: percentage of responses in the record that have a “good form fit”.
- WDA%: percentage of responses in the record that have a “good form fit” and that are given to commonly used areas.
- FQ none: all responses that ignore the contours of a blot.
- X-%: percentage of all the responses that do not have a “good form fit”.
- FQ- frequency: frequency of responses that do not have a “good form fit”.
- S- Frequency: frequency of responses that do not have a “good form fit” and are given to white spaces.
- Popular (P): number of responses coded popular.
- FQ+ frequency: frequency of responses that include more form features than are common or necessary.
- X+%: percentage of responses in protocol that have been coded as “o” (Ordinary response).
- Xu%: percentage of responses in protocol that have been coded as “u” (Unusual response) (Aronstam, 2005).

3.6. SEQUENTIAL SEARCH STRATEGY

The Comprehensive System employs a routine optimal review of each of the clusters identified. The optimal order of priority for the cluster review is set into order by the twelve key variables identified by the Comprehensive System (Exner, 1993).

Diagnostic considerations were aided by the development of six special indices, namely:

- Suicide Constellation (SCON)
- Depression Index (DEPI)
- Coping Deficit Index (CDI)
- Hypervigilance Index (HVI)
- Obsessive Compulsive Index (OBS)
- Perceptual Thinking Index (PTI) (Aronstam, 2005).

Most of the above mentioned indices form part of the twelve key variables that are identified by the Comprehensive System. The purpose of these key variables is to predict which combination of clusters would be able to produce data that will contribute meaningful information around the individual's core psychological attributes and functioning (Smuts, 2002).

The first six key variables deal with personality structure and focus on the presence of psychopathology or the inherent potential for disorganisation. They are:

- $PTI > 3$
- $DEPI > 5$ and $CDI > 3$
- $CDI > 3$
- $DEPI > 5$
- $D \text{ Score} < \text{Adj D}$
- $CDI > 3$ and $\text{Adj D} < 0$ (Exner, 1993).

Variables that define personality style that may form the cornerstone of the individual's organisation and functioning in the future are dealt with by the remaining six variables, namely:

- $\Lambda > 0.99$
- Reflection > 0
- EB = Introversive
- EB = Extratensive
- $p > a + 1$
- HVI = Positive (Exner, 1993).

3.7. CONCLUSION

In this chapter the history of the Rorschach and the Comprehensive system developed by Exner were discussed. For the purpose of the study the main area of focus will be the mediation cluster that forms part of the cognitive triad. The individual mediation cluster variables will later be analysed in terms of the sample and linked to pain in the sporting context.

CHAPTER FOUR

METHODOLOGY

4.1. INTRODUCTION

Within the methodology chapter the demographic details of the participants and the method of selection will be discussed. Details concerning the data collection procedures and the nature of the Rorschach administration and capturing will also be described. The Rorschach Interpretation Assistance Program (RIAP) will be explained as the method used to generate the descriptive statistics. Finally, the motivation for the data analysis will be discussed and the various procedures that will take place will be described.

4.2. PARTICIPANTS

For the study fifteen individuals were selected ($n = 15$). Due to the nature of this study, a convenience sample was selected. This type of sample is purposely selected based purely on the nature of the study.

The sample comprised of competitive rowers, all of whom are affiliated to the High Performance Centre.

4.2.1. Selection Criteria

All the participants in the study had to be competitive rowers affiliated with the High Performance Centre. Apart from the initial criteria, the participants were included in the study based on i) gender (male), ii) age (18-34) and iii) level of education (Matric certificate).

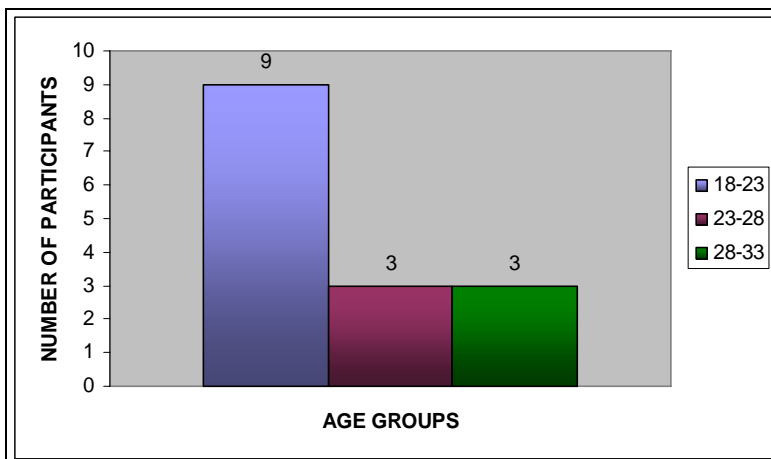


FIGURE 1: AGE GROUPS FOR THE SAMPLE

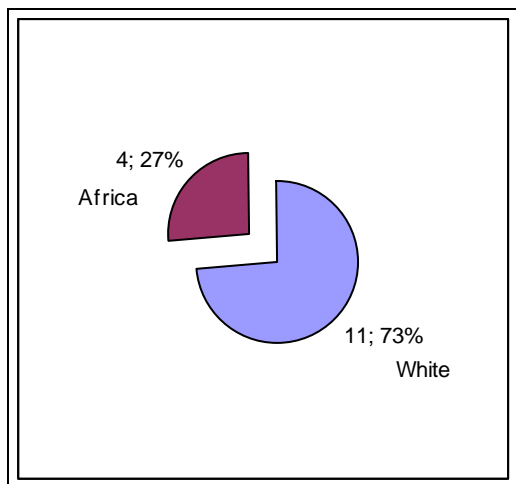
The staff at the High Performance Centre made the fifteen names available for the study. All the participants were classed as competitive rowers who had taken place in various local and national competitions. The fifteen participants are all members of the rowing academy that is situated at the High Performance Centre.

4.2.2. Demographic Variables

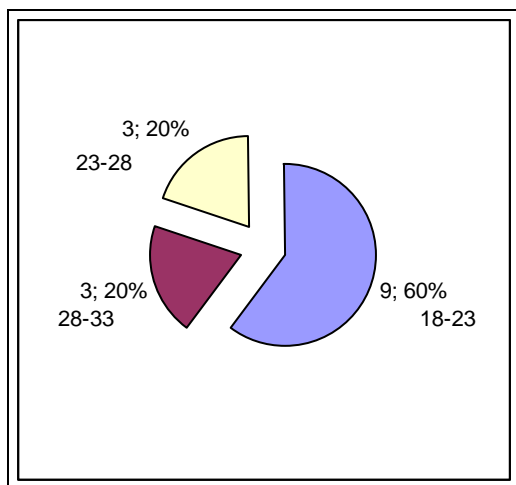
The sample comprised of 11 white and 4 African male participants aged between 18 and 33. The average age of the participants was 23.60 years old.

TABLE 1: DEMOGRAPHIC VARIABLES OF SAMPLE

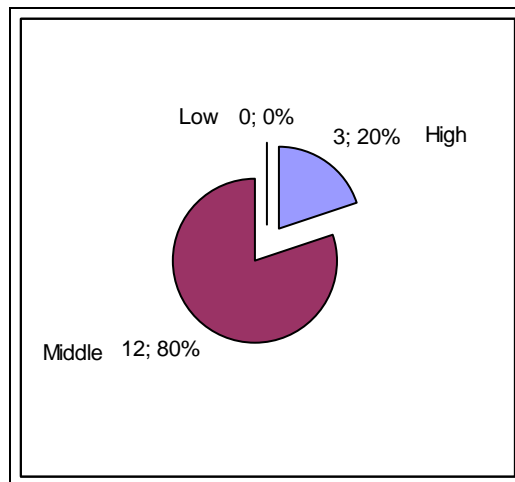
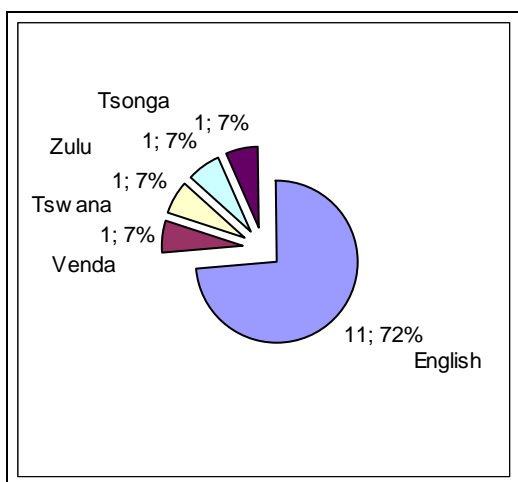
Variable	n	%	Variable	n	%
<u>Race:</u>			<u>Marital Status:</u>		
White	11	73.3%	Single	15	100%
African	4	26.6%			



<u>Age:</u>			<u>Education:</u>		
18-23	9	60%	Matriculated	15	100%
23-28	3	20%			
28-33	3	20%			



<u>Language:</u>			<u>Socio-Economic Status:</u>		
English	11	73.3%	High	3	20%
Tsonga	1	6.66%	Middle	12	80%
Tswana	1	6.66%	Low	0	0%
Zulu	1	6.66%			
Venda	1	6.66%			



<u>Gender:</u>		
Male	15	100%

None of the participants were married at the time the study was conducted. All the participants had received their matric certificate and continued with some form of tertiary education.

The majority of the sample (73.3%) described English as their home language. The remaining four participants' home languages consisted of Tsonga, Zulu, Tswhana and Venda; these shared an equal 6.66% of the total sample.

The demographic details were obtained using The South African Institute for Rorschach and Other Projective Methods (SAIROP) identifying data questionnaire. Consent was obtained from each participant via an informed consent form (see appendix A). Ethical considerations were address in the consent form and the names of the participants were reduced to numbers to ensure anonymity and confidentiality.

4.3. DATA COLLECTION PROCEDURES

4.3.1. The Data Collection Location

The data collection took place at the High Performance Centre. Permission was obtained to use one of their offices for the purpose of assessment. Due to the fact that the participants were always at the Centre, the researcher decided to conduct the assessment there; this would insure ease in appointment making and attendance. The office was set up to meet all the specifications required by the Comprehensive System to administer the Rorschach. The assessment sessions were booked for a period of an hour, however extra time was planned for in advance in the case of it being necessary.

4.3.2. Rorschach Method

The SAIROP identification questionnaire was administered first followed by the Rorschach Inkblot Test. The researcher followed the Comprehensive System devised by Exner in terms of administration, coding and interpretation.

In order for a Rorschach protocol to be valid the participant must produce a minimum of fourteen responses, this is to ensure that the information generated from the protocol is rich enough to produce reliable information and interpretations.

TABLE 2: RESPONSES OF THE SAMPLE

Variable	Mean	SD	Min	Max	Frequency	Median	Mode
R=Responses	18.60	4.24	14.00	28.00	15	17.00	15.00

All the protocols were found to be valid. The average number of responses in the sample was 18.60. The minimum number of responses was 14 and the maximum 28 with a standard deviation of 4.24.

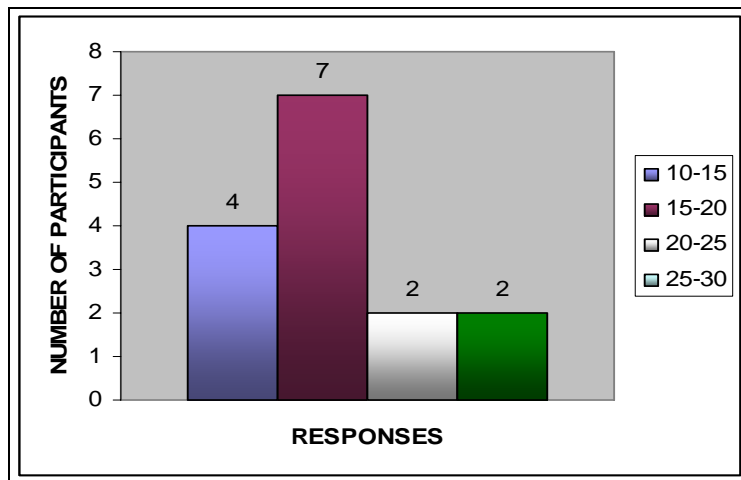


FIGURE 2: NUMBER OF RESPONSES FOR SAMPLE

After all the protocols had been administered and found to be valid they were scored according to the standardized procedures of the Comprehensive System. The original head researcher coded all the protocols.

Selected protocols were scored by two independent parties. These individuals were not informed of the nature of the research. Both parties were trained in the Comprehensive System method of scoring and administration of the Rorschach. The reason that such external blind coding took place was to establish inter-rater reliability and accuracy. According to McDowell & Acklin (1996) there exist many ways of determining interrater reliability. For the purpose of this study, the two blind protocols were compared to the original coding to evaluate the level of agreement or disagreement.

The editorial standards set by the Journal of Personality Assessment include a percentage agreement of 0.80 as being an acceptable rate of inter-rater reliability. According to Exner (in McDowell & Acklin, 1996) 0.80 agreement must be met when comparing response segments such as location, determinants and form quality. After the comparisons had been made the protocols were found to have high inter-rater reliability with all the categories falling within the percentage agreements set above.

The data was then inputted into the Rorschach Interpretation Assistance Program (RIAP). The RIAP is based on the Comprehensive System and tabulates the results in accordance with the variables identified by that system. The RIAP calculates the statistics for the sample entered into the program and allows them to be viewed in table form. It also allows for a complete interpretation of the individual participant to be viewed.

Copies of all the structural summaries and constellation tables can be viewed in Appendix D.

4.4. DATA ANALYSIS

Due to the quantitative nature of the study, the small purposive sample, as well as the limited scope and the exploratory nature of the study; the method of data analysis will be descriptive statistical analysis. The variables of the Mediation cluster were calculated for

each participant. The Mediation cluster variables were interpreted in relation to the mean scores of the sample.

Once structural summaries, interpretive reports, and participant overviews were generated by the RIAP, the specific variables pertinent to the study were individually examined. The variables that constitute the Mediation cluster were analyzed individually, first assessing the mean of each variable as generated by the sample, followed by the lower and higher limits of the range for each variable within the sample.

Upon completion of the Mediation cluster other areas of concern are addressed and the findings are displayed in the conclusion and recommendation chapter.

4.5. ETHICAL CONSIDERATIONS

Before the testing phase could begin, ethical considerations needed to be addressed. The Application for Ethical Clearance as well as informed consent was obtained from the participants. The study was approved by the Ethics Committee at the University of Pretoria. Consent was obtained from the High Performance Centre for the study to be conducted on their subjects, and on their premises. One of the conditions of the consent was that the results be made available to the High Performance Centre staff if requested. Issues related to *reliability* and *validity* were addressed and taken into account. Exner's Comprehensive System has been shown by research to be both valid and reliable, with high inter-rater reliability. The participants were told of the purpose of the research and were informed of their rights as participants within the study. The participants were made aware of who will have access to the results and of the fact that they have the right to confidentiality and may withdraw from the study at any time.

Blank copies of the informed consent form and permission letters from the High Performance Centre are available for viewing in Appendix A and B.

4.6. CONCLUSION

Participant selection procedures, criteria for selection and demographic variables were discussed and displayed in this chapter. The actual method of data collection, the Rorschach, was explained and discussed as the main data capturing method. The manner in which the data was analysed by the RIAP was discussed and thereafter the method of analysis was described.

CHAPTER FIVE

RESULTS

5.1. INTRODUCTION

In this chapter the results of the data analysis are described. Each variable that forms part of the Mediation cluster as well as the pre-requisites for the cluster are addressed. The Mediation variables are listed, followed by the statistics generated by the RIAP. Following the presentation of the statistics, each variable is addressed individually in terms of both the mean generated for that variable, as well as the upper and lower limits of the range of the variable within the sample. The results are discussed in this chapter, and are linked to the athlete's perception of pain in the following chapter.

5.2. MEDIATION CLUSTER

5.2.1. Description

The Mediation cluster addresses the manner in which information and experiences are identified and thereafter translated by the individual. By interpreting this cluster, the Rorschach assesses mediational activity and the level of reality testing displayed by the individual. The Mediation cluster measures to what extent the mediational activities of the individual yield to behaviour that is appropriate for the situation and *visa versa* to what extent the mediational activities yield to behaviour that is inappropriate for the situation. In addition, the overall mediational orientation towards conventional translations of inputs is identified through examining the mediation cluster (Exner, 1993).

5.2.2. Mediation Variables

The Mediation cluster has certain prerequisites that are essential for interpretation. The number of responses (R), the Lambda (L) and the Obsessive Style Index (OBS) are the main prerequisites in the Mediation cluster (Aronstam, 2005).

The ten Mediation cluster variables that are individually addressed and analysed in this chapter are:

- XA%- percentage of responses in the record that have a “good form fit”
- WDA%- percentage of responses in the record that have a “good form fit” and that are given to commonly used areas.
- FQ none- all responses that ignore the contours of a blot.
- X-%- percentage of responses that do not have a “good form fit”.
- FQ- frequency- frequency of responses that do not have a “good form fit”.
- S- Frequency- frequency of responses that do not have a “good form fit” and are given to white spaces.
- Popular (P) – number of responses coded popular.
- FQ+ frequency- frequency of responses that include more form features than are common or necessary.
- X+%- percentage of responses in protocol that have been coded as “O” (Ordinary response).
- Xu%- percentage of responses in protocol that have been coded as “U” (Unusual response) (Aronstam, 2005).

5.3. MEDIATION VARIABLES RESULTS

TABLE 3:
INDIVIDUAL DESCRIPTIVE STATISTICS OF MEDIATION VARIABLES

	R	L	OBS	XA%	WDA	FQ n	X-%	FQ- f	S-f	P	FQ+	X+%	Xu%
P1	18	1.00	n/a	0.78	0.86	0	0.22	4	1	5	0	0.50	0.28
P2	21	0.91	n/a	0.76	0.75	0	0.24	5	1	4	0	0.52	0.24
P3	21	0.31	n/a	0.90	0.89	0	0.10	2	0	7	2	0.57	0.33
P4	28	1.15	n/a	0.75	0.80	1	0.21	6	4	4	0	0.46	0.29
P5	28	1.00	n/a	0.82	0.90	1	0.14	4	0	5	0	0.46	0.36
P6	16	1.00	n/a	0.63	0.71	0	0.38	6	2	1	0	0.31	0.31
P7	18	0.64	n/a	0.83	0.85	0	0.17	3	0	4	0	0.22	0.61
P8	20	1.50	n/a	0.9	0.94	0	0.10	2	1	6	0	0.45	0.45
P9	17	1.83	n/a	0.88	0.93	0	0.12	2	1	1	0	0.29	0.59
P10	15	0.88	n/a	0.80	0.92	0	0.20	3	0	4	0	0.60	0.20
P11	16	2.2	n/a	0.81	0.77	0	0.19	3	1	2	0	0.25	0.56
P12	15	0.36	n/a	0.80	0.90	0	0.20	3	1	3	0	0.40	0.40
P13	14	0.56	n/a	0.57	0.67	0	0.43	6	1	4	0	0.50	0.07
P14	17	1.43	n/a	0.82	1.00	0	0.18	3	1	2	0	0.29	0.53
P15	15	0.36	n/a	0.87	0.91	0	0.13	2	0	4	0	0.47	0.40

5.4. DESCRIPTIVE STATISTICS FOR SAMPLE

TABLE 4:
COLLECTIVE RESULTS FOR MEDIATION CLUSTER

Variable	Mean	SD	Min	Max	Frequency	Median	Mode
R	18.60	4.24	14.00	28.00	15	17.00	15.00
FQx+	0.13	0.50	0.00	2.00	1	0.00	0.00
FQx-	3.60	1.45	2.00	6.00	15	3.00	3.00
FQx_none	0.13	0.34	0.00	1.00	2	0.00	0.00
S-	0.93	1.00	0.00	4.00	10	1.00	1.00
Lambda	1.01	0.53	0.31	2.20	15	1.00	1.00
Popular	3.73	1.65	1.00	7.00	15	4.00	4.00
XA%	0.79	0.09	0.57	0.90	15	0.81	---
WDA%	0.85	0.09	0.67	1.00	15	0.89	0.90
X+%	0.42	0.12	0.22	0.60	15	0.46	---
X-%	0.20	0.09	0.10	0.43	15	0.19	---
Xu%	0.37	0.15	0.07	0.61	15	0.36	0.40

5.5. MEDIATION PREREQUISITES

5.5.1. Number of Responses (R)

TABLE 5: COLLECTIVE RESULTS FOR NUMBER OF RESPONSES (R)

Variable	Mean	SD	Min	Max	Frequency	Median	Mode
R	18.60	4.24	14.00	28.00	15	17.00	15.00

5.5.1.1. Description

The number of responses is critical to the interpretation process as it is linked to protocol validity. Protocols of 14 or less responses are deemed to be invalid according to Exner's Comprehensive System. The inferences drawn from such protocols are seen as unreliable. They run the risk of producing unwarranted interpretations and erroneous conclusions (Wiener, 1998).

The norm for number of responses falls between 17 and 27 responses per protocol. When the number of responses falls below 17 it may be indicative of some form of intellectual limitations or defensiveness. Brief records tend to display a certain level of guardedness. The validity of the above assertions can be determined only through a through review of many factors within the test, and cannot be made based solely on the number of responses (Exner, 1993).

When interpreting the Mediation cluster the number of responses made by the individual plays a fundamental role. Certain of the variables in the Mediation cluster are expressed as proportions of the number of responses given (Aronstam, 2005).

5.5.1.2. Data

The mean for number of responses is 18.60. The maximum number of responses was 28 and the minimum 14. As mentioned above, in order for a protocol to be considered valid it needs to have a minimum of 14 responses. All the protocols in the study fulfilled this requirement.

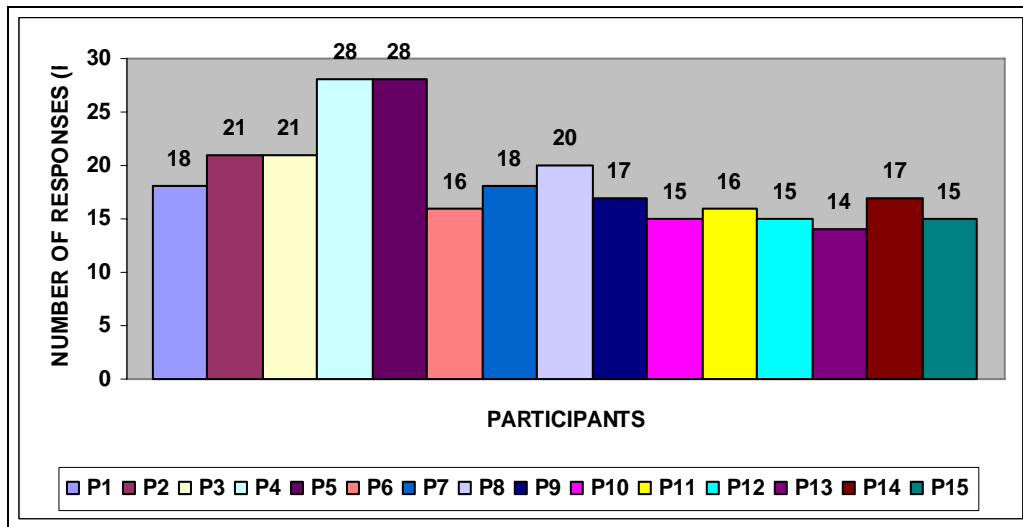


FIGURE 3: NUMBER OF PARTICIPANT RESPONSES

5.5.2. Lambda (L)

TABLE 6: COLLECTIVE RESULTS FOR LAMBDA (L)

Variable	Mean	SD	Min	Max	Frequency	Median	Mode
Lambda	1.01	0.53	0.31	2.20	15	1.00	1.00

5.5.2.1. Description

Within the Rorschach, the individual's openness to experience is measured by the Lambda. According to Wiener (1998), the ability to successfully adapt is based on the balance of focus and attention. Individuals who are able to maintain this balance tend to be aware of

internal and external events, cues and experiences. The Lambda describes the individual's ability to tolerate ambiguity and uncertainty as well as the individual's capability to cope in a flexible manner with a variety of situations and settings. Along with this ability to cope, the amount of emotional investment utilised by the subject while making decisions is measured by the Lambda (Wiener, 1998).

A Lambda score with the range between 0.30 and 0.99 indicates a balance of focus and attention, such a score falls into the average range described by the Comprehensive System. When the value for Lambda is higher than 0.99 it usually identifies a lack of openness to experience. Tendencies exist to view oneself and the world through an overly narrow focus of attention (Exner, 1993).

These individuals display a tendency to "view the world with blinkers on". The resulting tunnel vision hampers them from taking in all that the world has to offer. This narrow focus and simple preference leads to a single-minded purposefulness that can aid them in certain paths, careers or vocations. They become intensely devoted to their cause and succeed in areas that they select. In such instances the narrow focus of attention can serve an adaptive purpose. This narrowing is utilised in such a manner that it serves as a constructive, self-protective aspect of the personality (Exner, 1993).

Decision-making takes place without much thought and with minimal emotional investment. Simple solutions are preferred over complex, ambiguous ones. Clearly defined and structured environments are the main choice of high Lambda individuals, and they function optimally in these arenas (Wiener, 1998).

5.5.2.2. Data

The mean for Lambda in is 1.01. When the value for Lambda is 0.99 or greater it describes an avoidant style, and has an effect on most of the data generated by the Rorschach. In relation to the Mediation cluster the positive value for Lambda indicates a marked tendency

towards a form of psychological economizing that almost always leads to a narrowing or simplification of stimulus fields that are viewed by the subject as being ambiguous or complex. This economizing may promote negligence in the translation of information in a variety of settings and creates a higher potential for behavior that does not coincide with societal norms (Exner, 1993).

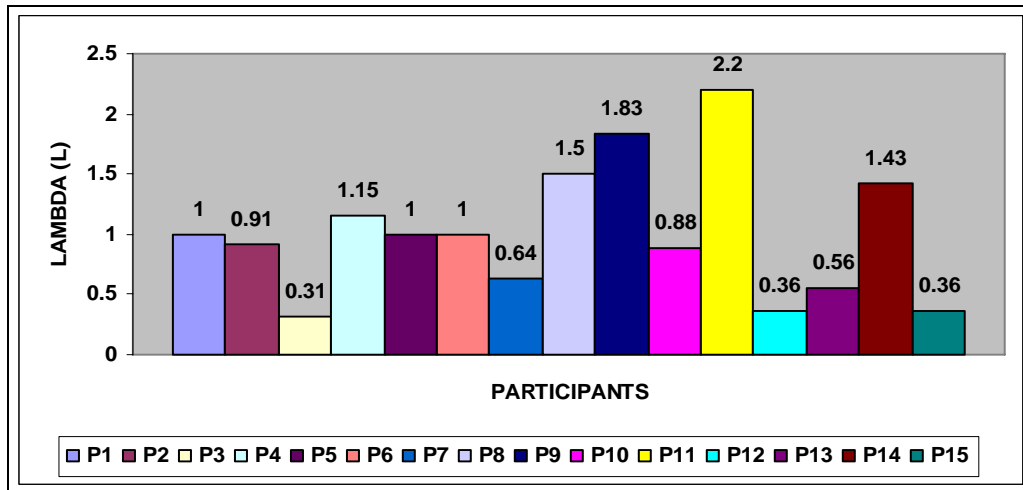


FIGURE 4: PARTICIPANTS LAMBDA SCORES

5.5.3. Obsessive Style Index (OBS)

5.5.3.1. Description

A positive OBS indicates the presence of a tendency towards an excessive preoccupation with detail and perfectionism. Subjects displaying a positive OBS are cautious in the translation of stimuli as they are influenced immensely by the need to be correct or conventional (Exner, 1993).

5.5.3.2. Data

None of the participants in the sample displayed a positive OBS, thus no interpretation can be made.

5.6. MEDIATION CLUSTER VARIABLES

Collectively the following variables provide crucial information surrounding issues of conventionality and perceptual accuracy (Exner, 2003).

5.6.1. XA% and WDA%

TABLE 7: COLLECTIVE RESULTS FOR XA% AND WDA%

Variable	Mean	SD	Min	Max	Frequency	Median	Mode
XA%	0.79	0.09	0.57	0.90	15	0.81	---
WDA%	0.85	0.09	0.67	1.00	15	0.89	0.90

5.6.1.1. Description

The XA% and WDA% are the cornerstones of the Mediation cluster and play an integral part in the interpretation of Mediation. These variables measure the extent to which the mediational activities of the individual have yielded behaviours that are appropriate for a specific setting or situation. In order for valid interpretations to be made the two variables must be interpreted together (Exner, 1993).

The XA% is based on the percentage of responses in a protocol that have been coded as ordinary-elaborated, ordinary, or unusual. The WDA% measures the subject's accuracy in responding to the most usual and most apparent shapes of the blot. The two variables hold implications for the adequacy of the subject's reality testing (Wiener, 1998).

5.6.1.2. Data

The mean for the XA% is 0.79, and for the XDA% it is 0.85. When the XA% falls between 0.78 and 0.90, and the value for WDA% is more than that of the XA% then the mediation that takes place is usually appropriate for the setting. The basic prerequisites for conventional reality testing are intact. Such individuals are able to form accurate

impressions of themselves, as well as interpret the actions and intentions of others adequately (Aronstam, 2005).

The lower limit of the range (XA%: 0.57, WDA%: 0.67) shows an indication that serious mediational impairment and reality testing problems do occur on occasion with certain participants. The dysfunction is more noticeable in situations where the mediational cues are less obvious and more ambiguous. The higher limit of the range (XA%: 0.90, WDA%: 1.00) displays a tendency to make special effort to ensure that mediation is appropriate for a given setting or situation (Wiener, 1998).

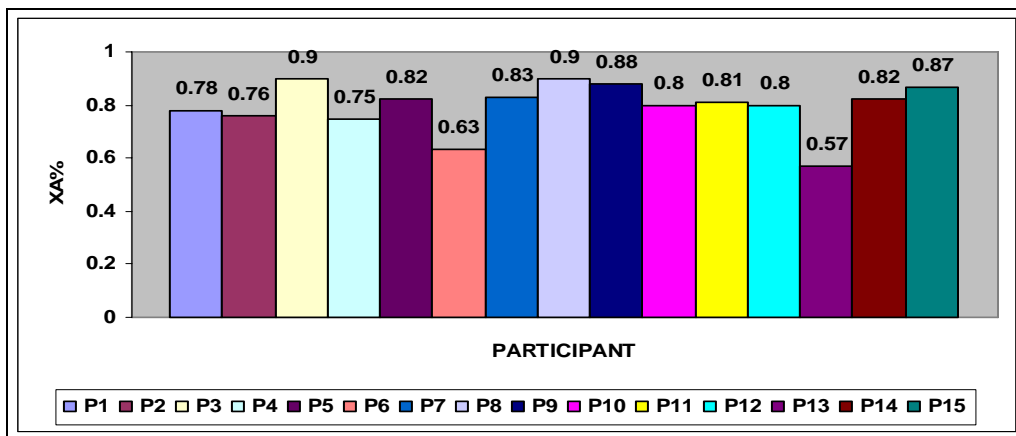


FIGURE 5: PARTICIPANTS XA% SCORES

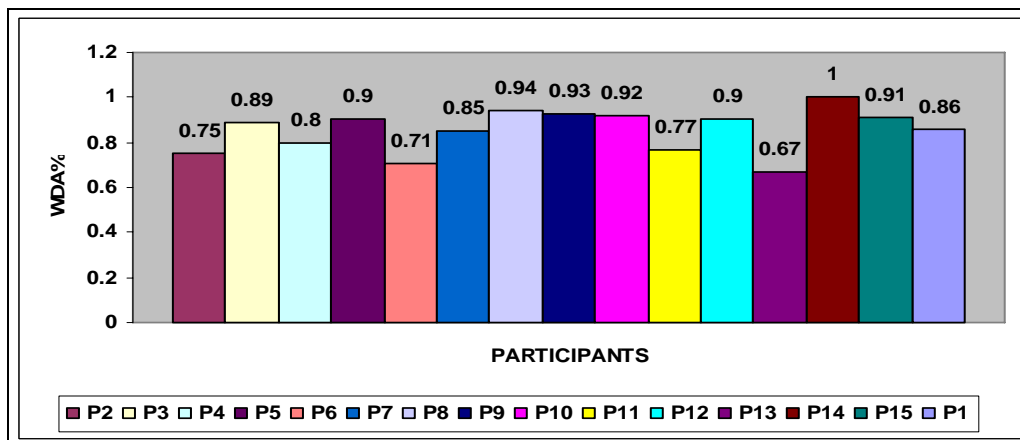


FIGURE 6: PARTICIPANTS WDA% SCORES

5.6.2. FQ none

TABLE 8: COLLECTIVE RESULTS FOR FQ_x none

Variable	Mean	SD	Min	Max	Frequency	Median	Mode
FQ _x _none	0.13	0.34	0.00	1.00	2	0.00	0.00

5.6.2.1. Description

A No form response found in a protocol indicates that the individual has ignored one of the most salient distal features of the inkblot, namely the contours. This process is unusual and can reflect a flaw in the individual's mediational processes (Aronstam, 2005).

5.6.2.2. Data

The mean of the sample for FQ none is 0.13. When the score for FQ none is 0 or 1, no significant interpretations regarding mediation can be made and these scores rarely influence other important calculations. The minimum and maximum values of the range fall into the same category as the mean and thus hold no information regarding Mediation. The virtual absence of FQ none responses indicates the absence of serious mediational impairment as measured by this criteria (Aronstam, 2005).

5.6.3. X-%

TABLE 9: COLLECTIVE RESULTS FOR X-%

Variable	Mean	SD	Min	Max	Frequency	Median	Mode
X-%	0.20	0.09	0.10	0.43	15	0.19	---

5.6.3.1. Description

The X-% is calculated by taking the frequency of the minus responses and dividing it by the number of responses. Minus answers are seen as answers that are inappropriate. They

indicate a poor fit between the blot areas and the responses given. This may be seen as an indicator that reality testing is impaired in this specific instance (Aronstam, 2005).

The X-% variable produces an indication of how realistically the subjects perceive the experience. X- responses are linked to inaccurate perceptions. How inaccurate these perceptions are is not solely dependant on the frequency of the X- responses, but also on the context in which they appear and the level of distortion that is present in relation to the form qualities of the blots (Wiener, 1998).

5.6.3.2. Data

The mean for the sample for X-% is 0.20 (Range: 0.10-0.43). An X-% of this value warrants some concern when interpreting Mediation. A moderate elevation in the incidence of forms of mediational dysfunction may take place in comparison to a normative sample (Exner, 1993).

When the X-% exceeds 0.15 the subject is more likely to perceive events incorrectly. There exists a tendency to form mistaken interpretations of themselves as well as misinterpretations of the actions and intentions of others. Subjects fail to anticipate the direct consequences of certain actions and misinterpret what represents appropriate behaviour. The result of these poorly advised actions that stem from inaccurate perceptions, could lead to instances where faulty judgment undermines adequate adjustment (Wiener, 1998).

When the X-% exceeds 0.30 as indicated by the maximum value of the range (max X-%: 0.43) serious mediational impairment exists. An X-% score of 0.29 or greater is one of the criteria of the Perceptual Thinking Index. This score is linked to faulty judgment derived from unrealistic perceptions and tends to be linked with severe adjustment difficulties. Reality testing is seriously impaired and the presence of some disabling problem is indicated. Subjects that display high X-%'s are at risk for self-defeating behaviour and

some level of unintentional self-harm as well as harm to others. These individuals are often viewed by others as being strange, peculiar, erratic, and even incomprehensible (Wiener, 1998).

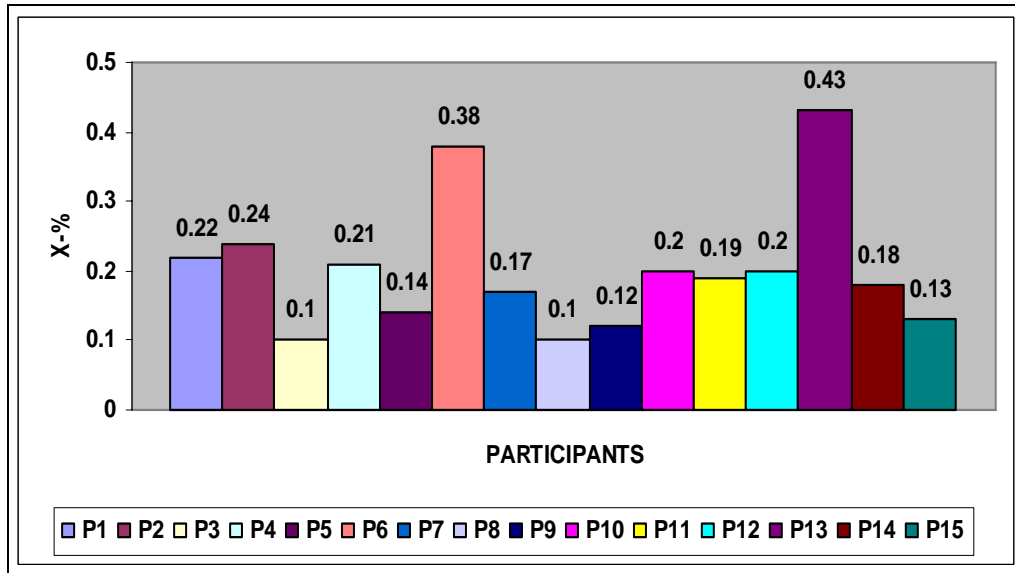


FIGURE 7: PARTICIPANTS X-% SCORES

5.6.4. FQ- Frequency

TABLE 10: COLLECTIVE RESULTS FOR FQ- FREQUENCY

Variable	Mean	SD	Min	Max	Frequency	Median	Mode
FQx-	3.60	1.45	2.00	6.00	15	3.00	3.00

5.6.4.1. Description

Whenever minus answers are present they represent some form of distortion in translating the input on offer. Almost all subjects who take the test will give some minus answers. A low frequency of minus answers reveals nothing more than a minor personal preoccupation or mediational casualness by the subject (Exner, 1993).

When reviewing the distribution of the minus answers there are two factors that need to be considered before interpretation can take place. It should be determined whether most of the minus answers occur at either the beginning or the end of the protocol. If most of these answers occur in the beginning of the record then a lackadaisical or hasty approach to Mediation is noted. This approach may be linked to processing problems but may also display a tendency to be impulsive when Mediation is concerned. If most of the minus answers occur at the end of the protocol it indicates that the answers may hold some sort of significance to the subject. It could also be interpreted as being that the subject may be prone to exaggerate certain features of disturbance (Aronstam, 2005).

5.6.4.2. Data

The mean X- frequency in the sample is 3.6. When the value for X- is four or above one must carefully review the features and distribution of the minus answers. This will allow for a better understanding of the mediational processes of the subject (Exner, 1993).

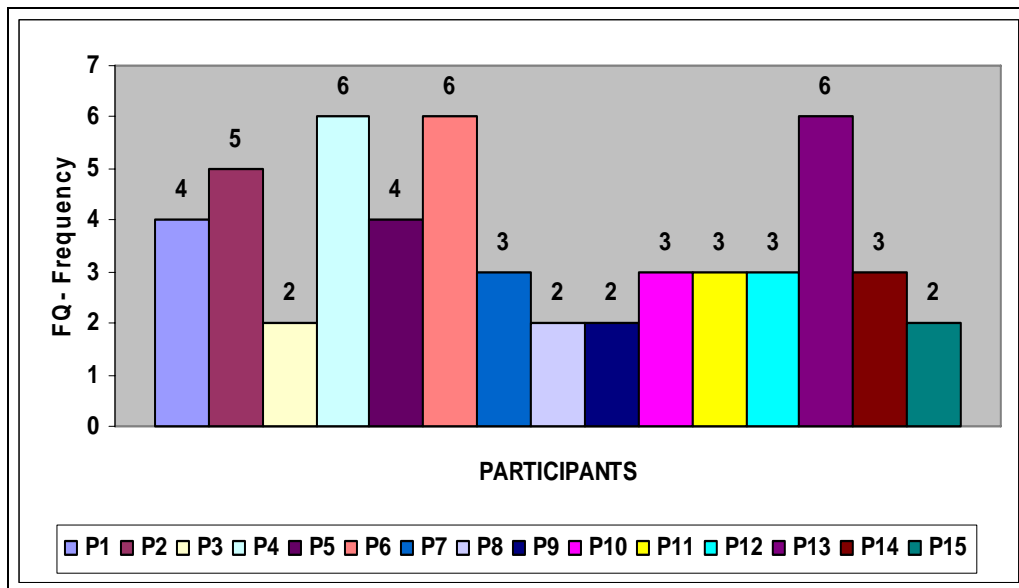


FIGURE 8: PARTICIPANTS FQ- FREQUENCY SCORES

5.6.5. S- Frequency

TABLE 11: COLLECTIVE RESULTS FOR S- FREQUENCY

Variable	Mean	SD	Min	Max	Frequency	Median	Mode
S-	0.93	1.00	0.00	4.00	10	1.00	1.00

5.6.5.1. Description

The S-frequency provides information concerning the extent to which mediational distortions can be linked to some affective interferences or influences. In any protocol the presence of minus answers signify a defiance or distortion of the stimulus field (Exner, 1993).

5.6.5.2. Data

When the S-% exceeds 40% in a protocol that has more than three minus responses, one can assume that strong sets that have been created through negativism or anger are playing a role in mediational distortions. The S- frequency for the sample is not elevated (Exner, 1993).

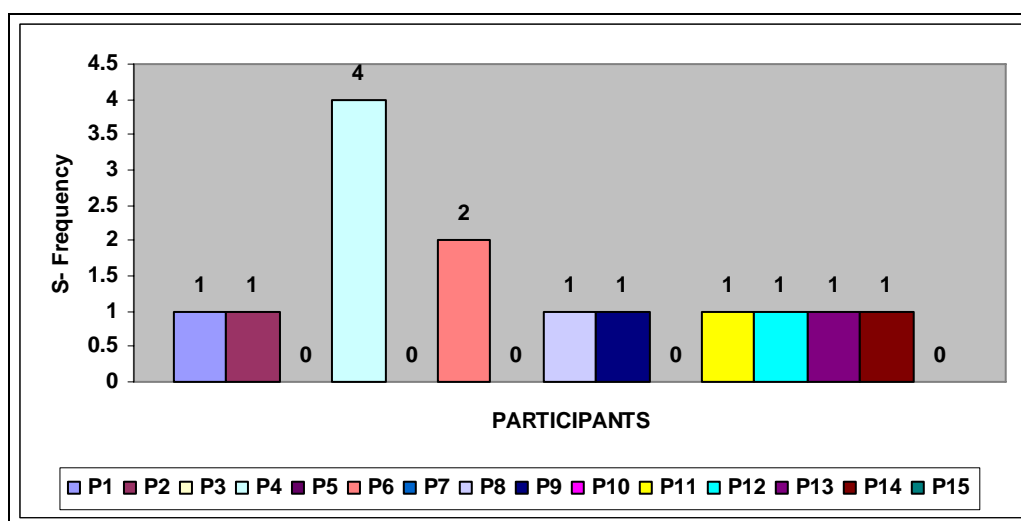


FIGURE 9: PARTICIPANTS S- FREQUENCY SCORES

5.6.6. Popular (P)

TABLE 12: COLLECTIVE RESULTS FOR POPULAR RESPONSES (P)

Variable	Mean	SD	Min	Max	Frequency	Median	Mode
Popular	3.73	1.65	1.00	7.00	15	4.00	4.00

5.6.6.1. Description

Popular responses take place when the participant involves the most distinctive distal properties of the blot. They measure the level at which the subject is able to more conventionally respond in situations where cues regarding appropriate behaviour are easily identified (Exner, 1993).

In order to interpret the popular responses one needs to consider the number of responses. When the number of responses falls between 17 and 28, as in the sample, then the expected number of popular responses is between 5 and 7 (Wiener, 1998).

5.6.6.2. Data

The mean for number of response in the sample is 18.60. However, the sample mean for popular responses is only 3.73, thus indicating a lower than average (average for Popular responses range = 4-7) number of popular responses. The lower than average score indicates that the participants gave fewer typical responses than expected and were not responding to the blots in a conventional or economical manner. The low number of popular responses may also indicate that these individuals are not able to view what is obvious to most people, which may have implications concerning intact reality testing. Not only are there a lower than average number of popular responses, but as indicated previously the X-% is also elevated. The popular score of 3.73 in conjunction with the elevated X-% (0.20), therefore identifies inaccurate rather than unconventional perception (Wiener, 1998).

The maximum value of the sample range for popular responses falls within the expected range and no negative connotations are associated with this finding. When too few popular responses are noted, as in the lower limit of the range, it may be an indicator of a persistent tendency to disregard social convention (Aronstam, 1005).

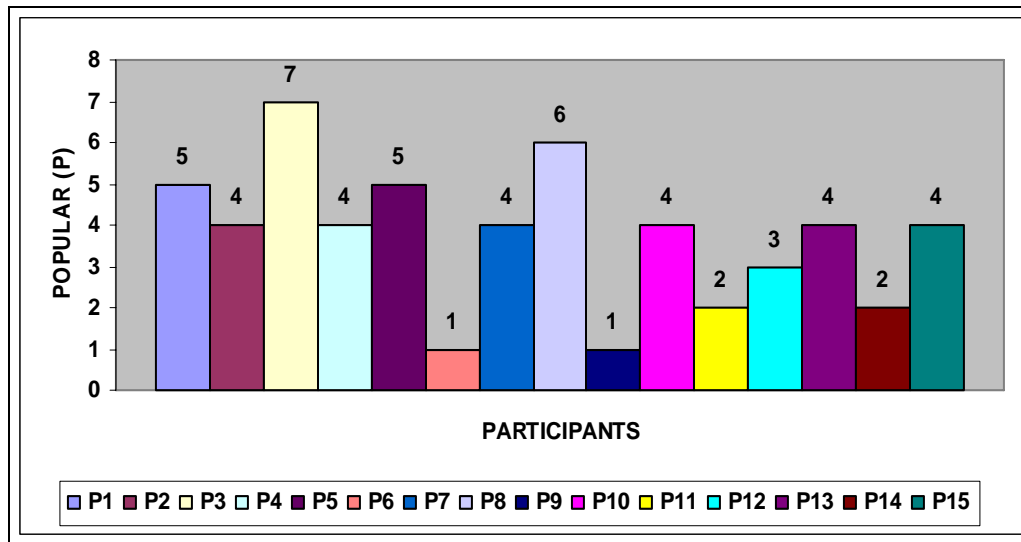


FIGURE 10: PARTICIPANTS POPULAR SCORES

5.6.7. FQ+

TABLE 13: COLLECTIVE RESULTS FOR FQ+

Variable	Mean	SD	Min	Max	Frequency	Median	Mode
FQx+	0.13	0.50	0.00	2.00	1	0.00	0.00

5.6.7.1. Description

This specific variable is limited to and based upon an amplification of conventional “o” responses. The subject tends to produce more form features than is necessary when he describes the object (Aronstam, 2005).

5.6.7.2. Data

The mean for the sample is 0.13. When the FQ+ is equal to zero no conclusions can be made. One needs to look at the subject's level of intellect when forming conclusions. In above average intellect subjects a FQ+ of 0 may indicate a relaxed, defensive or impaired approach to Mediation. The fact that only one subject gave FQ+ answers indicates that the criteria has no interpretive value for the sample as a whole. The higher limit of the range indicates that that particular subject is orientated to a certain degree to be precise when mediating stimuli (Aronstam, 2005).

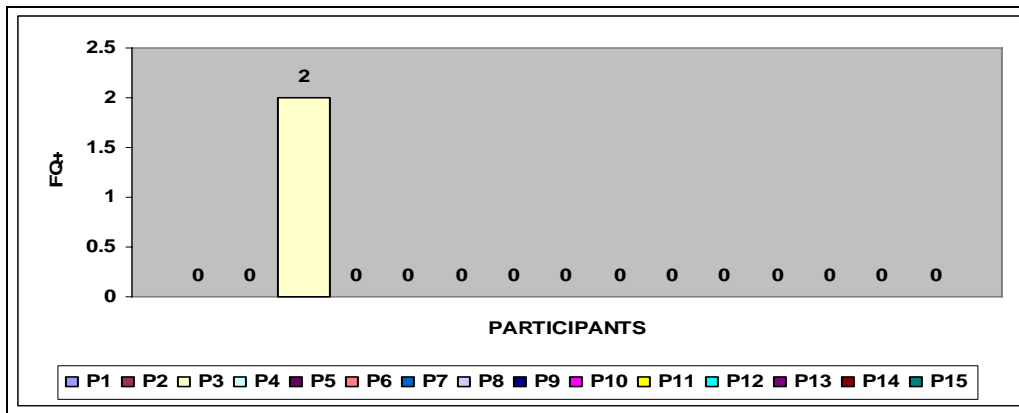


FIGURE 11: PARTICIPANTS FQ+ SCORES

5.6.8. X+%

TABLE 14: COLLECTIVE RESULTS FOR X+%

Variable	Mean	SD	Min	Max	Frequency	Median	Mode
X+%	0.42	0.12	0.22	0.60	15	0.46	---

5.6.8.1. Description

The X+% presents data that relates to the use of the form features in a common, reality-orientated manner. It is seen as a measure of perceptual accuracy and mediational conventionality. The X+% addresses the subject's mediational decisions (Exner, 1993).

5.6.8.2. Data

When considering the X+% the mean (0.42), lower (0.22) and higher (0.60) limit of the range fall into the same category. When the X+% of 0.42 is linked with an elevated Lambda style, it is viewed as an indication that some form of social isolation and/or social defensiveness may be present. The subject will avoid convention as a defence. In this way the subject maintains a degree of distance from an environment that is directly perceived by the subject as being threatening, demanding and un-giving (Aronstam, 2005).

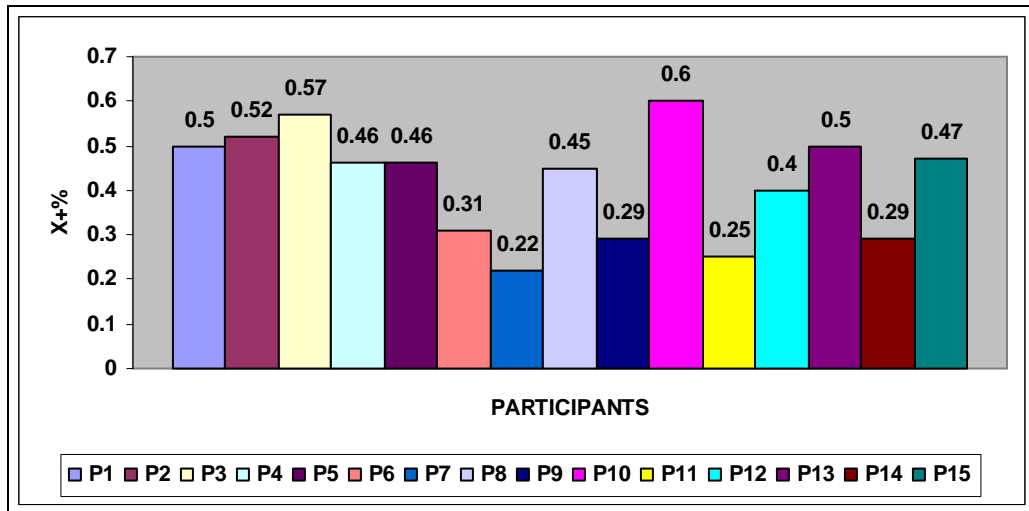


FIGURE 12: PARTICIPANTS X+% SCORES

5.6.9. Xu%

TABLE 15: COLLECTIVE RESULTS FOR XU%

Variable	Mean	SD	Min	Max	Frequency	Median	Mode
Xu%	0.37	0.15	0.07	0.61	15	0.36	0.40

5.6.9.1. Description

Xu% responses reflect a way of translating the stimulus field that is uncommon, but which maintains contact with reality. These responses indicate instances in which the subject has

expressed some of their own individuality into the responses. The Xu% looks at whether the subjects interpret their experiences in a conventional manner. When these responses occur in low frequencies it is an indicator of healthy Mediation; however when the frequency increases to a level where it lowers the X+% it can indicate an excessive commitment to the self and problems related to conventionality (Exner, 1993).

5.6.9.2. Data

The sample mean for the Xu% is 0.37, which is above average. Many mediational decisions may be unconventional or even unusual at times but reality testing will remain intact. The subject will not be overly influenced by social demands or expectations. The flexibility of the environment, along with the creativity and efficiency of the subject's approach to Mediation will determine if the heightened emphasis on individuality will be an asset or liability to the subject (Aronstam, 2005).

In instances where the Xu% exceeds 0.20, individuals are inclined to be more individualistic than others in the manner in which they view their environments. They display a tendency to be more adventurous than most in choosing which paths to follow. These individuals are associated with sensation-seeking behaviours (Weiner, 1998).

An elevated Xu% (0.37) in many cases results in a lower than average X+% (0.42). High frequencies of unusual responses may appear in protocols of individuals who feel less commitment to conventionality. If the environment is less demanding on the individual in relation to conformity and behavioural expectations the low X+% may be insignificant. However in instances where the environment is less acceptable to this form of unconventionality, the potential for frequent confrontations is substantial. In many instances, individuals who demonstrate disregard for social norms and regulations display protocols with lower than average X+% due to elevated Xu%. These protocols typically display low Popular as well as elevated Lambda scores, as presented by the sample (Exner, 1993).

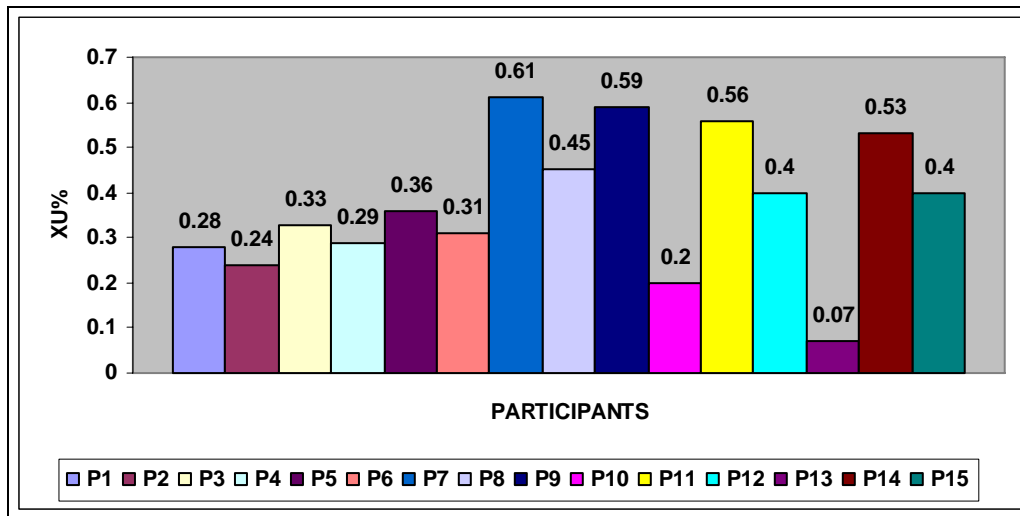


FIGURE 13: PARTICIPANTS XU% SCORES

5.6.10. Relationship between X+%, X-%, Xu% and S-%

In the interpretation of the Mediation cluster the relationship between the X+%, X-%, Xu% and S-% is of importance. When the X+% (0.42) is less than 70% it implies that the individual tends to make more unconventional translations of inputs than is considered normal. The result of this tendency is observed behaviour that is unconventional. When this finding is linked with an avoidant Lambda style it can be attributed to a strong orientation to maintain distance from, and thus cope with, environments that are perceived as being threatening, demanding and un-giving (Exner, 1993).

The Xu% distinguishes between subjects who are exceedingly individualistic and those who display severe mediational problems. In instances where the Xu% (0.37) exceeds 0.20 the subject is perceived as being more individualistic in nature. This individualism can at times be acceptable in certain environments; however, in other environments that are less tolerant, the subject is viewed as being out of step with reality (Exner, 1993).

The presence of minus responses always reflects a form of distortion in the translation of inputs. Although almost all subjects do produce minus responses, it becomes problematic

when the value for X-% (0.20) is higher than 0.15%. The S-% is interpreted in conjunction with the X-%. When the value for S-% (0.93) is higher than 40% it is likely that negativism or anger may contribute to the inaccuracies or distortion mentioned above. The presence of an X-% of 0.15 or more is an indication that concern around the elevated incidence of perceptual inaccuracy and/or the mediational distortions is necessary (Exner, 1993).

5.7. OTHER VARIABLES OF INTEREST

Within the data generated from the RIAP the following variables were found to be outside of the normal range. Although they do not form part of the Mediation cluster, and are therefore not part of the immediate focus of the study, these variables provide interesting data. They are presented in this chapter and it is recommended that they form the basis for further research in this area.

5.7.1. Erlebnistypus (EB) and Experience Actual (EA)

The EB is determined by the ratio Sum M: Weighted Sum C. In the Affective cluster the EB measures the impact that affect has on the psychological operations of the individual. However the EB is also interpreted in the Ideation cluster. The EB in relation to Ideation refers to characteristics of thinking as they relate to the process of decision making. In general the EB refers to a prominent mode of experiencing, either extratensive, introversive or ambitent. The normative spread for the EB is 40% extratensive, 40% introversive and 20% ambitent across a given sample. The mean for the sample was an EB of 2.33: 1.43. This would indicate an introversive mode of experience. The EB spread for the sample is 53.3% introversive, 20% extratensive and 26.6% ambitent. The introversive style is characterised by the use of inner life for the satisfaction of basic needs. A more cognitive approach is utilised when making decisions (Aronstam, 2005).

However, the presence of an elevated Lambda in the sample complicates the data for the EB. The elevated Lambda style includes a tendency to simplify complex or ambiguous

situations by ignoring aspects of the stimulus field. These tendencies can replace some of the aspects of an extratensive or introversive style (Exner, 1993).

After a review of the Lambda has been conducted a further investigation of the EB is conducted. The researcher must at this point conduct a review of the EA. This final step evaluates whether the data for the EB can indeed determine a distinctive coping style. When the score for the EA is less than 4 (EA's mean in the sample is 3.77) the EB is too sparse and cannot indicate a distinctive coping style (Aronstam, 2005).

5.7.2. The D and Adjusted D Score

The D score relates to the individual's current capacity for control. It refers to the ability of the person to use the resources available when making decisions. Stress tolerance increases as the individual's capacity for control improves. The Adjusted D displays information regarding the more common or usual capacity to formulate and control behaviour. The Adjusted D score for the sample is -0.07. This data indicates that adequate resources are available for stress tolerance and the demands of everyday living. However, the individual's controls may falter under severe, prolonged and unexpected stress (Aronstam, 2005).

5.7.3. Reflections and the Egocentricity Index

Reflections within the Comprehensive System are linked to narcissistic-like features. These features are rooted in the psychological organisation of the individual. The presence of reflections reveals an enhanced estimate of personal worth. These reflections are always seen as a risk due to the fact that the level of self-centeredness can impair the development of a mature balance between self-integrity and the concerns of others (Exner, 1993).

The mean value for $Fr + rF$ of the sample is 0.67. When the value for $Fr + rF$ is greater than 0 it indicates that exaggerated self-involvement may be linked with an elevated sense of

personal worth. This exaggerated estimation of personal worth and extreme self-involvement plays an important role in decision-making and subsequent behaviours. Individuals displaying this preoccupation with the self often struggle to establish and maintain meaningful interpersonal relationships. When individuals with these attributes find themselves in environments that are perceived as unresponsive, certain asocial and/or antisocial behaviours can arise (Aronstam, 2005).

The mean of the Egocentricity Index for the sample is 0.46 and falls slightly above the average range described by the Comprehensive System. The Egocentricity Index is a measure of the self-concern and self-esteem of the individual. It offers a description of the type of self-focus and self-attending behaviours that may take place within the individual. The score of 0.46 is an indication that the sample is more involved with themselves than most people. This is an interesting finding, given that these individuals are all professional athletes, a category of people who are known to be rather self-involved (Aronstam, 2005).

5.8. CONCLUSION

This chapter consisted mainly of the results of the different variables that form part of the Mediation cluster. The prerequisites for this cluster were addressed first, followed by the cluster variables. During the presentation of the Mediation variables and prerequisites, several interesting factors were noted. These findings will be dealt with and described in the discussion chapter to follow. In addition to the discussion of the Mediation variables, other variables that yielded interesting information were also discussed. Although not forming part of this specific study, these findings may prove to be valuable for further research at a later stage.

CHAPTER SIX

DISCUSSION AND RECOMMENDATIONS

6.1. DISCUSSION OF FINDINGS

6.1.1. Lambda (L)

According to Exner (1993) the Lambda plays an important role in the interpretation of an individual's protocol. The Lambda forms part of the 'core section' identified by the Comprehensive System. An elevated Lambda score (> 0.99) implies an excessive use of pure form with a resultant implication for the production of other variables. It therefore has important implications in the Affective, Capacity for Control, Information Processing, Ideation and Mediation clusters. With regards to the Mediation cluster, the Lambda is viewed as a pre-requisite for the interpretation of the cluster and has a global impact throughout the cluster's interpretation (Exner, 1993).

The most prominent finding from the investigation of the Mediation cluster is the presence of an elevated Lambda (Mean: $L=1.01$, Max: 2.20, Min: 0.53). This indicates that an avoidant style is present in the majority of the participants (60% of the participants displayed an elevated Lambda score).

At its most basic level Lambda relates to the individual's openness to experience. An elevated Lambda indicates a lack of such openness to experience. Behaviorally these individuals will ignore relevant features of their environment. The danger associated with this type of behaviour is that some aspects that are ignored may be of vital importance. The ignoring of important environmental cues or facets may impact the individual's decision-making ability and influence their capacity for control. Behaviour that complies with societal norms may not occur as often as what would normally be expected. This is often due to the simplification process associated with a high Lambda. Some unorthodox

behaviour may result due to the simplification of situations that are perceived as being complex or ambiguous. This finding is linked to the data of the Xu% that will be discussed at a later stage (Exner, 1993).

In relation to Cognitive Mediation an elevated Lambda is most commonly associated with a form of psychological economizing. Behaviorally this is presented as a tendency to narrow and simplify complex or ambiguous situations. However, not all situations can be simplified, due to their inherent complexity. In such situations the person's capacity for control may be compromised. The resultant loss of control can vary between individuals depending on how successful they are at simplifying the complexity of such situations (Exner 1993).

A further behavioural result of the group's high Lambda is its impact on decision-making. Decision-making tends to take place with little thought and sparse amounts of emotional investment. Decisions that are made in this manner are unlikely to have considered all the significant aspects on offer and therefore may not hold relevant influence (Aronstam, 2005).

The presence of an elevated Lambda may not always be a liability. According to Exner (2003), in instances where the elevated Lambda style is employed successfully it allows for adequate control to prevent the individual from being overwhelmed by ambiguity and complexity. However, if the style is unsuccessful it can lead to demands that may surpass the individual's capacity for sufficient control (Exner, 2003).

The greatest asset of a successfully employed elevated Lambda is the individual's ability to achieve a level of single-minded purposefulness. The ability to focus intensely on a specific area or goal can lead to success in a chosen area. This is mainly due to the fact that the elevated Lambda contains the potential disruptive impact of painful affect. Areas where the elevated Lambda is likely to have a positive influence include career, vocation or

extramural (sport) activities. The individuals can be intensely devoted and focused on the area of their choice (Weiner, 1998).

The presence of an elevated Lambda can be compared to a racehorse wearing blinkers. The blinkers aid in blocking out interruptions and promote a single-minded focus that is necessary for success. However, the cost of this single-minded focus is the loss of the ability to see the bigger picture.

The prominence of the participant's elevated Lambda styles could suggest on a simplistic level that the rowers simply avoid the sensation of pain. This would be similar to ignoring or not acknowledging the pain sensation. In this way the subject is able to maintain a degree of distance from the environment, when it is perceived as being unpleasant. However, the presence of the group's elevated Lambda scores is indicative of more than a simple ignorance of pain. The avoidant behaviour associated with an elevated Lambda is based on a form of psychological economising and simplification. These economising and simplifying processes lead to the avoidance of painful affect. The elimination of important psychological components allows for an apparent increase in pain tolerance levels. Through employing the elevated Lambda style successfully the athlete displays the ability to block out interferences that may impede them during the process of training or competition. The rower does not think about pain differently or perceive pain in another way, rather he is able to remove or avoid any form of emotional distractions that are present in the perception of pain. Through achieving this, the rower is able to increase his pain tolerance levels and thereby perform optimally.

6.1.2. Mediation Cluster Variables

The Mediation data indicates that intact reality testing is present in the group (mean: XA% = 0.79, mean: WDA% = 0.85). As such the reality testing will usually be appropriate for the situation. However, there exists significant evidence that there is something unusual (mean: Xu% = 0.37) about the mediation occurring within the group. The Mediation cluster

suggests that the form of mediation that occurs is conventional in nature but instances of unusual mediation may occur (Aronstam, 2005).

This unusual form of mediation displayed by the group (mean: $X_{+}\% = 0.42$, mean: $X_{u}\% = 0.37$) can indicate a disregard for social convention and excessive commitment to the self. Subjects often make use of their own individualistic responses in preference to more typical responses as indicated by the low incidence of popular scores (mean: Popular = 3.73). The degree of flexibility within a given environment, combined with the efficiency and creativity of the subject's individualistic responses, will determine if this tendency serves as an asset or a liability (Exner, 1993).

Situations may occur in which this type of individualistic mediation can be inappropriate for the setting. In some situations this could lead to the disregarding of reality to the extent where reality testing becomes impaired. This is evidenced by certain instances of serious mediational impairment found in the protocols of certain participants. A fine line seems to exist between the slight warping of reality for individual gain and the dangerous distortion of reality that is evidenced by serious mediational impairment (Weiner, 1998).

Although the mediation cluster indicates that appropriate reality testing is intact most of the time, the indications of unusual mediation are of particular interest when investigating the rower's mediation of pain. The type of mediation present may suggest that the rowers are inclined to interpret stimuli in an individualistic manner ($X_{u}\% = 0.37$). As such the stimuli of pain would also be mediated in an individualistic manner. Given a flexible environment this individualistic mediation associated with the experience of pain could result in a positive utilisation of the pain (Aronstam, 2005).

The presence of the elevated Lambda does hold significant information in explaining the behaviour associated with the perception of pain within this group of athletes. The elevated Lambda results in a lack of openness to experience. Globally this indicates that these athletes may exclude certain aspects of the sporting environment, such as the affective

components linked to pain. However it is also linked to the ability of the athlete to focus his attention on a chosen task at a level that is greater than the norm. Therefore if the elevated Lambda style is employed adequately the rower is able to concentrate his efforts totally on the sporting task at hand. In achieving this elevated level of focus, the affective facet of pain is blocked and therefore can not play a role as an inhibiting factor. The rower is ultimately able to increase his pain threshold and in achieving this, perform optimally (Exner, 1993).

6.2. SUMMARY OF FINDINGS

In conclusion it is important to sum up what the findings mentioned above essentially expressed about the phenomenon witnessed by the training staff at the High Performance Centre, in relation to the rower's unique relationship with pain in the sporting environment.

- The study was initially focused around the Mediation cluster and what type of information it would yield in relation to the research question. Through careful analysis and debate, mediation among the target group of rowers was found to be relatively adequate and reality testing was found to be intact. However, situations may arise in which unusual forms of mediation may take place. These unusual forms of mediation would still prove to be appropriate and within the boundaries of intact reality testing.
- The presence of the elevated Lambda style present in the group has proved to be the principal explanation for the unique behaviour displayed by the rowers in relation to the perception of pain. The rowers do not distort the mediation of pain. Pain is in no way misinterpreted by the group. The experience and perception of pain takes place in a normative manner. However, the elevated Lambda style allows for the avoidance of the affective components of pain. The emotions attached with the perception of pain are blocked and hence cannot influence the rower during training

or competition. Through the avoidance of painful affect the rowers are able to increase their pain tolerance and embrace the pain until they believe they are performing optimally. It is this fact that is allowing them to perform successfully in their sporting environment.

6.3. RESPONSE TO RESEARCH QUESTION

How do rowers mediate information regarding the experience of pain in the sporting environment? The study was initially undertaken after being approached by the staff at the High Performance Centre. There was notable curiosity about the manner in which the rowers were perceiving and utilising pain during their participation in the sport. The staff observed that the rowers were using pain as an indicator for success in training and competitions. In order to answer the research question the study extensively discussed the Mediation cluster as measured by the Rorschach Inkblot Test. This study confirms the anecdotal observations of the staff at the High Performance Centre. It objectively measured and identified an individualistic orientated, unusual mediational style which is built around a theme of avoidance. The mediational style present in the group has been attributed to these athletes mediation of pain. The presence of the elevated Lambda style within the group accounts for the rower's ability to increase their pain threshold through the process of avoiding affective influences and in doing this perform optimally.

A misinterpretation of pain during cognitive mediation does not occur. Rather an avoidance of the emotional influences associated with the perception of pain is employed successfully. The inhibiting affective features associated with pain are blocked and thus not allowed to play a distracting role in the overall success of the sporting task on hand.

As such the study will benefit the High Performance Centre and its staff, as well as the rowers themselves, by providing an explanation of the perception and usage of pain during training and competition. In addition this study could be of assistance in helping the staff of

the High Performance Centre develop training programs to increase performance and growth within the sport.

6.4. RECOMMENDATIONS

Although the study was focused on the Mediation cluster of the sample, it could be of interest to look at other clusters within the Comprehensive System. In particular, it is recommended that the EB style, EA, ADJ D and the Egocentricity Index linked with the high number of reflection answers be the basis for further research. The Ideation and Information Processing clusters that make up the Cognitive Triad along with the Mediation cluster could yield interesting information about the group's cognitive processes.

Given the small size of the sample it is not possible to draw general conclusions from this data. It is therefore recommended that a later study increase the sample size as well as allowing for greater representivity in terms of demographic variables.

It is possible that these findings could also be applied to other endurance sports such as cycling, swimming and marathon running. It might be interesting to assess the mediation of other athletes in similar fields.

It might be of some interest to assess the manner in which these athletes mediate information in other areas of their lives. Does this type of mediation influence the subject in their social, work or academic lives in the same way it does in the sporting environment?

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APPENDIX A

PERMISSION OBTAINED
FROM
HIGH PERFORMANCE CENTRE



PRIVATE & CONFIDENTIAL

23 August 2007

To Whom It May Concern:

I am writing to confirm that I, Monja Muller, Psychologist at the High Performance Centre (HPC) at the University of Pretoria approached Dr. Aronstam about the possibility for doing psychology research in our Rowing Academy. He advised me that one of the M.A. Clinical Psychology students, Mr. Jose Stephen Ferreira-Teixeira will do the research.

I am grateful for their involvement in an attempt to gain further understanding of the psychology of rowing.

Please do not hesitate to contact me on 012- 3629850 should you wish to discuss anything further.

Yours sincerely

A handwritten signature in cursive script, appearing to read 'M Muller'.

Monja Muller
Psychologist



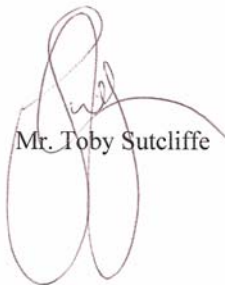
PRIVATE & CONFIDENTIAL

23 August 2007

To Whom It May Concern:

I, Mr. Toby Sutcliffe, CEO of the High Performance Centre have been notified of the upcoming research study that will be conducted by Mr Jose Ferreira-Teixeira under the supervision of Dr Maurice Aronstam of the University of Pretoria's psychology department. I am aware of the nature of the study and that one of my staff members, Ms Monja Muller approached Dr Aronstam with the proposed research study. I am willing to give consent to the relevant persons involved to commence with the research study.

Yours Sincerely



Mr. Toby Sutcliffe

APPENDIX B

BLANK INFORMED CONSENT FORM
AND
SAIROP IDENTIFYING DATA QUESTIONNAIRE



Pretoria 0002 Tel (012) 4204111

Faculty of Humanities

Informed Consent Form

Dear participant

I am a registered M.A. (Clinical Psychology) intern at the University of Pretoria. In order for me to complete my Masters degree, I have to conduct research in the form of a mini-dissertation. I decided to investigate the role that pain plays in the success of professional rowers. The Rorschach Inkblot Test will be used as the measurement instrument for the study. I would be grateful if you could assist me by participating in my study.

Title of the Study: Understanding the mediation of pain in the experience of competitive rowing: A Rorschach study.

Purpose: The study is aimed at gaining a better understanding of the psychological processes that take place in athletic rowers. The manner in which the rowers experience pain and mediate the information around the experience of pain will be explored. The information obtained will be used by the High Performance Centre's staff to develop mental skills packages that will help the rowers to obtain greater levels of performance. The

information gathered may be used to aid the selection of future rowers joining the institution.

Procedure: The Rorschach Inkblot test will be administered individually to each participant on separate occasions. The tests consists of ten inkblots cards. These cards will be presented to each participant, and there after be asked to comment on what they have seen in each inkblot. The test will be scored, coded and interpreted by the researching team.

Risks: There are no risks associated with this research.

Benefits: The information obtained will be used by the High Performance Centre's staff to develop mental skills packages that will help the rowers to obtain greater levels of performance and success. The information gathered may be used to aid the selection of future rowers joining the institution.

Conditions on which the research is carried out: Permission to conduct this research has been granted by the University of Pretoria. The High Performance Centre and its staff have been consulted and have given consent for the study to take place.

Participants' rights and confidentiality: The participants will have the right to withdraw at any point during the study with no negative consequences. The participants have the right to remain anonymous during the study and that is why no name or personally identifying information will be collected. Your data will be treated confidentially. The data will be stored for a period of ten years in the SAIROP database. Should any doubts arise during or after taking part in the study, you have the right of access to the researcher. The researcher's contact details are shown below.

I have read the above and understand the conditions of the study and I give full consent for my participation in the study.

Signed on the _____ day of _____ 2007 at _____.

Participant:

Thank you for your participation in the study.

Researcher:

Jose Stephen Ferreira-Teixeira

Tel:

E-Mail:

Supervisor:

Dr Maurice Aronstam

Tel:

E-mail:

Identifying Data for SAIROP Database	
Surname:	
Initials:	
Client ID:	
Birth date:	
Gender:	
Ethnicity	
Home language:	
Language of Assessment:	
Academic qualification: (Years formal education)	
Marital status:	
Socio-economic status: (Low, middle, high)	
Reason for referral:	
Test venue:	
Examiner ID: (Name)	
Gender of examiner:	
Coder(s) ID: [Name(s)]	
Test date:	
Other psychometrics:	
Brief psychiatric history:	

APPENDIX C

**DESCRIPTIVE STATISTICS
GENERATED BY RIAP**

RIAP™ Descriptive Statistics for 15 Selected Protocols

Variable	Mean	SD	Min	Max	Frequency	Median	Mode
Age	23.60	5.33	18.00	33.00	15	21.00	---
Yrs. Ed.	10.00	0.00	10.00	10.00	15	10.00	10.00
R	18.60	4.24	14.00	28.00	15	17.00	15.00
W	5.67	2.41	2.00	11.00	15	6.00	---
D	8.93	3.57	1.00	15.00	15	10.00	10.00
Dd	4.00	1.97	1.00	8.00	15	3.00	3.00
S	3.13	2.03	1.00	9.00	15	3.00	2.00
DQ+	4.00	2.39	0.00	8.00	14	4.00	2.00
DQo	14.27	4.42	6.00	22.00	15	15.00	---
DQv	0.33	0.60	0.00	2.00	4	0.00	0.00
DQv/+	0.00	0.00	0.00	0.00	0	0.00	0.00
FQx+	0.13	0.50	0.00	2.00	1	0.00	0.00
FQxo	7.80	2.95	4.00	13.00	15	7.00	---
FQxu	6.93	2.74	1.00	11.00	15	7.00	---
FQx-	3.60	1.45	2.00	6.00	15	3.00	3.00
FQx_none	0.13	0.34	0.00	1.00	2	0.00	0.00
MQual +	0.07	0.25	0.00	1.00	1	0.00	0.00
MQual o	1.40	1.45	0.00	5.00	10	1.00	0.00
MQual u	0.20	0.40	0.00	1.00	3	0.00	0.00
MQual -	0.67	0.70	0.00	2.00	8	1.00	0.00
MQual none	0.00	0.00	0.00	0.00	0	0.00	0.00
S-	0.93	1.00	0.00	4.00	10	1.00	1.00
M	2.33	1.85	0.00	6.00	12	2.00	2.00
FM	2.53	1.78	0.00	7.00	13	2.00	2.50
m	0.47	0.72	0.00	2.00	5	0.00	0.00
FM + m	3.00	2.10	0.00	8.00	13	3.00	4.00
FC	1.53	0.88	0.00	3.00	13	2.00	2.00
CF	0.47	0.72	0.00	2.00	5	0.00	0.00
C	0.13	0.34	0.00	1.00	2	0.00	0.00
Cn	0.00	0.00	0.00	0.00	0	0.00	0.00
FC + CF + C + Cn	2.13	1.45	0.00	6.00	13	2.00	2.00
WSum C	1.43	1.22	0.00	5.00	13	1.00	1.00
Sum C'	0.73	0.77	0.00	2.00	8	1.00	0.00
Sum T	0.00	0.00	0.00	0.00	0	0.00	0.00
Sum V	0.20	0.40	0.00	1.00	3	0.00	0.00
Sum Y	2.33	1.53	0.00	6.00	13	2.00	2.00
Sum Shading	3.27	1.81	0.00	7.00	14	3.00	---
Fr + rF	0.67	1.01	0.00	3.00	6	0.00	0.00
FD	1.47	1.89	0.00	7.00	9	1.00	0.00

F	8.80	3.37	4.00	15.00	15	9.00	---
Pair	6.33	3.28	1.00	14.00	15	6.00	---
3r+(2)/R	0.46	0.23	0.06	0.87	15	0.48	---
Lambda	1.01	0.53	0.31	2.20	15	1.00	1.00
EA	3.77	2.41	0.00	11.00	14	3.50	3.50
es	6.27	3.13	2.00	14.00	15	6.00	6.50
D Score	-0.73	1.34	-3.00	3.00	15	-1.00	-1.00
Adj D Score	-0.07	1.06	-2.00	3.00	15	0.00	0.00
a (active)	2.53	1.86	0.00	7.00	13	2.00	---
p (passive)	2.80	1.72	0.00	6.00	13	3.00	2.00
Ma	0.93	1.00	0.00	3.00	8	1.00	0.00
Mp	1.40	1.31	0.00	5.00	11	1.00	1.00
Intellectualization	1.27	1.06	0.00	4.00	15	1.00	1.50
Zf	10.33	2.49	6.00	14.00	15	10.00	---
Zd	0.87	4.16	-6.00	10.00	15	0.50	---
Blends	2.47	2.00	0.00	7.00	11	3.00	---
Blends/R	0.14	0.11	0.00	0.36	11	0.14	0.00
Col. Shading Blen	0.20	0.40	0.00	1.00	3	0.00	0.00
Afr	0.55	0.15	0.36	0.78	15	0.56	0.36
Popular	3.73	1.65	1.00	7.00	15	4.00	4.00
XA%	0.79	0.09	0.57	0.90	15	0.81	---
WDA%	0.85	0.09	0.67	1.00	15	0.89	0.90
X+%	0.42	0.12	0.22	0.60	15	0.46	---
X-%	0.20	0.09	0.10	0.43	15	0.19	---
Xu%	0.37	0.15	0.07	0.61	15	0.36	0.40
Isolate/R	0.21	0.10	0.00	0.43	14	0.19	0.18
H	1.40	1.08	0.00	4.00	12	1.00	1.00
(H)	0.67	0.94	0.00	3.00	6	0.00	0.00
Hd	1.53	1.20	0.00	4.00	11	2.00	2.00
(Hd)	0.67	1.07	0.00	4.00	6	0.00	0.00
Hx	0.00	0.00	0.00	0.00	0	0.00	0.00
All H Contents	4.27	2.52	0.00	9.00	14	4.00	5.00
A	5.27	2.29	2.00	11.00	15	5.00	5.00
(A)	0.53	0.72	0.00	2.00	6	0.00	0.00
Ad	3.53	1.71	1.00	7.00	15	4.00	5.00
(Ad)	0.40	0.49	0.00	1.00	6	0.00	0.00
An	1.13	1.09	0.00	4.00	10	1.00	0.50
Art	1.07	1.06	0.00	4.00	10	1.00	1.00
Ay	0.20	0.40	0.00	1.00	3	0.00	0.00
Bl	0.13	0.34	0.00	1.00	2	0.00	0.00
Bt	0.93	1.12	0.00	3.00	7	0.00	0.00
Cg	1.00	0.89	0.00	3.00	10	1.00	1.00
Cl	0.07	0.25	0.00	1.00	1	0.00	0.00

Ex	0.07	0.25	0.00	1.00	1	0.00	0.00
Fi	0.00	0.00	0.00	0.00	0	0.00	0.00
Fd	0.07	0.25	0.00	1.00	1	0.00	0.00
Ge	0.13	0.34	0.00	1.00	2	0.00	0.00
Hh	0.93	0.93	0.00	3.00	10	1.00	1.00
Ls	0.73	0.77	0.00	2.00	8	1.00	0.00
Na	0.93	0.93	0.00	3.00	9	1.00	0.00
Sc	1.07	1.00	0.00	3.00	10	1.00	1.00
Sx	0.00	0.00	0.00	0.00	0	0.00	0.00
Xy	0.07	0.25	0.00	1.00	1	0.00	0.00
Id	0.00	0.00	0.00	0.00	0	0.00	0.00
DV	0.00	0.00	0.00	0.00	0	0.00	0.00
INCOM	0.33	0.60	0.00	2.00	4	0.00	0.00
DR	0.00	0.00	0.00	0.00	0	0.00	0.00
FABCOM	0.07	0.25	0.00	1.00	1	0.00	0.00
DV2	0.00	0.00	0.00	0.00	0	0.00	0.00
INCOM2	0.13	0.50	0.00	2.00	1	0.00	0.00
DR2	0.00	0.00	0.00	0.00	0	0.00	0.00
FABCOM2	0.13	0.34	0.00	1.00	2	0.00	0.00
ALOG	0.00	0.00	0.00	0.00	0	0.00	0.00
CONTAM	0.00	0.00	0.00	0.00	0	0.00	0.00
Sum6 Sp. Scores	0.67	1.14	0.00	4.00	5	0.00	0.00
Lvl-2 Sp. Scores	0.27	0.77	0.00	3.00	2	0.00	0.00
WSum6	2.40	4.53	0.00	17.00	5	0.00	0.00
AB	0.00	0.00	0.00	0.00	0	0.00	0.00
AG	0.13	0.34	0.00	1.00	2	0.00	0.00
COP	0.33	0.47	0.00	1.00	5	0.00	0.00
CP	0.00	0.00	0.00	0.00	0	0.00	0.00
GHR	2.27	1.98	0.00	8.00	13	2.00	1.50
PHR	2.33	1.53	0.00	6.00	14	2.00	2.00
MOR	0.67	0.87	0.00	3.00	7	0.00	0.00
PER	0.00	0.00	0.00	0.00	0	0.00	0.00
PSV	0.13	0.50	0.00	2.00	1	0.00	0.00

APPENDIX C

**DESCRIPTIVE STATISTICS
GENERATED BY RIAP**

RIAP™ Descriptive Statistics for 15 Selected Protocols

Variable	Mean	SD	Min	Max	Frequency	Median	Mode
Age	23.60	5.33	18.00	33.00	15	21.00	---
Yrs. Ed.	10.00	0.00	10.00	10.00	15	10.00	10.00
R	18.60	4.24	14.00	28.00	15	17.00	15.00
W	5.67	2.41	2.00	11.00	15	6.00	---
D	8.93	3.57	1.00	15.00	15	10.00	10.00
Dd	4.00	1.97	1.00	8.00	15	3.00	3.00
S	3.13	2.03	1.00	9.00	15	3.00	2.00
DQ+	4.00	2.39	0.00	8.00	14	4.00	2.00
DQo	14.27	4.42	6.00	22.00	15	15.00	---
DQv	0.33	0.60	0.00	2.00	4	0.00	0.00
DQv/+	0.00	0.00	0.00	0.00	0	0.00	0.00
FQx+	0.13	0.50	0.00	2.00	1	0.00	0.00
FQxo	7.80	2.95	4.00	13.00	15	7.00	---
FQxu	6.93	2.74	1.00	11.00	15	7.00	---
FQx-	3.60	1.45	2.00	6.00	15	3.00	3.00
FQx_none	0.13	0.34	0.00	1.00	2	0.00	0.00
MQual +	0.07	0.25	0.00	1.00	1	0.00	0.00
MQual o	1.40	1.45	0.00	5.00	10	1.00	0.00
MQual u	0.20	0.40	0.00	1.00	3	0.00	0.00
MQual -	0.67	0.70	0.00	2.00	8	1.00	0.00
MQual none	0.00	0.00	0.00	0.00	0	0.00	0.00
S-	0.93	1.00	0.00	4.00	10	1.00	1.00
M	2.33	1.85	0.00	6.00	12	2.00	2.00
FM	2.53	1.78	0.00	7.00	13	2.00	2.50
m	0.47	0.72	0.00	2.00	5	0.00	0.00
FM + m	3.00	2.10	0.00	8.00	13	3.00	4.00
FC	1.53	0.88	0.00	3.00	13	2.00	2.00
CF	0.47	0.72	0.00	2.00	5	0.00	0.00
C	0.13	0.34	0.00	1.00	2	0.00	0.00
Cn	0.00	0.00	0.00	0.00	0	0.00	0.00
FC + CF + C + Cn	2.13	1.45	0.00	6.00	13	2.00	2.00
WSum C	1.43	1.22	0.00	5.00	13	1.00	1.00
Sum C'	0.73	0.77	0.00	2.00	8	1.00	0.00
Sum T	0.00	0.00	0.00	0.00	0	0.00	0.00
Sum V	0.20	0.40	0.00	1.00	3	0.00	0.00
Sum Y	2.33	1.53	0.00	6.00	13	2.00	2.00
Sum Shading	3.27	1.81	0.00	7.00	14	3.00	---
Fr + rF	0.67	1.01	0.00	3.00	6	0.00	0.00
FD	1.47	1.89	0.00	7.00	9	1.00	0.00

F	8.80	3.37	4.00	15.00	15	9.00	---
Pair	6.33	3.28	1.00	14.00	15	6.00	---
3r+(2)/R	0.46	0.23	0.06	0.87	15	0.48	---
Lambda	1.01	0.53	0.31	2.20	15	1.00	1.00
EA	3.77	2.41	0.00	11.00	14	3.50	3.50
es	6.27	3.13	2.00	14.00	15	6.00	6.50
D Score	-0.73	1.34	-3.00	3.00	15	-1.00	-1.00
Adj D Score	-0.07	1.06	-2.00	3.00	15	0.00	0.00
a (active)	2.53	1.86	0.00	7.00	13	2.00	---
p (passive)	2.80	1.72	0.00	6.00	13	3.00	2.00
Ma	0.93	1.00	0.00	3.00	8	1.00	0.00
Mp	1.40	1.31	0.00	5.00	11	1.00	1.00
Intellectualization	1.27	1.06	0.00	4.00	15	1.00	1.50
Zf	10.33	2.49	6.00	14.00	15	10.00	---
Zd	0.87	4.16	-6.00	10.00	15	0.50	---
Blends	2.47	2.00	0.00	7.00	11	3.00	---
Blends/R	0.14	0.11	0.00	0.36	11	0.14	0.00
Col. Shading Blen	0.20	0.40	0.00	1.00	3	0.00	0.00
Afr	0.55	0.15	0.36	0.78	15	0.56	0.36
Popular	3.73	1.65	1.00	7.00	15	4.00	4.00
XA%	0.79	0.09	0.57	0.90	15	0.81	---
WDA%	0.85	0.09	0.67	1.00	15	0.89	0.90
X+%	0.42	0.12	0.22	0.60	15	0.46	---
X-%	0.20	0.09	0.10	0.43	15	0.19	---
Xu%	0.37	0.15	0.07	0.61	15	0.36	0.40
Isolate/R	0.21	0.10	0.00	0.43	14	0.19	0.18
H	1.40	1.08	0.00	4.00	12	1.00	1.00
(H)	0.67	0.94	0.00	3.00	6	0.00	0.00
Hd	1.53	1.20	0.00	4.00	11	2.00	2.00
(Hd)	0.67	1.07	0.00	4.00	6	0.00	0.00
Hx	0.00	0.00	0.00	0.00	0	0.00	0.00
All H Contents	4.27	2.52	0.00	9.00	14	4.00	5.00
A	5.27	2.29	2.00	11.00	15	5.00	5.00
(A)	0.53	0.72	0.00	2.00	6	0.00	0.00
Ad	3.53	1.71	1.00	7.00	15	4.00	5.00
(Ad)	0.40	0.49	0.00	1.00	6	0.00	0.00
An	1.13	1.09	0.00	4.00	10	1.00	0.50
Art	1.07	1.06	0.00	4.00	10	1.00	1.00
Ay	0.20	0.40	0.00	1.00	3	0.00	0.00
Bl	0.13	0.34	0.00	1.00	2	0.00	0.00
Bt	0.93	1.12	0.00	3.00	7	0.00	0.00
Cg	1.00	0.89	0.00	3.00	10	1.00	1.00
Cl	0.07	0.25	0.00	1.00	1	0.00	0.00

Ex	0.07	0.25	0.00	1.00	1	0.00	0.00
Fi	0.00	0.00	0.00	0.00	0	0.00	0.00
Fd	0.07	0.25	0.00	1.00	1	0.00	0.00
Ge	0.13	0.34	0.00	1.00	2	0.00	0.00
Hh	0.93	0.93	0.00	3.00	10	1.00	1.00
Ls	0.73	0.77	0.00	2.00	8	1.00	0.00
Na	0.93	0.93	0.00	3.00	9	1.00	0.00
Sc	1.07	1.00	0.00	3.00	10	1.00	1.00
Sx	0.00	0.00	0.00	0.00	0	0.00	0.00
Xy	0.07	0.25	0.00	1.00	1	0.00	0.00
Id	0.00	0.00	0.00	0.00	0	0.00	0.00
DV	0.00	0.00	0.00	0.00	0	0.00	0.00
INCOM	0.33	0.60	0.00	2.00	4	0.00	0.00
DR	0.00	0.00	0.00	0.00	0	0.00	0.00
FABCOM	0.07	0.25	0.00	1.00	1	0.00	0.00
DV2	0.00	0.00	0.00	0.00	0	0.00	0.00
INCOM2	0.13	0.50	0.00	2.00	1	0.00	0.00
DR2	0.00	0.00	0.00	0.00	0	0.00	0.00
FABCOM2	0.13	0.34	0.00	1.00	2	0.00	0.00
ALOG	0.00	0.00	0.00	0.00	0	0.00	0.00
CONTAM	0.00	0.00	0.00	0.00	0	0.00	0.00
Sum6 Sp. Scores	0.67	1.14	0.00	4.00	5	0.00	0.00
Lvl-2 Sp. Scores	0.27	0.77	0.00	3.00	2	0.00	0.00
WSum6	2.40	4.53	0.00	17.00	5	0.00	0.00
AB	0.00	0.00	0.00	0.00	0	0.00	0.00
AG	0.13	0.34	0.00	1.00	2	0.00	0.00
COP	0.33	0.47	0.00	1.00	5	0.00	0.00
CP	0.00	0.00	0.00	0.00	0	0.00	0.00
GHR	2.27	1.98	0.00	8.00	13	2.00	1.50
PHR	2.33	1.53	0.00	6.00	14	2.00	2.00
MOR	0.67	0.87	0.00	3.00	7	0.00	0.00
PER	0.00	0.00	0.00	0.00	0	0.00	0.00
PSV	0.13	0.50	0.00	2.00	1	0.00	0.00

APPENDIX D

RORSCHACH STRUCTURAL SUMMARIES

AND

CONSTELLATION TABLES

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