UNIVERSITY COLLEGE CHICHESTER

an accredited college of the
UNIVERSITY OF SOUTHAMPTON

School of Sport, Exercise & Health Sciences

The Impact of Butler and Hardy's (1992) Performance Profiling Technique in Sport

by

Neil James Vivian Weston

Thesis for the degree of Doctor of Philosophy

August 2005

UNIVERSITY COLLEGE CHICHESTER

An accredited college of the

UNIVERSITY OF SOUTHAMPTON

ABSTRACT

SPORT, EXERCISE & HEALTH SCIENCES

Doctor of Philosophy

THE IMPACT OF BUTLER AND HARDY'S (1992) PERFORMANCE PROFILING TECHNIQUE IN SPORT

By Neil James Vivian Weston

This thesis has been completed as a requirement for a higher degree of the University of Southampton

The primary aim of the present thesis was to gain an insight into the usefulness and potential impacts of producing individual athlete performance profiles within a group environment (Butler & Hardy, 1992). Given the limited, and mainly descriptive, profiling literature, a strong two-stage research design, adhering to many of Denzin's (1978) triangulation principles, examined the perceptions of the two primary user populations (sport psychologist and athlete). Firstly British Association of Sport and Exercise Sciences (BASES) accredited sport psychologists (n=6) were interviewed to provide an in depth understanding of the usefulness and impact of the technique. Higher order themes, obtained via an inductive content analysis of the interviews, were combined with a review of the literature to produce a quantitative questionnaire examining the perceptions of a large number of BASES accredited consultants (n=56). An investigation of athlete perceptions regarding the impact of the technique firstly involved employing the group performance profiling procedure (Butler & Hardy, 1992)

on a male collegiate rugby union squad. Following the profiling session players (n=8) were randomly chosen and interviewed regarding their perceptions of the usefulness and impact of the technique. An inductive content analysis of the interviews produced a number of higher order themes that were combined with a review of the profiling literature to produce a quantitative questionnaire. Following the successful piloting of the questionnaire ten group performance profiling sessions were performed with a variety of sports teams. On completion of the profiling sessions athletes (n=191) were asked to complete the questionnaire to help ascertain what athletes perceived to be the most important impacts of performance profiling within a group environment. Inspection of both the consultant and athlete responses to the qualitative and quantitative procedures indicated that group profiling is useful in increasing athlete self awareness, evaluating performance, as a basis for goal setting, and enhancing communication and interaction both within teams and between athlete and coach. In addition, both consultants and athletes believed that performance profiling within a group environment would help to improve athlete intrinsic motivation. Hence the final study examined experimentally the impact of repeated group performance profiling on athletes' intrinsic motivation. Results showed that profiling on three occasions within a competitive season is useful in significantly improving athlete intrinsic motivation. The findings provide empirical support for Butler and Hardy's (1992) suggestion that performance profiling would positively influence athlete intrinsic motivation.

CONTENTS

ABSTRACT	1
DECLARATION OF AUTHORSHIP	9
ACKNOWLEDGEMENTS	11
CHAPTER 1	**12**
INTRODUCTION	13
An Overview of Thesis	17
CHAPTER 2	**18**
REVIEW OF LITERATURE	19
The performance profile procedure	19
The theoretical origins of performance profiling: Kelly's (1955) Personal Construct Theory	25
The hypothesised impacts of performance profiling	27
Limitations of the existing performance profiling literature	46
Research methods in the evaluation of sport psychology support services	48
Summary of the aims and structure of the thesis	51
CHAPTER 3	**52**
STUDY 1. CONSULTANT PERCEPTIONS OF THE USEFULNESS AND IMPACTS OF THE PERFORMANCE PROFILE PRODUCED IN A GROUP SETTING I.: A QUALITATIVE INVESTIGATION	
Introduction	53
Method	53
Results and Discussion	56
Summary	67
CHAPTER 4	**70**
STUDY 2. CONSULTANT PERCEPTIONS OF THE USEFULNESS AND IMPACTS OF THE PERFORMANCE PROFILE PRODUCED IN A GROUP SETTING II.: A QUANTITATIVE INVESTIGATION	

Introduction 71
Method 73
Results 76
Discussion 80
Summary 86

CHAPTER 5 **88**
STUDY 3. ATHLETES' PERCEPTIONS OF THE IMPACT OF PRODUCING AN INDIVIDUAL PERFORMANCE PROFILE WITHIN A GROUP SETTING I.: A QUALITATIVE INVESTIGATION
Introduction 89
Method 90
Results and Discussion 92
Summary 104

CHAPTER 6 **106**
STUDY 4. ATHLETES' PERCEPTIONS OF THE USEFULNESS AND IMPACT OF PRODUCING AN INDIVIDUAL PERFORMANCE PROFILE WITHIN A GROUP SETTING II.: A QUANTITATIVE INVESTIGATION
Introduction 107
Method 108
Results 111
Discussion 115
Summary 121

CHAPTER 7 **122**
STUDY 5. THE IMPACT OF REPEATED GROUP PERFORMANCE PROFILING ON THE INTRINSIC MOTIVATION OF COLLEGIATE SOCCER PLAYERS
Introduction 123
Method 127
Results 132
Discussion 137
Summary 142

CHAPTER 8 **144**

GENERAL DISCUSSION AND CONCLUSIONS 145

Summary of the thesis findings 145

Recommendations for future research 167

Implications for applied sport psychology practice 172

Conclusions 174

REFERENCES 175

APPENDICES 189

LIST OF APPENDICES

Appendix	Title	Page No.
1	Consultant interview guide & a sample consultant interview transcription	**190**
2	Consultant Performance Profile Questionnaire (CPPQ)	**211**
3	CPPQ & APPQ pilot questions	**214**
4	CPPQ exploratory factor analysis results	**216**
5	Athlete interview guide & a sample athlete interview transcription	**222**
6	Athlete Performance Profile Questionnaire (APPQ)	**236**
7	APPQ exploratory factor analysis results	**239**
8	Study 5 information sheet and consent form	**257**
9	The Sport Involvement Perceptions Questionnaire	**259**
10	Study 5 repeated measures MANOVA results	**261**
11	Study 5 bivariate correlation results	**271**
12	Study 5 repeated measures total IM ANOVA results	**275**

LIST OF FIGURES

Figure	Title	Page No.
1.1	An overview of the thesis research design.	**16**
2.1	Example performance profile	**21**
2.2	A summary of the proposed impacts of performance profiling as suggested in the literature	**28**
2.3	The Self Determination Continuum (Deci & Ryan, 1985a)	**31**
2.4	The Hierarchical Model of Intrinsic and Extrinsic Motivation in Sport and Exercise (Vallerand, 2001)	**34**
3.1	Raw data and higher order themes for the impacts of producing individual performance profiles as perceived by BASES accredited sport psychologists	**58**
4.1	Summary of the literature evidence and study one findings regarding the athlete specific impacts of performance profiling in a group setting	**72**
5.1	Raw data and higher order themes for the impacts of producing an individual performance profile in a group setting as perceived by athletes	**94**
5.2	Raw data and higher order themes for the future benefits of producing a performance profile in a group setting as perceived by athletes	**98**
6.1	Summary of literature evidence and study three findings regarding the impacts of performance profiling in a group setting.	**107**
7.1	Changes in total Intrinsic Motivation (IM) over time for each condition.	**133**
7.2	Changes in Intrinsic Motivation to Experience Stimulation (IMS) over time for each condition.	**135**
7.3	Changes in Intrinsic Motivation to Toward Accomplishment (IMA) over time for each condition.	**135**
7.4	Changes in Intrinsic Motivation to Know (IMK) over time for each condition.	**136**

LIST OF TABLES

Table	Title	Page No.
4.1	Descending list of the means (& standard deviations) of the consultant (n=56) perceived impacts of performance profiling	**77**
4.2	The factor analysis of the impact items from the CPPQ	**78**
6.1	Mean ratings (& standard deviations) of the athlete (n=191) perceived impacts of producing a performance profile in a group setting	**112**
6.2	Mean ratings (& standard deviations) of the athlete (n=191) perceived potential benefits of performance profiling in the future	**112**
6.3	Factor analysis for the impacts & future benefits of profiling from the APPQ	**114**
7.1	Means (& standard deviations) for the intrinsic motivation scores over time.	**133**
8.1	Overview of the main impacts identified by the four qualitative and quantitative studies	**148**

DECLARATION OF AUTHORSHIP

I, Neil Weston declare that the thesis entitled 'The impact of Butler and Hardy's (1992) performance profiling technique in sport' and the work presented in it are my own. I confirm that:

- this work was done wholly or mainly while in candidature for a research degree at University College Chichester;
- where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
- where I have consulted the published work of others, this is always clearly attributed;
- where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
- I have acknowledged all main sources of help;
- where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
- parts of this work have been published as:

Weston, N.J.V., Graydon, J., Greenlees, I., Butler, R.J., & Thelwell, R.C. (2001). Athletes' perceptions of the potential impacts of a performance profiling session. Poster presented at the Annual Association for the Advancement of Applied Sport Psychology, Orlando, Florida, USA. October, 2001.

Weston, N.J.V., Greenlees, I., Graydon, J., & Thelwell, R.C. (2004). Sport psychology consultant perceptions of the usefulness and impacts of performance profiling within a

group setting. Poster presented to the Annual North American Society for the Psychology of Sport and Physical Activity, Vancouver, British Columbia. June 2004.

Weston, N.J.V., Greenlees, I., & Graydon, J. (2004). The impact of repeated group performance profiling on the intrinsic motivation of collegiate soccer players. Poster presented to the Annual North American Society for the Psychology of Sport and Physical Activity, Vancouver, British Columbia. June 2004.

Signed: .....

Date:.....

ACKNOWLEDGEMENTS

I am indebted to many people who have helped me to complete this thesis.

Firstly I'd to thank my supervisors Dr Jan Graydon and Dr Iain Greenlees. Thanks Jan for your support and advice throughout. Many thanks to Iain for listening, advising and guiding me through the thesis from the generation of the idea to the last paragraph.

Furthermore I'd like to extend my thanks to Dr Tim Holder, Dr Terry McMorris, and Beverly Hale for their advice at various stages throughout the thesis. Thanks also for the support of the South House postgrads 1998 – 2001 and all the athletes and consultants who participated in the thesis.

In the early stages of the thesis I was able to discuss with Dr Richard Butler his thoughts on the profiling technique and my thesis proposal. I am very grateful for his supportive comments and in particular his advice on the design of the first phase of the thesis.

In the later stages I would like to thank Dr Richard Thelwell for letting me sound off ideas and being available to help out whenever possible. I must also thank Dr Clare Hencken for her assistance in the data collection of the final study.

I would like to thank my family, Mum, Dad, Scott and Lynsey. In particular I'd like to thank my parents for their continuous loving support.

Finally, thank you to Sarah for being there, providing encouragement, and above all having no real interest in the thesis whatsoever!

CHAPTER 1

INTRODUCTION

The systematic evaluation of mental skills services has been proposed as essential to enhancing the accountability and credibility of the work provided by sport psychologists (Anderson, Miles, Mahoney, & Robinson, 2002; Brewer & Shillinglaw, 1992; Dishman, 1983; Dunn & Holt, 2003; Gould, 1990; Gould, Tammen, Murphy & May, 1991; Grove, Norton, Van Raalte & Brewer, 1999; Smith, 1989; Vealey, 1988; Weigand, Richardson & Weinberg, 1999). Despite the increasing use of sport psychology services (Hardy & Jones, 1994), only a limited number of research articles have documented the evaluation of these services. Very little research has detailed the evaluation of such services by the sport psychologists themselves (Gould, Tammen, Murphy & May, 1989; Gould et al., 1991; Partington & Orlick, 1991; Suinn, 1985), by coaches (Gould et al., 1991; Partington & Orlick, 1987a; Weigand, Richardson & Weinberg; 1999) or by the sport science and medicine administrators (Gould et al., 1991). Surprisingly, given the numerous articles describing sport psychology interventions employed by consultants with athletes (Cupal, 1998; Greenspan & Feltz, 1989; Vealey, 1994; Weinberg & Comar, 1994), little research has documented the athletes' evaluation of the sport psychology service they receive (Dunn & Holt, 2003; Gould et al., 1991; Landin & Hebert, 1999; Orlick & Partington, 1987; Weigand, Richardson & Weinberg; 1999).

A technique that has been employed frequently by sport psychologists as part of these services is the performance profile (Butler & Hardy, 1992). Originally developed by Butler (1989) with the Great Britain Olympic boxing team, performance profiling is an assessment tool primarily employed by sport psychologists to enhance athlete awareness (Butler, 1989, 1997; Butler & Hardy, 1992; Butler, Smith & Irwin, 1993). The technique evolved from a dissatisfaction with traditional sport psychology consultancy approaches (Boutcher & Rotella, 1987; Thomas, 1990, cited in Butler & Hardy, 1992) that encouraged little involvement by the athlete in the decision making regarding the initial performance assessment phase (Butler & Hardy, 1992). The authors proposed that this external control/influence could result in a weakening of the athlete's motivation for future psychological skills training interventions. Through an understanding of selected principles of Kelly's (1955) Personal Construct Theory,

Butler and Hardy (1992) proposed that the performance profile would overcome such problems by increasing the internal control and involvement of athletes in the initial performance assessment phase. This, the authors proposed, would increase the athlete's intrinsic motivation to adopt and adhere to future training interventions.

Traditionally performance profiling is performed with individual athletes or a group of athletes with the goal of producing an individualised performance profile (Butler & Hardy, 1992). The central tenet of the procedure is the dominant role assumed by the athlete in identifying the essential qualities for their sport and then personally assessing themselves on those qualities. Through this assessment athletes are able to establish for themselves those areas that they perceive require improvement, thus increasing the likelihood of the athlete engaging and adhering to future training interventions to improve those areas of weakness (Jones, 1993).

Several impacts, uses and benefits have been suggested to accrue from the use of the performance profile with athletes (Hardy & Jones, 1994). These include the identification of athlete perceived strengths and weaknesses, a basis for goal setting, a performance monitoring tool and an aid to help structure training. Butler and Hardy (1992) suggest that the performance profile has been employed in a wide variety of different sports, a statement later supported by Doyle and Parfitt (1997). However despite this suggested widespread use, very few articles have been published relating to the application of the technique. Additionally the majority of these articles have been descriptive in nature (Butler, 1995, 1997; Butler, Smith & Irwin, 1993; Dale & Wrisberg, 1996; Jones, 1993; Potter & Anderson, 1998) with only three articles (Doyle & Parfitt, 1996, 1997; Palmer, Burwitz, Collins, Campbell & Hern, 1996) attempting to investigate experimentally the validity of the technique. Despite the assertions of a few practitioners (Butler & Hardy, 1992; Dale & Wrisberg, 1996; Doyle & Parfitt, 1996, 1997; Jones, 1993) regarding the potential usefulness of performance profiling, no research has attempted to evaluate systematically the sports psychology consultant's perspective of the impacts of the performance profile on the athlete.

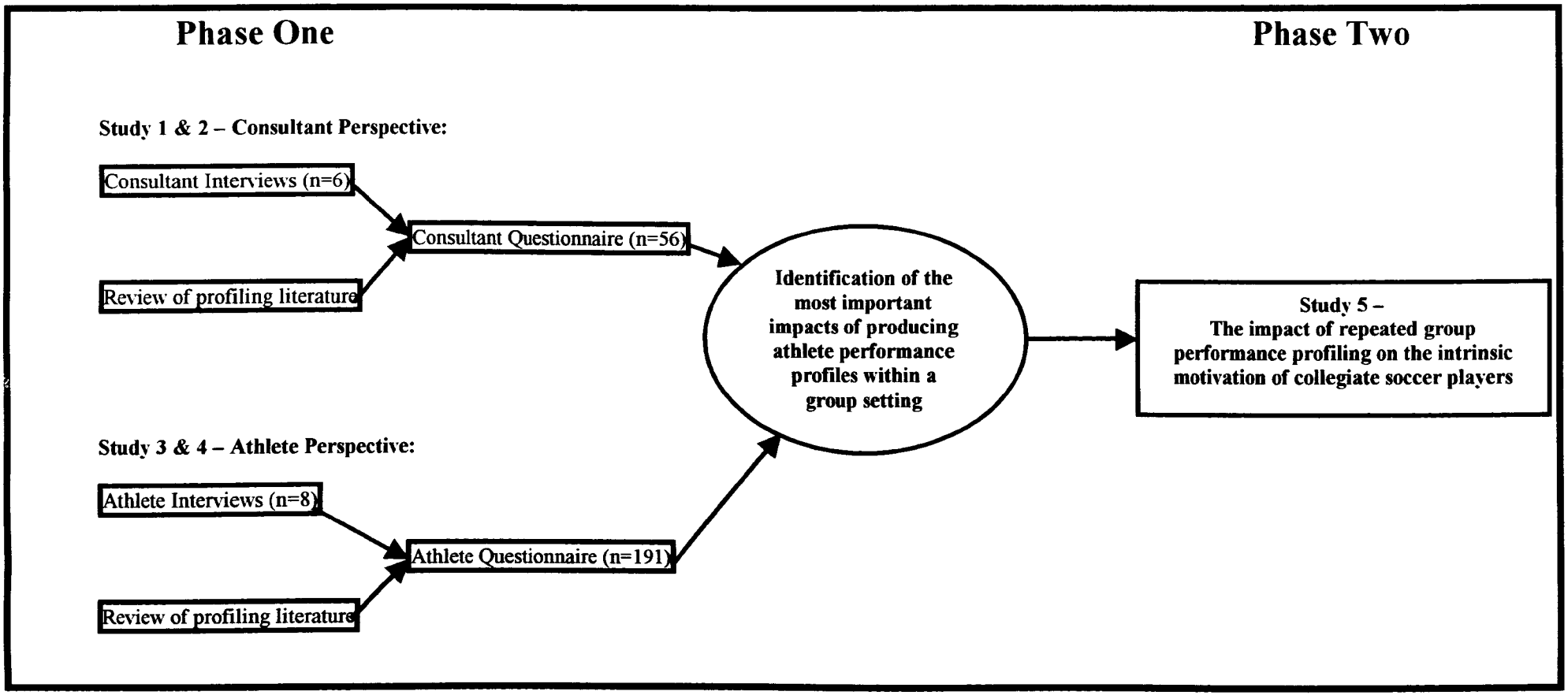
Similarly, despite Butler and Hardy (1992) originally proposing to investigate athletes' perceptions of the performance profile, no such research has been carried out. Strean

(1998) suggests that understanding and describing athletes' beliefs about the efficacy of interventions is important. Whilst a large number of benefits or impacts of the performance profile on athletes have been proposed no article's sole research aim has been to investigate the perspective of athletes. Palmer et al. (1996), whilst examining the validity of performance profiling, found that the majority of the fourteen netball players they surveyed believed profiling to be useful. Similarly, D'Urso, Petrosso and Robazza (2002) found that five out of the ten rugby union players they interviewed believed profiling to be beneficial in improving their self awareness. However, both research articles were confined to a single sport population with a small sample size and lacked a systematic analysis of the athletes' perceptions of the performance profile technique (Doyle & Parfitt, 1997).

Given the above deficiencies in the performance profiling literature, the aim of the present thesis was to overcome these problems and identify the key impacts of producing individual performance profiles within a group environment. Whilst it is acknowledged that athlete performance profiles can be produced on a one to one basis, it was felt that in order to evaluate effectively the perceptions of a large number of athletes it would be more advantageous to examine the production of athlete profiles within a group setting. Furthermore the majority of published profiling articles (Butler Hardy, 1992; Dale & Wrisberg, 1996; Doyle & Parfitt, 1996, 1997, 1999; Palmer et al., 1996; Potter & Anderson, 1998) have utilised the group procedure.

An understanding of the impacts of profiling was established through the examination of consultant and athlete perceptions using a two stage research design with each user population (sport psychologists and athletes) being examined independently (see figure 1.1). Firstly semi-structured interviews were used to provide a detailed account of user perceptions regarding the impacts of the profiling procedure. Analysis of the interviews combined with a review of the performance profiling literature provided items for a closed questionnaire to enable a widespread quantitative analysis of user perceptions in the second stage. The secondary aim of the present thesis was to test experimentally whether repeat performance profiling within a group environment could significantly improve a psychological impact (i.e. intrinsic motivation) deemed important by both consultants and athletes in the earlier qualitative and quantitative investigations.

Figure 1.1 An overview of the thesis research design.



It is important at this stage to state that throughout the thesis the term 'performance profile' will represent the outcome or visual display of the profiling procedure. Any reference to the term 'profiling' will relate to Butler and Hardy's (1992) performance profiling procedure. Furthermore when discussing the performance profiling literature, the present thesis will be referring to the general technique irrespective of whether it was performed on a one-to-one or group basis, unless stated otherwise. However when referring to any of the thesis method or results, the terms 'profiling procedure' or 'performance profiling' will refer to the group profiling procedure in line with the aims of the thesis.

AN OVERVIEW OF THE THESIS

Having introduced the concept of performance profiling and the rationale for examining this particular area of sport psychology, Chapter 2 provides an overview of the profiling procedure, identifying the theoretical roots of the technique in addition to presenting a review of the performance profiling literature. Following the literature review, Chapters 3 to 6 present the findings of both consultant and athlete perspectives of the impacts of performance profiling. Chapter 3 outlines a detailed qualitative examination of sport psychology consultant opinions regarding the impact of the technique which is supplemented by a quantitative analysis of the perceptions of a larger population of consultants in Chapter 4. Chapters 5 and 6 respectively detail the qualitative and quantitative examination of athlete perceptions of the impact of performance profiling. Following the systematic evaluation of athlete and consultant opinions of the profiling procedure, chapter 7 provides an examination of the impact of producing individual performance profiles within a group environment on athlete intrinsic motivation. Finally, Chapter 8 provides a general discussion of the thesis findings, highlighting possible areas for future research and the implications to sport psychology practitioners.

CHAPTER 2

REVIEW OF LITERATURE

The present review begins with an overview of the various ways in which the profiling procedure has been employed and continues with an examination of the theoretical underpinning of Butler and Hardy's (1992) profiling technique. The next section presents a review of the performance profiling research, specifically examining the impacts that have been derived from the use of the technique with sporting populations. Finally an outline of the limitations in the profiling literature in addition to an overview of the research design and aims for the present investigation is provided.

The Performance Profile Procedure

The performance profiling procedure (Butler, 1989), was originally employed with the Great Britain Olympic Boxing team in the lead up to the 1988 Seoul Olympics. Butler (1989) proposed that in order to succeed with any intervention a sport psychologist must empathise with the athlete and understand 'the boxer's perception of themselves' (p.77). Consequently Butler decided to interview the boxers to understand what they perceived were the integral qualities required to perform successfully. Following the conclusion of all interviews, producing a vast number of attributes, Butler (1989) brought the boxers together as a group and facilitated agreement on the twenty most important qualities. Each boxer was then asked to rate themselves on a scale of 1 to 7 to help identify what each athlete perceived to be their strengths and weaknesses. Butler called the final product of the procedure the 'self perception map', later termed the performance profile (Butler & Hardy, 1992).

Whilst Butler (1989) had introduced a useful alternative approach to sport psychology performance assessment, his description of the procedure was both brief, vague and lacked any theoretical underpinning to substantiate or validate his approach. Hence in 1992, following a number of years consulting with the British Olympic Boxing team, he formalised the performance profile procedure outlining specifically how it might be employed in both a group and individual consultancy setting in addition to detailing its theoretical roots (Butler & Hardy, 1992). This procedure, which differed slightly from Butler's (1989) original approach, has since become the template from which a variety

of alternative approaches (e.g., Dale & Wrisberg, 1996) have been adapted to suit consultancy demands.

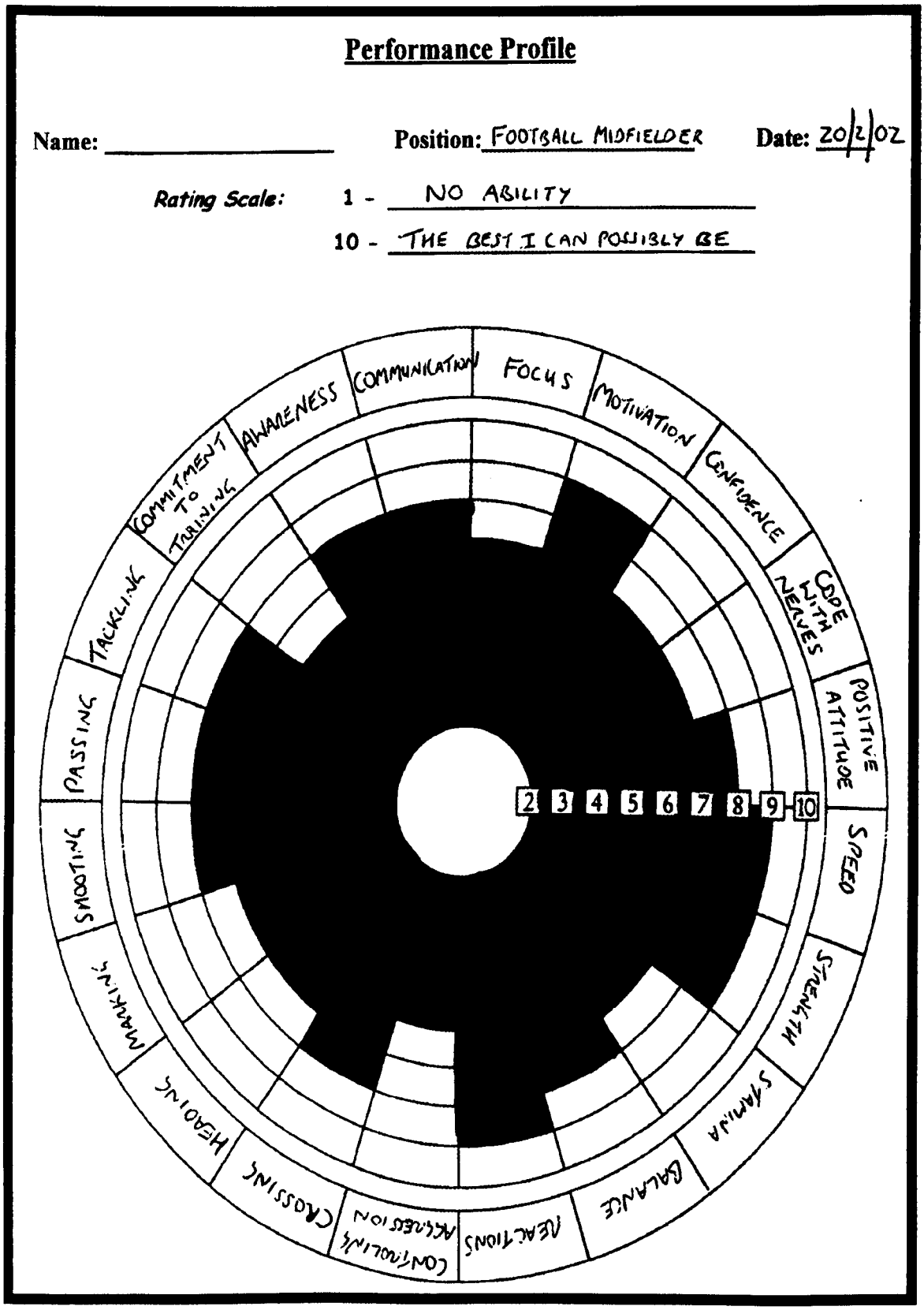
Butler and Hardy's (1992) Performance Profile Procedure

The traditional performance profiling procedure follows three simple phases that can be employed with both individuals and with groups of athletes. In phase one performance profiling is introduced to the athlete as a useful method of making the athlete more aware of what he/she believes to be important to performing successfully. The athlete is instructed that there are no right or wrong answers and that through the process of identifying their perceived strengths and weaknesses, future training programmes can be designed. An example performance profile (figure 2.1) may be presented and discussed with athletes to highlight the procedure and outcome of the profiling.

Phases one and three of the procedure are the same for both individual and group settings. However in phase two, where the qualities are generated to form the basis of the athlete's individual performance profile, the procedure differs. In a group setting the qualities can be developed through brainstorming. Athletes are split into small groups and asked to consider "what in your opinion are the qualities or characteristics of an elite athlete in your sport?" (Butler & Hardy, 1992, p.256). Each group brainstorms for approximately ten minutes to generate a list of qualities which are then shared with the rest of the squad. Following presentation of each group's thoughts the athletes are then asked individually to choose the qualities they consider to be integral to their performance in relation to their style of play. In an individual setting the athlete elicits the attributes on a one to one basis with the help of the sport psychologist.

The third and final phase of performance profiling involves the assessment of the qualities chosen by the athlete. The athlete is asked to rate themselves on a zero to ten scale, zero being the lowest possible ability and ten being the ideal level for each quality. The ratings are in relation to the athlete's current perception of their ability on each of the qualities. The outcome of the profiling procedure (example found in figure 2.1) provides the athlete with a visual display of what they perceive to be the integral qualities for performing successfully in their sport, and also provides information about their perceived strengths and weaknesses in relation to those qualities.

Figure 2.1: Example Performance Profile



Variations of the Profiling Procedure

Since its inception performance profiling has been employed in a wide variety of both individual and team sports (Doyle & Parfitt, 1997). This has resulted in the original procedure being modified to suit the demands of the particular consultancy situation. The majority of articles (Butler, 1997; Butler, Smith & Irwin, 1993; Dale & Wrisberg, 1996; Doyle & Parfitt, 1996, 1997, 1999; Palmer et al., 1996; Potter & Anderson, 1998) have used the basic group profiling procedure outlined by Butler and Hardy (1992) in which a group brainstorming session is followed by the production of individual athlete performance profiles.

Butler (1997) provided a unique approach to the generation of profile qualities to meet new scoring regulations enforced by the governing body of amateur boxing. Previously a subjective analysis, by three judges, of a boxer's ability to attack and defend over the course of the contest was used to determine the outcome of a bout. However with the introduction of a new computerised scoring system the importance of a certain style of boxing determined that it was more important to identify the critical attributes that would scores points than to determine the athlete's individual perception regarding performance. Hence, utilising a similar procedure to the original used by Butler (1989), a 'Scoring Machine Profile' was produced in which the opinions of boxers, coaches and sports scientists determined a set number of qualities that they agreed would meet the demands of the new scoring system. This template or fixed profile was then rated by the boxers and used as a basis for setting goals to improve areas of perceived weakness and monitor progress in the lead up to competitions.

Using a group of Italian rugby players participating in the top Italian national championship, D'Urso, et al. (2002) provided another alternative approach to the generation of profile qualities. The aim of their study was to compare the influence of the performance profiling procedure and the individual zones of optimal functioning model (Hanin, 1980, 1986) in predicting rugby performance. A performance profile was constructed, utilising nomothetic and idiographic approaches, containing both emotional and traditional profiling qualities. The emotional characteristics (e.g., nervous, energetic etc.) were determined through the selection of three qualities from an existing multidimensional anxiety measure (nomothetic) and six qualities (3 positive & 3 negative) individually chosen by each athlete to represent emotions that facilitate and

debilitate optimal performance (idiographic). The more traditional profiling qualities were determined using two approaches. The first involved a former rugby player, sport psychologist, two expert coaches and a physical trainer, in a group brainstorming format similar to that proposed by Butler, Smith and Irwin (1993). This determined four essential qualities for rugby performance (nomothetic). This group of sport professionals then identified a list of technical, physical and tactical qualities which, when finalised, were given to the rugby players. Athletes were then asked to individually choose those qualities, from the prepared list, that they felt were essential to their rugby performance (idiographic). Following the generation of the final profile of 22 attributes, authors examined how well athlete profile ratings could predict subsequent rugby performance. The results suggested that profiling could be useful in the prediction of rugby performance.

In addition to there having been some variability in the generation of profile qualities, alternative types of profiles have been constructed. Dale and Wrisberg (1996), in their consultancy with a female collegiate volleyball team, produced both coach and team performance profiles in addition to the traditional individual athlete profiles. Whilst the individual athlete profiles adhered to Butler and Hardy's (1992) group profiling, team and coach profiling procedures slightly differed. The authors asked athletes to generate and then come to a consensus as to the qualities reflective of a successful team and ideal coach. Following this, each athlete was asked to rate the team and coach independently on the qualities of each profile on a scale of 1 to 10. A mean score for each attribute was established to determine the team's consensus regarding perceived strengths and weaknesses. At this point the coach was asked to rate independently each of the profiles to provide a comparison between athlete and coach opinions. This was subsequently used as a discussion tool for addressing the key athlete, team and coach performance related issues.

The comparison of coach and athlete perceptions regarding the ratings of profile attributes has been performed successfully in a number of consultancy settings (Butler, 1989; 1995; Butler & Hardy, 1992; Butler, Smith & Irwin, 1993). Jones (1993) suggests that given the opportunity, consultants should attempt to get the perception of the coach regarding the athlete's performance levels as this can provide some valuable information. In his case study with a female racket player, Jones (1993) was unable to

employ such a strategy as the athlete did not have a coach at the time of consultancy. However his article provided a useful application of the performance profile when produced in a one to one setting. Using a completed profile example and prompts when appropriate, the athlete produced a list of twenty five constructs from which to rate her ability. One of the main aims of the consultancy was to establish the most appropriate areas for psychological interventions. Jones (1993) employed a useful variation of the basic rating procedure by asking the athlete to rate each quality on an importance scale of 1 ('not important at all') to 10 ('of crucial importance'). As is common with most other profiling procedures (e.g., Butler & Hardy, 1992; Butler, Smith & Irwin, 1993), Jones asked the athlete to determine their ideal score and current level of ability on each of the qualities again on a scale of 1 ('couldn't be any worse') to 10 ('couldn't be any better'). Taking the self assessment score (SAS) away from the ideal (I) and multiplying it by the importance rating (IR) produced a discrepancy score (D): D = (I - SAS) x IR. This provided an indication of the areas requiring the most improvement (e.g., a quality such as 'strength' where SAS = 7, I = 10, IR = 7, resulting in D = (10-7) x 7 = 21). Based on this procedure, Jones was able to identify not only those areas of weakness but also the most important areas that required immediate attention.

This quantification of the profiling procedure was further adopted by Doyle and Parfitt (1996; 1997) in their examination of the validity of the performance profile. In both studies a simplified version of Jones's (1993) discrepancy rating was utilised. Employing Butler and Hardy's (1992) group quality generation procedure, athletes were asked to identify the qualities reflective of an elite athlete in their event. The importance rating was used to establish the ten most important qualities for each athlete from which a discrepancy score for each quality was determined, taking the athlete's rating of their present ability on each of the qualities ('now') away from their ideal rating (i.e. I – SAS).

In summary a number of alternative profiling procedures have been adopted. Some have centred on modifying the generation of profile attributes (Dale & Wrisberg, 1996; D'Urso et al., 2002) whilst others have attempted to devise innovative approaches to the profile ratings procedure (Doyle & Parfitt, 1996, 1997; Jones, 1993). As D'Urso et al. (2002) indicate, whilst the profiling procedure may differ from the original Butler and

Hardy (1992) approach, the underlying purpose and proposed impacts of the technique's use is similar.

The Theoretical Origins of Performance Profiling: Kelly's (1955) Personal Construct Theory

Theoretically performance profiling is based on Kelly's (1955) Personal Construct Theory which itself evolved from the philosophical position of Constructive Alternativism.

Constructive Alternativism

In the development of his theory of personality – Personal Construct Theory – George A. Kelly (1955) asked readers to reconsider their perception of 'why man [*sic*] does what he does' (1963, p.xii). He based his theory on the philosophical position of Constructive Alternativism. Essentially, he viewed the universe (all aspects of a person's world) as real and integral, functioning as a single unit in which all the parts have an exact relationship with one and other, ultimately bonded by time and continually evolving. Moving away from conventional beliefs, Kelly proposed that living things within the universe would represent, rather than respond to, the environment in which it is placed. In representing the environment the person places alternative constructions upon it to suit him or herself. The world, Kelly (1955) asserts, is viewed by people 'through transparent patterns or templates which he [*sic*] creates and then attempts to fit over the realities of which the world is composed' (p.8/9). These patterns or templates, which Kelly called constructs, are an individual's way of construing the world and can be organised into systems and sub-systems which have limited ranges and foci of convenience.

Integral to Kelly's philosophical position was the notion of a person viewed as a scientist seeking to predict and control the course of life events. Kelly proposed that the formulation of constructs helps people to predict future events whilst also helping to validate the accuracy of former predictions. As a person's life evolves they will revise how they construe an event inevitably leading to alternative constructions being developed over time. Hence the philosophical position of Constructive Alternativism.

Personal Construct Theory

In defining performance profiling Butler and Hardy (1992) stated that their new approach to performance assessment had evolved as a 'natural application' (p.254) of Kelly's (1955) Personal Construct Theory. Kelly's theory of personality attempts to explain the way in which people interpret and thus behave in the world. Essentially Kelly believed that people attempt to understand the world by continually developing personal theories. These theories, or constructs as he later termed them, help an individual to anticipate events in their life and can be revised based on their experience of those events over time (what Kelly refers to as the experience corollary). Relating this to a sport setting the theory suggests that athletes will develop, over the course of their athletic career, a number of assumptions (theories) regarding their sport and their ability in various sporting situations or environments and that these will be revised as they continue to experience these situations over time.

Kelly suggested that individuals will differ in the interpretation of events in their lives, a concept central to the profiling procedure. In developing the performance profiling procedure, Butler and Hardy (1992) suggest that individuals will differ in their interpretation of the integral qualities required for successful sporting performance. The authors propose that by minimising the influence of the athlete in the assessment of their capabilities, training protocols might be chosen which fail to meet the perceived needs of the athlete. Kelly's sociality corollary asserts that in order for one to play a role in the 'social process' with another, one must attempt to understand the perceptions of that other person. Thus by employing the profiling procedure sport psychologists are firstly able to understand the athlete's perception of performance, secondly are able to discuss such issues more effectively as a result of the increased understanding, and finally are able to tailor training more closely to the athlete's perceived needs.

Thomas (1979) attempted to extend Kelly's (1955) Personal Construct Theory with the introduction of a self-awareness corollary. He suggested that a person will become more aware of themselves as a result of actively seeking to understand their own thought processes regarding the construction of events. This concept is closely aligned to the performance profiling procedure which asks athletes to organise their own thought processes and become more aware of, firstly the important qualities required to perform

successfully in their sport, and secondly, their perceived strengths and weaknesses in relation to those qualities.

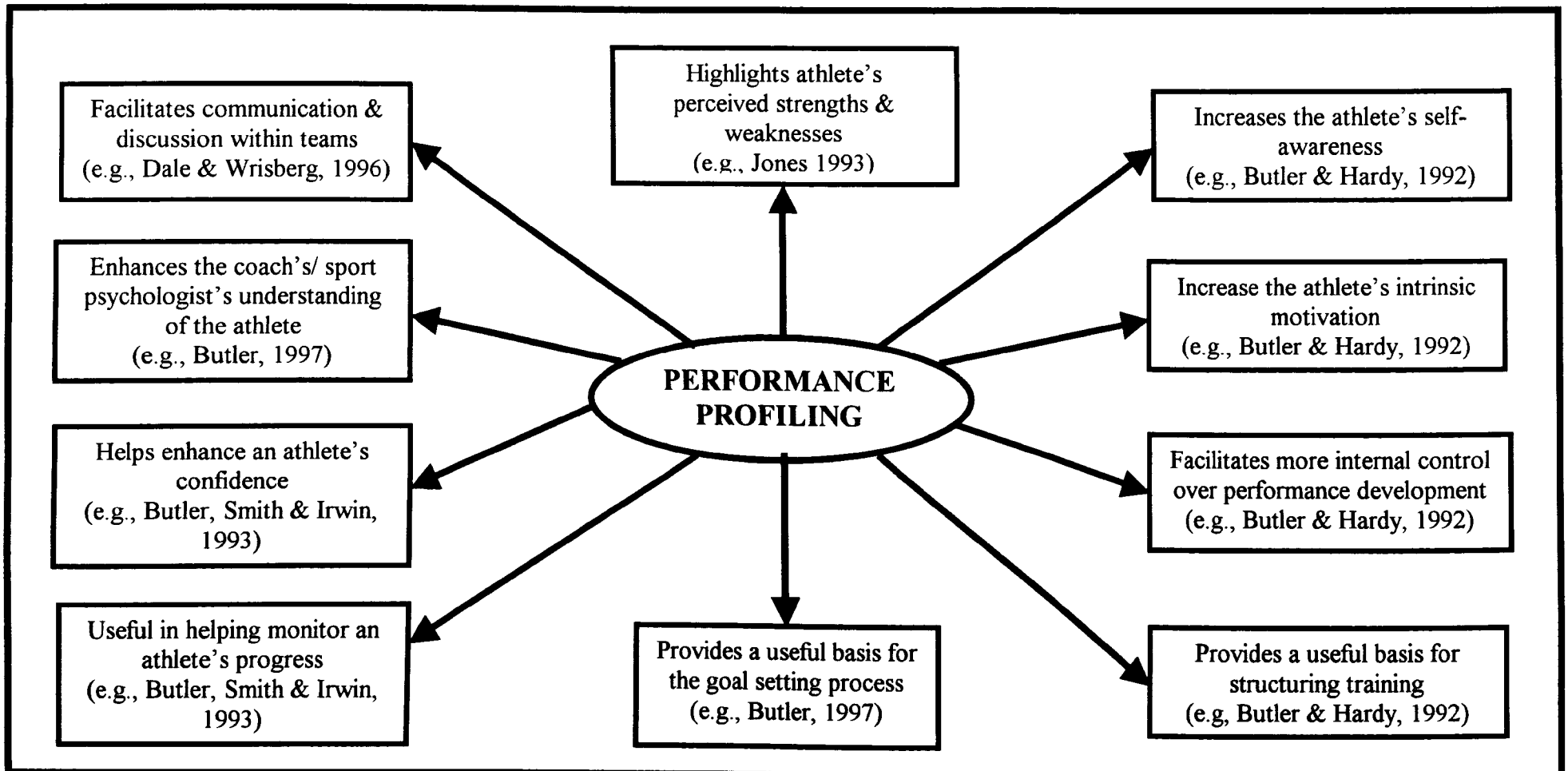
Thus, performance profiling provides a direct application of Kelly's (1955) Personal Construct Theory into the sporting environment. The procedure takes account of the fact that each athlete's interpretation of a situation or event will differ (individuality corollary). Furthermore the procedure provides an opportunity for those alternative views to be displayed to coaches/sport psychologists and thereby help to improve the social interaction between involved parties (sociality corollary). In actively getting athletes to evaluate the essential qualities and then rate themselves on those qualities, profiling can help to enhance an athlete's sporting self-awareness (self-awareness corollary). Furthermore, as an individual's interpretation is likely to be revised based on experiences of events (experience corollary), employing the procedure repeatedly over time will help to record any of these changes in opinion.

In devising the profiling procedure, Butler and Hardy (1992) attempted to embrace several aspects of Kelly's theory to help justify the technique's use over and above other existing performance assessment strategies. As a result of the use of the technique within a consultancy setting, a number of impacts have been suggested. All of these impacts will now be discussed in the following section.

The Hypothesised Impacts of Performance Profiling

The majority of articles that have been published on performance profiling have been descriptive in nature (Butler, 1989; 1995; 1997; Butler & Hardy, 1992; Butler, Smith & Irwin, 1993; Dale & Wrisberg, 1996; Jones, 1993; Potter & Anderson, 1998), detailing positive consultant experiences of the use of the technique with a variety of sporting populations. The following provides a summary of the impacts of performance profiling on the athlete that have been proposed in the literature (for a summary see figure 2.2).

Figure 2.2. A summary of the proposed impacts of performance profiling as suggested in the literature.



Enhanced Awareness

As indicated above, Thomas (1979), through his self-awareness corollary, suggested that a person will become more aware of themselves as a result of actively understanding their own thought processes. Butler & Hardy (1992), in introducing the performance profile, suggest that the technique increases the athlete's self-awareness by forcing the athlete to explore the qualities that define a successful performer in their own sport. Support for this suggestion was provided by Palmer et al., (1996) in their examination of National under 21 netball player perceptions of the profiling procedure. The majority of players indicated that profiling was useful, citing an increase in self-awareness as a reason for its usefulness. D'Urso et al., (2002) found that half of the ten rugby players they interviewed following the use of the profiling technique stated that they felt the procedure had helped to raise their awareness of the factors that influence performance.

One of the key facilitators in helping to raise the athlete's self-awareness through performance profiling comes in the identification of the athlete's perceived strengths and weaknesses at the end of the procedure (Butler & Hardy, 1992; Butler, Smith & Irwin, 1993; Jones, 1993). Palmer et al., (1996) found in their study that the majority of the athletes who had undergone a profiling session had perceived the profiling to be useful because they believed that it helped identify their strengths and weaknesses.

Increasing an athlete's self awareness has been suggested as being an important component in helping coaches and/or sport psychologists to develop a greater understanding of an athlete (Butler, 1997; Martens, 1987; Orlick, 1990; Ravizza, 1998). Butler & Hardy (1992) propose that in reviewing an athlete's performance profile, a coach or sport psychologist will become more aware of the athlete's perspective and thus be able to tailor training protocols more closely to the needs of the athlete. Jones (1993) in his case study with a female racket player, found the profiling procedure provided an excellent basis from which a cognitive behavioural intervention could be introduced. Similarly Dale and Wrisberg (1996) in their descriptive article outlining the use of individual, team and coach performance profiles with a collegiate female volleyball team, prescribed a stress management intervention for the coach based on a discussion of the coach's profile. Butler (1995) suggests that using profiling as a basis for structuring training programmes will encourage improved commitment to the

training protocols determined. Similarly sport psychologists, when in the initial stages of psychological assessment of an athlete, can discern something more of the athlete's opinion regarding performance through the profiling procedure (Butler, 1997). This may help in facilitating athlete adoption and adherence to future mental skills interventions (Doyle & Parfitt, 1997; 1999; Jones, 1993).

Profiling, specifically within a group environment, provides an additional opportunity to help raise athlete awareness. By splitting players up into positional groups, asking them to brainstorm qualities and then presenting those qualities to their fellow team mates, players can become more aware of the various positional demands within the team. Indeed, Dale and Wrisberg (1996), in their group based profiling intervention, stated that identifying and discussing the performance demands of team players helped each team member to become more aware of the roles and responsibilities of their fellow team mates.

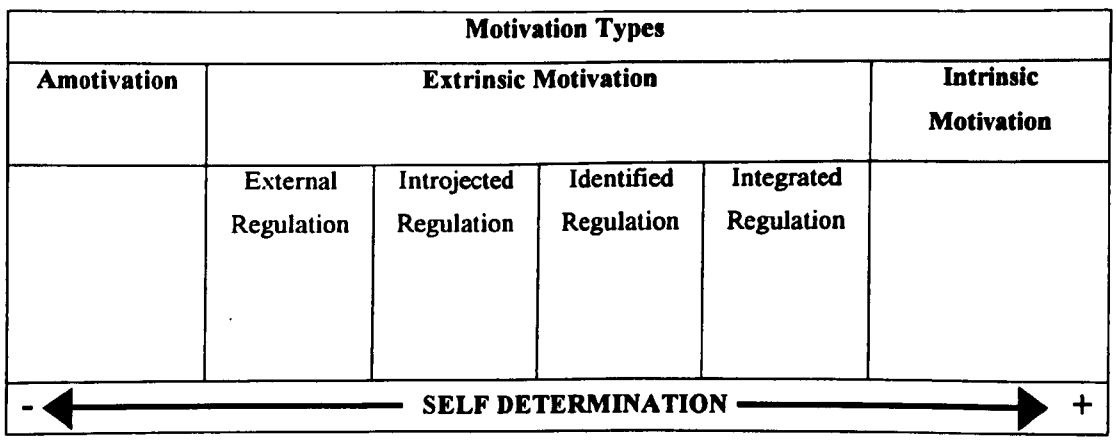
Thus experiential evidence suggests that profiling helps to raise athlete self-awareness, the awareness of coaches and psychologists as to the athlete's perception of performance and finally, the awareness of athletes as to the demands of their fellow team players. Ravizza (1998) states that developing athlete awareness is essential in enabling the athlete to take more control of their performance. Performance profiling has been suggested as a useful method to increase the control athletes have over their performance (Butler, Smith & Irwin, 1993; D'Urso, et al., 2002), a concept discussed in the next impact of the profiling technique.

Intrinsic Motivation

Butler and Hardy (1992) propose that the external control exerted over an athlete's development by coaches and sport psychologists in sport may result in a weakening of the athlete's intrinsic motivation. In devising the profiling technique, the authors sought to give the athlete a more dominant role in the decision making process regarding their future development, and in doing so, help to maintain or increase athlete intrinsic motivation. The theoretical underpinning for the profiling procedure's positive impact on intrinsic motivation can be explained, firstly, by Deci and Ryan's (1985a) Self Determination Theory (SDT) and then more recently through Vallerand's (2001) Hierarchical Motivational Model (HMM).

Deci & Ryan's (1985a) SDT is presented as a broad motivational model of personality. The theory comprises of a series of 'mini-theories' which help to explain the impact of social and environmental influences on intrinsic motivation. Generally, Deci and Ryan (1985a) state that an athlete's motivation will vary along a continuum (see figure 2.3) from amotivation (AM), where the athlete has no motivation towards the activity, through extrinsic motivation (EM), where the athlete is involved in the activity for external rewards, to the most self determined form of motivation: intrinsic (IM), where the athlete participates in the activity for the inherent pleasure and enjoyment it gives them. Integral to this view of motivation, is the internalisation and integration of external behavioural regulations into an individual's sense of self, a process defined by Deci & Ryan (1985a) within their Organismic Integration Theory (a 'mini-theory' of SDT). In defining various forms of EM, Deci and Ryan sought to illustrate the progressive internalisation of external beliefs or behaviours into more personal self determined values.

Figure 2.3. The Self Determination Continuum (Deci & Ryan, 1985a)



The authors identified four types of EM. External regulation, the least self determined form of EM, indicates behaviour that is wholly regulated by external factors such as rewards (e.g., 'I must play to get my bonus'). Introjected regulation, the second type of EM, involves the acknowledgment of an external regulation, whilst not fully accepting it as your own. This motivation is regulated by an external source and is exhibited to avoid guilt or anxiety (e.g., 'I feel guilty if I don't play'). The third form of EM, identified regulation, is more autonomous in nature. It is displayed when an individual identifies a behaviour that is highly valued and personally important, yet still external in

nature (e.g., 'I want to do preseason training to get fit'). Finally, the most self determined form of EM is integrated regulation where choices are made which reflect positively on other aspects of the individual. In this form of motivation, the individual has accepted the regulation as part of its own and congruent with the individual's other personal values and beliefs. Whilst integrated regulation shares many similar attributes to IM, it is still extrinsic in nature as the behaviours are exhibited for extrinsic reasons rather than intrinsic enjoyment (e.g., 'I'll go to bed early so that I have lots of energy for tomorrow's training session').

IM emphasises the most self determined motivational form. Individuals experiencing IM display inherent satisfaction, enjoyment and interest in the activity they are performing. As with EM, IM has been broken down into distinctive forms: IM to know, IM toward accomplishments and IM to experience stimulation (Vallerand, Blais, Brière & Pelletier; 1989, cited in Vallerand, 2001). Unlike the differentiation of EM types, the IM forms are not distinguished by their level of self determination. IM to know emphasises the enjoyment and satisfaction from learning, exploring and understanding new skills. IM toward accomplishments is defined as the enjoyment and satisfaction one gains from accomplishing something or surpassing oneself. Finally, IM to experience stimulation indicates an engagement in the activity for the pleasant sensations that an individual will derive from doing the activity. Despite the categorisation of IM into these three forms, little research has examined the impact of social and environmental factors on IMK, IMA and IMS.

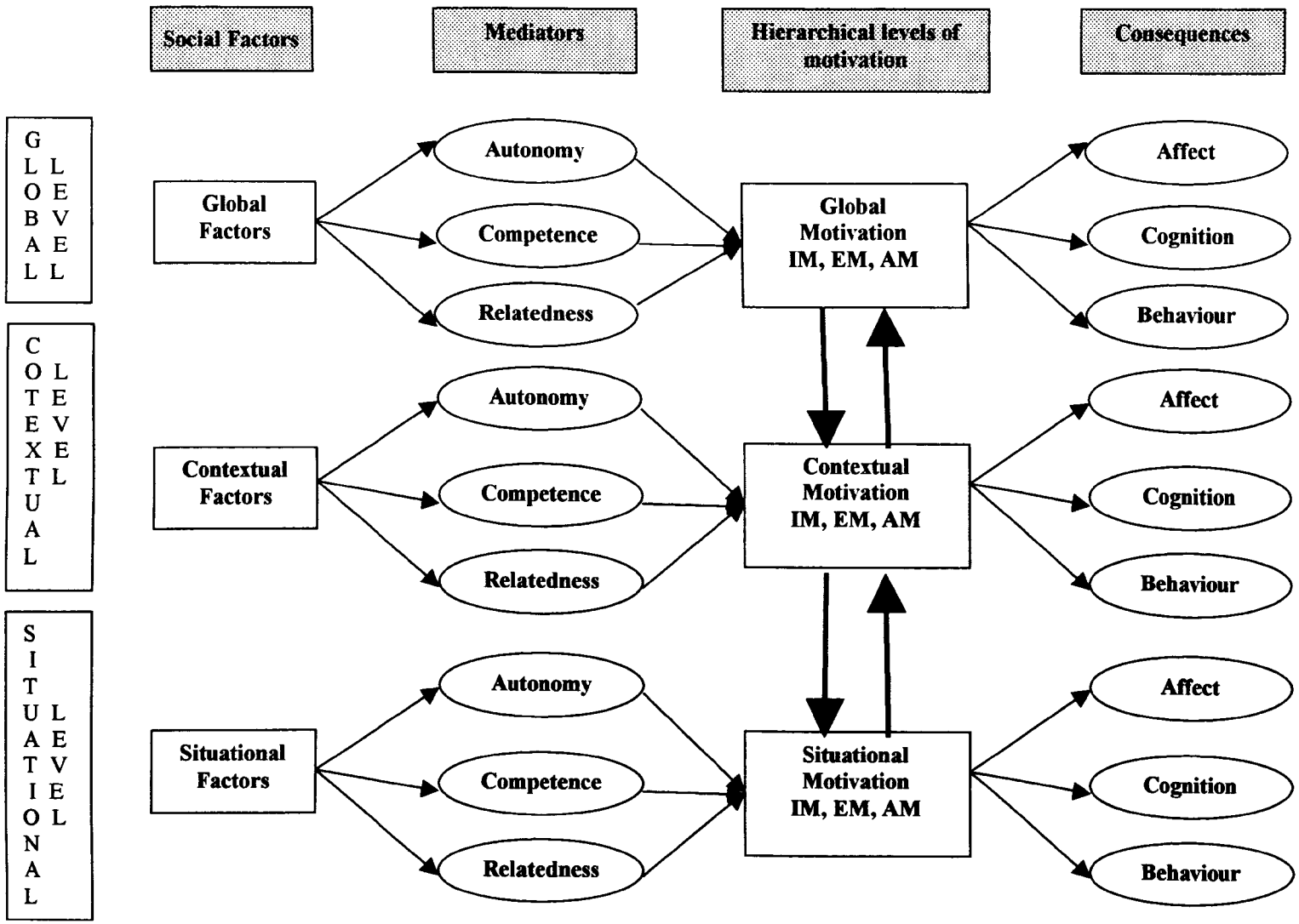
Whilst acknowledging the role of external events in determining an individual's motivation, Deci and Ryan (1985a) suggest that an individual will be predisposed to a personality (or causality) orientation which will influence their interpretation of an event and hence subsequent motivation. The authors, through their Causality Orientations Theory, describe three forms of causality orientation: autonomy, control and impersonal. People predisposed to an autonomy orientation use information to enable them to make choices. This orientation is closely aligned to intrinsically motivated behaviours and integrated internalisations. Control oriented individuals allow their behaviours to be dictated by external events/factors (e.g., coach's feedback) or internally controlling necessities (e.g., 'I ought to exercise'). Central to this orientation is the conflict between the controller and the controlled which may occur either

interpersonally (e.g. between two people) or intrapersonally (e.g., within the person). Invariably this orientation results in the individual either being compliant with the source of control or rebellious and in conflict with the controller. These individuals are more likely extrinsically motivated and thus less self determined in nature. Finally, impersonal oriented individuals believe that outcomes in their life are determined by external forces which are uncontrollable and independent of them. This orientation is closely aligned with amotivation. Through this sub-theory of SDT, Deci and Ryan indicate the potential role of the individual's predominant causality orientation on their motivation and subsequent behaviours, cognitions and affects. In doing so, the authors suggest that it is a combination of the characteristics of the individual as well as the context and characteristics of the situation which will influence that individual's motivation.

Within Deci and Ryan's Cognitive Evaluation Theory, another sub-theory of SDT, the authors attempt to explain how social and environmental factors or events (e.g., feedback, rewards etc.) influence an individual's motivation through three key mediators: relatedness, autonomy and perceived competence. These mediators are said to be fundamental human desires that people attempt to satisfy. Relatedness emphasises the need to feel belonging or connected to significant others within a social setting (Vallerand, 2001). Perceived competence relates to the perception an individual has regarding his or her ability to interact effectively with the environment (Harter, 1978), whereas autonomy emphasises the importance of internal control over behavioural choices (Deci & Ryan, 1985a). Deci and Ryan hypothesise that social events which reinforce an individual's perceived competence, will improve their IM only when accompanied by a sense of autonomy. Furthermore the authors suggest that intrinsic motivation is likely to improve in contexts where the individual feels a sense of belonging and relatedness (Ryan & Deci, 2000). Support for these propositions have been found in both sport (Blanchard & Vallerand, 1996a, 1996c, both cited in Vallerand, 2001; Orlick & Mosher, 1978; Vallerand & Reid, 1984) and exercise settings (Cadorette, Blanchard & Vallerand, 1996, cited in Vallerand, 2001; Thompson & Wankel, 1980).

Building on Deci and Ryan's SDT, Vallerand (2001) proposed his Hierarchical Model of Motivation (HMM; figure 2.4). The distinctive progression of the original SDT was

Figure 2.4 The Hierarchical Model of Intrinsic and Extrinsic Motivation in Sport and Exercise (Vallerand, 2001)



Vallerand's proposition that an individual's motivation would be displayed at three hierarchical levels of generality: Global (trait related motivation); contextual (a particular life domain, for example motivation for work or sport) and situational (state related motivation). Vallerand (2001), whilst suggesting that motivation at each of these levels can influence one another (as evidenced by the vertical arrows on figure 2.4), admits that very few research articles have been published to support such a proposition.

The Hierarchical model further suggests (in line with SDT) that the more self determined an individual is, the more likely they are to exhibit positive affect (e.g., enjoyment, satisfaction etc.), cognitions, (e.g., concentration, memory, etc.) and behavioural outcomes (e.g., behavioural choice, performance etc.). Research support for this proposition has been found at both the situational and contextual levels, although more research is required to validate such proposals at the global hierarchical level (Vallerand, 2001). At the situational level IM has been shown to predict positive affect (McAuley & Tammen, 1989; Scanlan & Lewthwaite, 1986), flow and concentration (Kowal & Fortier, 1999). Contextually more self determined forms of motivation have been correlated with greater satisfaction (Brière, Vallerand, Blais & Pelletier, 1995, cited in Vallerand & Rousseau, 2001; Frederick, Morrison & Manning, 1996; Pelletier, Fortier, Vallerand, Tuson, Brière & Blais, 1995) interest (Brière, et al., 1995, cited in Vallerand & Rousseau, 2001; Li, 1999) concentration (Pelletier et al., 1995) effort (Pelletier et al., 1995; Williams & Gill, 1995) pleasure and enjoyment (Beauchamp, Halliwell, Fournier, & Koestner, 1996).

Both SDT (Deci & Ryan, 1985a) and HMM (Vallerand, 2001) can, in a number of ways, explain how Butler and Hardy's (1992) profiling procedure could help to improve an athlete's IM. The procedure (a social factor in the model) is likely to positively influence each of the three psychological mediators. As Butler and Hardy (1992) suggest, profiling enables athletes to assume more internal control (autonomy) over their development. Furthermore the procedure encourages athletes from the same team to interact, communicate and discuss performance related issues, a process that could help to improve athlete perceptions of relatedness. Finally, profiling helps athletes to be become more aware of their strengths (Butler, & Hardy, 1992) and when completed over time, has been proposed as a useful method in monitoring performance improvements (Butler, 1995; Butler & Hardy, 1992). In emphasising athlete strengths

and performance improvements over time, the profile could help athletes to increase their perceived competence levels.

In improving athlete perceptions of the three psychological mediators, the profiling procedure would, according to SDT and HMM, help to increase athlete intrinsic motivational levels. Whilst some research has suggested a possible increase in motivation as a result of a profiling intervention (D'Urso, et al., 2002; Jones, 1993), this research has been descriptive in nature and vague in its definition of the motivational changes. More research is required to identify whether consultants, athletes and coaches believe profiling to be useful in increasing the IM of athletes. Furthermore Vallerand's model proposes that situational social factors that are presented on a regular basis within the same context are likely to influence contextual sport motivation over time. Hence experimental research could examine how often profiling needs to be presented before significant improvements in contextual sport IM are found.

Both Deci and Ryan (1985a) and Vallerand's (2001) motivational models emphasise the critical role of perceived competence in enhancing the motivation of the athlete. Events which reinforce an athlete's perceived competence are likely to facilitate improvements in the IM toward the activity being performed. Before expanding on how an athlete's perceived competence levels could be improved we must differentiate between a number of competence related terms. Perceived competence indicates an individual's perception of their ability to interact effectively with the environment (Harter, 1978). Self confidence is a global or generalised perception of an individual's ability to be successful across a broad range of domains (McAuley, Peña, & Jerome, 2001), whereas self efficacy indicates an individual's belief in his/her ability to achieve a desired outcome within a specific domain (Bandura, 1977). Hardy, Jones and Gould (1996) suggest self efficacy is the "performer's perception of his/her competence to succeed in a given task at a given time" (p.46). As is evidenced in Hardy, Jones and Gould's (1996) definition, self efficacy and perceived competence have been used interchangeably in the literature when researchers have attempted to define perceived competence (Roberts, 2001).

Bandura's (1977) theory of self efficacy could help to explain the potential mechanisms by which the profiling procedure could enhance an athlete's perceived competence.

The basic premise of the theory is that, given the appropriate skills and incentives, self efficacy will predict performance. According to Bandura, performance accomplishments, vicarious experience, persuasory information and emotional arousal influence an athlete's efficacy expectations. Performance accomplishments are the most influential source of efficacy information as they involve one's mastery experiences (Bandura, 1997). The influence of performance accomplishments is dependent on the difficulty of the task, the effort expended, the degree of guidance received and the temporal patterning of success and failures over time (Bandura, 1997). Research evidence has supported the proposed relationship between performance accomplishments and self efficacy (see Feltz & Lirgg, 2001 and Moritz, Feltz, Fahrbach & Mack, 2000 for reviews).

Hardy, Jones and Gould (1996) suggest that goal setting provides a useful strategy to enhance self efficacy through the performance accomplishment efficacy antecedent. In achieving their goals, athletes are in essence accomplishing performance improvements which in turn will reinforce efficacy expectations. In much the same way, performance profiling employed over time could help enhance self efficacy by displaying and reinforcing performance improvements. Indeed Butler, Smith & Irwin (1993) suggest that using the performance profile to monitor performance improvements could help enhance the athlete's confidence "in that improvement reinforces a belief in the preparation" (p.61). The authors' do warn however, that using the profile to monitor progress could negatively influence an athlete's confidence if their profile ratings fail to improve, particularly in the immediate lead up to competitions.

The other potential avenue for self efficacy improvements, by way of performance profiling, could be found in the form of the persuasory information efficacy antecedent. Verbal persuasion refers to the use of persuasive techniques by self or other people to influence perceptions of self efficacy. Examples of such techniques include self talk, positive imagery, evaluative feedback, and verbal persuasion by coaches, parents and peers (Feltz & Lirgg, 2001). Profiling could provide an alternative method to help coaches' feedback and/or reinforce their perceptions of the current ability of their athletes. By employing the coach/athlete comparison of profile ratings procedure (Butler & Hardy, 1992), the coach can reinforce their belief in the ability of the athlete on the integral attributes required for successful performance. This would therefore

help to increase athlete perceptions of self efficacy, particularly in those individuals suffering from low self efficacy. Butler (1995) suggests that getting athletes to complete a profile of just their strengths, in the final preparations for a competition, could also help to improve their confidence. In such situations performance profiling could improve perceptions of athlete confidence by getting athletes to reinforce to themselves their personal perceptions of their ability on a number of key qualities required for successful performance.

Despite these assertions no experimental or descriptive research has been performed to examine the impact of performance profiling on the confidence or perceived competence of athletes. Furthermore no descriptive research has identified whether sport psychologists and athletes believe profiling to be useful in helping develop athlete confidence. If consultants believe profiling to be successful in this way, it would be interesting to establish how they have employed the profiling procedure to facilitate confidence improvements. In addition, it would be useful to ascertain whether athletes perceive profiling could increase their confidence.

Goal setting has frequently been shown to be an effective technique in improving athlete motivation towards performance development (Hardy, Jones & Gould, 1996). Indeed, it has been shown to be a highly consistent and effective strategy in helping to enhance performance across a wide range of general (Locke & Latham, 1990) and sport related tasks (Burton, Naylor & Holliday, 2001; Kyllo & Landers, 1995). Despite the evident performance related usefulness of goal setting, the availability of effective strategies to facilitate the use of goals is lacking. However, one such strategy that has consistently been suggested to provide a useful basis for setting goals is performance profiling (Butler, 1997; Butler & Hardy, 1992; Butler, Smith & Irwin, 1993; Dale & Wrisberg, 1996; Doyle & Parfitt, 1997; D'Urso, et al., 2002; Hardy & Jones, 1994). The procedure of identifying key performance attributes and then rating the strengths and weaknesses of those attributes, provides a template from which performance related goal setting can begin (Butler, 1997).

The setting of goals in sport and exercise has been shown to be effective in improving sporting performance when athletes participate in setting goals for themselves (Kyllo & Landers, 1995). Weinberg and Weigand (1993) suggest that individuals are likely to set

their own goals irrespective of the goals set by their coaches. Indeed descriptive goal setting research has found that athletes prefer to set their own goals rather than being given them (Weinberg, Burton, Yukelson, & Weigand, 1993). The Choice corollary of Kelly's (1955) Personal Construct Theory suggests that a person is likely to choose an avenue or alternative that will best predict a given situation. Thus athletes will choose those goals that they believe will result in the greatest improvements in their performance. As performance profiling provides an athlete centred approach to performance assessment, such a procedure could help to facilitate athlete directed goal setting. This process would help coaches to become more aware of athlete opinions regarding sport related goal setting. Furthermore, increasing the autonomy athletes have over the goals that are set for them would, as Vallerand (2001) proposes, facilitate greater athlete IM levels. However, Butler (1997) does warn practitioners that the goals chosen and set by athletes may not always result in the most appropriate goals being set. Hence, whilst it may be important to get athletes involved in setting goals for themselves, practitioners should attempt to steer athletes towards choosing more appropriate goals when necessary.

A number of different types of goals have been defined within the literature (Kingston & Hardy, 1994; 1997). These include outcome goals, which specify the outcome of the event or match usually involving interpersonal comparison (e.g., finishing 1st in a 100m sprint race), performance goals, which focus upon the end product of a performance (e.g., 75% kicking percentage in a rugby game) and process goals which indicate the processes an athlete will go through during a performance (e.g., fluent bowling action in cricket). Whilst there is evidence to suggest that a multiple goal setting strategy, employing all three goal types, is more effective than any type individually (Burton, Naylor & Holliday, 2001; Filby, Maynard, & Graydon, 1999), there is the belief that modern society more readily supports the achievement of outcome goals in sport (Gould, 1998). Such emphasis has resulted in many athletes setting only outcome goals at the expense of performance and process goals (Gould, 1998). However, such an approach may be detrimental to athlete development as performance and process goals have been shown to be more controllable thus enabling athletes to take more internal credit for their successes (Burton, Naylor & Holliday, 2001). Kingston and Hardy (1997) suggested that increasing this internal control, via the adoption of performance and process goals, can lead to enhanced self efficacy. Furthermore research evidence

seems to suggest that a performance and process goal focus tend to be more effective in enhancing performance in comparison to outcome goals (Burton, Naylor & Holliday, 2001; Hardy, Jones, & Gould, 1996; Kingston & Hardy, 1997).

Deci and Ryan (1985a) suggests that such enhanced levels of internal control (assumed through a performance and/or process versus outcome related goal focus) would result in greater athlete IM. Thus it may be beneficial to establish strategies which encourage adoption of performance and process goals. The profiling procedure could provide such a strategy as it encourages athletes to evaluate their performances in relation to the essential qualities required for successful performance. By identifying their strengths and weaknesses in relation to technical, physical, psychological and tactical factors athletes can be encouraged towards setting more performance and process related goals via the profiling procedure.

Nicholls (1984; 1989) identified two types of goal perspectives that individuals will display to varying degrees: task and ego. Task oriented goals reflect an evaluation of performance in relation to self-referent standards. Such goals will therefore orient an individual toward skill mastery, learning and performance development (Pensgaard & Roberts, 2003). Individuals employing task oriented goals believe effort to be essential in enhancing competence. In contrast ego oriented goals focus on evaluating performance in comparison to others. Individuals employing such goals are concerned with demonstrating high ability and avoiding displaying low ability in comparison to others (Duda & Hall, 2001). Ego oriented individuals, in situations where they perceive their competence to be greater than others, will display similar adaptive behaviour to task oriented individuals. In such situations greater competence is displayed when individuals are successful whilst expending little effort. However, in situations where individuals have low perceived competence, ego oriented people are likely to avoid challenges, exert little effort, lack persistence in the face of failure and may in some instances drop out from their sport (Duda & Hall, 2001).

Nicholls (1989) points out the important role situational factors can have in influencing the relative strength of task and ego involvement in achievement situations. It is possible to suggest that the profiling procedure may be useful in helping athletes to develop a more task involved goal perspective. Not only does the procedure encourage

athletes to think about the skills and qualities that are required to perform successfully in their sport, but it also gets athletes to rate their ability on each of those qualities in a self referent way. Therefore, if profiling is able to encourage a greater task oriented focus then more adaptive psychological and behavioural outcomes are likely irrespective of whether the individual finds themselves in success or failure situations. Given the lack of research in this area, further research is required to substantiate these predictions.

Performance Evaluation

The evaluation of performance is an important component in helping athletes to develop and improve. Holder (1997) suggests there are two main types of evaluation that the performer can utilise: external and internal. External evaluation is carried out by something or someone external to the athlete, such as feedback from a video or coach. Internal evaluation is carried out by the athlete and involves an awareness of the antecedents and consequences of a performance. A great deal of attention within the sport psychology literature has been given to the topic self evaluation or more specifically understanding how people define the causes of their performances (Holder, 1997). Weiner's (1986) model of achievement attributions has provided the main theoretical background for research into this area. Attributions are the reasons or causes that athletes give for performances. Weiner (1986) proposes that attributions can be defined along three complementary dimensions: locus of causality, stability and controllability. Locus of causality refers to the attribution as either an internal (e.g., ability) or external (e.g., weather) reason for the outcome of the event. Stability pertains to whether the attribution given is likely to remain relatively stable over time (e.g., ability) or is likely to change (e.g., luck). Finally controllability refers to whether the attribution is under the control of the individual (e.g., effort) or not (e.g., an opponent).

Literature evidence has indicated that the attributions athletes give for performances will influence their expectations (Grove & Pargman, 1986), affective reactions (Robinson & Howe, 1989), self efficacy beliefs (Bond, Biddle & Ntoumanis, 2001), and behaviours in similar events in the future (Biddle, Hanrahan, & Sellars, 2001). The influence of the attribution on the person is dictated by whether the attribution is perceived functionally or not. Attributions following success that are external, unstable and uncontrollable in nature (e.g., opposition ability) are likely to negatively impact on

future thoughts and behaviours. Alternatively, attributions in success situations that are internal and controllable (e.g., technique) are likely to maintain/enhance an individual's future expectation, emotion and behaviour towards similar situations in the future (Biddle, Hanrahan & Sellars, 2001). In failure situations internal, stable and uncontrollable attributions (e.g., ability) are likely to negatively influence such consequences, whereas internal, unstable and controllable attributions (e.g., effort) are more likely to preserve future expectations, emotions and behaviours.

Attribution retraining is focused on replacing dysfunction attributions with more functional ones which will subsequently lead to more positive behaviours and thought processes (Biddle, Hanrahan & Sellars, 2001). Despite Hardy and Jones (1994) identifying the area of attribution retraining as a priority for future research, few articles within the sporting environment have been published. Orbach and colleagues (Orbach, Singer & Murphey, 1997; Orbach, Singer & Price, 1999) examined the impact of controllable and unstable attributions (e.g., effort) against uncontrollable and stable attributions (e.g., ability) and a no attribution control group. The authors found that the group employing controllable/unstable attributions performed more successfully (Orbach, Singer & Murphey, 1997), had greater expectations for future success and experienced more positive emotions (Orbach, Singer & Price, 1999). Whilst this evidence is encouraging, further research is required to establish firstly the most effective way in which attribution retraining can be delivered and secondly whether such strategies are successful in bringing about more positive behaviours and cognitions.

Performance profiling could provide a basis from which coaches and psychologists can move athletes toward the choice of more functional attributions. Inherent within the profiling procedure is the identification of a number of controllable, unstable and internal attributes that the athlete believes are integral to performance in their sporting role. Thus, although tentative, it could be proposed that employing profiling in a performance evaluation capacity, as has been suggested in the literature (Butler, 1997; Butler & Hardy, 1992; Butler, Smith & Irwin, 1993), may help athletes to choose more functional attributions. In doing so, Weiner (1986) suggests that more positive affects, expectations and behaviours are likely to result. Future research would benefit from establishing whether performance profiling is able to help athletes assume more

functional attributions. It would also be interesting to establish if the profiling procedure, employed in a performance evaluation capacity, is able to positively influence athlete thought processes and behaviours.

Monitoring Progress

Repeated profiling over time has been suggested as a beneficial way of monitoring the progress of an athlete (Butler, 1995; Butler & Hardy, 1992; Butler, Smith & Irwin, 1993; Doyle & Parfitt, 1997; D'Urso, et al., 2002; Hardy & Jones, 1994; Jones, 1993). Descriptive articles have proposed performance profiling to be useful in monitoring progress in the lead up to competition (Butler & Hardy, 1992; Butler, Smith & Irwin, 1993), over the course of a training camp (Butler, Smith & Irwin, 1993), over the course of a season (Dale & Wrisberg, 1996), and over the course of a psychological skills intervention (Jones, 1993).

Doyle and Parfitt (1997) have experimentally investigated the usefulness of the performance profile in monitoring progress over time, in their examination of the construct validity of the performance profile. The authors suggested that the construct validity of the profile would be shown if a significant decrease in the area of perceived need (ideal score – current score) related to a significant increase in performance over time. Twelve track and field athletes firstly devised, and then completed, their performance profile five times over the course of a winter training and competitive indoor season. The athletes completed their profile as close to the training session or competition as possible. Other measures taken included the actual performance score (time or distance) and the athlete's and coach's perceptions of performance.

The results of the investigation found partial support for the construct validity of performance profiling. A significant increase in the mean actual performance measure was found, in accordance with a significant decrease in the mean areas of perceived need profile scores. However no such significant difference was found for either the athletes' or coaches perception of performance in relation to the perceived need changes. Doyle and Parfitt (1997) concluded that practitioners employing the performance profile as a monitoring tool should be aware that it may only be useful when large changes in performance are likely, either during intense training periods or when recovering from injury. The information derived from such a complex analysis of

the athletes' perspective may go against the individual philosophy of profiling and encourage the interpretation of mean data rather than an understanding of the individual performer perspective (Butler & Hardy, 1992). Despite this potential weakness, the study provided useful information as to when consultants should employ profiling to monitor athlete progress over time.

Enhanced Intra-Team Communication

In sport, communication has been proposed as an important component in developing team cohesion (Carron, Colman, Wheeler & Stevens, 2002; Miller, 1997) and facilitating successful performance (Carron & Hausenblas, 1998; Connelly & Rotella, 1991; Martens, 1987; Miller, 1997; Sullivan, 1993; Yukelson, 1998). However despite its cited importance, very little literature has been published on the techniques that facilitate effective communication in sport (Yukelson, 1998). Dale and Wrisberg (1996) propose that performance profiling could be a useful technique in opening and enhancing communication channels within teams. In their study the authors employed performance profiling with a collegiate female volleyball squad. The article described a case study in which the team's head coach asked the consultants to help the team become more united and improve the low communication levels that the coach perceived had developed between him and the players. Dale and Wrisberg (1996) decided that individual, team and coach performance profiles, produced by the players, and then discussed with the coach would facilitate communication within the team. As a result of the profiling intervention two main benefits were gained from using the technique within a team environment. Firstly the process enabled the athletes to play a more active role in the decisions regarding the team's development and secondly the profiling helped the athletes to discuss with the coaching staff the areas requiring improvement from which a goal setting and training programme could be determined.

Whilst Dale and Wrisberg (1996) emphasised the potential role of profiling in enhancing communication within teams, no other research has been performed to support or refute such an impact. Further research needs to determine if consultants use performance profiling to improve communication between athletes and coaches and whether other athlete populations believe performance profiling to be useful in providing a forum for improved communication within teams.

Miller (1997) suggests that coaches who provide an environment that encourages and shows an appreciation for the thoughts of their athletes, a concept central to the performance profiling procedure, will help to facilitate team cohesion. Carron, Brawley and Widmeyer (1998) define team cohesion as "a dynamic process which is reflected in the tendency for a group to stick together and remain united in the pursuit of its instrumental objectives and/or for the satisfaction of member affective needs" (p.213). Teams displaying high team cohesion have been shown to perform more successfully (Mullen & Copper, 1994). Indeed Carron et al. (2002), in their meta-analytic review of the area found a moderate to strong relationship (ES = 0.655) between cohesion and performance. Highly cohesive teams have also been shown to exhibit greater collective efficacy (Paskevich, 1995; cited in Paskevich, Estabrooks, Brawley & Carron, 2001) and work output (Prapavessis & Carron, 1997). Four main factors have been identified that influence cohesion in sports teams (Carron & Hausenblas, 1998): environmental, leadership, personal and team factors. Examination of the profiling procedure suggests that the technique could positively influence team cohesion via some of these factors.

As has already been stated, profiling could positively influence the team environment by increasing athlete opportunities to interact and communicate within their team. This process has been proposed as a useful strategy in facilitating team development and cohesion (Carron & Hausenblas, 1998). In relation to personal factors, commitment to the team has been proposed as influential in developing team cohesion (Carron & Hausenblas, 1998). Butler, Smith and Irwin (1993) suggest that the profiling procedure facilitates commitment towards achieving performance related goals. Furthermore profiling has been proposed as a useful technique in developing athlete commitment to training (Butler, 1995; 1997) and performance interventions (Doyle & Parfitt, 1997).

Carron and Dennis (1998) suggest that role clarity is an important team factor in influencing group effectiveness and team cohesion. The greater the clarity of athlete understanding regarding their role within the team, the more effective and cohesive a team is likely to be. Bray and Brawley (2002) found basketball players who reported high role clarity performed more successfully and reported higher role efficacy in comparison to low role clarity individuals. The phrase role ambiguity has also been used in the literature to describe the opposite of role clarity. Kahn, Wolfe, Quinn, Snoek and Rosenthal (1964) define it as the lack of clear expectations regarding one's role. Recent

research examining the influence of role ambiguity in sport have found it to be correlated with increased somatic and cognitive anxiety (Beauchamp, Bray, Eys & Carron, 2003), decreased role related efficacy and performance (Beauchamp, Bray, Eys & Carron, 2002) and decreased satisfaction (Eys, Carron, Bray & Beauchamp, 2003). An important component of the performance profiling procedure (Butler & Hardy, 1992) is the identification and increased awareness of the qualities required to perform successfully within an athlete's chosen position. Hence it is not unreasonable to suggest that the profiling procedure could positively improve athlete perceptions of role clarity.

Whilst there have been four main factors or antecedents that have been identified to influence team cohesion (Carron & Hausenblas, 1998), two main types of cohesion have also emerged: task and social. Task cohesion reflects the degree to which players within the team work together toward an agreed goal or objective. Whereas, social cohesion reflects the degree to which players within a team get on and enjoy each other's company (Carron & Hausenblas, 1998). Intuitively profiling could be useful in improving task cohesion, particularly when delivered with the purpose of developing a team profile. In team profiling players agree on a set number of attributes which they believe characterises a successful team (Dale & Wrisberg, 1996). The players' then rate each of the qualities identified by the team on a scale of 1 to 10, from which a mean score for each quality is determined. This procedure helps the team to come to a consensus as to the attributes they believe the team requires to be successful in addition to establishing the areas of team strength and weakness. Future research could examine whether the profiling procedure, either with the purpose of developing individual or team profiles, can significantly improve task and/or team cohesion over time.

Limitations of the Existing Performance Profiling Literature

Performance profiling is a technique that is being widely employed across a number of different sports (Doyle & Parfitt, 1999). Despite the aforementioned benefits and potential impacts of the procedure a number of limitations still exist in the research. Of the nine journal articles that have been published on the technique, one is an abstract for a conference (Palmer et al., 1996), four are descriptive articles (Butler & Hardy, 1992; Butler, Smith & Irwin, 1993; Dale & Wrisberg, 1996; Jones, 1993) and four are experimental in nature (Doyle & Parfitt, 1996, 1997, 1999; D'Urso et al., 2002). The

other few articles published on performance profiling have been in the form of book (Butler, 1997; Potter & Anderson, 1998) or magazine (Butler, 1995) descriptions of positive consultant experiences using the technique with a variety of sporting populations. In addition, primarily only two research groups have written the profiling articles: Richard Butler and his associates and Jo Doyle and Gaynor Parfitt.

If performance profiling is being widely used in a consultancy setting (Doyle & Parfitt, 1997), it would be interesting to ascertain sport psychologists' perceptions of the usefulness and impact of the technique. A systematic evaluation of a wide variety of sport psychology consultants, as providers, would help to substantiate the claims made in the literature and help support the frequent use of the technique with athlete populations.

Personal Construct Theory (Kelly, 1955) emphasises the individual nature of the interpretation of events. Therefore whilst the consultants may propose profiling to be useful and have a number of different impacts, athletes may or may not believe this to be the case. Understanding the experience and perception of athletes regarding the usefulness of interventions could provide useful information for sport psychologists and coaches alike (Dale, 1996; Strean, 1998). Despite this importance only two research articles have attempted to evaluate athletes' perceptions of the profiling procedure. Palmer et al., (1996) found that the majority of the athletes they surveyed believed profiling to be useful, citing the highlighting of their strengths and weaknesses and increased awareness, as the main benefits of the procedure. D' Urso et al. (2002) found that five out of the ten rugby union players they interviewed recognised the profiling procedure's role in improving athlete awareness as to the factors facilitating or impairing performance. Both studies however utilised a small sample size, a single elite sports population and lacked any systematic attempt to evaluate the profile's effectiveness. Hardy and Jones (1994) state that a systematic evaluation of the technique would be useful to understand the consumer perspective of the profiling technique. Despite the importance of understanding the consumer perspective of the profiling procedure, no single article's sole research aim has been to evaluate the athlete's perspective of the technique.

Given the gaps in the literature the current research programme sought to systematically examine both sports psychologists' and athletes' perception of performance profiling. The first aim of the thesis was to determine what the profiling user population (sport psychologists & athletes) believes are the most important impacts of performance profiling within a group setting.

Descriptive research has suggested that profiling may be useful in enhancing the self awareness (Butler, & Hardy, 1992), motivation (D'Urso et al., 2002, Jones, 1993) and confidence (Butler, 1989, 1995) of athletes. Despite these suggestions no experimental research has examined whether profiling can significantly improve these psychological variables. Hence the second main aim of the thesis was to examine whether repeated performance profiling could significantly increase psychological indices identified from the phase one consultant and athlete evaluation.

RESEARCH METHODS IN THE EVALUATION OF SPORT PSYCHOLOGY SUPPORT SERVICES

Sport psychology research has generally been produced via two main methodological approaches: quantitative and qualitative (Hardy, Jones & Gould, 1996). Patton (2002) suggests the main distinction that separates quantitative and qualitative research methodology is the breadth/depth trade off. Qualitative research is traditionally depth oriented where a detailed data set from a limited number of participants is typically produced. Such an approach stresses the importance of understanding the participant's opinion on a topic of interest, in addition to providing an understanding of the 'context or situation in which the experience takes place' (Hardy, Jones, & Gould, 1996, p.256). Alternatively, quantitative methods tend to study a larger number of people over a limited number of questions from which statistical analysis can provide a numerical account of the findings. Bryman (1988) suggests such quantitative data can help to generalise the observations made by qualitative inquiry.

Patton (2002) acknowledges that no perfect single research design is feasible, emphasising that there are strengths and weaknesses inherent in every approach to scientific study. Whilst qualitative research methods examine a limited number of

participants, such procedures provide a deep and rich source of information regarding a topic of interest (Bryman, 1988). Typically the participant population in qualitative inquiry is selected purposefully, based on knowledge of theory and research, so that the optimal amount of information can be obtained to develop an understanding of the area (Patton, 2002). Operationalised as 'intensity sampling' (Patton, 2002), the area of interest is researched intensely, providing a rich source of information. The approach taken by the researcher may seek to confirm or refute existing ideas based on the literature review of the area.

A number of qualitative approaches have been proposed that enable researchers to obtain this depth of information (Coolican, 1999). These include Grounded Theory (Glaser & Strauss, 1967), Ethnography (Atkinson & Hammersley, 1994) and Discourse Analysis (Potter & Wetherell, 1987). Commonly qualitative inquiry is used to support or contradict predictions based on the previous research collected in an area of study (Patton, 2002). The Thematic Analysis approach (Coolican, 1999) emphasises the role of qualitative inquiry to supplement previous theory or research conducted. This approach enables researchers to use previous research as a starting point from which research methods can begin to develop the existing knowledge. In their qualitative examination into the use of pre-performance cognitive strategies in managing emotions, Hanton and Jones (1999) used previous research in devising their interview guide. Similarly Weinberg, Butt and Knight (2001), in their investigation into the perceptions of coaches regarding the goal setting process, employed such an approach to determine the content of their qualitative interviews.

Bryman (1988) suggests that qualitative research has frequently been viewed by researchers as an exploratory procedure from which hypotheses can be developed and tested using quantitative methods. The combination of qualitative and quantitative methods in facilitating a greater understanding about a topic of interest has been proposed as a useful way of overcoming the weaknesses of any single research approach (Patton, 2002). Webb, Campbell, Schwartz and Sechrest (1966) suggest that "when a hypothesis can survive the confrontation of a series of complementary methods of testing, it contains a degree of validity unattainable by one tested within the more constricted framework of a single method" (p.174).

Steckler, McLeroy, Goodman, Bird, and McCormick (1992) propose several ways in which researchers can combine qualitative and quantitative methods. One such approach involves the use of qualitative inquiry to facilitate the construction of quantitative scales in the examination of a topic of interest. The use of interviews to facilitate the construction of items for questionnaires has been proposed as an effective and valid procedure (Bryman, 1988; Coolican, 1999; Foddy, 1993; Henwood & Pidgeon, 1992). Indeed, Patton (2002) suggests that "qualitative descriptions can be converted into quantitative scales for the purposes of statistical analysis" (p.253). Partington & Orlick (1987b) determined items for their Sport Psychology Consultant Evaluation Form from a review of previous interviews regarding consultant effectiveness.

Several studies have used a review of relevant literature to facilitate the construction of items for a questionnaire (Durand-Bush, Salmela & Green-Demers, 2001; Hall, Mack, Paivio & Hausenblas, 1998; Jackson & Marsh, 1996; Jacob & Carron, 1996; Karageorghis, Terry & Lane, 1999; Weinberg, Burke & Jackson, 1997; Weinberg, Burton, Yukelson & Weigand, 1993; Wilson & Eklund, 1998). Loewenthal (2001) suggests that items for a questionnaire can be derived from qualitative interviews and/or a review of published and unpublished literature. Such an approach has been adopted by several researchers in the construction of items for a questionnaire (Anshel, 1991; Anshel & Weinberg, 1995; Carmack & Martens, 1979; Goode & Roth, 1993; Kendzierski & DeCarlo, 1991; Power & Woolger, 1994; Rushall, 1978; Weinberg, Burton, Yukelson & Weigand, 2000; Yoo, 2000).

The primary purpose of the present investigation was to gain an insight into the potential impacts of performance profiling as perceived by its two primary user populations. Given the limited, mainly descriptive profiling literature, a Thematic Analysis qualitative approach was chosen. Specifically employing interviews, this approach enabled a more detailed understanding of the experiences of sport psychology consultants and athletes utilising performance profiling within a group setting. As is customary with qualitative inquiry, a small, randomly selected sample of each user population was chosen to provide this information (Patton, 2002). Semi-structured interviews were then combined with a review of the profiling literature to provide items

for closed consultant and athlete questionnaires to allow for a quantitative analysis of the potential impacts of performance profiling.

The use of multiple methods in answering a research question has been defined as triangulation (Patton, 2002). Denzin (1978), in his operalisation of the triangulation of research, identified four basic types of triangulation: data triangulation (various data sources), investigator triangulation (more than one researcher), theory triangulation (examined from more than one perspective), and methodological triangulation (a combination of methods). Patton (2002) suggests that research projects should attempt to "employ multiple methods, measures, researchers, and perspectives" (p.247). By examining two separate user populations, employing two complementary methods and three research professionals in the data analysis of the qualitative interviews, the first phase of the present thesis attempted to adhere to triangulation research principles. One of the major benefits of triangulation evolves from the confidence in the validity and reliability of the conclusions made if the findings of the various methods or sources are complementary (Bryman, 1988; Thomas & Nelson, 1996). Hence in the second phase of the thesis the experimental examination of one of the psychological impacts of the profiling technique was performed based on a review of the findings of the phase one athlete and consultant evaluative studies.

SUMMARY OF THE AIMS & STRUCTURE OF THE THESIS

The main aim of the present investigation was to identify the major impacts of performance profiling in a group setting as perceived by both consultant and athlete user populations. The qualitative stage of the project attempted to confirm, refute and/or extend the existing literature regarding the potential impacts of profiling in a group setting. The higher order themes obtained from the analysis of the interviews were combined with a review of the literature to provide items for closed consultant and athlete questionnaires. The main aim of the questionnaire stage was to provide an extensive quantitative examination of the potential impacts of group performance profiling across a variety of sporting populations. Following a review of all the potential impacts of profiling identified in the phase one consultant and athlete studies, the second main aim of the thesis was to examine whether repeated profiling over time would significantly improve athlete intrinsic motivation.

CHAPTER 3

STUDY 1. CONSULTANT PERCEPTIONS OF THE USEFULNESS AND IMPACTS OF THE PERFORMANCE PROFILE PRODUCED IN A GROUP SETTING I.: A QUALITATIVE INVESTIGATION

INTRODUCTION

Despite its suggested use in a wide variety of sports (Doyle & Parfitt, 1997) little research has been published outlining the effectiveness or potential impact of utilising performance profiling with athlete populations. Although a number of potential benefits or impacts of the profiling procedure have been suggested in the literature, the profiling research has been confined to a few articles, mainly taking the form of descriptive accounts of positive consultant experiences with specific athletic populations. Given the integral role played by the consultant in the delivery of performance profiling and subsequent construction of athlete performance profiles, it would be useful to systematically investigate consultant perceptions of the impact of the technique. Specifically, it would be beneficial to establish whether consultants who have employed the performance profiling procedure believe it to be a useful tool and what impacts they perceive it may have on athletes. Furthermore it would be valuable to determine how and with whom consultants have used the procedure in order to obtain a greater insight as to the technique's use within sporting environments.

In acknowledging the limited research regarding consultant perceptions of the impact of the profiling procedure, semi-structured interviews (Coolican, 1999) were utilised in the present study to provide an in depth understanding of the usefulness and benefits that could be derived from the profiling procedure's use with athletic populations. It was hypothesised that such an approach would help to confirm and/or highlight other possible impacts of the procedure from consultants who have experience of utilising the technique.

METHOD

Participants

Six British Association of Sport and Exercise Sciences (BASES) accredited sport psychologists (4 females & 2 males) volunteered to participate in the study. All

participants were randomly selected from the BASES accreditation database and had experience of utilising performance profiling in a consultancy setting. Consultants were contacted to ask if they would consent to being involved in the research project. Following their consent to participate the consultants were sent a copy of an interview guide (Appendix 1) containing all the interview questions. Participants were asked to review this prior to the interview date (Simons & Andersen, 1995). The participants were BASES accredited for a mean number of 7.4 (S.D. = 5.4) years. The interviewees provided sufficient information to indicate a saturation of information had been obtained after the six interviews (Biddle, Markland, Gilbourne, Chatzisarantis, & Sparkes, 2001).

Interview Guide

A semi-structured protocol was chosen for the present investigation to standardise all interviews. Such an approach allowed the participant and/or researcher the flexibility to move into other areas should the conversation develop in such a way (Coolican, 1999). The interview guide (Appendix 1) comprised of five areas to help establish what the consultant perceived to be the main impacts of profiling in a group environment. These included the sporting populations the consultant had conducted performance profiling with, profiling protocols utilised by the consultant, perceived practical applications of the profiling procedure, strengths and weaknesses of profiling and its procedure and finally how they proposed to use the technique in the future. The first two areas were general in nature to help settle the consultant and facilitate recollection of their experiences of using the profiling procedure in a consultancy setting (Robson, 1993). The third and fourth areas were included to establish consultant perceptions of the main impacts of profiling, with the final area included to provide closure to the evaluation of the technique (Robson, 1993). In addition to the established general interview questions relevant elaboration probe questions (Patton, 2002; Robson, 1993; Weinberg, Butt & Knight, 2001) were prepared. This strategy was employed to assist the interviewer in obtaining a more detailed understanding of the consultant's opinion regarding the topic being discussed.

Procedure

Two pilot interviews with BASES accredited sport psychologists were conducted prior to the consultant interviews. This procedure was followed to provide the interviewer with feedback as to his style and approach, in addition to evaluating the content and structure of the interview protocol (Robson, 1993). Minor amendments to the structure of the interview were made as a result of a discussion with the participants from the pilot study and video analysis of the pilot interviews with the supervisory team.

The interviews were performed at a location determined by the interviewee, a procedure which Clark-Carter (1997) suggested will facilitate rapport between interviewer and interviewee. Participants were firstly briefed on the nature of the study and then given an overview of the interview structure and procedure. The interviews were conducted in person by the author and lasted approximately one hour. The interviewer was knowledgeable in the performance profiling area and trained in qualitative research design and methodology. Participants completed a consent form (Appendix 1) and were told that all the information supplied would remain strictly confidential. In addition, participants were informed that the purpose of the interview was to gain as much information regarding their experience and interpretations of Butler and Hardy's (1992) profiling procedure. Each interview was tape recorded, transcribed and then deductively and inductively content analysed (Biddle et al., 2001; Patton, 2002) by three research professionals.

Data Analysis

The interviews were analysed using a similar procedure to Weinberg, Butt and Knight (2001). A Thematic Analysis approach (Coolican, 1999) to the investigation dictated that the interview was split into specific predetermined areas in relation to the aim of the investigation. The analysis began with a general dimension from which raw data themes were categorised into higher order themes using an inductive content analysis approach (Patton, 2002). Content analysis procedures have been identified as being the most frequently employed and readily accepted qualitative approach in sport and exercise psychology (Biddle et al., 2001). An outline of the data analysis is provided below:

1. All six interviews were transcribed resulting in 50 pages of single spaced data.
2. Three investigators read and reread all transcriptions until they became familiar with them. All investigators were experienced in qualitative research methodology and sport psychology.
3. Each investigator was asked to identify independently the raw data themes for the potential impacts of performance profiling.
4. Following extensive discussions the three investigators came to a consensus as to the raw data themes. In the event of a disagreement the original transcripts were examined, with the interviewer's opinion deemed especially important as a result of his first hand experience of interviewing the consultants (Weinberg, Butt & Knight, 2001).
5. Following the raw data consensus higher order themes were determined. Triangular consensus, via the three investigators, was obtained for these higher order themes.

RESULTS AND DISCUSSION

The present study sought to establish if consultants perceived performance profiling to be a useful technique in addition to identifying with whom and how they have used profiling in a consultancy setting. The present cohort of consultants all believed profiling to be a useful technique to employ in their consultancies, although normally in conjunction with other forms of baseline assessment, such as observation and interviewing. Consultants varied in their use of the profile across age groups ranging from the very young (nine year old) to senior athletes (e.g., fifty + years old), with the ability of the athletes completing the profiles ranging from regional to international/elite level. Some of the consultants did highlight the possible difficulty with producing accurate profiles from either novice or young athletes where their understanding of the sport may be restricted by their relatively short or inexperienced involvement in the sport.

Consultants had used the general profiling technique in many different sports: gymnastics, rowing, track and field, swimming, triathlon, hockey, trials riding, mountain biking, fencing, badminton, wind surfing, rugby union and table tennis. This supports previous research suggesting the widespread employment of the technique in

sporting environments (Butler & Hardy, 1992; Doyle & Parfitt, 1997). The majority of consultants had employed both the individual and group profiling approaches and had facilitated the production of team, coach and individual profiles as has been reported previously in the literature (Butler & Hardy, 1992; Butler, Smith & Irwin, 1993; Dale & Wrisberg, 1996; Jones, 1993). In relation to the proposed use of performance profiling in the future, consultants indicated that they would use the procedure to facilitate a greater understanding of the athlete, as a basis for goal setting, to encourage independence and responsibility, as a communication aid, to monitor progress of the athlete, and in helping to triangulate information for athlete assessment.

The main purpose of this study was to establish BASES accredited sport psychologist opinions of the impacts of performance profiling and to compare these to the existing profiling literature. It was envisaged that this would provide a basis for a larger quantitative analysis of consultant opinions in study two. Krane, Andersen and Strean (1997) suggest that researchers, when presenting qualitative data, must attempt to present the primary data of the participant in addition to the researcher's interpretation of the data. Hence the results are presented with examples of the participants' primary data experiences and an overview of the raw data and higher order themes.

The six interviews produced fifty-four raw data themes (figure 3.1). Twenty first order themes were established from the initial raw data themes by the three research professionals analysing the interview data set. Subsequently, five second order themes emerged from the data set, from which two general dimensions were determined: impacts relating to the athlete and team. The results will be presented and discussed in relation to the team, athlete and consultant related themes.

Athlete Specific Impacts

One of the key impacts of the profile, identified by the consultants, related to raising athlete awareness as to the qualities required for performance. One consultant stated,

'I think the major thing is really to increase the athlete's awareness and just getting them to think about what it means to be a good performer in their sport. So I do find it a good awareness raising tool'.

Figure 3.1 Raw data and higher order themes for the impacts of producing individual athlete performance profiles as perceived by BASES accredited sport psychologists.

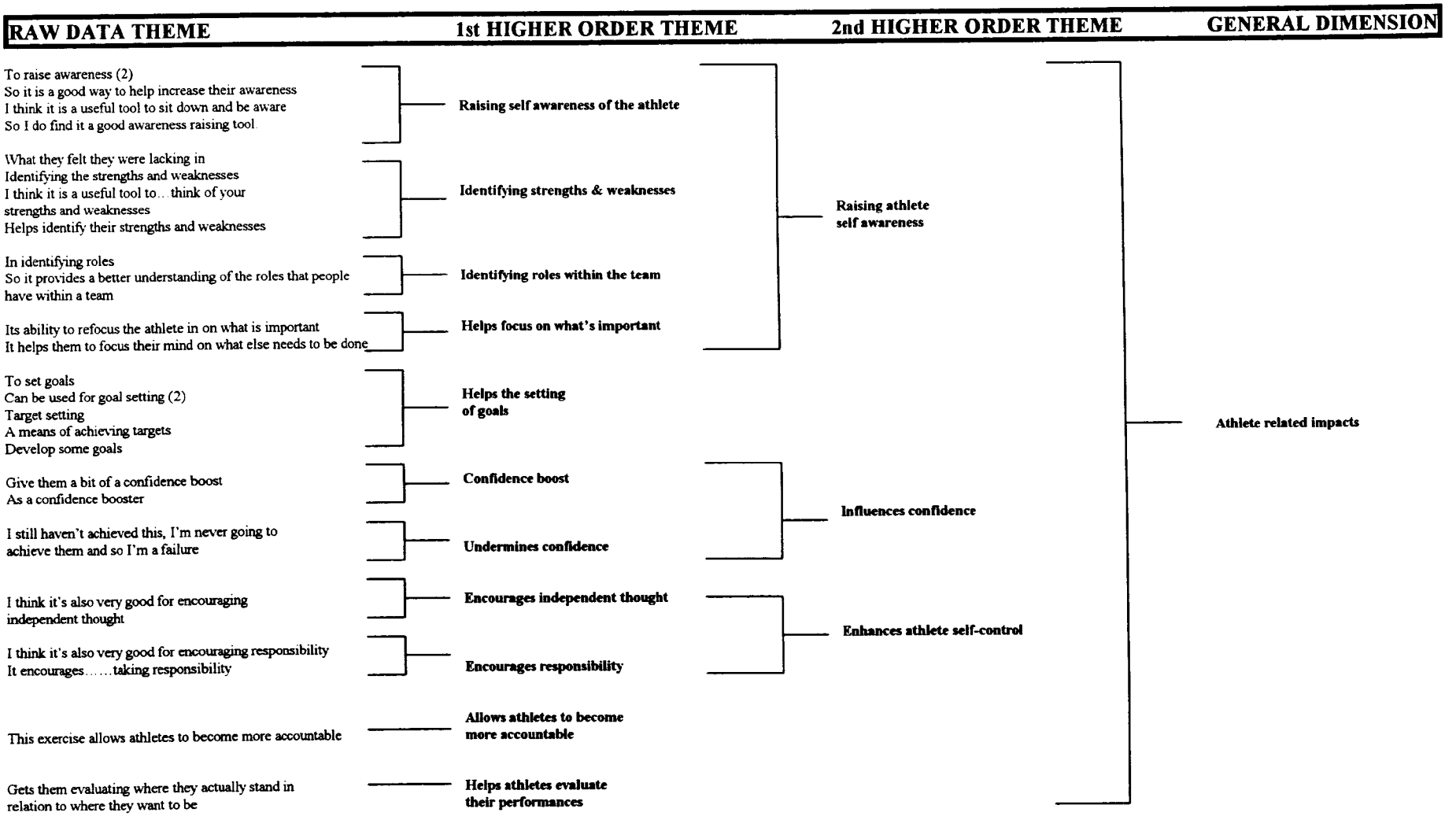
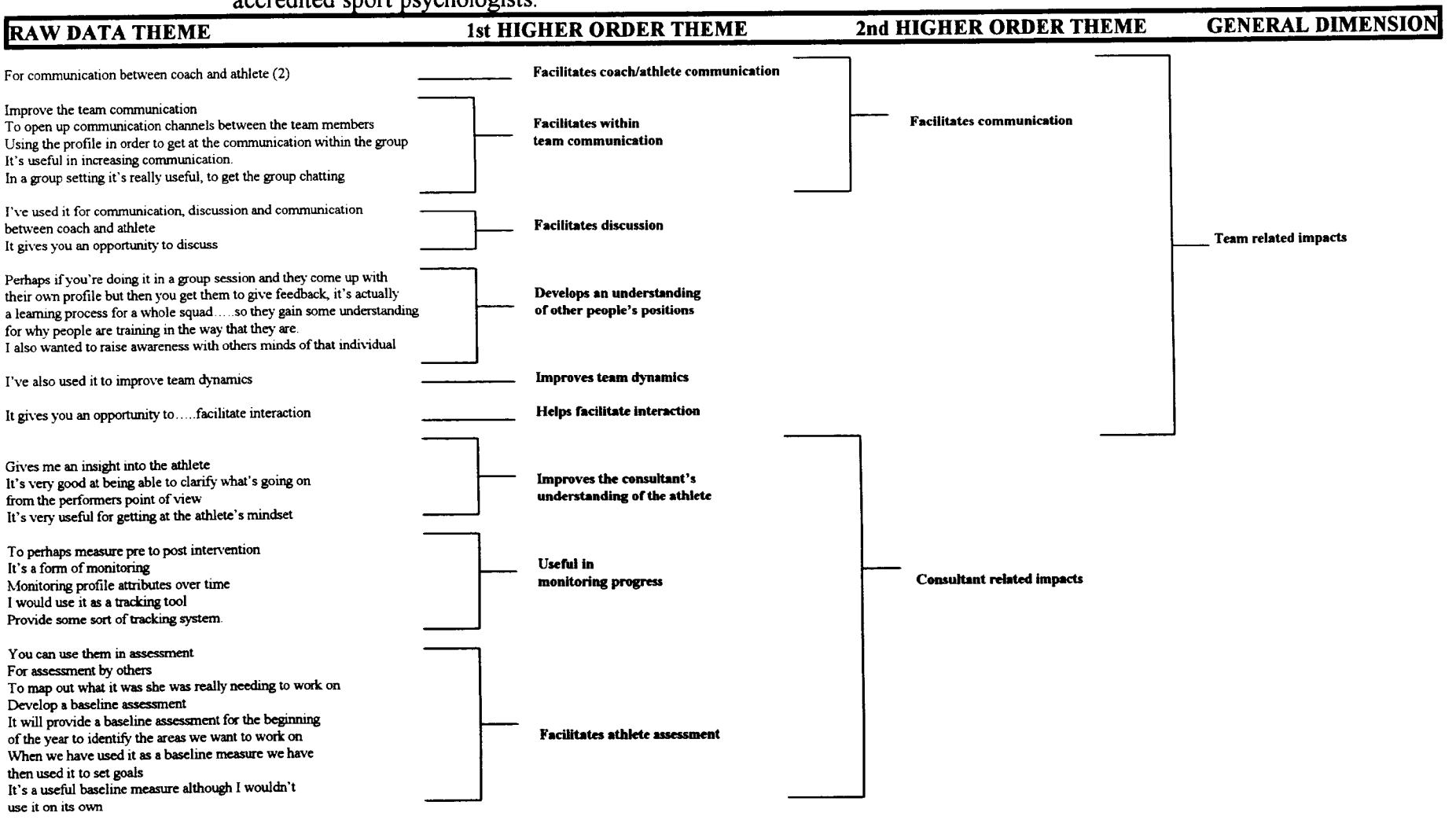


Figure 3.1. (Cont.). Raw data and higher order themes for the impacts of producing individual athlete performance profiles as perceived by BASES accredited sport psychologists.



Numbers in parentheses identify the number of consultants citing the particular raw data theme when greater than one

This theme was echoed by another consultant, who alluded to the additional importance of athletes identifying their strengths and weaknesses,

'I think it is a useful tool to sit down and be aware and think of your strengths and weaknesses and think of what it takes to be good at whatever you're doing'.

The important concept of enabling the athlete to focus in on the key aspects of performance was encapsulated in the following quotation,

'I do think that another one of its strengths is its ability to refocus the athlete in on what is important, "what do I need to be doing?", "what are the attributes I have to have if I want to achieve my best?".'

Butler and Hardy (1992) highlighted the fact that the profile would primarily be useful in raising the awareness of the athlete as to the qualities essential to performance in their sport and also their perceived ability in relation to those qualities. By rating themselves on the qualities, Butler and Hardy (1992) suggest that athletes subsequently become more aware of their strengths and weaknesses. Palmer et al. (1996), in their evaluation of netball player perceptions of the usefulness of the technique, stated that the majority of the athletes found the technique to be useful as it helped to raise their awareness and highlight their strengths and weaknesses, findings supported by the present study.

Despite these proposed benefits, one consultant did suggest that a lack of basic sporting self awareness in young or novice athletes may be problematic. The consultant suggested that in such instances it may be difficult to develop performance profiles that accurately reflect the performer's situation. Hence, consultants should be aware of the potential limitations or problems of employing the profiling technique with such sporting populations.

Typically when profiling in a group setting the team is split into various positional groups to brainstorm the qualities for a particular position subsequently resulting in the presentation of those qualities to the rest of the team (Butler & Hardy, 1992). In the present study two consultants stated that they felt performance profiling enabled the

athletes to understand more about the roles of their team mates, a concept revealed in the following comment,

'.....it provides a better understanding of the roles that people have within a team....so they gain some understanding for why people are training in the way that they are'.

Hence not only does profiling raise the awareness of the athlete as to the qualities required for their position and their strengths and weaknesses, but it also appears, in a team setting, to raise the athlete's awareness of the demands of other positions thereby providing a greater understanding of possible roles within the team.

Following the presentation of the positional attributes of team members the procedure then becomes more individually specific with each athlete choosing the qualities that they believe are important to their performance in relation to their own style of play (Butler & Hardy, 1992). The present study suggested a role of performance profiling in encouraging independent thought in addition to helping the athlete take more responsibility for their development. The following consultant comments illustrates this theme,

'I think in situations when you sometimes have an athlete that is desperate to have a quick solution to the problem. You know they want to know straight away, they want you to give it to them sometimes and so this process is where you sit back and say to them "no you're going to have to do the work. I can't provide you with the answers to the solution." That in a way is its strength as it encourages independence and taking responsibility which is good.'

The influence of profiling in encouraging independent thought and responsibility mirrors Butler and Hardy's (1992) assertion that the procedure would enable athletes to take more control of their development. The authors suggest that such improvements in internal control may help to facilitate greater intrinsic motivation towards participation in their sport. Although suggesting the possible role in increasing the internal control of the athlete, the present study failed to support a motivational impact of performance profiling. It would be interesting to establish if a wider range on consultants believe profiling to be useful in this way. Similarly it would be useful to establish whether the

athlete consumers of the technique perceive profiling to be useful in enabling them to take more control of their development, in addition to enhancing their motivation to participate and develop in their sport.

Another strategy that has been shown to be an effective motivational tool is goal setting (Hardy, Jones & Gould, 1996). Several researchers have suggested that performance profiling provides a useful basis from which the goal setting process can develop (Butler, 1997; Butler & Hardy, 1992; Butler, Smith & Irwin, 1993; Dale & Wrisberg, 1996; Doyle & Parfitt, 1997; Hardy & Jones, 1994). In the present study a number of consultants stated that they felt the profiling procedure provided a useful basis for beginning goal setting, a theme described in the following statement,

'.....they have identified their strengths and weaknesses and then in relation to their discrepancy values between ideal and self we would then focus on setting goals'.

This confirmation of previous literature findings emphasises the unique way in which the profiling procedure can help athletes to begin to set goals. Whilst recent research has supported the employment of multiple goal setting strategies (Burton, Naylor & Holliday, 2001; Filby, Maynard & Graydon, 1999), Gould (1998) has suggested that many athletes have tended to concentrate on outcome goals at the expense of performance and process goals. However, performance and process goals have been shown to be more effective in improving performance when compared with outcomes goals (Burton, Naylor & Holliday, 2001; Hardy, Jones & Gould, 1996; Kingston & Hardy, 1997). Given this research evidence, it is important that strategies which facilitate a performance / process goal focus are identified.

Profiling could provide such a strategy as it helps athletes identify the key attributes of performance and gets them to identify their strengths and weaknesses in relation to those attributes. Such a procedure can help athletes to concentrate more readily on performance and process related issues. The achievement of performance and process goals, which are controllable in nature, can encourage athletes to assume more personal credit for their successes (Burton, Naylor & Holliday, 2001). This, in turn, may help to enhance athlete confidence, a theme discussed by one consultant who said,

'....when we've used it at the end of the intervention it worked well as a confidence booster...because when I got them to rewrite the constructs they didn't see their previous scores. So I could go back to them and say look you've improved here and here and so it reinforced the improvements that they have made and worked as a confidence booster for them'.

Butler and colleagues (Butler, 1989; 1995; Butler, Smith & Irwin, 1993) have suggested that performance profiling could be useful in facilitating improvements in the confidence of athletes. Specifically the monitoring of athlete progress, via profiling, could facilitate confidence improvements as the athletes see the positive progression of critical attributes over time. Bandura (1977) suggests that performance accomplishments are likely to influence the self efficacy of individuals regarding a task. This influence can be both positive or negative depending on whether the accomplishments are perceived as successful or not. In the present study one consultant emphasised the possibility for the profiling to negatively impact on the athlete's confidence as a result of a lack of perceived improvement:

'In terms of some of the weaknesses I think as always when you have something down on paper it can almost be etched in concrete. What happens if I can never reach my ideal target and maybe it becomes this weight hanging around your neck? I still haven't achieved this, I'm never going to achieve them and so I'm a failure.'

Given the relatively few consultants, in both the present study and the literature, that have suggested a possible link between profiling and its influence on the confidence of athletes, further research is required to identify whether a more widespread population of consultants believe profiling to be useful or detrimental in influencing an athlete's confidence. Similarly it would be useful to establish firstly if athletes perceive profiling to influence their confidence, and secondly whether that influence is either positive or negative.

One of the consultants indicated that the profiling procedure may be useful in helping athletes to evaluate their performances. Descriptive profiling literature has suggested that profiling could be useful in this way (Butler, 1997; Butler & Hardy, 1992; Butler, Smith & Irwin, 1993). Butler, Smith and Irwin (1993) suggest that using the profile in

the evaluation of performances can provide useful information to help identify goals. Furthermore using profiling to evaluate performances could help sport psychologists and coaches to restrict athlete performance attributions to qualities defined within their profile. An athlete's profile typically includes attributes which are internal, controllable and changeable in nature. Hence by getting athletes to evaluate and subsequently attribute their successes and failures to such functional attributions, consultants could help athletes to maintain, or in success situations enhance, future expectations, emotions, motivation, and behaviours (Biddle, Hanrahan & Sellars, 2001). Further research is required to establish whether a larger, more widespread population of sport psychologists and athletes believe profiling to be useful in helping to evaluate performances.

Team Related Impacts

Consultants highlighted the benefits of profiling within a team setting in relation to its impact on the communication, discussion and interaction between players. This is emphasised in the following quotation from a consultant who had used the profile with acrobatic gymnasts who were working together as a team on a balance routine,

'I suppose to open up communication channels between the team members, because in the particular gymnastics team that I was talking about earlier you would have possibly an 18 year old, maybe a 24 or 26 year old and then possibly a 12 year old. So you can imagine in terms of the communication, you obviously have some issues. Because usually the 12 year old is balancing at the top and is usually told what to do by the bases. One of the things that we've been working with is using the performance profile in order to get at the communication within the group and maybe getting the 12 year old who is at the top to actually have an opportunity to actually put their point of view forward. So it changed the dynamics of communication from "do this, do that, do the other" from the more mature member, to making it a more democratic process where everyone has an input'.

Communication within teams has been suggested as an influential factor in improving performance (Carron & Hausenblas, 1998) and developing team cohesion (Carron et al., 2002). Indeed Miller (1997) suggests that coaches should provide an environment

where individual athletes are made to feel comfortable communicating their thoughts. Despite the importance of communication within teams, Yukelson (1998) suggests very few literature articles have been published describing effective techniques to enhance team communication. Dale and Wrisberg (1996), in employing performance profiling with a volleyball team found it to be useful in providing a forum for open communication between team members. Through the identification and then discussion of coach, athlete and team profiles, both athletes and coaches agreed that the technique had helped to improve communication both between players and also between coach and athletes. This is supported by the findings of the present study.

Given the present findings and supportive literature evidence (Dale & Wrisberg, 1996), performance profiling could provide a useful strategy to enhance communication within teams. Future research examining the perceptions of a larger number of consultants would help to substantiate such a claim. Furthermore it would be useful to identify whether athletes believe profiling to be an effective technique in helping them communicate with fellow team players and their coaches.

One of the reasons for the improvement in communication within teams may be as a result of the group brainstorming and subsequent presentation of player qualities. The generation of qualities by players of similar positions (Dale & Wrisberg, 1996) facilitates communication between comparable team performers. The subsequent presentation of those qualities to the rest of the team thereby enables further communication of positional roles within the team. This latter profiling procedure helps team players to become more aware of the demands of other positions. The present findings suggest this to be the case as indicated in the following comment:

'Perhaps if you're doing it in a group session and they come up with their own profile but then you get them to give feedback, it's actually a learning process for a whole squad. It's maybe that your goalkeeper has listed completely different attributes to the centre forward. So it provides a better understanding of the roles that people have within a team..... so they gain some understanding for why people are training in the way that they are.'

The present findings also suggest that consultants have used profiling to facilitate coach/athlete communication as the following quotation emphasises:

'It might provide information on where some of the blocks were occurring, particularly if you have the coach and athlete rating. So if there had been a bit of conflict there.....it might provide something concrete for both the athlete and the coach to speak and move forwards. It might be that they are able to see each others perspective a little better.'

Several articles have advocated the use of profiling in comparing coach and athlete perceptions of profile ratings (Butler, 1989; Butler & Hardy, 1992; Butler, Smith & Irwin, 1993; Potter & Anderson, 1998). Whilst the present study supports previous literature (Dale & Wrisberg, 1996) suggesting that profiling may be useful in improving communication between athletes and coaching staff, it would be useful to ascertain if athletes also believe this to be the case.

Consultant Related Impacts

A key second order theme to emerge from the content analysis was the impact that profiling may have on the sport psychology consultants facilitating the session. Butler (1989) introduced performance profiling as a potential assessment technique, indicating that information derived from its use could help to develop athlete perceived weaknesses. Potter and Anderson (1998) have since suggested that it provides a useful baseline assessment for the 'identification of athlete-driven sport psychology interventions' (p.147). The following consultant comment emphasises the use of profiling as an assessment technique:

'I think it's quite a useful tool to start off with as a baseline assessment.....and I do find it particularly useful for a first session.'

Butler and Hardy (1992) suggest that, given the increased role performed by the athlete in identifying their strengths and weaknesses, performance profiling helps the consultant or coach to discern more of the athlete's opinion regarding their performance development. This in turn, may help in matching future training programmes more

closely to the athlete's needs. The increased understanding of the athlete that can be gained through the profiling procedure is shown by the following consultant comment:

'It's very useful for getting at the athlete's mindset, to work out how they see a situation.'

Further ways of understanding more of the athlete's perception of performance have been established through using performance profiling to monitor the athlete's perceived progress over time (Butler, 1995; Butler & Hardy, 1992; Butler, Smith & Irwin, 1993; Doyle & Parfitt, 1997; Hardy & Jones, 1994; Jones, 1993). Indeed Doyle and Parfitt (1997), in their experimental investigation into the construct validity of the technique, found support for the use of profiling in monitoring progress. In concluding their article, the authors suggested that the profiling procedure may only be useful in monitoring progress during periods when large changes in performance are likely.

The present study found support for the use of profiling in helping to monitor the athlete's progress over time. One consultant stated that they had never used the profile to monitor progress during an intervention but had used it to evaluate progress at the end of an intervention. Another stated that they would 'use it as a tracking tool' when working with athletes over longer periods of time. The consultant indicated the possible role that revisiting the profile may have, not only on monitoring perceived performance levels, but also in the choice of qualities making up an athlete's profile:

'I think that would be quite useful as well, because athletes will change in terms of their perceptions of what is important as they gain more experience and their performances improve. Or even if some of the attributes don't change maybe the level of importance on those attributes may change. So it might provide some sort of tracking system.'

SUMMARY

The findings of study one confirm previous literature which states that profiling is useful in raising the self awareness of the athlete, highlighting the athlete's perceived strengths and weaknesses, as a basis for goal setting, in influencing the athlete's confidence and facilitating communication and discussion within the team. Further to

the existing literature evidence, the present population of BASES accredited sport psychology consultants revealed that there are a number of additional impacts that profiling produced in this way may have. These include making the athletes more accountable, encouraging independent thought, increasing responsibility and interaction, helping to identify roles within the team, identifying the demands of other positions and improving team dynamics.

One of the limitations of the present investigation resulted from the consultants being asked to recall their profiling experiences. Given the retrospective design employed, caution must be taken as potential distortions in the accuracy of recall may have resulted since the events/experiences actually occurred (Jackson, Dover & Mayocchi, 1998). Whilst trying to overcome such problems was difficult given the circumstances of the present inquiry, further qualitative research to substantiate the findings could involve a focus group design (Stewart & Shamdasani, 1990). This approach would provide the consultants with the opportunity to discuss their profiling experiences with each other under the direction of a moderator (Gould, Guinan, Greenleaf, Medbery & Peterson, 1999). One benefit of this procedure, that might help to alleviate some of the problems associated with retrospective interview design, involves the social context of the focus group, where many experiences, feelings and perceptions are voiced. This environment may stimulate other participants to recall and communicate information that otherwise would not have been induced. Similarly any false or extreme views can be responded to and rationalised within the social environment, which in an individual interviewing setting, is less likely to occur (Patton, 2002).

As previously mentioned, one of the main aims of this study was to identify potential impacts of profiling through a qualitative semi-structured interview analysis of a small number of BASES accredited sport psychologists. Whilst the present investigation provides a rich source of information regarding the impacts of performance profiling, it is limited to a small number of consultants and thereby minimises the generalisability of the findings. Similarly, it fails to substantiate the claim that the technique is readily being employed in a consultancy setting (Doyle & Parfitt, 1997). A larger, more widespread examination of consultant opinions, involving quantitative research methods, could help to overcome these problems and help generalise the findings of study one. Hence the second study sought to combine the impact themes determined in

study one with a review of the profiling literature to construct a closed questionnaire for a quantitative analysis of the perceptions of a larger population of sport psychology consultants.

CHAPTER 4

STUDY 2. CONSULTANT PERCEPTIONS OF THE USEFULNESS AND IMPACTS OF THE PERFORMANCE PROFILE PRODUCED IN A GROUP SETTING II.: A QUANTITATIVE INVESTIGATION

INTRODUCTION

The present study sought to extend the findings of study one and examine the perceptions of a large sample of BASES accredited sport psychologists as to the usefulness and potential impacts of performance profiling. Patton (2002) suggests that the employment of more than one method of data collection will help in overcoming the errors associated with any single methodological approach. Hence the present study attempted to build on the qualitative approach used in study one by utilising a quantitative analysis of a large number of sport psychology consultants.

Questionnaires have frequently been employed as an effective quantitative technique in providing a statistical account of opinions regarding a topic of interest. Loewenthal (2001) suggests that in the construction of questionnaires, items can be derived from a review of the relevant research and/or an analysis of interview material. Jackson and Marsh (1996) in the construction of their Flow State Scale used previous literature and qualitative findings derived from earlier studies to provide items for their questionnaire. Similarly, Yoo (2000) identified items from a review of relevant literature and the findings from interviews conducted with Korean athletes regarding their use of coping skills in the development of the Coping Scale for Korean Athletes.

Descriptive analysis of questionnaire data has been useful in providing exploratory information regarding a variety of topics in sport psychology. For example Gould, Medbury, Damarjian and Lauer (1999) utilised descriptive analysis procedures in surveying junior tennis coaches regarding their perceptions of the importance and use of mental skills training. Similarly Weinberg and colleagues (1993, 1997, 2000) have repeatedly employed descriptive analysis in their investigations into the perceptions of athletes and coaches regarding the effectiveness and importance of goal setting in sport. Whilst such descriptive research can provide useful information, Weinberg et al. (2000) suggest that an exploratory factor analysis of questionnaire item responses helps to

determine whether any common themes emerge on the topic being investigated. In their investigation into the goal setting practices of Olympic athletes, Weinberg and colleagues (2000) determined a number of themes relating to goal frequency, effectiveness and barriers to goal setting from an exploratory factor analysis of the data set. In identifying the important impacts of performance profiling, it would be interesting to determine whether any themes emerge from the completion of a questionnaire examining the perceptions of BASES accredited sport psychology consultants regarding the impact of the profiling procedure.

Given the efficacy of the above research design and analysis procedures, the present study sought to examine quantitatively the perspective of a large number of sport psychology consultants as to the usefulness and impact of producing athlete performance profiles in a group setting. A Consultant Performance Profile Questionnaire (CPPQ; Appendix 2) was employed, with items determined from the qualitative higher order themes in study one and a review of the performance profiling literature (see figure 4.1 for overview; Loewenthal, 2001). Subsequent descriptive analysis of the consultant perceptions was performed to identify the most important impacts of producing athlete performance profiles in a group setting.

Figure 4.1. Summary of the literature evidence and study one findings regarding the athlete specific impacts of performance profiling in a group setting.

Literature Derived Impacts	Literature & Interview Derived Impacts	Interview Derived Impacts Only
• Increases the athlete's intrinsic motivation • Provides a useful basis for structuring training • Helps athlete's adherence to interventions • Useful in helping enhance the commitment of the athlete	• Increases the athlete's self-awareness • Highlights athlete's perceived strengths & weaknesses • Provides a useful basis for the goal setting process • Useful in helping monitor an athlete's progress • Helps enhance an athlete's confidence • Facilitates communication & discussion within teams • Helps focus on what's important • Facilitates evaluation of where athletes are in relation to where they need to be • Facilitates assessment of self • Facilitates more internal control over performance development	• Encourages independent thought • Encourages responsibility • Identifies roles • Makes athletes more accountable • Facilitates interaction • Helps in the understanding of other positions • Improves team dynamics

A further aim was to determine if any common themes emerged from the impact item responses via an exploratory factor analysis. Supplementary aims included identifying how useful consultants perceived producing athlete performance profiles within a group environment to be, and how frequently consultants had employed such a procedure in their consultancy experience.

METHOD

Participants

Ninety-three British Association of Sport and Exercise Sciences (BASES) accredited sport psychologists were written to and invited to participate in the study. Sixty consultants replied, fifty-six (37 males & 19 females) returned a completed Consultant Performance Profile Questionnaire (CPPQ; Appendix 2) and four stated that they did not wish to participate in the study. The participants had been BASES accredited sport psychologists for a mean of 4.91 years (SD = 5.07), ranging from a maximum of 20 years to a minimum of 4 months. By returning the questionnaire the consultants were consenting to participate in the study.

Instrument

Triangular consensus of the opinions of three research professionals determined the inclusion of the items for the CPPQ from an analysis of the study one consultant interviews and a literature review (Patton, 2002). Initially the CPPQ was piloted, as instructed by De Vaus (1993), with three BASES accredited sport psychologists. Included with the questionnaire were three additional questions (Appendix 3) asking the consultant to state on a likert scale of 1 (not at all) to 5 (very) how readable and understandable the questions were in addition to how appropriate they felt the rating scales were. A final question asking for additional comments was included. Following a review of the completed pilot questionnaires (where all questions were responded to the value of 4 & above), and discussion with the pilot participants and supervisory team, a few changes were made to the questionnaire in relation to the wording of some of the questions.

The final CPPQ comprised of firstly, background details relating to the gender and number of years the consultant had been accredited. Since the aim of the present investigation focused only on the impacts of producing the performance profile in a group setting, a brief description of the Butler and Hardy (1992) group profiling procedure was provided to familiarise the participants with the relevant procedure. Consultants were then asked three questions relating to this procedure. The first question asked consultants how useful they perceived it would be to produce an athlete performance profile within the group setting. Consultants were given a five point likert scale from 1 (not at all) to 5 (very), with 3 providing a 'moderate' score. In addition a 'don't know' alternative was provided to enable those individuals without an opinion on an item an appropriate response option (De Vaus, 1993).

The second question asked consultants to state how often they had used the performance profile in a group setting. Similar to the first question consultants were asked to respond on a five point likert scale of 1 (never) to 5 (always), with 3 constituting a 'sometimes' score. In the third question the consultants were asked to rate on a 1 (not at all) to 5 (very) likert scale how effective they believed performance profiling in a group setting to be in relation to a list of potential impacts derived from the study one interviews and a literature review. Again a value of 3 related to a 'moderate' score. Impact item examples included 'help identify the athlete's strengths and weaknesses', 'help the athlete to gain control over their performance' and 'help to encourage responsibility'. Similar to the first question, a 'don't know' response was provided. The impact items were found to show internal reliability with a Cronbach alpha score of .94 (Bryman & Cramer, 1999). Finally, consultants were given the opportunity to record any additional comments regarding the performance profile on the back of the questionnaire.

Procedure

A list of the BASES accredited sport psychology support consultants was obtained from the BASES office. One hundred and six support consultants were accredited at the time of testing. Thirteen consultants had been involved either in the initial consultant interviews (study 1), the piloting of the consultant interviews or CPPQ, or in the

supervision of the project. These individuals were omitted from the participant population for the study.

The remaining ninety-three BASES accredited sport psychologists were sent the CPPQ. Included was a letter outlining the investigation and a stamped addressed envelope to return the completed questionnaire. To maintain confidentiality consultants were told that their name was not required and that the information they provided would be coded. Additionally, consultants were informed that by completing and returning the questionnaire they were providing consent to participate in the study. After a month consultants were sent a reminder via e-mail, asking them to complete and return the CPPQ.

Data Analysis

Descriptive statistics were taken to determine the mean (& standard deviation) consultant responses regarding the usefulness and frequency of use of performance profiling in a group setting. Mean (& standard deviation) descriptive statistics were recorded for each item on question three to determine the most important impacts of profiling in a group setting as perceived by BASES accredited sport psychologists.

An exploratory factor analysis has been suggested as a useful method of highlighting and aggregating characteristics that emphasise a theme (Bryman & Cramer, 1999). Indeed, many recent research articles have employed such a procedure to help group items within a closed questionnaire instrument (for example Halliburton & Weiss, 2002; Raedeke & Smith, 2001; Weinberg, et al., 2000). Therefore the present study employed an exploratory factor analysis to examine the factor structure of the CPPQ. A principal axis factor analysis was chosen using both varimax and oblimin rotations. As low intercorrelations (M=0.32) were found between the factors, the varimax rotation was used in the analysis (Bryman & Cramer, 1999; Raedeke & Smith, 2001). Factor extraction criteria included the factors having an eigenvalue greater than one, thus exhibiting more variance than any one item and items were included only if they had a loading of 0.40 or greater (Halliburton & Weiss, 2002; Raedeke & Smith, 2001).

RESULTS

Descriptive Statistics

Descriptive statistics indicated that consultants found performance profiling to be useful (M = 4.27, SD = 0.79) and that, under the appropriate circumstances, they would use profiling more than sometimes (M = 3.37, SD = 1.14). Following descriptive analysis the most useful impacts of the performance profiling were to help provide a basis for goal setting, to help identify the athlete's strengths and weaknesses, to help to raise the self awareness of athlete, to help facilitate discussion within the team, and to help the athlete focus on what's important (see table 4.1).

Exploratory Factor Analysis

All the CPPQ items failed to meet the assumption of normality check as evidenced by the significant Kolmogorov-Smirnov test scores (Ntoumanis, 2001; Appendix 4). Hence the data set was normalised to produce standardized *z* scores for each item. As directed by Tabachnick and Fidell (1996), outliers with *z* scores +/– 3.29 were removed from the analysis to prevent distortion of the statistical analysis.

The Keiser-Meyer-Olkin (KMO) test is used to establish the suitability of a factor analysis based on correlations between items on the questionnaire. Ntoumanis (2001) suggests that values greater than 0.60 are acceptable to then proceed with a factor analysis of a data set. A significant Bartlett's test of sphericity finding is also proposed to provide further evidence of the appropriateness of using a factor analysis on a data set (Ntoumanis, 2001). Hence both tests were performed obtaining a KMO value of 0.79 and a significant test of sphericity (χ^2 (276) = 704.66; <.05). This therefore provided sufficient rationale to proceed with the exploratory factor analysis. However due to the low participant to item ratio (2.33:1), the results of the factor analysis must be interpreted with some caution (Halliburton & Weiss, 2002).

The principal axis factor analysis extracted five factors with an eigenvalue greater than one, explaining 63.8% of the variance. Consensus among three research professionals was obtained to identify labels for each of the factors to help reduce bias in naming the

Table 4.1 Descending list of the means (& standard deviations) of the consultant (n = 56) perceived impacts of performance profiling.

Impact of Performance Profiling in a Group Setting	Mean	Standard Deviation
Help provide a basis for goal setting	4.46	0.76
Help identify the athlete's strengths and weaknesses	4.43	0.79
Help to raise the self awareness of athlete	4.37	0.82
Help facilitate discussion within the team	4.21	0.87
Help the athlete focus on what's important	4.16	0.78
Help the athlete to assess themselves	4.11	0.90
Help the athlete to evaluate how they're performing	4.10	0.77
Help to structure an athlete's training programme	4.06	0.94
Help to enhance communication within the team	4.04	0.86
Help facilitate interaction within the team	4.00	0.90
Help monitor the athlete's progress	3.97	1.02
Help promote task involvement in the athlete	3.67	1.00
Help the athletes understand the demands of other positions	3.66	0.99
Help to improve team dynamics	3.62	1.08
Help enhance the intrinsic motivation of the athlete	3.61	1.06
Help to identify roles within the team	3.55	1.10
Help increase the commitment of the athlete	3.54	0.86
Help to enhance the athlete's confidence in themselves	3.52	0.93
Help to encourage responsibility	3.47	0.94
Help enhance the self determination of the athlete	3.41	0.98
Help enhance the athlete's adherence to an intervention	3.40	1.14
Help the athlete to gain control over their performance	3.36	1.05
Help to encourage independent thought	3.35	0.95
Help to make the athletes more accountable	3.28	1.19

factors (Halliburton & Weiss, 2002). However, only two factors was interpretable. Nine items cross loaded (above 0.40) on more than one factor ('Help to identify roles within the team'; 'Help to raise the self awareness of athlete'; ' Help the athlete to focus on what's important'; 'Help enhance the self determination of the athlete'; 'Help increase the commitment of the athlete'; 'Help promote task involvement in the athlete'; 'Help to improve team dynamics'; 'Help to structure an athlete's training programme'; and 'Help to encourage responsibility'. Two items ('Help to make the athletes more accountable'; and 'Help to enhance the athlete's confidence in themselves') failed to attain a loading of .40 on any factor. Table 4.2 provides an overview of the factor structure detailing the eigenvalues, percentage and cumulative percentage of the variance for each factor (also

Table 4.2. The factor analysis of the impact items from the CPPQ

Impact Item	Factor 1	2	3	4	5
Team related impacts					
Help facilitate interaction in the team	**.87**	.06	.17	.07	.08
Help facilitate discussion within the team	**.84**	.16	.01	-.01	-.00
Help the athletes understand the demands of other positions	**.76**	.08	.09	.16	.05
Help communication with the team	**.75**	.09	.17	.11	.21
Help to improve team dynamics	**.61**	.05	.40	.15	.28
Help to identify roles within the team	**.56**	.01	.55	.25	.02
Help identify the athlete's strengths and weaknesses	-.03	**.82**	.19	.19	.18
Help to structure an athlete's training programme	.17	**.68**	.40	.16	.01
Help provide a basis for goal setting	-.02	**.65**	.03	.38	.32
Help the athlete to assess themselves	.17	**.64**	.16	.37	.14
Help to raise self awareness of athlete	.17	**.52**	-.00	.21	.41
Help the athlete to focus on what's important	.01	**.49**	.32	.41	.26
Motivation					
Help enhance the intrinsic motivation of the athlete	.05	.22	**.69**	.21	.30
Help enhance the athlete's adherence to an intervention	.19	.15	**.68**	.16	.14
Help enhance the self determination of the athlete	.30	.29	**.53**	.47	.16
Help increase the commitment of the athlete	.47	.28	**.51**	.28	.09
Help to make the athletes more accountable	.29	.12	**.36**	.01	.27
Help the athlete evaluate how they're performing	.11	.28	.12	**.76**	.02
Help monitor the athlete's progress	.10	.39	.13	**.67**	.01
Help the athlete to gain control over their performance	.15	.26	.34	**.60**	.29
Help promote task involvement in the athlete	.33	.12	.18	**.51**	.46
Help enhance the athlete's confidence in themselves	.01	.21	.31	**.37**	.33
Help to encourage responsibility	.17	.24	.48	-.00	**.70**
Help to encourage independent thought	.14	.35	.23	.19	**.70**
Cronbach Alpha Score	0.90	0.88	0.85	0.85	0.87
Eigenvalue	4.03	3.29	2.99	2.87	2.13
% of variance explained	16.8	13.7	12.5	11.9	8.9
Cumulative % of variance explained	16.8	30.5	42.9	54.9	63.8

found in Appendix 4). Cronbach Alpha scores are also presented for each factor (Martin et al., 2002), indicating good levels of internal consistency. Given the exploratory nature of the investigation all items were included under their relevant factors in the results section. This mirrors a procedure adopted by Raedeke and Smith (2001) in the development of their Athlete Burnout Questionnaire.

As table 4.2 highlights, many of the factors extracted did not indicate an interpretable theme. However, factor one does provide evidence for a team related theme emphasising impacts such as facilitating communication, interaction and discussion, improving team dynamics, identifying roles and helping athletes to understand the demands of other positions. Furthermore, the third factor emphasised a motivational theme with impacts such as intrinsic motivation, self determination, commitment and adherence.

Other Consultant Profiling Comments

General comments regarding the profiling approach were provided by five of the fifty-six participants. One consultant pointed out the critical role of the coach in 'reinforcing the process' and using the profile to assist the athlete in monitoring progress and reviewing the goals that had been set as a result of the original profiling procedure. This consultant also suggested that, in their experience, profiling would be most effective with those athletes that are 'responsible' and 'self determining at the outset'. The consultant continued by noting that athletes who were used to autocratic coaching styles would view the profile less favourably as they believe their progress was primarily dictated by the coach rather than themselves. Another consultant alluded to the key role the coach can play in helping the small groups generate the qualities. This consultant also suggested that profiling in a group setting can be less intimidating to athletes and may be particularly useful with junior athletes, athletes new to sport psychology and those who find it difficult to analyse their own performances.

One of the consultants emphasised the need for the technique to be used in conjunction with other methods of needs analysis and evaluation. Although useful possibly as a coaching aid on its own, this consultant stated that they felt the profile was not strong enough to be used on its own and must be 'contextualised' relative to other such

techniques and measures. Another consultant emphasised this point, indicating that the profile would account for no more than 0.5% of their time when working with an athlete. The consultant stated that in their experience, some athletes have high levels of self awareness in both their sporting and general lives and therefore the employment of profiling with these athletes was less important.

Finally one consultant believed the profile had an 'ego focus in the first instance' in addition to encouraging comparison to ability levels which are inappropriate to some athletes. The consultant stated that they had replaced the 'Butler approach' with a profile based on Bandura's (1977) self efficacy theory (although not defining such an approach). This strategy, the consultant stated, would help to 'draw out the sub-components of performance that directly relate to the athlete, thereby providing the basis for a more 'task focused' goal setting procedure.

DISCUSSION

The present study found that BASES accredited sport psychology consultants strongly believed performance profiling to be useful ($M = 4.27$, $SD = 0.79$), thus confirming previous descriptive research (Butler, 1989; Butler & Hardy, 1992; Butler, Smith & Irwin, 1993; Dale & Wrisberg, 1996; Jones, 1993). Hardy and Jones (1994) in discussing the current issues and possibilities for future research in sport psychology, state that performance profiling 'has become accepted as a very useful addition to the practising sport psychologist's armoury' (p.82). Similarly Palmer et al. (1996), in investigating the perceptions of fourteen international under 21 netball players, found that 10 of the athletes believed performance profiling to be useful. The present study supports this previous research and illustrates the fact that British sport psychologists believe performance profiling to be a useful technique to employ with a group of athletes. Possible future research could investigate whether profiling is being utilised frequently in other countries and to establish whether consultants in those countries perceive profiling to be as useful. Furthermore researchers could examine whether consultants believe profiling on a one-to-one basis to be a useful strategy to employ.

Having established that consultants perceive profiling to be useful, the next aim of the study was to determine what consultants believed were the most important impacts of

performance profiling on the athlete participants involved in the procedure. An exploratory factor analysis was performed to ascertain key themes emerging from the consultant impact responses. Of the five factors to emerge from the analysis only two factors were interpretable; team related impacts and motivation. The lack of discernable themes could be explained by the low participant number. Despite closely resembling the participant to item ratio of Halliburton and Weiss (2002), the present exploratory factor analysis fell below the 5:1 participant to item ratio recommended by Tabachnick and Fidell (1996) when employing such a procedure. Given the participant population was confined to BASES psychology consultants, the study was limited by the number of those consultants who were accredited at the time of investigation. This may explain the poor factor structure that was produced from the exploratory analysis. Hence future research could examine the factor structure of the CPPQ utilising a larger consultant population that adheres to the above participant to item ratio.

Although the results of the exploratory factor analysis cannot be treated with great confidence, the descriptive results do give an insight into the likely impacts of the performance profiling procedure. The most important impact, as perceived by BASES accredited support sport psychologists, was in helping to provide a basis for the goal setting process ($M = 4.46$, $SD = 0.76$). This result supports previous descriptive research that has identified the technique as being useful in this way (Butler, 1997; Butler & Hardy, 1992; Butler, Smith & Irwin, 1993; Dale & Wrisberg, 1996). Butler and Hardy (1992) suggest that the process of raising the athlete's awareness regarding the qualities essential for elite performance and the athlete's ability in relation to those qualities, helps provide a useful basis from which goal setting can develop. Given that the employment of goal setting in sport has been shown to facilitate performance improvements (Kyllo & Landers, 1995), the initial use of performance profiling should provide a good basis to facilitate consultants in the introduction and delivery of goal setting practices with athlete populations.

Performance profiling may be particularly useful in facilitating the production of process and performance goals, given that the procedure helps to break an athlete's performance down into the specific attributes required for successful performance. Furthermore given that profiling encourages athletes to focus on self referent performance development and skill mastery, the procedure may help to develop greater

task involvement in athletes. The present findings provide some support that profiling could be useful in this way (M = 3.67, SD = 1.00). Whilst under success situations task and ego involved individuals display similar adaptive behaviour. However, under failure situations the two orientations differ markedly. Task involved athletes will increase effort, persist in the face of failure and continue to choose challenging tasks. Whereas ego involved athletes will exert little effort, lack persistence and in some instances drop out from their sport (Duda & Hall, 2001). Hence, profiling combined with goal setting in this way, could help athletes to adopt a more task oriented approach to their participation and thereby assume more positive psychological and behavioural outcomes.

Butler and Hardy (1992) suggest that performance profiling is a beneficial method of raising the awareness of the athlete regarding the important performance qualities and their strengths and weaknesses in relation to those qualities. Examination of the descriptive findings ('help to raise self awareness of athlete': M = 4.37, SD = 0.82; 'help identify the athlete's strengths and weaknesses': M = 4.43, SD = 0.79) strongly supports both these suggestions. Ravizza (1998) states that enhancing the self-awareness of an athlete is essential in allowing them to take more control over their performances. Butler and Hardy (1992) suggest that the client centred approach adopted through performance profiling enables athletes to secure more control over their performance, an impact moderately supported by the present participants (M = 3.36, SD = 1.05). In gaining more internal control (or autonomy), Butler and Hardy (1992) suggest that athletes are likely to become more intrinsically motivated. Jones (1993), in his individual consultancy, stated that the athlete's motivation to embark on, and adhere to, a mental skills training programme evolved from the initial performance profiling procedure. Despite this assertion the current investigation found that consultants perceived the performance profile to have a moderate impact on enhancing the intrinsic motivation (M = 3.61; SD = 1.06) and self determination (M = 3.41; SD = 0.98) of the athlete. Vallerand (2001) suggests that in order for situational factors to influence motivation over time, they may need to be presented on a regular basis within the same context. The question in the CPPQ related to the impact of a single group profiling session, and hence consultants may have perceived that such a brief intervention would not be sufficient to enhance athlete intrinsic motivation.

The present study found that consultants strongly believed the profile to be effective in helping the athlete assess (M = 4.11, SD = 0.90) and evaluate themselves (M = 4.10, SD = 0.77). These findings support the results of study one and descriptive profiling literature which has suggested the potential use of profiling in this way (Butler & Hardy, 1992; Butler, Smith & Irwin, 1993). The motivation an athlete has toward events in their sporting life can be influenced by the way in which that individual has evaluated the causes of similar events in the past (Hardy, Jones, & Gould, 1996). These evaluations of events can be either functional (i.e. reinforcing) or dysfunctional (i.e. opposing) toward an individual's motivation for an event, depending upon the choice of reasons for the event outcome. The causes, or attributions, are also likely to influence an individual's behaviour (Biddle, Hanrahan & Sellars, 2001), expectations (Grove & Pargman, 1986) and affective reactions (Robinson & Howe, 1989) in similar situations in the future.

If sport psychologists are able to manipulate the criteria by which athletes attempt to evaluate their performances, they can help to reinforce functional attributions (and minimise dysfunctional attributions) toward performance situations. As Weiner's (1986) theory suggests, such attributions may then positively influence the athlete's emotion, expectations and behaviours in similar situations. In employing performance profiling as a debrief or evaluation tool, consultants can restrict formal evaluation of a performance to a set number of controllable qualities which are more likely to result in the choice of functional attributions. Further research could investigate whether profiling does promote more functional attributions following either failure or success situations and whether these attributions positively influences the future motivation, expectations, emotions and behaviour of athletes.

Dale and Wrisberg (1996), in describing their consultancy with a collegiate female volleyball team, identified performance profiling as an effective tool in creating an open atmosphere for communication between athletes and the coaching staff of the team. Employing Butler and Hardy's (1992) general guide to group profiling Dale and Wrisberg (1996) produced individual, team and coach performance profiles to help facilitate communication within the team. The authors state that both athletes and coaches agreed that communication within the team was more effective as a result of the profiling procedure. Despite these findings, no other evidence regarding the positive

influence of profiling on communication within teams has been published. The present descriptive findings provide strong evidence to suggest that consultants believe the technique to be useful in enhancing communication (M = 4.04, SD = 0.86), discussion (M = 4.21, SD = 0.87) and interaction (M = 4.00, SD = 0.90) within teams. Similarly the exploratory factor analysis produced a factorial theme emphasising the impact of group performance profiling on team related issues such as communication, discussion, interaction and team dynamics. The theme also emphasised the use of profiling in helping identify the demands of other positions within the team, a procedure unique to group performance profiling. This supports the qualitative findings of study one where consultants suggested group profiling to be useful in facilitating communication, discussion and interaction, in addition to improving team dynamics and understanding the demands of other players within a team.

Yukelson (1998) states that communication is essential to sporting success, highlighting the view that strategies which promote open channels of communication can assist in overcoming problems that develop in sports teams. Indeed Carron, et al. (2002) suggest that communication strategies, either athlete-athlete or coach-athlete, employed by coaches as a team building exercise, can lead to more cohesiveness within teams. The authors found that a moderate to strong relationship (ES = 0.655) exists between cohesion and performance in their meta-analytic review of the area. Given Dale and Wrisberg's (1996) descriptive article detailing the beneficial effects of group profiling in enhancing the communication within a volleyball team, in addition to both the qualitative and quantitative consultant findings, further research could examine whether group performance profiling, either repeatedly or on a single occasion, is effective in enhancing team cohesion and subsequent performance.

Communication, in addition to influencing motivation and team dynamics, is suggested as a useful technique in affecting confidence (Yukelson, 1998). Bandura's (1977) Self Efficacy theory proposes that positive verbal persuasion, from others or oneself, can help to improve an individual's situational self confidence. Through the coach-athlete comparison of profile ratings, coaches could help to increase an athlete's confidence by emphasising their strengths (Butler, 1989; 1995; Butler & Hardy, 1992). Furthermore using profiling to monitor progress over time could help athletes to communicate to themselves improvements in performance thereby helping to build their confidence.

Whilst one consultant in study one interviews supported this view, another indicated that decrements in confidence could just as easily result should no improvements on the profile be displayed. The present results suggest that consultants believe that profiling could be useful in improving the confidence of the athlete, although only moderately (M = 3.52, SD = 0.93). Given the integral role confidence plays in the performance of an individual (Feltz & Lirgg, 2001; Hardy, Jones & Gould, 1996), it would be useful for further research to ascertain alternative ways in which performance profiling could be used to enhance athlete confidence levels. In addition, consultants should be aware of the possible negative impact non-improvement of profile ratings may have on an athlete's confidence.

Descriptive research has suggested that the profiling technique is useful in monitoring the progress of athletes (Butler 1995; Butler & Hardy, 1992; Butler, Smith & Irwin, 1993; Jones, 1993). The present study supports this research, indicating that BASES accredited consultants believe performance profiling is useful in monitoring the progress of athletes over time (M = 3.97, SD = 1.02). However, Doyle and Parfitt (1997), in their experimental investigation into the construct validity of the technique, suggest that profiling may only be useful in monitoring progress over periods where large improvements in performance are likely. As explained above, using profiling to monitor progress over time may impact either negatively or positively on the confidence of athletes depending on the perception of improvements made. Hence caution should be taken, when employing the technique in this way, to avoid the potential negative implications that may result from non-improvement on quality ratings (Doyle & Parfitt, 1997).

Butler and his associates have proposed performance profiling to be useful in helping structure training programmes (Butler, 1995; Butler & Hardy, 1992; Butler, Smith & Irwin, 1993). Similarly Doyle and Parfitt (1997) suggest that the technique is employed by consultants 'usually as the first step in designing a training program' (p.413). The present results support these proposals suggesting that consultants believe that the profile produced in a group setting is useful in helping structure an athlete's training programme (M = 4.06, SD = 0.94). Of equal importance to the construction of specific, meaningful and useful training programmes, is the adherence of athletes to those programmes so that performance improvements can be made. Jones (1993) stated that

initial structuring and subsequent motivation and adherence to the cognitive behavioural intervention employed resulted from the initial profiling procedure of highlighting those aspects of the athlete's performance that required improvement. The present findings moderately support the assertion that group performance profiling assists the adherence to interventions (M = 3.40, SD = 1.14). Future research could examine whether repeat profiling over the course of an intervention is able to significantly improve athlete adherence to training interventions.

Whilst the findings of the present investigation highlight a number of ways in which profiling is effective in a consultancy setting, some limitations to the study were evident. Firstly, given the exploratory nature of the inquiry, the CPPQ did not undergo any validity checks. Furthermore, although a reasonable 60% return rate was achieved, the question still remains as to whether the remaining consultants use profiling, but had no time to complete the questionnaire or whether non completion indicates a lack of confidence in the usefulness of the procedure. Finally, the participant population was confined to British accredited sport psychologists and therefore weakens the generalisability of the findings to the perceptions of sports psychologists across different countries. Further research could help to overcome this problem by examining the use and perceived impact of the technique in other countries.

SUMMARY

No previous research has attempted to systematically investigate sport psychology consultants' opinions of the usefulness and potential impact of performance profiling. The present study attempted to investigate quantitatively sport psychologists' perceptions of the potential impacts of performance profiling within a group environment. The findings indicate that consultants believe profiling to be useful in a number of ways: providing a basis for goal setting; identifying strengths and weaknesses; raising athlete self-awareness; facilitating discussion, communication and interaction in teams; evaluating how athletes are performing; and in the monitoring of progress. In addition tentative evidence for the profile's usefulness in enhancing the motivation and confidence of athletes is provided.

Hardy and Jones (1994) stated that determining how useful the consumers of the technique perceive profiling to be, would aid the understanding of the effectiveness of the technique. Studies one and two have helped to establish whether consultants perceive the technique to be useful, and what impacts it may have on the athletes involved in the procedure. The second major population involved in profiling are the athletes themselves. Therefore the aim of studies three and four was to systematically investigate athlete perceptions of the usefulness and potential impact of producing an individual performance profile within a group setting, utilising a similar research design to the consultant studies.

CHAPTER 5

STUDY 3. ATHLETES' PERCEPTIONS OF THE IMPACT OF PRODUCING AN INDIVIDUAL PERFORMANCE PROFILE WITHIN A GROUP SETTING I.: A QUALITATIVE INVESTIGATION

INTRODUCTION

Whilst the literature provides descriptive evidence supporting the application of performance profiling with athletes in a variety of alternative ways (Butler & Hardy, 1992; Butler, Smith & Irwin, 1993; Dale & Wrisberg, 1996; Doyle & Parfitt, 1997), little research has investigated the athlete's perspective of the impacts of the technique (Hardy & Jones, 1994). Dale (1996) stresses that the description of athlete knowledge and experience of sports performance at any level could provide useful information for coaches and sport psychologists alike. Similarly Strean (1998) suggests that 'discovering and reporting performers' beliefs regarding the efficacy of interventions is important' (p.340).

Previous literature that has examined the athletes' perceptions has found that athletes believe profiling to be useful in increasing their self awareness as to the qualities influencing performance (D'Urso, et al., 2002), and in helping identify their strengths and weaknesses (Palmer et al., 1996). Furthermore, athletes believe profiling to be useful in developing achievement motivation (D'Urso, et al., 2002), in increasing motivation toward behavioural interventions (Jones, 1993), and in developing a more open atmosphere for communication within teams (Dale & Wrisberg, 1996).

Despite these findings, research investigating athlete opinions of profiling has, to date, been sporadic in nature and lacking in a detailed evaluative approach. A systematic examination of athlete perceptions regarding the usefulness and impacts of profiling would help to determine whether the present widespread use of the technique is justified (Doyle & Parfitt, 1997). Therefore the aim of studies three and four was to investigate qualitatively and then quantitatively athlete perceptions regarding the impacts of producing an individual performance profile within a group setting. Employing a similar research design to studies one and two, the present study utilised semi-structured interview procedures to confirm and/or extend existing literature regarding the impacts of group profiling. Given that the athletes were only participating in a single profiling

session it was felt that obtaining athlete perceptions regarding the potential impacts of profiling in the future needed to be addressed. Following a deductive and inductive content analysis of the interviews, themes were identified which when combined with impact themes collated from a literature review, provided items for an Athlete Performance Profile Questionnaire (APPQ) in study four.

METHOD

Participants

Eight male rugby union players (mean age = 22.6, SD = 3.3) were randomly chosen from a British collegiate rugby union squad (n = 18), who had produced individual performance profiles within a group setting (Butler & Hardy, 1992), and volunteered to participate in the study. The interviewees provided sufficient information to indicate a saturation of information had been obtained after the eight interviews (Biddle et al., 2001). The competitive experience of the athletes ranged from 5 to 20 years with a mean of 10.6 years (SD = 4.8).

Interview Guide

A semi-structured interview protocol (Appendix 5; Coolican, 1999) was developed to standardise all interviews whilst allowing the athletes the opportunity to express their thoughts freely in a relaxed and informal environment. The interview was split into four sections. Section one focused on the usefulness of the profiling session covering both the major strengths and weaknesses of the procedure. The second section discussed procedural issues relating to the group profiling session including the generation and rating of the qualities. Section three asked the athletes to state any improvements or changes that they believed may enhance the performance profiling session. The final section asked how the athletes might use the performance profile in the future. The same questions were asked in all the interviews with relevant, predetermined probe questions employed where appropriate (Patton, 2002; Robson, 1993; Weinberg et al., 2001).

Procedure

A group performance profiling session (Butler & Hardy, 1992) was performed with a male British collegiate rugby union squad by a British Association of Sport and Exercise Sciences (BASES) accredited sport psychologist. All players had no previous experience or knowledge of performance profiling. The session was conducted in a college seminar room utilising the three-stage procedure outlined by Butler and Hardy (1992). Following the session eight randomly chosen athletes consented to participate in the study. Each interviewee was provided with an interview guide (Appendix 5) detailing an outline of the study and a list of the interview questions to review prior to the interview (Simons & Andersen, 1995). Interviews were conducted in person no more than four days following the performance profiling session to minimise the potential influence of distortions in the accuracy of recall that could result from large time differences between event and interview (Jackson, Dover & Mayocchi, 1998). The interviewer had studied qualitative research methodology at both graduate and postgraduate level and was experienced in interviewing. Immediately prior to the interview, each athlete was asked to fill out his demographic details and sign a consent form (Appendix 5). The athletes were assured that their responses would be kept strictly confidential and that the purpose of the interview was to gain as much information about their experience and interpretation of performance profiling. All interviews lasted no longer than an hour and were tape recorded, transcribed and then deductively and inductively content analysed (Biddle et al., 2001; Patton, 2002) by three research professionals.

Data Analysis

A similar procedure to that employed by Weinberg, Butt and Knight (2001) was adopted in the analysis of the interviews. Similar to the consultant interviews of study one, a Thematic Analysis approach (Coolican, 1999) was adopted in the investigation where general content areas of the group performance profiling evaluation were already established due to the initial research aims (e.g., impacts of performance profiling and the benefits of using the performance profile in the future). Therefore the analysis started with a general dimension from which raw data themes were categorised into

higher order themes via an inductive interview analysis approach (Biddle et al., 2001; Patton, 2002). The specific outline of the procedure was as follows:

1. All eight interviews were transcribed resulting in 59 pages of single spaced data.
2. Three investigators read and reread all transcriptions until they became familiar with them. All investigators were experienced in qualitative research methodology and sport psychology.
3. Each investigator was initially asked to identify independently the raw data themes for the following areas:

- Potential impacts of performance profiling.
- Potential benefits of using the performance profile in the future.

4. Following extensive discussions the three investigators came to a consensus as to the raw data themes for each of the areas. In the event of a disagreement the original transcripts were examined, with the interviewer's opinion deemed especially important as a result of his first hand experience of interviewing the athletes (Weinberg, Butt & Knight, 2001).
5. Following the raw data consensus each area was discussed separately to determine the higher order themes. Triangular consensus by three research professionals was obtained for these higher order themes (Patton, 2002).

RESULTS & DISCUSSION

Based on the main aims of the investigation, the analysis of the interviews was split into two general dimensions: Impacts of the performance profiling, and the benefits of using the performance profile in the future. As with the interviews from study one the results are presented as raw data and higher order themes in addition to examples of the participants' primary data experiences, as directed by the suggestions of Krane, Andersen and Strean (1997). In the final section an overview of any additional athlete comments regarding the profiling procedure is provided.

Impacts of Performance Profiling

For this general dimension questions were asked about the reasons for the performance profiling being a useful experience for the athlete. Inherent in this procedure were

questions regarding the strengths and weaknesses of the profiling experience. Nineteen raw data themes were identified from which eight first order themes and one second order theme emerged (see figure 5.1).

Raises Athlete Self Awareness

Four 1st order themes emphasised the role of profiling in raising athlete awareness: highlight my strengths, highlight my weaknesses, and highlight the demands of my position and other positions. The highlighting of athlete strengths and weaknesses through performance profiling has been shown in the literature (Butler & Hardy, 1992; Butler, Smith & Irwin, 1993; Jones, 1993; Palmer et al., 1996) and in consultant studies one and two, to be a frequently cited impact of the technique. Six of the athletes interviewed in the present study confirmed this theme as the following athlete quotation illustrates:

"It was useful for me from the point of view that it highlights what are my strong points and what are my weak points."

Highlighting the demands of the athlete's own position and other positions in the team were two themes to emerge from the data and as the following comments emphasise:

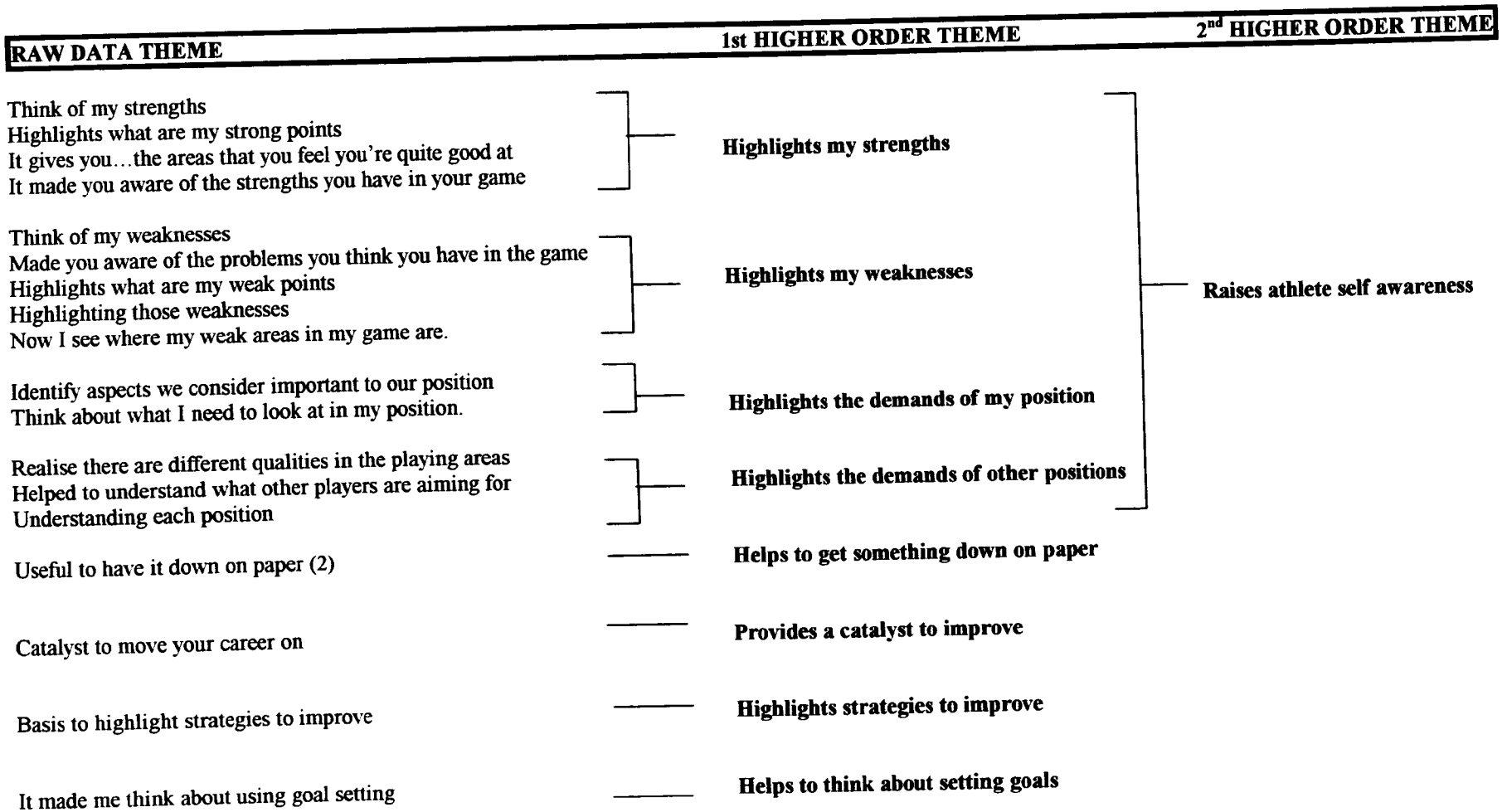
"I think it was just good to think about what I need to look at in my position".

And,

"I think it helped you to understand what other players are aiming for, what their positions involve and it gave other people a chance to look at you and see what you think".

Integral to the profiling procedure is the identification of the critical qualities required by an athlete's position or sport, thereby determining the qualities that are included in the athlete's profile (Butler & Hardy, 1992). However an additional aspect of the identification of the qualities in a team setting, is firstly the brainstorming of qualities in small groups and then the presentation of those qualities to the rest of the team. This

Figure 5.1 Raw data and higher order themes for the impacts of producing an individual performance profile in a group setting as perceived by athletes.



Numbers in parentheses identify the number of athletes citing the particular raw data theme when greater than one.

procedure enables each athlete within a team to become more aware of what their team mates believe are the important qualities for their specific positions. Hence, as the findings of studies one and two illustrate, and the findings of the present athlete interviews confirm, performance profiling in a team setting not only highlights the qualities integral for the individual athlete's performance, but also emphasises the demands of other positions with the team. As study one found, and study two moderately supported, this may help to identify and clarify roles within the team, although this was not a theme suggested by the athletes in the current study.

Helps to Get Something Down on Paper

Interestingly two athletes in the present study stated that it was useful having their strengths and weaknesses recorded on paper, a theme summarised in the following comment:

"I've got something down on paper to look at, you know I can see now that I'm good there, I'm weak there. I can improve on this and I can improve on that."

One of the key aspects of the profiling approach, in assessing athlete performance, is the visual display that is produced as a result of the procedure (Butler & Hardy, 1992; D'Urso, et al., 2002). As figure 2.1 illustrates, the profiling procedure encourages athletes to shade in their ratings for each quality thereby producing a visual display of both their strengths and weaknesses. This is emphasised in the following comment from another athlete:

"It was beneficial because it makes you look at yourself as a player. I mean no matter how much you look at yourself without maybe writing something down, you think well yeah I'm ok. But then as soon as you compare it to something else and as soon as you write it down...you can actually look at it....and in a way it's actually quite a good diagram because you can almost see, you know like the taller towers. Although it's like in a circle you can see the taller towers and it's sort of easy to see where you're strong and where you're weak. You know because I'm dyslexic as well. I don't know if that's one of the key things because it's being represented almost pictorially and it's quite easy to see I'm good at this and not in that."

This athlete's comment emphasises the usefulness of the profile in visually representing and reinforcing both the qualities required for sporting performance, and also the areas that the athlete perceives require improvement. Furthermore, profiling may provide an important strategy for getting athletes to reflect, evaluate and then record their opinions on their performance development, a process that the above athlete highlights may not readily occur under normal circumstances.

Provides a catalyst to Improve / Highlights Strategies to Improve

One athlete described how the profile could be used as a catalyst to improve themselves, emphasising the profile's role in highlighting strategies to improve:

"Use it as a catalyst to move your career on and say look what do I need to do, strength well then I need to get into the gym, work on my strength and get better at that area."

Profiling has frequently been suggested as a useful strategy in helping athletes structure their training to improve their areas of weakness (Butler & Hardy, 1992; Butler, Smith & Irwin, 1993; Doyle & Parfitt, 1997; Butler, 1997). This is an impact strongly supported by the consultants in study two. Jones (1993) revealed the profile's use in developing a cognitive behavioural intervention through the identification of athlete perceived weaknesses. Similarly Dale and Wrisberg (1996) identified an intervention for a volleyball coach based on the coach's profile findings. In comparing and discussing the athletes' and coach's ratings of the coach's performance attributes it was decided that a stress management intervention would be employed to improve that aspect of the coach's behaviour. Hence the present findings support previous literature in emphasising the role performance profiling can play in helping athletes, coaches and sport psychologists identify strategies to improve performance attributes.

The phrase 'catalyst' used in the above athlete comment emphasises the role that profiling can play in motivating athletes to develop themselves. Both descriptive research (D'Urso, et al., 2002; Jones, 1993), and the findings of study two provide some evidence that profiling could be a useful strategy in enabling improvements in athlete motivation. Indeed, as intimated earlier, both Deci and Ryan's (1985a) and Vallerand's (2001) motivational models offer a theoretical rationale for the positive influence, that performance profiling may provide in helping develop athlete intrinsic motivation.

Further research could investigate whether a larger cohort of athletes believe profiling to be useful in improving their sporting motivation.

Benefits of Using the Performance Profile in the Future

Given that the evaluation of the athlete's perceptions of the impact of performance profiling was confined to a single profiling session, it was decided to examine what the athletes believed might be the benefits of profiling in the future. Thirty-three raw data themes were identified from the interviews, from which thirteen first order, three second order and one third order themes emerged (see figure 5.2). The content analysis findings will be discussed with reference to each of the key themes.

To Help Decide What the Athlete Needs to Work on

The most frequently cited potential future use of performance profiling related to determining what aspects of performance needed to be worked on, a theme summarised in the following comment:

"I think I'll use it to help me identify what I need to focus on, you know the sorts of things I need to change to improve my game"

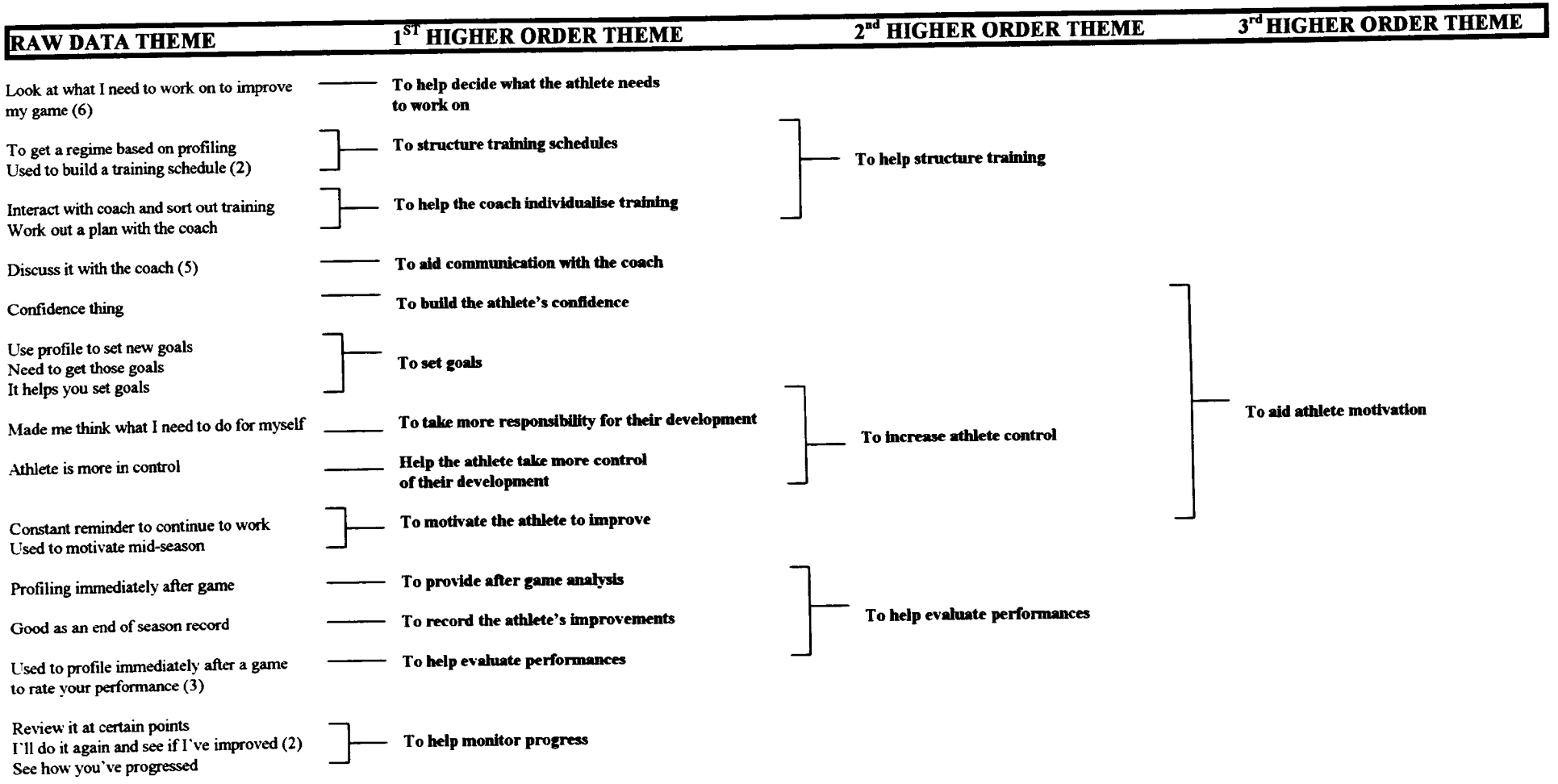
The use of the profile in identifying those areas to improve, links closely to highlighting the weaknesses of the athlete, an impact found in both consultant studies and the literature (Butler & Hardy, 1992; Butler, Smith & Irwin, 1993).

To Help Structure Training

Profiling has been proposed as a useful method in determining specific training programmes to improve those areas of weakness (Butler, 1997; Butler & Hardy, 1992; Butler, Smith & Irwin, 1993). Consultants in study two strongly believed that the profiling procedure would be useful in helping to structure athlete training schedules. The present findings support this view as is indicated below:

"I think you've got to get a training schedule down based on this. Once you have discussed them with your coach and agreed on everything you need to do I think you need to start training and you need to get those goals and then do another one."

Figure 5.2. Raw data and higher order themes of the future benefits of producing a performance profile in a group setting as perceived by athletes.



Numbers in parentheses identify the number of athletes citing the particular raw data theme when greater than one.

Butler and Hardy (1992) suggested that the profiling procedure gives coaches the opportunity to understand more about the athlete's opinion regarding their performance, a process which will result in the coach being able to tailor training more closely to the athlete's perceived needs. The following athlete comment suggests such a theme:

"I think that that's a good thing, so that you and the coach can interact and sort out what training you need to do."

To Aid Communication with the Coach

As the above comment illustrates, profiling can help facilitate interaction and communication between athletes and coaches (Dale & Wrisberg, 1996), a theme also described in the following athlete quotes:

"Just so now I have it on paper and can now go to the coach and say what do you think? There are certain things I may mark myself down on and the coach may say well I would have marked you higher and then you might try work out why, why you thought you were bad at that when he perceives you to be better."

And,

"You could also probably have the coach, or whoever, do one of what he thinks you are. So I could sit down and do my things for the outside for me [the qualities around the edge of the profile] and then I could give exactly the same copy to the coach and say what rating do you think I am? Then use that to discuss if you're heading in the right direction and what you think your strengths and weaknesses are. I mean if I think I am good at one thing and he thinks I'm not then there's a problem there."

Performance profiling has been proposed as a useful strategy in facilitating communication between athlete and coach (Dale & Wrisberg, 1996). Butler and Hardy (1992) suggest getting athletes and coaches to compare profile ratings can help each person to gain a greater understanding of the perceptions of the other. Inherent in the process, is the development of communication channels between athlete and coach in discussing differences of opinion relating to the athlete's performance capabilities on the attributes of the profile. Additionally, areas which the athlete may be resistant to

improve (Butler, 1989) or an area where the athlete is encountering a 'performance block' (Butler, 1995, p.19) can be addressed and resolved through the process of comparison.

To Aid Athlete Motivation

One athlete suggested that the profiling procedure may be useful in helping to motivate himself throughout the season:

"You need something in the middle of the season in a sense basically to give yourself a kick up the backside if you're not doing it."

Deci and Ryan (1985a) theorise that an individual's motivation will be influenced by three key mediators (autonomy, relatedness and perceived competence) which themselves are influenced by social factors operating within the sporting environment. Social factors which positively influence the three mediators are hypothesised to result in greater levels of athlete intrinsic motivation which in turn will produce more positive affects, cognitions and behaviours (Vallerand, 2001). Performance profiling has been suggested as a strategy which can help athletes to assume more autonomy over their performance development (Butler & Hardy, 1992). Replicating the findings of both consultant studies, the present study supports this view as the following athlete comment illustrates:

"I think it's good for the athlete to think up what he thinks is important, it gets them more involved in what they have to do. More in control."

Descriptive profiling research has suggested that improvements in profile ratings over time can provide a useful source of confidence based information (Butler, Smith & Irwin, 1993). Similarly consultant studies one and two found some evidence to suggest that profiling could be useful in helping to improve athlete confidence. The present study indicated that the profile, when employed to compare coach and athlete profile ratings, could be influential in improving athlete confidence:

"If he said that my lines of running is very good then you think 'oh I'm better than I thought I was'. So there's a confidence thing already."

Self Efficacy theory (Bandura, 1977) proposes that positive verbal persuasion provided by a credible external source (i.e. coach) is likely to improve an individual's perceived self efficacy. Deci and Ryan (1985a) propose that such improvements would positively influence athlete intrinsic motivation. Given the present study was confined to a limited number of performers, further research is required to establish whether a larger population of athletes believe profiling to be a useful motivational technique. Both the findings of consultant study two and the theoretical rationale provided by Deci and Ryan (1985a) support the need for further experimental research into the examination of the profiling impact on athlete intrinsic motivation. Additionally it would be interesting to establish how often and for how long profiling needs to be performed before those significant improvements are shown.

In the earlier analysis, athletes indicated that the single profiling session had made them think about goal setting. Indeed the study one and two consultant findings and literature evidence (Butler & Hardy, 1992; Butler, Smith & Irwin, 1993; Dale & Wrisberg, 1996; Doyle & Parfitt, 1997) suggest profiling to be a useful basis from which goal setting can occur. Athletes in the present study believed that they would use the profile in the future to help them set goals, a theme expressed in the following athlete quotation:

"I've set goals for October the first and then maybe I'll do another profile after that and see how I feel and then after that use that profile to set new goals up until say December. Give myself a couple of months to work on things and then do it again. I found it really good because it's really easy and it all fits into place."

The specific nature of the profiling procedure may explain the close link between profile completion and subsequent goal setting described in the above athlete comment. Profiling encourages athletes to identify the skills and qualities required for performance and then helps the athletes establish which of these qualities require improvement. Such an approach aligns closely to the process and performance goal types that have been described in the literature (Kingston & Hardy, 1994; 1997). Whilst these goals have been shown to be more effective in improving performance when compared with outcome goals alone (Hardy, Jones & Gould, 1996; Kingston & Hardy, 1997), Gould (1998) suggests that modern society has led athletes to focus on and

predominantly set outcome goals types. Burton, Naylor & Holliday (2001) suggest that the achievement of process and performance goals can help athletes to assume more internal control and credit for their successes, a process which Deci and Ryan (1985a) propose would help to improve athlete intrinsic motivation. Further research examining the impact of achieving such goal types on intrinsic motivation is warranted.

To Help Evaluate Performances

Butler and colleagues (Butler, 1997; Butler & Hardy, 1992; Butler, Smith & Irwin, 1993) have proposed performance profiling to be potentially useful in helping athletes evaluate their performances. Consultants in study two strongly supported the usefulness of profiling in this way, a feeling confirmed by the present athlete population:

'I think you'd use the profile as well after certain games. If you set the qualities before you could rate yourself on how you felt you played in that one game.'

Holder (1997) suggests that performance evaluation may play an integral part in helping an athlete to develop. He suggests that the planning and implementation of effective sport specific performance evaluation strategies can help performers to develop their awareness, self efficacy and intrinsic motivation towards their sporting participation. Given the descriptive literature findings and the present thesis consultant and athlete results, it appears profiling could be useful in helping athletes to evaluate their performances.

To Help Monitor Progress

Several athletes suggested that profiling could be useful in helping them to monitor their progress. Both descriptive (Butler, 1995; Butler & Hardy, 1992; Butler, Smith & Irwin, 1993; Jones, 1993) and experimental (Doyle & Parfitt, 1997) research, in addition to the consultant findings of studies one and two, suggest that performance profiling could be useful in this way. The following athlete comments emphasise this theme:

'What needs to be done on top of this is we need to all sit down again by say Christmas time, half way through the season, to see how we have developed as individuals....to see if over the last four months we have developed'

And,

'Obviously I have to review it at certain points. From the goals that I have set I need to review whether I have achieved them. You know do the profile again and see where I am and so on over the season.'

Other Perceptions of the Profiling Procedure

Whilst the majority of the athlete interviews were centred on establishing both the impacts of a single profiling session and possible future benefits of using the technique, other aspects of profiling were evaluated within the interviews. These included both the perceived weaknesses of performance profiling and also suggestions as to how the procedure might be improved. The lack of involvement by the coach was a weakness for one athlete who stated that he felt the coach could have been more vocal in their opinions and general involvement in the session. The athlete stated that he felt the coach's involvement in the initial generating of the qualities and in providing feedback would have been useful. This supports the thoughts of one BASES sport psychologist in study two who emphasised the critical role coaches play in the helping the groups generate the qualities. One athlete stated that he was not aware of the position the coach wanted him to play in the upcoming season and therefore found it difficult to establish the qualities. Thus, coaches should make sure that athletes understand their role/position within their sport prior to profiling in order to maximise the impact and usefulness of the strategy.

A few athletes felt that it was hard to establish their level of ability on the rating scale and to determine what constituted a 9 or 10 value. Similarly, athletes stated that they felt there could be difficulty in rating the profile when comparing to best performances that had occurred some time in the past. Hence, consultants should encourage athletes to adopt profile rating scales which reflect recent performance experiences to overcome any possible recall difficulties.

One final weakness cited related to the production and subsequent rating of the profile in the early part of the season. The athlete stated that in such circumstances it was difficult to rate themselves as they had very little playing experience to determine their

ability on the various qualities. The athlete suggested that after three or four matches they would have established a reasonable understanding of their current level of ability. Consultants should therefore be wary of the accuracy of profile findings when utilised in the early stages of the season. When possible, consultants should allow athletes time to assume a good understanding of their performance level before employing the procedure.

Athletes suggested that the profiling procedure could be improved in a number of ways. One athlete stated that, in introducing the performance profile procedure to the athletes, a video of inspirational elite players playing the sport would help to get the athletes in the mood and to facilitate them in beginning to think of the relevant attributes for their sport/position. A further athlete suggested the potential benefit that might be accrued from athletes presenting their profile findings to the rest of the team. The athlete felt that this would help to increase the awareness of each team mate's perceived strengths and weaknesses and therefore provide a basis for better player co-operation in helping to improve team mate areas of weakness. Two other athletes stated that they believed it would be useful to discuss their profile with the coach afterwards, to get some feedback as to whether the correct attributes had been chosen and also to compare profile ratings. Alternatively, one athlete wanted the coach to have full autonomy in identifying the qualities, and in rating the athlete, to establish their strengths and weaknesses. Perceptions of this kind are closely aligned to the control causality orientation defined within Deci and Ryan's (1985a) Causality Orientations Theory. Individuals' oriented in this way may perceive the profiling procedure to be less effective unless validated by their important external influence (e.g. the coach). Whilst this opinion was only voiced by a single athlete, it may be useful for consultants to be wary of the predominant causality orientation of their clients when delivering the profiling procedure. Indeed further research examining the influence of causality orientation on profile usefulness is warranted.

SUMMARY

Athletes in the present qualitative study stated that they believed a single performance profiling session had helped to highlight their strengths and weaknesses, to emphasise the demands of their and other positions, to think of setting goals, to highlight strategies

for improvement, to get something down on paper and finally to provide a catalyst for improvement. In addition, athletes stated that they believed they could use the profile in the future to help decide what they need to work on, to aid their sporting motivation, to help evaluate their performances, to aid communication with their coach and to help structure training. Other future uses of profiling included helping the athlete take more control of their development, to build their confidence, to monitor progress, and to set goals. These findings confirm and extend the literature evidence and the consultant findings of studies one and two.

Whilst the consultant studies may have suffered from accuracy recall concerns due to the retrospective nature of the inquiry, the present study attempted to overcome such problems by interviewing the athletes within four days of the profiling experience. As with the consultant interviews, further research could examine the impacts of the procedure using focus group methodology (Stewart & Shamdasani, 1990). This would enable discussion between participants regarding the potential impacts of group profiling. In relation to establishing the benefits of using the technique in the future, the use of interviews following repeated profiling over time may have been effective in establishing how the athletes had employed the technique throughout the season and what impact such use of the profile may have had. The present study also focused on a single sport population of collegiate male rugby union players. Further qualitative research could investigate the perceptions of different sporting populations across different age, skill and gender groups. Despite these limitations, the present study provided a rich understanding of athlete perceptions regarding the impact of producing individual performance profiles in a group environment.

CHAPTER 6

STUDY 4. ATHLETES' PERCEPTIONS OF THE USEFULNESS AND IMPACT OF PRODUCING AN INDIVIDUAL PERFORMANCE PROFILE WITHIN A GROUP SETTING II.: A QUANTITATIVE INVESTIGATION

INTRODUCTION

Whilst study three provided an in depth qualitative analysis of what athletes perceive the potential impacts of performance profiling to be, it was limited to a small sample size of single sport male athletes. Hence the aim of the present study was to provide a more systematic examination of the impacts and usefulness of profiling across a variety of male and female sport populations. Athletes participated in a single group performance profiling session (Butler & Hardy, 1992) and were then asked to complete an Athlete Performance Profile Questionnaire (APPQ; Appendix 6). As with the consultant questionnaire in study two, the APPQ was devised from a literature review (figure 6.1) and the themes derived from the athlete interviews in study three.

Figure 6.1. Summary of literature evidence and study three findings regarding the impacts of performance profiling in a group setting.

Literature Derived Impacts	Literature & Interview Derived Impacts	Interview Derived Impacts
• Facilitates assessment of self • Useful in helping coach/sport psychologist understand more about the athlete's perspective	• Increases the athlete's self-awareness • Highlights athlete's perceived strengths & weaknesses • Increases athlete internal control • Positively influences athlete motivation • Facilitates communication between coach and athlete • Helps enhance an athlete's confidence • Useful in helping monitor an athlete's progress • Provides a useful basis for structuring training • Helps decide what the athlete needs to work on • Facilitates evaluation of where they are in relation to where they need to be • Provides a useful basis for the goal setting process • Highlights the demands of the athlete's position • Highlights the demands of other positions	• Helps to get something on paper • Catalyst to improve myself • Highlights strategies to improve • Helps the coach individualise the athlete's training • Helps the athlete take more responsibility for their development • Useful in recording the athlete's improvements • To provide after game analysis

Since the athletes, in the present study, participated in only a single profiling session prior to evaluating the profiling technique, a supplementary aim was to determine whether athletes believed they would benefit from performance profiling in the future. Furthermore the present study attempted to establish what athletes perceived to be the most important potential benefits of utilising performance profiling in the future. As with the CPPQ, an exploratory factor analysis was performed to determine whether any themes emerged from the athlete responses. Given that the present study examined a variety of sports across both genders, a supplementary aim was to determine whether there were any sport or gender differences that emerged from the analysis.

METHOD

Participants

One hundred and ninety one collegiate athletes (99 male, 92 female) from three south England colleges completed the APPQ (Appendix 6) immediately following participation in a group profiling session (Butler & Hardy, 1992). The athletes (age range = 16 – 25 years; mean age = 19.5, SD = 1.7) participated in team sports including hockey (n = 58), football (n = 51), netball (n = 32), rugby union (n = 31) and basketball (n = 19). All athletes consented to participate in the study and were told that their answers would be kept strictly confidential.

Instrument

The APPQ comprised of four sections. Firstly, participant background details including the type of sport, gender, age and sport experience was requested. The second section asked athletes how useful they found performance profiling to be, whether they would benefit from doing profiling in the future and how effective they felt the consultant was in delivering the session. Section three asked athletes to stipulate how much of an impact the profiling session had on nine impact items (e.g., 'helped to highlight my strengths'). Whilst section four asked athletes to indicate how much of a benefit future profiling would be on fifteen impact items (e.g., 'to set goals for myself'). In sections two, three and four, athletes responded on a five point likert scale of 1 (not at all) to 5 (very much) where 3 constituted a moderate score. Three research professionals agreed the inclusion of the items for sections three and four (Patton, 2002).

Although not specifically stated in the athlete interviews conducted in study three, literature evidence has suggested that performance profiling can help to improve the self-awareness of the athlete (Butler & Hardy, 1992; Butler, Smith & Irwin, 1993). It was felt by the three research professionals that the inclusion of such an impact in the APPQ may be potentially confusing to athlete populations and hence was not included. However several specific impact items in the APPQ (such as 'highlight my strengths', 'highlight my weaknesses', 'highlight the demands of my position', highlight the demands of other positions', & 'help me decide what I need to work on') alluded to this general self-awareness theme.

An initial pilot study was performed with collegiate male rugby union (n = 27) and female field hockey (n = 16) squads to evaluate and amend the APPQ. The pilot study was firstly performed on a rugby population to validate the rugby union specific interview responses, then piloted with the hockey team to make sure that the content of the questionnaire was transferable to another sport population. Both teams were involved in a 'declared pretest' (De Vaus, 1993) as they were told, immediately prior to completing the APPQ, that they were involved in developing the questionnaire for the main study.

The effectiveness and appropriateness of the APPQ was evaluated in a number of different ways (Appendix 3) as advised by De Vaus (1993). The athletes were asked to rate on a likert scale of 1 (not at all) to 5 (very much) a) How readable the questionnaire was, b) The level at which the athletes were able to understand each question and c) How appropriate the athletes found the rating scale. The athletes were also asked to state if they had any other problems with the questionnaire and if they could think of any other impacts or future benefits that performance profiling might have on them.

The pilot study participants believed the APPQ was readable (M = 4.05, SD = 0.90), that they could understand each question (M = 4.05, SD 0.77) and that it had an appropriate rating scale (M = 4.02, SD = 0.86). The APPQ was amended as directed by the additional qualitative responses of the pilot study participants for the main investigation. Specifically, changes were made firstly to the background information section in relation to the wording, secondly to the sequencing of the questions and finally an increase in the spacing between impact items was performed to improve the readability of the questionnaire. Following the pilot study the internal reliability of

APPQ impact items were assessed. Cronbach alpha value of .92 was produced indicating good internal reliability (Bryman & Cramer, 1999)

Procedure

The coach or organiser of each sporting association was contacted to request participation in the research project. The procedure for the performance profiling session was explained in addition to a copy of the APPQ being shown to the coach/organiser. After the coach/organiser had agreed to participate in the study, a suitable time to perform the profiling session was arranged. Athletes were required to attend and participate in a performance profiling session as a prerequisite to completing the APPQ. Ten group performance profiling sessions were performed by a BASES accredited sport psychologist who was knowledgeable of, and experienced in, delivering performance profiling sessions as directed by the suggestions of Butler and Hardy (1992). Each squad was profiled separately. At the end of the profiling session the consultant explained the nature of the research and asked the athletes if they would participate in the project. All the athletes agreed to participate in the study and filled out the APPQ. This took approximately five minutes to complete. Following the completion of the APPQ the team was thanked for their participation in the investigation.

Data Analysis

Descriptive statistics were conducted to determine the mean (and standard deviation) response of all participants relating to the usefulness of the performance profiling session, whether the athletes perceived they would benefit from a similar session in the future and the effectiveness of the consultant. Mean (and standard deviation) scores for each item were produced to isolate the most important impacts and future benefits of the performance profiling.

An exploratory factor analysis was employed to examine the factor structure of the APPQ, as conducted in study two. Both the impact items from the single group profiling session and future benefits of profiling were combined to determine if any global impact themes emerged from the data set. A principal axis factor analysis was employed using both varimax and oblimin rotations. Factor intercorrelations ranged

from 0.22 to 0.48, with a mean value of 0.31. Given the low factor intercorrelations the varimax analysis procedure was chosen (Bryman & Cramer, 1999; Raedeke & Smith, 2001). The factor inclusion criteria replicated those adopted in study two. Finally, multivariate analysis of variance was chosen to examine whether any significant gender and sport differences existed in the factor analysis responses as directed by Thomas, Schlinker and Over (1996).

RESULTS

Descriptive Statistics

The descriptive analysis indicated that performance profiling was perceived as being useful (M = 4.05, SD = 0.82), that the athletes felt they would benefit from a similar session in the future (M = 4.04, SD = 0.89) and that the consultant was effective in delivering the session (M = 4.50, SD = 0.60). The mean (& standard deviation) of the impacts of the performance profiling session and potential benefits of doing profiling in the future are provided in tables 6.1 and 6.2 respectively in descending order.

Impacts of Performance Profiling

Many of the most important impacts of producing the performance profile were factors relating to an increase in the athlete's self-awareness. These included helping to highlight the athlete's weaknesses (M = 4.27, SD = 0.84), strengths (M = 4.04, SD = 0.80), and the demands of their (M = 3.97, SD = 0.86) and other positions (M = 3.67, SD = 0.95). The least important impact of profiling in a group, rated moderately by the athletes, related to the technique's ability to increase the confidence of the athlete (M = 3.06, SD = 0.91).

Future Benefits of Using the Performance Profile

The most important potential benefits of using the performance profile in the future included, to help the athlete decide what they needed to work on (M = 4.22, SD = 0.77), to motivate the athlete to improve (M = 4.02, SD = 0.95), to set goals for themselves (M = 3.90, SD = 0.91), to monitor their progress (M = 3.85, SD = 0.94), and to help in the evaluation of their performance (M = 3.80, SD = 0.83). The least likely potential benefits of future profiling included to build the athletes' confidence and to help structure their training.

Table 6.1. Mean ratings (& standard deviations) of the athlete (n=191) perceived impacts of producing a performance profile in a group setting.

Impact	Mean	Standard Deviation
Helped to highlight my weaknesses	4.27	0.84
Helped to highlight my strengths	4.04	0.80
Helped to highlight the demands of my position	3.97	0.86
It made me think about setting goals	3.78	0.99
Helped to highlight the demands of other positions	3.67	0.95
It was a catalyst to help improve myself	3.61	0.95
It helped to get something down on paper	3.59	0.97
It helped to highlight strategies to improve	3.29	0.96
It helped to enhance my confidence in my ability	3.06	0.91

Table 6.2. Mean ratings (& standard deviations) of the athlete (n=191) perceived potential benefits of performance profiling in the future.

Benefit of Using the Profile in the Future	Mean	Standard Deviation
To help me decide what I need to work on	4.22	0.77
To motivate me to improve	4.02	0.95
To set goals for myself	3.90	0.91
To monitor my progress	3.85	0.94
To help in the evaluation of my performance	3.80	0.83
To record my improvements	3.78	0.92
To take more responsibility for my development	3.76	0.89
To take more control of my development	3.73	0.86
To motivate me to train	3.61	1.06
To provide after game analysis	3.54	0.94
To aid communication with my coach	3.52	1.00
To improve the coach's understanding of me	3.48	1.00
To help the coach individualise my training	3.40	1.03
To build my confidence	3.35	0.97
To structure my training schedule	3.30	0.98

Exploratory Factor Analysis

As in study two a Kolmogorov-Smirnov test was conducted to examine the normality of the data set. As a result of the significant findings the data set was normalised to produce standardized z scores for each item (Appendix 7). Outliers with z scores +/– 3.29 were removed from the analysis, as conducted in study 2. A Keiser-Meyer-Olkin (KMO) value of 0.89 indicated that the data set was suitable for factor analysing. Similarly Bartlett's test for sphericity was significant (χ^2 (276) = 1760.70; <.05). This provided further evidence for the data set's suitability for undergoing an exploratory factor analysis (Ntoumanis, 2001).

The principal axis factor analysis extracted six factors with an eigenvalue greater than one explaining 50.6% of the variance (see Table 6.3 & Appendix 7). Three items cross loaded (0.40 or above) on more than one factor ('To structure my training schedule'; 'It was a catalyst to help improve myself' and 'It made me think about setting goals'). Three items ('To monitor my progress'; 'To help in the evaluation of my performance'; and 'It helped to get something down on paper') failed to attain a loading of .40 or above on any factor. As in study two, the factor structure was displayed in its entirety and triangular consensus among three research professionals, obtained labels for five of the six factors.

The first factor extracted from the analysis pointed to a motivational theme with items such as motivation to train and improve, take more control and responsibility and to set goals. The second interpretable theme, labelled coach related performance development, indicated the importance of using the profile findings to facilitate communication and understanding between coach and athlete, in addition to helping structure any subsequent training either with or without the coach.

A self awareness theme emerged from the third interpretable factor with items such as, highlight my strengths and weaknesses, and help me decide what I need to work on. The fourth interpretable factor extracted indicated the profile's role in providing sports based knowledge through a greater awareness of the demands of athlete and other positions in addition to helping to highlight strategies to improve. The final interpretable factor extracted alluded to the performance evaluation impact of the technique through items such as to help record my improvements and provide after match analysis.

Table 6.3. Factor analysis for the impacts & future benefits of profiling from the APPQ

Impact/Benefit Item	Factor					
	1	2	3	4	5	6
Motivation						
To take more control of my development	**.68**	.13	.26	.10	.16	.14
To take more responsibility for my development	**.63**	-.01	.26	.24	.09	.35
To motivate me to train	**.62**	.07	.12	.04	.30	.17
To motivate me to improve	**.60**	.06	.14	.27	.25	.13
To set goals for myself	**.59**	.37	.31	.32	.19	-10
To monitor my progress	**.37**	23	.24	.26	.22	.05
Coach related performance development						
To help the coach individualise my training	-.02	**.80**	.08	04	.12	.12
To improve the coach's understanding of me	.07	**.76**	.16	.05	.01	.13
To aid communication with my coach	.19	**.60**	.04	.17	.21	.02
To structure my training schedule	.46	**.48**	.12	.08	.13	.20
To help in the evaluation of my performance	.28	**.36**	.22	.31	.27	.21
It was a catalyst to improve myself	.44	-.04	**.60**	.11	.13	.08
It helped to enhance my confidence in my ability	.07	.07	**.58**	.07	.02	.21
To build my confidence	.14	.15	**.53**	.13	.07	.10
It made me think about setting goals	.42	.21	**.51**	.10	.16	-.06
It helped to get something down on paper	.17	.14	**.33**	.25	.32	.03
Self awareness						
Helped to highlight my weaknesses	.11	.14	.04	**.68**	.06	.11
To help me decide what I need to work on	.26	.16	.32	**.50**	.31	-.02
Helped to highlight my strengths	.19	.01	.20	**.49**	.19	.26
Sports based knowledge						
Helped to highlight the demands of my position	.15	.14	-.01	.15	**.63**	.01
Helped to highlight the demands of other positions	.21	.08	.09	.12	**.44**	.09
It helped to highlight strategies to improve	.24	.12	.32	-.03	**.41**	.13
Performance evaluation						
To provide after game analysis	.16	.31	.23	.17	.04	**.69**
To record my improvements	.38	.20	.18	.19	.23	**.53**
Cronbach Alpha Score	0.85	0.81	0.74	0.68	0.57	0.75
Eigenvalue	3.25	2.45	2.10	1.60	1.51	1.22
% of variance explained	13.5	10.2	8.8	6.7	6.3	5.1
Cumulative % of variance explained	13.5	23.7	32.5	39.2	45.5	50.6

Cronbach Alpha scores are also presented for each factor in table 6.3. Ntoumanis (2001) suggests that Cronbach alpha scores should be above 0.70 in order to show good internal reliability. Whilst the majority of the factors indicate good internal reliability, the 'self awareness' and 'sports based knowledge' factors produced alpha values below recommended levels.

An additional analysis was conducted to examine whether any gender or sport differences existed in the factor responses (for example did males perceive the profiling procedure to be more beneficial for enhancing their self awareness in comparison to female athletes) as directed by the work of Thomas, Schlinker and Over (1996). Multivariate analysis of variance (Appendix 7) revealed no significant gender differences (Wilks' $\lambda = .981$, $F_{(6, 184)} = .592$, $p > .05$, $\eta^2 = .02$, estimated power at 5% probability = .23) for the factor mean scores. However, similar analyses showed a significant difference between sports (Wilks' $\lambda = .751$, $F_{(24, 632.644)} = 2.259$, $p < .05$, $\eta^2 = .07$, estimated power at 5% probability = .99). Further univariate analysis revealed significant sport differences for the performance evaluation, self awareness and coach related performance development factors. The findings revealed rugby union and hockey players perceived profiling to be significantly less useful in enhancing their self awareness in comparison to basketball and netball players. Furthermore, hockey players perceived profiling to be significantly less useful when compared with the netball players with respect to the coach related performance development factor.

DISCUSSION

The present study provided the first large-scale, systematic attempt to evaluate athlete perceptions regarding the usefulness and impact of group performance profiling. The present findings indicate that athletes believed profiling to be useful (M = 4.05, SD = 0.82) and that they would benefit from profiling in the future (M = 4.04, SD = 0.89). This supports descriptive research (Butler, 1989; Butler & Hardy, 1992; Butler, Smith & Irwin, 1993; Dale & Wrisberg, 1996; Jones, 1993, Palmer et al., 1996) and the findings of studies one to three which have found profiling to be a useful technique.

The fundamental aim of this investigation was to determine, from an athlete's perspective, the most important impacts of performance profiling in a group

environment. In examining the exploratory factor analysis six themes emerged from the athlete responses in relation to impacts or future benefits of group profiling. The first theme, explaining the most variance (13.5%), indicated the profile's role as a motivational tool. Doyle and Parfitt (1999) suggest that the more active role adopted by an athlete in performance profiling 'may increase the performer's intrinsic motivation to adhere to any performance-enhancing interventions' (p.115). Jones (1993) suggests that by involving the athlete in the decision making process the athlete is more likely to be highly motivated during the initial implementation of, and subsequent adherence to, mental skills interventions. The present investigation found support for the assertion that performance profiling could enhance the motivation of the athlete to both improve (M = 4.02, SD = 0.95) and train (M = 3.61, SD = 1.06). Butler and Hardy (1992) propose that performance profiling helps the athlete gain a more dominant role in the decision making process regarding their development, suggesting that this increase in control may positively influence an athlete's intrinsic motivation. The present descriptive results suggest that athletes do believe they would use the profile in the future to take more control (M = 3.73, SD = 0.86) and responsibility (M = 3.76, SD = 0.89) for their development.

Deci and Ryan's (1985a) Cognitive Evaluation Theory suggests that strategies which increase an athlete's control or autonomy will facilitate greater athlete intrinsic motivation. Indeed, improvements in athlete perceptions of the motivational mediators, relatedness and competence are also hypothesised to positively influence athlete intrinsic motivation levels (Deci & Ryan, 1985a). Examination of the profiling procedure suggests that group performance profiling could positively influence each of these mediators thus increasing the likelihood of intrinsic motivational improvements. Bandura (1977) proposes that performance accomplishments are important predictors in determining an individual's situational self confidence. Athletes in the present study stated that they would use profiling in the future to monitor their progress (M = 3.85, SD = 0.94), a process that may facilitate an increase in perceived competence as athletes see improvements in profile attributes over time. The present results provide some support, although moderate, that using the profile in the future may help to build athlete confidence (M = 3.35, SD = 0.97), a finding closely resembling the opinions of consultants in study two (M = 3.52, SD = 0.93).

Relatedness is defined as the need to feel belonging or connected to significant others within a social environment (Vallerand, 2001). It's not unreasonable to suggest that the group profiling procedure could help to facilitate improvements in perceptions of relatedness by encouraging athlete communication, interaction and discussion toward performance related issues. Hence in theory, performance profiling could help to improve athlete intrinsic motivation via all three motivational mediators. Further experimental research is required to determine whether the utilisation of performance profiling over time is able to significantly increase athlete intrinsic motivation.

Performance profiling has been proposed as an excellent basis for goal setting (Butler, 1997; Butler & Hardy, 1992; Butler, Smith & Irwin, 1993; Dale & Wrisberg, 1996; Hardy & Jones, 1994). This is a profiling impact also found within the motivational theme of the exploratory factor analysis. Indeed, goal setting has frequently been proposed as an important and useful technique that consultants can employ to enhance athlete motivation (Filby, Maynard & Graydon, 1999; Kingston & Hardy, 1997). Analysis of the CPPQ in study two showed that BASES accredited consultants' strongly believed that profiling provides a good basis for goal setting. Despite these claims no research has investigated, from an athlete's perspective, whether profiling would help athletes to set goals. The present study supports previous descriptive research suggesting that the implementation of performance profiling may help athletes to set goals for themselves ($M = 3.90$, $SD = 0.91$). As the consultant responses from study two indicate, the profiling procedure may be useful in helping athletes adopt greater task involvement in their sport. Such goal perspectives have been shown to positively influence athlete thought processes and behaviours (Duda & Hall, 2001).

The second theme to emerge from the exploratory factor analysis, labelled coach related performance development, explained 10.2% of the variance. Descriptive analysis of items loading on this theme indicated that athletes believe profiling could be potentially useful in aiding communication with their coach ($M = 3.52$, $SD = 1.00$), improving the coach's understanding of them ($M = 3.48$, $SD = 1.00$), and in helping the coach individualise their training ($M = 3.40$, $SD = 1.03$). Interestingly, another item within this theme, 'to structure my training schedule', was the least important future benefit of profiling cited by the athletes ($M = 3.30$, $SD = 0.98$). This finding contradicts previous

descriptive research (Butler, 1995; Butler & Hardy, 1992), and the findings of the CPPQ, in which consultants strongly believed profiling to be useful in this way.

Examination of the relatively moderate descriptive responses to the items within this factor could help to explain this result. The participants in the study were student athletes whose coaches were employed on a part time basis. This would provide significantly less opportunity for athletes to discuss with their coach the findings of their profile or any related training programmes in comparison to full time professional athletes. Furthermore, the present participant population all played in team sports and therefore interaction between coach and athlete, on a one-to-one basis, is likely to be less than if participating in an individual sport. An alternative reason may be that athletes are unaware of how profiling could help them to structure their training in consultation with their coaches. Future research may wish to establish whether differences exist in the perceptions of the impact of profiling in these ways across amateur and professional athlete status and between both team and individual athletes. Furthermore it may be beneficial for sport psychologists employing the profiling procedure to provide athletes with specific guidance on how the technique may be used to structure their training in the future.

The third factorial theme to emerge, explaining 8.8% of the variance, indicated that profiling may have a role in influencing athlete confidence. Descriptive analysis of the two items loading on this theme suggested that athletes were unconvinced that the single profiling session had helped them to enhance their confidence ($M = 3.06$, $SD = 0.91$) or would help to build their confidence in the future ($M = 3.35$, $SD = 0.97$). These findings support the conflicting perceptions of consultants in the study one interviews regarding the influence of profiling on athlete confidence, and the moderate CPPQ confidence impact response. Thus it appears that both athletes and consultants alike do not strongly believe that profiling, either on a single occasion or repeatedly over time, would strongly improve athlete confidence levels. This should come as no surprise as Butler, Smith & Irwin (1993) suggest that using profiling to monitor an athlete's progress over time is as likely to emphasis performance decrements as improvements. In other words, any effect of improvements on the ratings of profile qualities could just as easily be masked by stagnated and/or decreased profile ratings. Butler (1995) suggests that getting athletes to focus on their profile strengths in the lead up to a

competition could help reinforce an athlete's perceived confidence. Furthermore an athlete in the study three interviews suggested that a coach/athlete comparison of profile ratings could provide the basis for a coach to reinforce the athlete's ability on the key performance attributes. Bandura (1997) suggests that positive communication in this way could have the impact of increasing the individual's situational self confidence. Further research is required to ascertain ways in which the profiling procedure could be adapted to help improve athlete confidence.

The fourth theme to emerge from the factor analysis pertained to the profile's use in enhancing an athlete's self awareness. Athletes' indicated that they believed profiling would be useful to highlight their strengths (M = 4.04, SD= 0.80), weaknesses (M = 4.27, SD = 0.84) in addition to helping them decide what they need to work on (M = 4.22, SD = 0.77). The technique has been suggested as being useful in raising athlete awareness as to the qualities essential to elite performance, their perception of their ability on those qualities, and their perceived strengths and weaknesses (Butler, 1995; Butler & Hardy, 1992; Doyle & Parfitt, 1997, 1999; D'Urso, et al., 2002; Palmer et al., 1996; Potter & Anderson, 1998). Indeed, in study two, consultants strongly believed profiling to be useful in enhancing athlete self awareness.

The fifth factor to emerge, sports based knowledge, provided further evidence of the profile's use in enhancing athlete awareness of the demands of their own (M = 3.97, SD = 0.86) and other (M = 3.67, SD = 0.95) positions in addition to highlighting strategies to improve (M = 3.29, SD = 0.96). This is not surprising as the group profiling procedure involves, firstly, the discussion of the important qualities in the athlete's position, via small brainstorming groups, and secondly the presentation by other positional groups of the integral qualities required for their specific positions (Butler & Hardy, 1992). Given that several of the thesis findings support the profiling procedure's role in enhancing self awareness, further research could investigate experimentally whether performance profiling is able to significantly increase athlete self-awareness. However, such research would have to be preceded by the development of a valid and reliable measure of sporting self awareness.

The evaluation of performance is established as an integral component in facilitating athlete improvement (Holder, 1997). A performance evaluation theme, with items such

as 'to provide after match analysis' and 'to record my improvements', was the sixth and final factor to emerge from the exploratory factor analysis explaining 5.1% of the variance. Given the inclusion of these items in this theme, it is confusing that the 'to help in the evaluation of my performance' item emerged within the coach related performance development theme. Indeed the evaluation of performances item displayed a loading below the normal cut off criterion (0.40) for inclusion into a factorial theme.

Despite these factorial findings, the descriptive results of the present investigation found that athletes would use performance profiling in the evaluation of their performances (M = 3.80, SD = 0.83), to record their improvements (M = 3.78, SD = 0.92), and, to a lesser extent, to provide after game analysis (M = 3.54, SD = 0.94). This supports previous descriptive research that has suggested profiling to be a useful aid in the evaluation of performance (Butler & Hardy, 1992; Butler, Smith & Irwin, 1993; Butler, 1997). Similarly, the findings support the results of study two, which suggested that consultants believed profiling would be useful in helping athletes assess themselves (M= 4.11, SD = 0.90) and evaluate how they are performing (M= 4.10, SD = 0.77). As suggested in study two, utilising the profiling procedure in this way may help consultants to influence the choice of attributions available to the athlete following a performance success or failure. As profile attributes tend to be internal, controllable and unstable in nature this may increase the likelihood that athletes will choose more functional attributions when using the profile. Functional attributions are likely to reinforce an athlete's ability in success situations and protect athlete perceptions of their ability in failure situations (Biddle, Hanrahan & Sellars, 2001). Hence, further research may wish to examine the influence of using profiling to evaluate performance on the choice of attributions.

Given that a variety of alternative male and female sporting athletes participated in the present investigation, a final supplementary aim of the study was to examine if any gender or sport differences existed in the responses to the factor analysis impact themes. The present exploratory findings suggest that males and females perceived the profiling procedure to be equally useful with respect to each of the factorial themes. However there were some sport differences exhibited with respect to three factorial impact themes: performance evaluation, self awareness and coach related performance development. Given the exploratory nature of the present study further research is

needed to examine whether different sports perceive the profile to be useful in different ways. Furthermore, it would be interesting to establish whether skill (i.e. professional versus recreational) or age (youth versus senior) differences exist in the perceived usefulness of the performance profiling procedure.

SUMMARY

The present investigation found that athletes believed group performance profiling to be useful, and that they would benefit from a similar session in the future. An exploratory factor analysis of the impacts of a single profiling session, and potential benefits of profiling in the future, produced six factorial themes. These included the profile's use with the athlete's coach, in providing sports based knowledge, in assisting performance evaluation and finally in influencing athlete motivation and self awareness. Descriptive analysis also confirmed that a single profiling session was perceived as useful in helping to highlight athlete strengths, weaknesses and the demands of their and other positions. Furthermore athletes believed that profiling in the future would help them to decide what they need to work on, motivate them to improve, set goals, monitor progress and evaluate their performances.

Examination of the findings of studies one to four shows that both athletes and consultants believed performance profiling could be useful in improving athlete motivation. Consultants in study two believed profiling could be useful for enhancing intrinsic motivation and self determination, whilst athletes in studies three and four believed profiling would motivate them to improve and train. One of the fundamental premises underpinning the development of the profiling procedure was that it would facilitate greater levels of intrinsic motivation by increasing the athlete's role in monitoring their performance development (Butler & Hardy, 1992). Indeed both Deci and Ryan's (1985a) Self Determination Theory and Vallerand's (1997) Hierarchical Model of Motivation would provide a theoretical basis for such propositions. Given this strong theoretical rationale and present research evidence, the final thesis study will examine empirically the impact of a six week repeated profiling intervention on athlete intrinsic motivation.

CHAPTER 7

STUDY 5. THE IMPACT OF REPEATED GROUP PERFORMANCE PROFILING ON THE INTRINSIC MOTIVATION OF COLLEGIATE SOCCER PLAYERS

INTRODUCTION

Motivation is defined as 'being moved to do something' (Ryan & Deci, 2000). Deci and Ryan's (1985a) Self Determination Theory (SDT) and more recently Vallerand's (2001) Hierarchical Model of Motivation (HMM) have attempted to define the various forms of, and explain the processes influencing, an individual's motivation. In defining various forms of motivation, Deci and Ryan sought to explain the varying levels of self determination that characterise an individual's involvement in an activity. The authors define three main types of motivation along a self determination continuum (see figure 2.3) ranging from amotivation (AM; no motivation for an activity) through extrinsic motivation (EM; individual primarily involved for external reasons) and finally to intrinsic motivation (IM; involvement in the activity for the inherent interest and enjoyment of doing the activity). Within their Organismic Integration Theory, Deci and Ryan (1985a) detail the different forms of EM ranging from highly externally regulated forms of EM such as external and introjected regulation to more self determined forms such as identified and integrated regulation. In doing so, the authors sought to describe the progressive internalisation and integration of external behavioural regulations into more self determined and personally regulated behaviours.

A central element of SDT is the suggestion that social and environmental factors (e.g., coach behaviour, rewards etc.) which reinforce an individual's perceptions of autonomy, competence and relatedness, will facilitate higher levels of self determined motivation. Deci and Ryan hypothesise that individuals experiencing such self determined motivation will gain more positive behavioural, cognitive and affective outcomes. Research evidence within sport and exercise environments have supported the positive influence of intrinsic motivation on athlete satisfaction (Frederick et al., 1996; Pelletier et al., 1995), interest (Li, 1999), concentration (Pelletier et al., 1995), effort (Pelletier et al., 1995; Williams & Gill, 1995, Wilson, Rodgers, Fraser & Murray, 2004), pleasure and enjoyment (Beauchamp et al., 1996).

In an extension of Deci and Ryan's (1985a) SDT, Vallerand (2001) hypotheses that there are three hierarchical levels of generality at which an individual can display their motivation: Situational (motivation at one moment in time), contextual (motivation within a single life context, i.e. sport) and global (trait related motivation). Vallerand (2001) asserts that social factors must be distinguished at each hierarchical level (see figure 2.4). Situational social factors influence an individual at one moment in time and are not permanent in nature (e.g., an abusive comment from an opponent). Contextual factors are displayed on a regular basis within the same life context (e.g., a coach's influence in a sporting context). Finally global factors are all encompassing and tend to influence an individual in all life contexts (e.g., emigrating to another country will influence, work, sport and education life contexts).

Research evidence has provided support at each hierarchical level for the positive influence of social factors on an individual's intrinsic motivation (for a review see Vallerand, 2001). Vallerand asserts however that motivational changes at the situational level are transient in nature and need to be presented on a more regular basis within the same context in order to have a positive effect on contextual (i.e. sporting) intrinsic motivation. Indeed, in such situations the social factors become contextual in nature. Hence, if sport psychology practitioners can identify and repeatedly employ strategies which positively influence perceptions of competence, relatedness and autonomy, improvements in contextual intrinsic motivation are likely to result. Vallerand (2001) suggests that such improvements will help to facilitate more positive athlete psychological and behavioural outcomes.

Beauchamp et al. (1996) provided some evidence for the positive impact of a 14 week cognitive-behavioural intervention on novice golfer contextual motivation. The intervention included the integration of a mental skills training programme (e.g., stress management, positive thought control, self-regulation, imagery, pre-performance routines, goal setting etc) with putting practice and regular self-monitoring. An autonomy supportive approach was adopted in the intervention where participants were encouraged to reflect upon and monitor their performance improvements. The authors found that the intervention was successful in improving intrinsic motivation in addition to pre-putt routine consistency and putting performance to a greater extent than a physical skills training group and control condition. Indeed, the authors stated that

participants within the cognitive-behavioural intervention reported greater pleasure and enjoyment in comparison to the two other conditions.

Whilst such evidence provides encouraging support for the theoretical propositions of Deci and Ryan (1985a) and Vallerand (2001), further research is required to identify psychological skills interventions that facilitate improvements in athlete intrinsic motivation. Examination of the performance profiling procedure (Butler & Hardy, 1992) suggests it may be useful in helping to improve athlete intrinsic motivation via the three key motivational mediators. Athlete autonomy may be positively influenced by profiling as the procedure encourages greater athlete involvement and may enhance perceptions of control over performance development. Furthermore profiling, when repeated over time, could help to reinforce improvements made on key performance attributes thereby helping to improve athlete perceptions of competence. Finally, the group nature of the profiling procedure could help to facilitate greater perceptions of relatedness as athletes communicate, interact and discuss performance related issues with fellow team mates.

Despite the above rationale for the influence of profiling on athlete intrinsic motivation, little research has been published on this topic. In his individual consultancy, Jones (1993) stated that the athlete's motivation to begin and adhere to a subsequent cognitive behavioural intervention had resulted from the initial performance profiling procedure. Similarly D'Urso et al., (2002), in their application of the profiling procedure with Italian rugby union players, stated that the athletes believed profiling had helped to increase their achievement motivation. The findings of the present programme of research also provide some support for the motivational properties of the profiling procedure. Athlete interviews (study 3) showed the potential role of profiling in motivating them to improve, in addition to increasing perceived control over their development. Examination of the APPQ exploratory factor analysis, revealed a motivational factor explaining the largest proportion of the total variance (13.5%). Furthermore, athletes responding to the APPQ identified the potential future role of profiling in motivating them to improve (M = 4.02) and train (M = 3.61), in addition to helping them 'to take more responsibility for my development' (M = 3.76) and 'to take more control of my development' (M = 3.73).

Study two showed a motivational factorial theme accounting for 12.5 % of the total variance. Descriptive findings indicated that consultants believed profiling to be moderately useful in enhancing intrinsic motivation (M = 3.61), self determination (M = 3.41) and perceptions of control (M = 3.36). When compared to the other 24 items included in the CPPQ these three items were placed among the ten least useful impacts of the profiling procedure by BASES accredited sport psychology consultants. These results may be partially explained by the type of question asked in the CPPQ. Consultants were asked to rate the level of impact a single profiling session would have on the intrinsic motivation of the athlete. As suggested earlier, in order for situational social factors to influence contextual motivation over time, they must be repeated on a regular basis within the same context. Hence consultants may have responded only moderately to the motivational related items as they believed a single session would have limited impact on changing such psychological indices.

Whilst previous research findings provide some support for the use of profiling in improving athlete intrinsic motivation, the findings are descriptive in nature and fail to examine empirically the influence of group profiling on athlete intrinsic motivation. Therefore the purpose of the present study was to examine experimentally the impact of producing individual performance profiles within a group setting on athlete intrinsic motivation. Three *a priori* hypotheses examined Vallerand's (2001) proposition that social factors must be repeatedly reinforced within the same context in order to positively influence contextual motivation. Firstly, the present study hypothesised that a single profiling session would be insufficient to significantly improve athlete intrinsic motivation (IM). It was also hypothesised that three profiling sessions over the course of six weeks would significantly improve IM. The final hypothesis related to the influence of the performance profiling intervention on athlete IM in comparison to two control conditions. Athletes were randomly assigned to a sport science educational intervention (3 repeat seminar sessions covering various sport science topics), control condition (athletes continued as normal with no intervention) or performance profiling intervention. It was hypothesised that three repeat profiling sessions over the course of six weeks would significantly improve IM in comparison to the two control conditions.

Vallerand, Pelletier, Blais, Brière, Senècal and Vallières (1992) have defined three complementary forms of intrinsic motivation: Intrinsic motivation to know (IMK)

which emphasises the enjoyment and satisfaction gained from learning, exploring and understanding new skills; intrinsic motivation toward accomplishments (IMA) which is defined as the enjoyment or satisfaction one gains from accomplishing or surpassing oneself; and intrinsic motivation to experience stimulation (IMS) a concept which highlights the engagement in activities for the sheer pleasure derived from those activities. IMK, IMS and IMA are combined within the Sport Motivation Scale (SMS; Pelletier et al., 1995) to provide a measure for contextual intrinsic motivation in sport. Despite intrinsic motivation being categorised into these three sub-components, little research has examined the impact of social factors in a sport environment on IMK, IMA and IMS.

The performance profiling procedure could enhance IMK levels through enabling athletes to learn and become more aware of the skills/qualities required for successful performance in their sport. Similarly, profiling over time could improve levels of IMA as the athlete sees progressive improvements on quality ratings. The profiling procedure may be less likely to directly facilitate improvements in IMS as the focus of the strategy is not on reinforcing the pleasant sensory experiences associated with sporting involvement. However, given the lack of research examining the impact of social factors on various IM sub-components, the final aim of the present study was to examine the impact of performance profiling on IMK, IMA and IMS.

METHOD

Participants

Forty-eight male soccer players from three college teams consented to participate in the present study. Over the course of the study eight athletes dropped out leaving a final participant population of 40 (age range = 17 – 24, mean age = 20.38, SD = 1.50). These 40 individuals had a mean of 11.23 years (SD = 2.98) of competitive experience.

Measures

The Sport Motivation Scale (SMS; Pelletier et al., 1995) was used to ascertain the athletes' motivational scores over the course of the study. The SMS provides a measure

of intrinsic motivation (IM), extrinsic motivation (EM) and amotivation (AM) at the contextual hierarchical level (Vallerand, 2001). The IM score is an averaged combination of the IM to know (IMK), IM toward accomplishment (IMA) and IM to experience stimulation (IMS) sub-scales, each of which is based on Vallerand's (2001) Hierarchical Model of Intrinsic and Extrinsic Motivation in Sport and Exercise. The EM variable consists of three subscales: EM identified regulation (EMID), EM introjected regulation (EMIJ) and EM external regulation (EMER). Whilst all forms of motivation were assessed throughout the study, only IM types were examined due to the constraints that the low participant population number had on the multivariate data analysis.

The SMS comprises of a 28 item closed questionnaire in which the athlete is asked "Why do you practice your sport?" (Pelletier et al., 1995) on a 7 point likert scale ranging from *does not correspond at all* to *corresponds exactly*. The items provide the answer to the question. For example an IMK item: "for the pleasure it gives me to know more about the sport that I practice". An example of an IMA item: "for the pleasure I feel while improving some of my weak points". Finally an example of an IMS item is: "for the pleasure I feel in living exciting experiences". The internal consistency of the SMS subscales, as assessed by Cronbach alpha, provided values between .80 and .91 for IMS, IMA, IMK, and IM. Initial research on the SMS provided adequate levels of validity and reliability (Pelletier et al., 1995). For the purposes of this study the SMS was renamed the 'Sport Involvement Perceptions Questionnaire' so as not to unduly influence athlete motivational responses.

Procedure

An introductory session was arranged in which all players were instructed of the basic details of the study, provided with an information sheet and asked to complete a consent form (Appendix 8). At this stage all players completed the Sport Motivation Scale (SMS; Appendix 9; Pelletier et al., 1995) to provide a baseline measure of motivation. The players were then randomly assigned to one of three conditions: performance profiling group (n=14); a sport science educational group (n=14); and finally a control group (n=12).

Both the performance profiling and sport science educational groups were performed in a sport science classroom by the same experienced sport scientist. Three sessions for each condition were performed three weeks apart with each session lasting approximately one hour. Motivational scores were collected, via the SMS, following each session. On completion of the final motivation data collection each athlete was thanked for their participation in the study.

Performance Profiling Group (PP)

The initial group performance profiling session was performed as suggested by Butler and Hardy (1992). The athletes were instructed that the profiling procedure was a way of enhancing their awareness with regard to their sport, that there were no right or wrong answers and that the profile produced could be used with their coach to help structure future training programmes. In eliciting the qualities for the profiles, the PP group was split into four smaller groups: goalkeepers, defenders, midfielders and attackers. The athletes were asked to consider "what in your opinion are the qualities or characteristics of an elite athlete in your sport?" (Butler & Hardy, 1992, p.256). The athletes were asked to brainstorm as many qualities as they could think in relation to technical, physical, tactical and psychological attributes for their position. Following a presentation of these qualities by each group the athletes were asked to individually pick those qualities that they perceived were important to their own performance, taking into consideration their style of play and sporting position. Athletes were asked to map these qualities onto a blank circular target performance profile (example profile displayed in figure 2.1, p.21). Following the identification of the qualities, each athlete was asked to rate themselves on a scale of one ('very poor') to ten ('the best I can possibly be'). On completion of the profile rating, athletes were instructed that the profiles could be discussed with their coaches to help improve those areas that they had identified required improvement.

The second and third profiling sessions involved a monitoring of the progress made over time. Athletes were provided with their original profile (with ratings omitted) and were instructed that they could add to or remove any of the qualities in the profile. Following this, the athletes were instructed to rate their profile on the same rating scale as in the previous sessions. When each athlete had completed re-rating their profile

they were provided with the ratings from previous sessions and asked to identify potential reasons for the changes (or not) that had occurred over time.

Sport Science Educational Group (SS)

The sport science intervention was chosen in addition to the control condition to establish whether it was the content of the profiling session, and not just that athletes were meeting with a sport scientist, that influenced any motivational changes. The intervention consisted of three interactive educational Powerpoint seminar presentations covering the following three topics: Flexibility and stretching, nutrition, and mental skills in soccer. The sessions were delivered by the same experienced sport scientist.

Control Group (C)

Players in the control group followed their normal training and competitive soccer season with no intervention. This group was asked to complete the SMS at regular times in conjunction with the data recording times of PP and SS groups.

Data Analysis

A repeated measures multivariate analysis of variance (MANOVA) was employed to examine the main and interaction effects of the three intrinsic motivational forms (IMA, IMK, & IMS). Tabachnick and Fidell (1996) suggest that inflated Type I errors are likely if each dependent variable is tested separately due to the likelihood of them being related. Bartlett's Test of Sphericity (Appendix 10) was performed to ascertain whether the dependent variables were correlated. Significant results for group, $\chi^2_{(5)} = 80.099$, $p<0.001$, and time, $\chi^2_{(5)} = 66.341$, $p<0.001$ were found indicating that the dependent variables were related. Bryman and Cramer (1999) suggest that such a finding emphasises the appropriateness of employing a subsequent MANOVA over a series of ANOVAs to ascertain if any significant differences exist between the experimental conditions. Additionally, Tabachnick and Fidell (1996) suggest that examining correlated dependent variables independently (i.e. via a series of ANOVAs) would only re analyse some of the variance. Indeed the authors propose that MANOVAs work best with moderately correlated dependent variables. The authors do, however, suggest caution when very high correlations are found between the dependent variables within a MANOVA as such a situation may indicate that some of those variables provide

redundant information and should therefore be removed prior to further analysis. For this reason, prior to running the MANOVA, bivariate correlations were performed on the three IM sub-forms to identify if any very highly positive correlations existed among the dependent variables (Appendix 11). Of the 66 correlations only fifteen produced a correlation above .70, of which eight were found within the same motivational dependent variable over two different time phases, which may be expected given the nature of the experiment. Due to the relatively small number of highly positive correlations, it was felt appropriate to continue with the motivation types in their present form for analysis via a repeated measures MANOVA.

Tabachnick and Fidell (1996) suggest a few other preliminary criteria that must be met before any subsequent MANOVA analysis can proceed. Firstly a 3:1 participant to group ratio must be adhered to in order to prevent Type II error, a criteria met in the current study. Secondly the data set should be normally distributed. Ntoumanis (2001) suggests that a ratio of skewness and kurtosis to their respective standard errors below the value of 1.96 equates to a normally distributed data set. The current data set adheres to such principles as can be seen in Appendix 10. Finally, homogeneity of variances and covariance matrices between the groups on the dependent variables should be displayed. The homogeneity of covariance matrices test (see the Box's M) and the majority of homogeneity of variance (see Levene's test) tests indicated non-significant results. This illustrated that the variances and covariance matrices did not differ significantly across the three groups (Bryman & Cramer, 1999; Appendix 10).

As the present data set adhered to all the assumptions required of a repeated measures MANOVA (Bryman & Cramer, 1999, Ntoumanis, 2001, Tabachnick & Fidell, 1996), it was decided that a 3 x 4 (Group x Time Phase) repeated measures MANOVA would be employed for the IMA, IMK and IMS scores. Given that IM is measured by the SMS as an averaged combination of the three other intrinsic motivation variables (IMS, IMA, IMK), it was decided that it would be analysed separately via a 3 x 4 (Group x Time Phase) repeated measures ANOVA. The data set adhered to the assumptions of normality, and homogeneity of variance-covariance (Appendix 12).

Effect sizes (η^2) and estimated power values are reported for all findings (as suggested by Bartlett, 1997). Clark-Carter (1997) suggests that η^2 of 0.01, 0.059 and 0.138,

represent small, medium and large effect sizes. Furthermore, a power value of 0.80 represents a strong probability that the analysis will detect differences between the groups and thus reduce the chance of making a Type II error (Clark-Carter, 1997).

RESULTS

Preliminary Analysis

Four one-way analyses of variances (ANOVA) were performed on all baseline dependent variable scores (IM; IMK; IMA; IMS) to determine that there were no significant differences between participants in the three conditions prior to the experimental manipulation. No significant group differences were found for IM to know ($F_{(2,37)} = 0.722$, $p>0.05$), IM toward accomplishments ($F_{(2,37)} = 0.190$, $p>0.05$), IM to experience stimulation ($F_{(2,37)} = 2.956$, $p>0.05$), or the total IM measure ($F_{(2,37)}= 0.786$, $p>0.05$) prior to the experimental manipulation (Appendix 10). These results indicated that no condition differences existed on any of the dependent variables. Therefore any subsequent significant motivational differences, either within and between groups, could be attributed to the intervention induced as opposed to any differences prior to experimental manipulation.

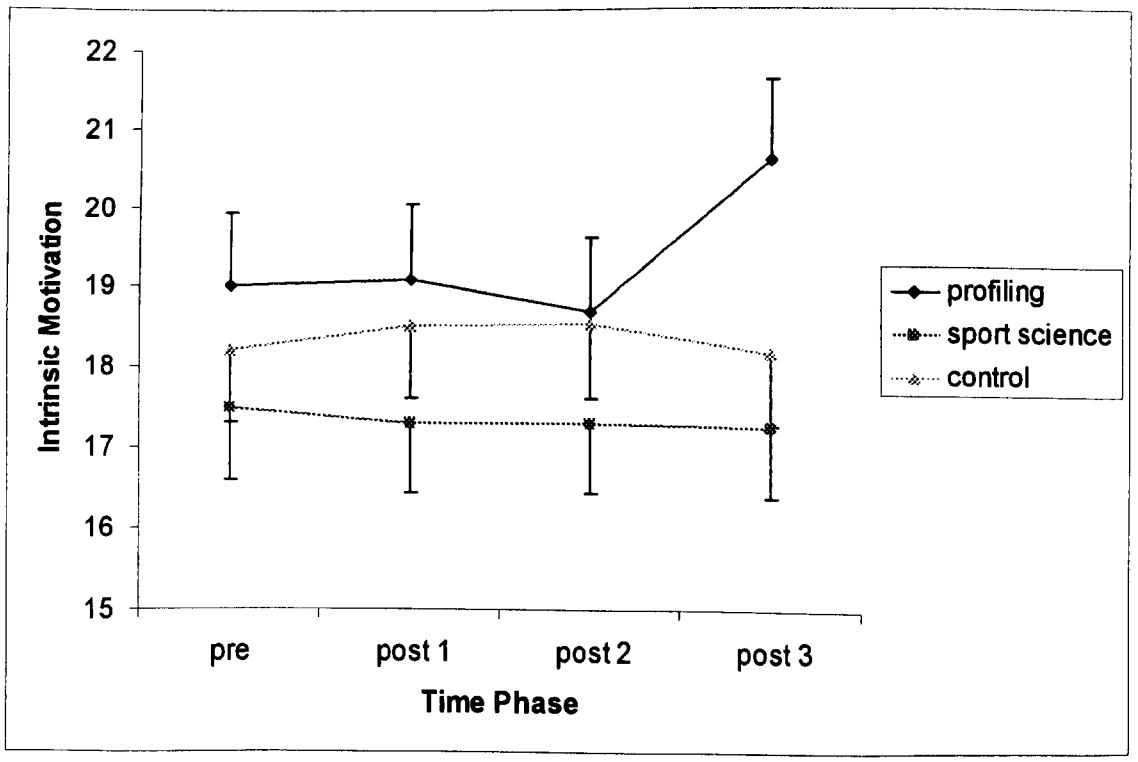
Main Analysis

The means and standard deviations for each condition across time are presented in Table 8.1. The results of the 3 x 4 (Group by Time Phase) repeated measures ANOVA for total IM (Appendix 12; Figure 1 illustrates the change in total IM for each condition over time) indicated firstly that Mauchly's Test of Sphericity was significant, therefore violating the sphericity assumption ($W = .716$, $p<.05$). In order to protect against making a Type I error a Greenhouse Geisser correction factor was used (Ntoumanis, 2001, Schutz & Gessaroli, 1991). This analysis revealed a non-significant main effect for time ($F_{(2.458, 90.931)}= .539$, $p>.05$, $\eta^2 = .01$, estimated power at 5% probability = .15) and a non-significant effect for group ($F_{(2, 37)}= 1.471$, $p>.05$, $\eta^2 = .07$, estimated power at 5% probability = .29). It also failed to show a significant group by time interaction ($F_{(4.915, 90.931)}= 1.101$, $p>.05$, $\eta^2 = .06$, estimated power at 5% probability = .37).

Table 7.1. Means (& standard deviations) for the intrinsic motivation scores over time.

Motivation Type / Condition	Time Phases			
	Baseline	Post 1	Post 2	Post 3
Total IM				
Profiling	19.00 (2.44)	19.10 (2.71)	18.69 (3.38)	20.60 (2.62)
Sports Science	17.48 (3.75)	17.31 (4.23)	17.31 (4.21)	17.26 (4.38)
Control	18.22 (3.33)	18.53 (4.06)	18.55 (3.38)	18.19 (3.07)
IMS				
Profiling	21.35 (2.56)	20.64 (2.27)	21.21 (2.58)	21.28 (3.99)
Sports Science	19.07 (3.56)	18.57 (3.86)	18.57 (4.65)	18.79 (4.64)
Control	18.67 (2.99)	18.83 (3.81)	19.17 (2.86)	19.25 (2.70)
IMA				
Profiling	18.07 (3.32)	18.57 (3.61)	18.43 (3.65)	20.07 (2.46)
Sports Science	17.29 (3.75)	17.36 (4.40)	16.86 (4.20)	17.21 (4.71)
Control	18.08 (4.56)	18.83 (4.82)	19.08 (3.48)	17.75 (4.11)
IMK				
Profiling	17.57 (3.08)	18.07 (4.41)	17.93 (3.91)	20.43 (2.44)
Sports Science	16.07 (4.63)	17.21 (5.03)	16.50 (5.00)	16.36 (5.39)
Control	17.92 (4.44)	17.92 (4.91)	18.83 (5.06)	17.58 (3.58)

Figure 7.1 Changes in total Intrinsic Motivation (IM) over time for each condition.



Despite the lack of significant main or interaction effects, further analysis to examine the *a priori* hypotheses is still justified (Howell, 1992, Minium, King & Bear, 1993). Howell (1992) suggests that the use of t-tests to examine *a priori* hypotheses is warranted provided these are restricted to one or two comparisons. Hence, two paired sampled t-tests were performed to establish whether firstly, a single profiling session, and secondly three repeat profiling sessions were able to significantly improve athlete total IM (Appendix 12). Given the use of multiple t-test comparisons a Bonferroni adjustment (0.05 divided by the number of tests, i.e. 0.05/2 = 0.025) was employed to reduce the chance of making a Type I error (Howell, 1992). A non-significant difference was found between the baseline and first profiling session ($t_{(13)} = -0.162$, $p > 0.025$). This result supports the first *a priori* hypothesis which stated that a single profiling intervention would be insufficient in significantly improving intrinsic motivation. A significant improvement in total IM was found between the baseline and third profiling session ($t_{(13)} = -3.343$, $p < 0.025$), thereby supporting the second *a priori* hypothesis. This finding suggests that three repeat profiling sessions is sufficient to significantly improve athlete IM over time.

A one way ANOVA was employed to examine the third *a priori* hypothesis as to whether three profiling sessions significantly improved total IM in comparison to the sports science educational intervention and control condition (Appendix 12). A significant group difference was found at the final experimental time phase ($F_{(2,37)} = 3.448$, $p<0.05$). The post hoc Scheffe test revealed a significant difference between the profiling and educational interventions. Examination of the mean group scores for the final time phase (Table 8.1) reveal that the profiling group had significantly higher total IM levels in comparison to the educational sports science condition. No significant total IM differences were found between the control and profiling groups at the final time phase. Thus the third *a priori* hypothesis is partially supported.

In order to examine the impact of the three conditions on IMK, IMS and IMA across the four time phases a 3 x 4 (Group x Time Phase) repeated measures MANOVA was performed (Appendix 10; Figures 8.2 to 8.4 illustrate the changes in the various IM types for each condition over time). Using the Wilks' Lambda criterion, the MANOVA indicated no significant main effects for time (Wilks' $\lambda = .821$, $F_{(9,29)}= 0.700$, $p>.05$, $\eta^2 = .18$, estimated power at 5% probability = .27) or group, (Wilks' $\lambda = .823$, $F_{(6,70)}=$

Figure 7.2 Changes in Intrinsic Motivation to Experience Stimulation (IMS) over time for each condition.

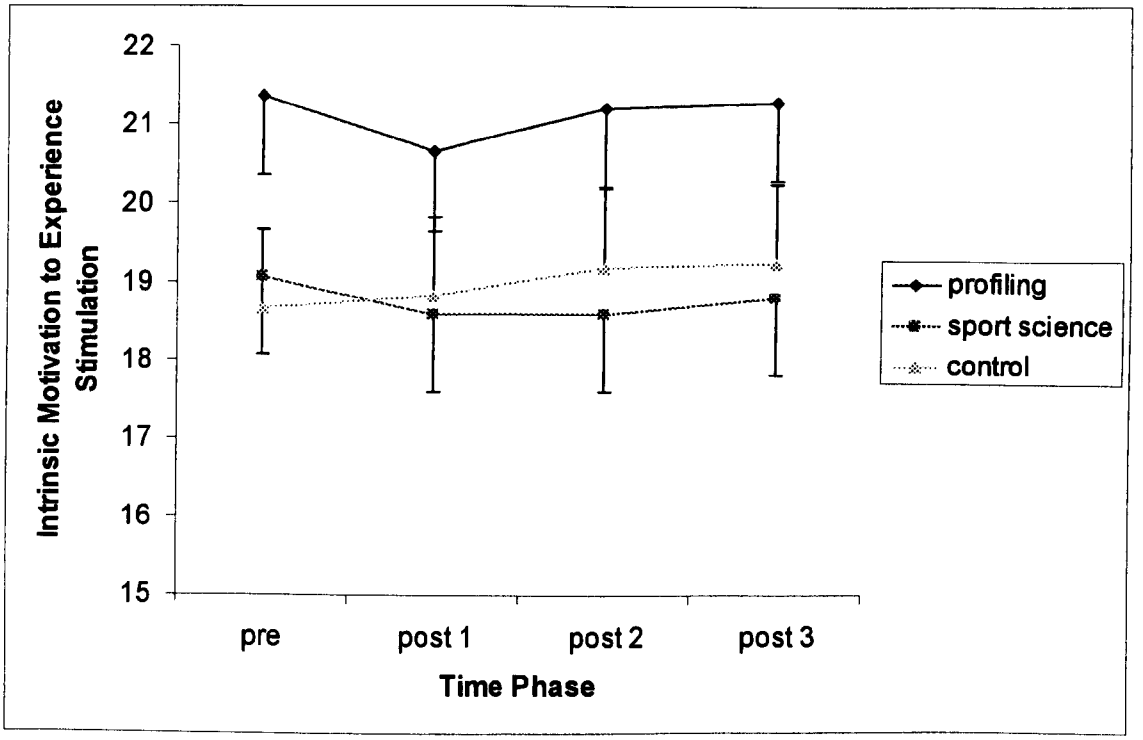


Figure 7.3 Changes in Intrinsic Motivation Towards Accomplishment (IMA) over time for each condition.

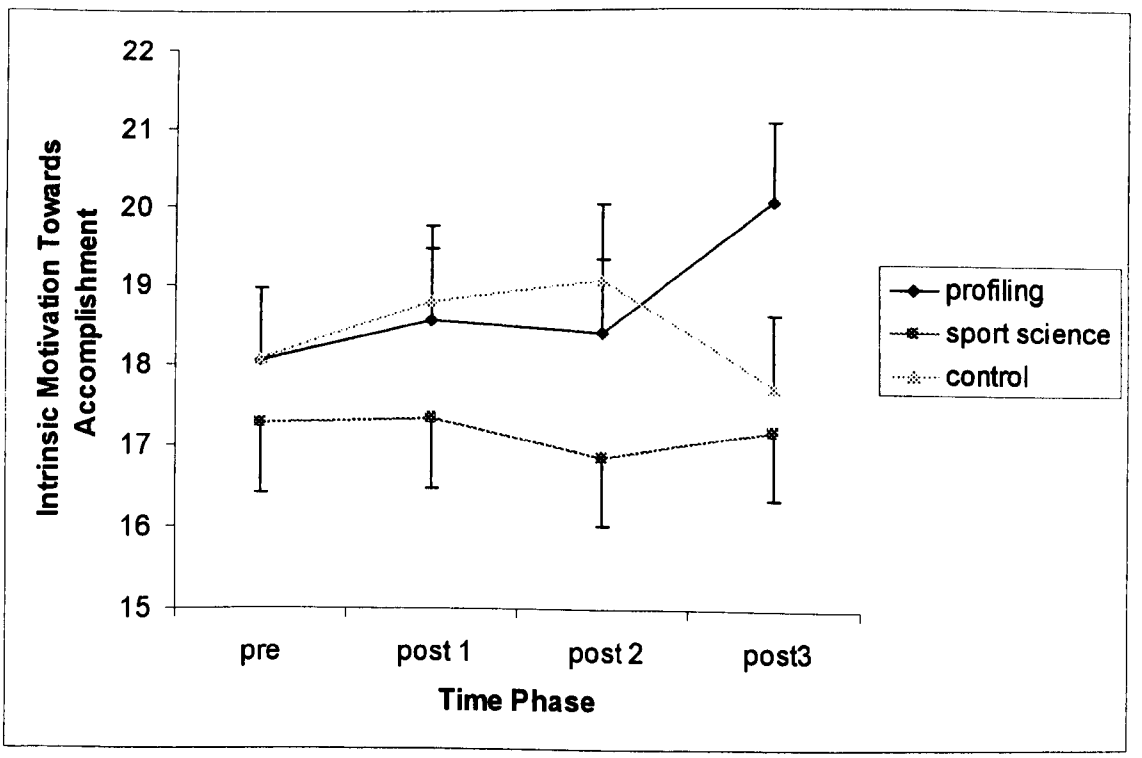
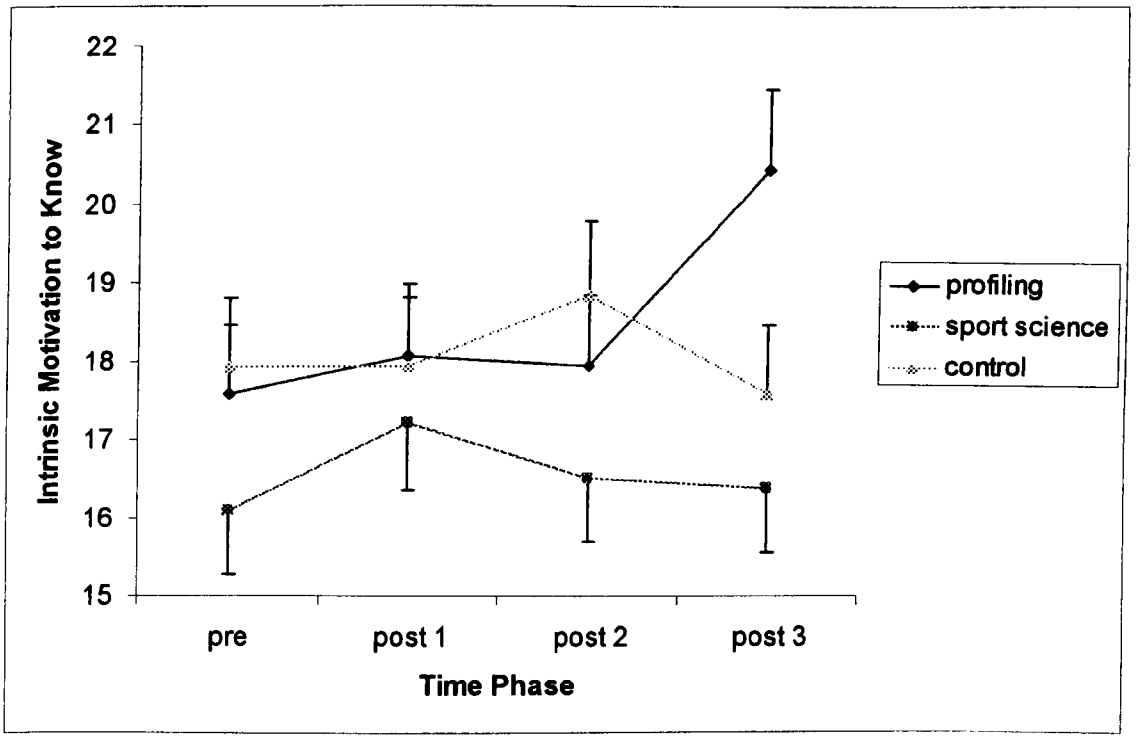


Figure 7.4 Changes in Intrinsic Motivation to Know (IMK) over time for each condition.



1.191 , $p>.05$, $\eta^2 = .09$, estimated power at 5% probability = .44). However a significant group by time interaction was found (Wilks' $\lambda = .380$, $F_{(18, 58)} = 2.002$, $p<.05$, $\eta^2 = .38$, estimated power at 5% probability = .94).

Prior to any subsequent univariate follow up test, Mauchly's Test of Sphericity was performed on IMS, IMA and IMK dependent variables. This check helps to ascertain if the data met the assumption of sphericity, thereby protecting against making a Type I error (Ntoumanis, 2001). Non-significant results were found for IMS (W = .736, $p>.05$), and IMK (W = .812, $p>.05$) and hence sphericity was assumed. A significant result was found for IMA (W = .514, $p<.05$), thereby violating the sphericity assumption. Hence in order to reduce Type I errors a Greenhouse Geisser correction factor was employed for the IMA variable (Ntoumanis, 2001, Schutz & Gessaroli, 1991). Examination of the univariate follow up analyses indicated no significant group by time interactions for IMS ($F_{(6, 111)} = .173$, $p>.05$, $\eta^2 = .01$, estimated power at 5% probability = .09), or IMA ($F_{(4.329, 80.087)} = 1.558$, $p>.05$, $\eta^2 = .08$, estimated power at 5% probability = .48). However a significant group by time interaction was found for IMK ($F_{(6, 111)} = 2.398$, $p<.05$, $\eta^2 = .12$, estimated power at 5% probability = .80).

In such situations a simple effect analysis is warranted to examine the influence of each independent variable (in this case time and group) on the levels of one and other (Clark-Carter, 1997, Kinnear & Gray, 2000, Minium, King & Bear, 1993). The employment of such procedures will help to identify the possible sources of the interaction effects (Tabachnick & Fidell, 2001). Hence a simple effects analysis (Appendix 10) was performed on the IMK data set as directed by the suggestions of Tabachnick and Fidell (2001). Clark-Carter (1997) notes that the multiple analyses performed within a simple effects analysis increases the danger of making a Type I error. The author suggests that in such situations a Bonferroni adjustment be made to counter such potential problems. Therefore for the time by condition simple effects analysis the adjusted α level is 0.004 (e.g., 0.05/12). For the condition by time simple effects analysis the adjusted α level is 0.003 (e.g., 0.05/18).

The simple effects analysis produced no significant findings at the adjusted α level when examining the time by condition effects. There was however a trend towards significantly greater IMK levels in the performance profiling intervention in comparison to the educational sports science condition ($p = 0.011$) at the final time phase. Examination of the simple effects analysis for condition by time revealed a number of significant findings for the profiling intervention. A significant improvement in the profiling group's IMK levels was found between the baseline and final time phase ($p = 0.001$) and the third (i.e. after the second profiling session) and final time phase ($p = 0.000$). A trend towards a significant improvement in the profiling group's IMK was found between the second (i.e. after the first profiling session) and final time phase ($p = 0.011$), although not to the adjusted α level. The simple effect analysis displayed no significant findings for the control or educational sport science intervention across the time or group comparisons (Appendix 10).

DISCUSSION

The present study provided the first empirical examination into the impact of repeated group performance profiling on athlete intrinsic motivation. Vallerand (1997) suggests that in order for significant improvements in IM to occur, social factors must be presented on a regular basis within the same context. Therefore the present study examined whether performance profiling, repeated on three occasions over a six week

period, could significantly improve athlete IM over time and in comparison to a sport science educational intervention and control condition. A significant improvement in the profiling group's total IM levels was found between baseline and after the third profiling session. This finding suggests that the performance profiling procedure repeated on three occasions within a competitive season is useful in significantly improving athlete IM. Inspection of the mean profiling IM scores (see table 8.1) shows relatively similar values across the first two profiling sessions and then a marked increase upon the third and final profiling session. Further analyses revealed that the profiling group at the final time phase experienced significantly greater total IM in comparison to the educational sports science condition. Whilst the profiling group displayed higher total IM scores at the final time phase in comparison to the control condition, no significant differences were found.

Thus the present findings were consistent with the *a priori* hypotheses and suggest that the employment of performance profiling on three repeat occasions is useful in significantly improving athlete IM. The findings support descriptive profiling literature (D'Urso et al., 2001, Jones, 1993) and Butler and Hardy's (1992) original suggestion that the autonomy supportive profiling procedure would help to positively influence athlete intrinsic motivation. Furthermore the results support the beliefs' of athletes and consultants in studies two to four who believed profiling would be useful in improving athlete motivation. Given that the current study was the first experimental examination of the impact of profiling on total IM, researchers should be cautious when interpreting the findings. Further research is required to support, refute and/or extend the present findings across different sports, ages, ability levels and gender. It would also be useful to establish the impact of longer profiling interventions, possibly across the whole of a competitive season, to establish whether the improvements displayed after the third profiling session in the present study are maintained over longer periods. Interestingly the present study found the profiling intervention to be successful in significantly improving IM in athletes who already had moderate levels of total IM at baseline. Further research may wish to establish whether the level of an athlete's initial IM moderates the magnitude of improvement as a result of a repeat profiling intervention.

Whilst the specific *a priori* comparisons revealed significant findings, the initial repeated measures ANOVA produced no significant main or interaction effects. These

findings may be explained by the low power values produced. Bryman and Cramer (1999) suggest that the power of a test is inversely related to the probability of making a Type II error. Therefore given the low power values obtained by the total IM repeated measures ANOVA, there is a possibility that a Type II error occurred. Tabachnick and Fidell (2001) suggest that increasing the sample size will have a direct and positive impact on statistical power. The present study began with forty-eight participants (i.e. 16 in each group), which reduced to forty as a result of participant drop out. Future research examining the impact of repeat profiling will need to enlist a larger sample size in order to increase the power and decrease the likelihood of making a Type II error.

One potential reason for this participant drop out may have been due to the random assignment of players from the soccer teams into the three conditions. This was primarily performed to counter the possible confounding impact of team success or failure on IM. Vallerand and Losier (1999) suggest performance success/failure is an important social factor in sport. The authors stress that performance outcome is a key influence on the perceived competence and subsequent intrinsic motivation of athletes. Research by Blanchard and Vallerand (1996a, cited in Vallerand, 2001) has shown team success to positively influence intrinsic motivation in basketball. Therefore in order to negate any potential influence that team performance may have had on athlete intrinsic motivation in the present study, soccer players were randomly split into the three conditions. The consequence of this research approach was that any possible improvements in perceptions of relatedness, that may have developed had players from the same team been profiled together, were lost. Dale and Wrisberg (1996) point out the important role profiling within a team can have on communication, in addition to enabling the players to have more involvement in the decisions regarding the team's development. Future research may wish to examine the impact of repeat profiling on the IM of athletes from intact sports teams. In adopting such an approach, researchers must however account for the potentially confounding team performance variable.

In addition to relatedness, perceived autonomy and competence are hypothesised, and have been shown to, mediate the influence of social factors on IM (for review see Vallerand, 2001). A key rationale for utilising performance profiling as opposed to previous performance analysis approaches, was the procedure's role in facilitating more self determined motivation in athletes (Butler & Hardy, 1992). Referring to Deci and

Ryan's (1985a) Cognitive Evaluation Theory, Butler and Hardy (1992) suggest that profiling would facilitate more intrinsic forms of motivation by enabling athletes to have more control over the analysis of their performance development. The present study adopted a repeat profiling intervention which would enable athletes to monitor improvements on the key performance attributes and thus reinforce their perceptions of competence. Deci and Ryan (1985a) suggest that social factors which reinforce an individual's perceived competence at a task, will only improve their IM if accompanied by a sense of autonomy. Thus the present findings support Deci and Ryan's theorising and suggest that the autonomy supportive performance profiling approach, when repeated over time, can help to significantly improve athlete IM.

Vallerand (2001) asserts that improvements in IM will result in a variety of positive affects, behaviours and cognitions. Indeed, improvements in IM have been shown in sport and exercise settings to enhance athlete satisfaction (Frederick et al., 1996, Pelletier et al., 1995), interest (Li, 1999), effort (Pelletier et al., 1995, Williams & Gill, 1995, Wilson, et al., 2004), pleasure and enjoyment (Beauchamp et al., 1996). Hence future research examining the impact of repeat profiling on athlete motivation, mediators (autonomy, competence and relatedness) and consequences (e.g., satisfaction, interest, enjoyment etc.) would help to empirically examine the impact of repeat profiling on the each aspect of Vallerand's model at the contextual level.

The final *a priori* hypothesis stated that a single profiling session would be insufficient to significantly improve total IM. This was based on Vallerand's (2001) assertion that a social factor would need to be presented on a regular basis in order to significantly improve contextual IM. The present study found that a single profiling session did not significantly improve athlete IM. Inspection of the mean IM scores for the profiling group showed little change between the baseline and post one time phases. Whilst more research is required to support this finding, the present results suggest that consultants should not attempt to use a single profiling session to improve athlete IM.

Examination of the repeated measures MANOVA on the intrinsic motivation sub-types revealed a significant group by time interaction for the IMK dependent variable. Further simple effects analysis identified significant improvements in IMK from baseline (i.e. pre profiling) and post 2 (i.e. after the second profiling session) to post 3

(i.e. after the third & final profiling session). Furthermore, a trend towards improvements in IMK was found from post 1 (i.e. after the first profiling session) to post 3. Individuals displaying IMK exhibit an enjoyment and satisfaction from learning, exploring and understanding something new (Vallerand, 2001). Performance profiling encourages athletes to learn, understand and generally become more aware of the qualities required for successful performance in their sport. Furthermore, the procedure may enable athletes to become more aware of what they perceive their strengths and weaknesses to be. The present results suggest that profiling may be useful in enhancing athlete perceptions of IMK although only after at least three profiling sessions. These results support Vallerand's (2001) proposal that social factors must be presented on a regular basis within the same context in order to positively influence contextual sport motivation.

Whilst a significant increase in IMK was found with the profiling intervention no such improvements were displayed for the two other sub-forms of IM. Intrinsic motivation to experience stimulation (IMS) remained relatively stable throughout the profiling intervention. This is not surprising as the profiling procedure is unlikely to directly influence perceptions of the pleasant sensations gained through sporting experience. The profiling intervention was also relatively ineffective in influencing perceptions of intrinsic motivation towards accomplishments (IMA) until the third and final intervention time phase where a small increase was found. IMA emphasises engagement in sport for the pleasure and satisfaction derived 'while one is attempting to accomplish or create something or to surpass oneself' (Vallerand, 2001, p.272). Whilst the profiling approach may have been useful in identifying those areas the athlete needs to improve, if the athlete was not provided the opportunity to develop those aspects specifically within their training, it is unlikely that significant improvements in profile ratings and IMA would occur. Hence it may be that the profiling is just the first step in helping the athlete to become more aware of those performance areas that require attention and that training specifically targeted on those areas must be conducted if athletes are to improve their profile ratings and IMA.

Another possible reason for the lack of improvement in IMA may be explained by the relatively short profiling intervention period. It may have been the case that substantial improvement in profile ratings did not occur over the six weeks of the intervention and

that a larger time period is required. Indeed Doyle and Parfitt (1997) suggest that the profiling procedure may only be useful in detecting large performance improvements for example during intense training periods or in recovery from injury. Whilst the profile group's final IMA mean score showed a reasonable improvement, it is impossible to hypothesise whether this was in accord with a rise in profile ratings as this was not measured. Further research, employing a longer profiling intervention period, is needed to examine the impact of repeated profiling on IMA, whilst monitoring the moderating effect of profile rating changes. It would also be useful to examine the impact of a training programme specifically tailored to improve the profile ratings versus a normal training control group on changes in profile ratings and athlete perceptions of IMA.

Research has shown that the type of social factor that athletes are exposed to within a sport setting can have direct implications for an athlete's motivation. For example autonomy-supportive coach behaviour (Pelletier et al., 1995) and cognitive behavioural interventions (Beauchamp et al., 1996) have been shown to positively influence intrinsic forms of motivation. The present findings provide some evidence to suggest that the specific nature of the social factor imposed on the athlete (i.e. profiling) might influence the type of intrinsic motivation exhibited by the athlete (i.e. IMK and not IMA or IMS). Given that no other published literature has examined the impact of social factors on the various sub forms of intrinsic motivation, further research is required to confirm whether profiling significantly increases perceptions of IMK across a variety of sports, ages and skill levels. Such research will help to verify the influence of performance profiling on the type of athlete intrinsic motivation.

SUMMARY

The results of the present study suggest that profiling on three occasions within a competitive season is useful in significantly improving athlete intrinsic motivation. Further analyses revealed that the profiling may specifically influence athlete perceptions of their intrinsic motivation to know. Researchers should attempt to investigate what influence repeat profiling may have on the motivational mediators and consequences described within Vallerand's (2001) Hierarchical Model of Motivation. A further finding indicated that a single profiling session was insufficient in significantly

improving athlete intrinsic motivation. Hence consultants should be wary of the limited impact profiling on a single occasion can have on positively influencing athlete intrinsic motivation. Given the original nature of the present study and that it was confined to a group of student male soccer players, more research is required to examine the motivational impact of various frequencies of profiling across alternative ages, sports and skill levels. In conclusion, the present study provided the first empirical examination of the impact of performance profiling on a psychological indices and provides a number of useful avenues for further research.

CHAPTER 8

GENERAL DISCUSSION AND CONCLUSIONS

The primary aim of the present thesis was to provide a systematic evaluation of the usefulness and impacts of producing individual performance profiles (Butler & Hardy, 1992) within a group setting. Firstly, the thesis enabled a comprehensive examination of British sport psychology consultant opinions of the efficacy of the profiling procedure. This was performed to confirm, refute and/or extend the existing literature evidence regarding consultants' opinions of the technique. Secondly, a systematic evaluation of athlete perceptions of the usefulness and impact of profiling within a group setting was conducted.

In addition to examining the two primary profiling user populations (sport psychologist & athlete), two complementary research methods (interview & questionnaire), and three researchers in data analysis were employed to facilitate the evaluation of the profiling technique. As a result of adhering to many of the triangulation research suggestions of Denzin (1978), a great deal of confidence can be taken in the validity and reliability of the findings produced (Bryman, 1988).

Following a review of the consultant and athlete responses, a secondary aim of the thesis was to examine experimentally whether repeat performance profiling could significantly improve athlete intrinsic motivation. The aim of this chapter is to provide a summary and discussion of the thesis findings, suggestions for future research and recommendations for applied sport psychology practice.

SUMMARY OF THE THESIS FINDINGS

The summary of the thesis findings will be split into the athlete and consultant perceptions of the profiling procedure's usefulness, followed by the presentation and discussion of the thesis findings with regard to the impacts of producing individual performance profiles in a group setting.

Perceptions of Usefulness

BASES accredited sport psychology consultants (n = 56) and athletes (n = 191), alike strongly believed performance profiling to be a useful technique, with athletes stating they would benefit from profiling in the future. Consultants indicated that, given appropriate circumstances, they would use profiling more than sometimes in their consultancies. One consultant stated that they would only use the profiling procedure 0.5% of their consultancy time, with two other consultants indicating that the technique would normally be used in conjunction with other assessment strategies such as observation and interviewing. Consultants indicated that they had employed profiling across a wide variety of sports, ability levels and age groups. Some concern was voiced regarding the use of the technique with young or inexperienced athletes given their lack of understanding of their sport's demands. Furthermore, one consultant indicated that the employment of the profiling was less important with those athletes who already have high levels of sporting self awareness. Thus the present results provide support for the use of the profiling procedure with athletes in conjunction with other needs analysis techniques, although consultants did express concerns about the usefulness of the technique with young, inexperienced or highly self aware athletes.

Athletes in the interviews of study three provided some useful information as to the potential weaknesses of the profiling technique in addition to ways in which the technique could be improved. The athletes indicated that consultants should be wary of using the technique at the beginning of the season as athletes may find difficulty in producing and then rating profiles given their lack of competitive experience. Furthermore consultants should be careful when using a 'best performance' rating criterion as athletes may find some difficulty in rating their profile when such a performance had occurred some time in the past.

Potential Impacts of Performance Profiling Within a Group Setting

The central aim of the present thesis was to establish sport psychology consultant and athlete opinions as to the potential impacts that performance profiling may have on the athlete consumers of the technique. Prior to examining each separate profiling impact, it is important to discuss the relative strength of both athlete and consultant responses to

the profiling items in the APPQ and CPPQ. Inspection of the descriptive results indicates that consultants generally responded more positively on the profiling impact items in comparison to the athlete consumers of the technique. This finding indicates that the consultants may be over emphasising the benefits of the profiling procedure. Furthermore such findings support the need for practitioners to evaluate the efficacy of psychological skills training from the viewpoint of the athlete consumers of such strategies. In doing so this would help consultants to justify the use of any psychological skills intervention with their athlete clients.

The following section will outline and discuss the thesis findings with regard to the impacts of producing individual performance profiles within a group setting. Table 8.1 provides an overview of the findings from studies one to four. The findings of the fifth study will be discussed within the motivation impact section.

Raising Athlete Awareness

One of the main impacts of performance profiling cited in the literature is its ability to enhance athlete self awareness as to the qualities required for successful performance and athletes' beliefs regarding their strengths and weaknesses (Butler & Hardy, 1992, Butler, Smith & Irwin, 1993, Jones, 1993). Indeed, Palmer et al., (1996) and D'Urso et al., (2002) when examining the perceptions of netball and rugby union players, found that athletes believed that profiling was useful in increasing their self awareness. Thomas (1979), in defining an additional self awareness corollary for Kelly's (1955) Personal Construct Theory, suggested that individuals will become more aware of themselves as a result of actively understanding their own thought processes, a process encapsulated within the profiling procedure. Consultants in study one identified the awareness raising impact of the technique as an important higher order theme. A quantitative analysis of a larger population of consultants in study two strongly supported these qualitative findings identifying the issue that the profile was useful in helping to raise the self awareness of the athlete ($M = 4.37$, $SD = 0.82$), in identifying the athlete's strengths and weaknesses ($M = 4.43$, $SD = 0.79$) and in helping the athlete focus on what's important ($M = 4.16$, $SD = 0.78$).

Table 8.1 Overview of the main impacts identified by the four qualitative and quantitative studies

Area of Influence	Impact	Study One Consultant Interviews	Study Two Consultant Questionnaire	Study Three Athlete Interviews	Study Four Athlete Questionnaire
Athlete Related Impacts	**Self Awareness**	Formed the largest higher order theme including 'raising self awareness of athlete', 'identifying strengths & weaknesses', 'identifying roles within the team' 'help focus on what's important'	Several impacts rated highly indicating this theme: 'help identify the athlete's strengths and weaknesses' (M=4.43), ' help to raise the self awareness of athlete' (M=4.37), 'help the athlete to focus on what's important' (M=4.16)	Two higher order themes including: 'raises athlete self awareness' & 'to help decide what the athlete needs to work on'	Exploratory factor analysis identified a self awareness theme. Descriptive statistical analysis identified a number of related impacts: 'highlight my weaknesses' (M=4.27), 'to help me decide what I need to work on' (M=4.22), 'highlight my strengths' (M=4.04), 'highlight the demands of my position' (M=3.97)
	Goal setting	Single higher order theme containing six raw data consultant responses	The highest consultant rated impact (M=4.46).	Athletes indicated that the single session helped them to think about setting goals and that they would use future profiling sessions to help them set goals	Two impacts responded to: 'it made me think about setting goals' (M=3.78), 'to set goals for myself' (M=3.90).

Table 8.1. (Cont.). Overview of the main impacts identified by the four qualitative and quantitative studies

Area of Influence	Impact	Study One Consultant Interviews	Study Two Consultant Questionnaire	Study Three Athlete Interviews	Study Four Athlete Questionnaire
Athlete Related Impacts	**Monitoring Progress**	Consultants identified the monitoring of progress as a useful profiling impact theme	Descriptive statistics included: 'to help monitor the athlete's progress' (M=3.97)	Athletes stated that they would use profiling in the future to monitor their progress	Descriptive statistics included: 'to monitor my progress' (M=3.85)
	Confidence	Two conflicting impact themes produced: 'confidence boost' & 'undermines confidence'	'Help enhance the athlete's confidence in themselves' item moderately responded to by consultants (M=3.52)	Single raw data theme relating to helping build athlete confidence	Descriptive statistical analysis identified two related impacts: 'to build my confidence' (M=3.35), 'it helped to enhance my confidence in my ability' (M=3.06)

Table 8.1. (Cont.). Overview of the main impacts identified by the four qualitative and quantitative studies

Area of Influence	Impact	Study One Consultant Interviews	Study Two Consultant Questionnaire	Study Three Athlete Interviews	Study Four Athlete Questionnaire
Athlete Related Impacts	**Performance evaluation**	A single raw data theme highlighting this impact	Two impact items relating to this theme: 'help the athlete to assess themselves' (M=4.11), 'help the athlete to evaluate how they're performing' (M=4.10)	Single 2nd higher order theme including such 1st order themes as 'to provide after game analysis', 'to record the athlete's improvements' & 'to help evaluate performances'.	Exploratory factor analysis yielded a performance evaluation theme. Descriptive statistics identified the following: 'to help in the evaluation of my performance' (M=3.80), 'to record my improvements' (M=3.78), 'to provide after game analysis' (M=3.54).
	Perceived Control	Single higher order theme emphasising 'enhances athlete self-control'.	Personal control theme emerged from the exploratory factor analysis. Descriptive statistical analysis: 'help the athlete to gain more control over their performance' (M=3.36)	Single 2nd higher order theme including such 1st order themes as 'to take more responsibility for their development', 'helps the athlete take more control of their development'	Descriptive statistical analysis: 'to take more responsibility for my development' (M=3.76), 'to take more control of my development' (M=3.73).

Table 8.1. (Cont.). Overview of the main impacts identified by the four qualitative and quantitative studies

Area of Influence	Impact	Study One Consultant Interviews	Study Two Consultant Questionnaire	Study Three Athlete Interviews	Study Four Athlete Questionnaire
Athlete Related Impacts	**Motivation**	No raw data or higher order specific motivation related theme.	Motivational theme emerged from the exploratory factor analysis. Several items relating to this theme rated moderately by consultants: 'help enhance the intrinsic motivation of the athlete' (M=3.61), 'help increase the commitment of the athlete' (M=3.54), 'help enhance the self determination of the athlete' (M=3.41).	Higher order theme: 'to aid athlete motivation'	A motivational theme explaining the most variance was extracted from the exploratory factor analysis. Descriptive statistics indicated strong related responses: 'to motivate me to improve' (M=4.02), & 'to motivate me to train' (M=3.61).

Table 8.1. (Cont.). Overview of the main impacts identified by the four qualitative and quantitative studies

Area of Influence	Impact	Study One Consultant Interviews	Study Two Consultant Questionnaire	Study Three Athlete Interviews	Study Four Athlete Questionnaire
Team / Coach related impacts	**Team / Coach related impacts**	Five higher order themes emphasising this theme including: 'facilitates communication', 'facilitates discussion'. 'develops an understanding of other people's positions', 'improves team dynamics', 'helps facilitate interaction'.	Exploratory factor analysis yielded a team related theme including all impacts mentioned in the consultant interviews. Descriptive statistics included: 'help facilitate discussion within the team' (M=4.21), 'help to enhance communication within the team' (M=4.04), 'help facilitate interaction within the team' (M=4.00), 'help improve team dynamics' (M=3.62).	Three 1st higher order themes: 'To aid communication with the coach', 'To help the coach individualise my training', 'Highlights the demands of other positions'	Single 'coach related performance development' theme emerged from the exploratory factor analysis emphasising such impacts as: 'to aid communication with my coach', 'to improve the coach's understanding of me', 'to help the coach individualise my training'. Descriptive statistics: 'helped to highlight the demands of other positions' (M=3.67), 'to aid communication with my coach' (M=3.52), 'to improve the coach's understanding of me' (M=3.48), 'to help the coach individualise my training' (M=3.40)

The athlete interviews (study 3) support this view identifying two self awareness related higher order themes. Responses to the APPQ (study 4) indicated that athletes believed profiling helped to highlight their strengths (M = 4.04, SD = 0.80), weaknesses (M = 4.27, SD = 0.84), the demands of their position (M = 3.97, SD = 0.86), in addition to helping them decide what they needed to work on (M = 4.22, SD = 0.77). An exploratory factor analysis of APPQ responses identified a self awareness theme accounting for 6.7% of the total variance.

An associated impact of group performance profiling suggested by both consultants and athletes related to the procedure being useful in highlighting the demands of other positions within a team. Consultants believed profiling to be useful in this way (M = 3.66, SD = 0.99), a theme supported within the athlete study three interviews and study 4 APPQ (M = 3.67, SD = 0.95). Furthermore, study one consultant interviews suggested that profiling could help to identify roles within the team, a concept moderately supported (M = 3.55, SD = 1.10) in the study two CPPQ.

It has been proposed that group profiling facilitates the understanding of the qualities required for certain positions via small brainstorming groups, and the presentation of those qualities to fellow team mates (Butler & Hardy, 1992). Kelly (1955) suggests that in order to socially interact with another, one must attempt to understand how that other person construes events in their life. Hence, by giving athletes the opportunity to communicate their perceptions regarding the essential qualities for each position within a team, a more collective awareness of the demands placed upon each and every player will be displayed. Carron and Hausenblas (1998) suggest that increasing the opportunities that athletes have to interact and communicate within teams can help to improve team cohesion. Hence, further research may wish to establish whether profiling can successfully improve cohesion in sports teams.

Developing athlete awareness has been proposed as an important component in helping athletes to obtain optimal performance (Ravizza, 1998). However, very few articles have been published discussing strategies which enhance athlete awareness. Furthermore to date no sport specific self awareness inventory has been published to help consultants ascertain and monitor athlete levels of self awareness. The present thesis provided subjective support, from both athletes and sport psychologists, as to the

usefulness of profiling in developing athlete self awareness. Future research into this area would benefit from the development of a self awareness inventory for athletes. On producing such an inventory it would interesting to ascertain whether the profiling procedure is able to significantly improve athlete self awareness and what influence this may have on athlete performance. It may also be valuable to determine how often profiling needs to be performed before any significant improvements in self awareness and/or performance are found.

Ravizza (1998) suggests that journal keeping, performance evaluation sheets, pre-performance psychological and physiological monitoring, and imagery strategies could provide useful methods of increasing athlete self awareness. Future research would benefit from qualitatively examining the alternative strategies sport psychologists use to develop athlete awareness. Furthermore it may be interesting to establish whether profiling alone or in combination with other strategies facilitates greater and/or quicker improvements in athlete self awareness.

Goal Setting

The findings of the present thesis support descriptive research indicating users believed that profiling provides a useful basis for athlete centred goal setting. Indeed, consultants deemed this to be the most important impact of performance profiling when completing the CPPQ ($M = 4.46$, $SD = 0.76$). Athletes believed that the single profiling session had helped them to think of setting goals ($M = 3.78$, $SD = 0.99$) and that profiling in the future would help them to set goals for themselves ($M = 3.90$, $SD = 0.91$).

Weinberg et al. (1993) found in their descriptive goal setting research that athletes preferred to set their own goals rather than being given them. In addition Weinberg and Weigand (1993) have suggested that athletes are likely to set their own goals irrespective of those set by their coaches. Hence performance profiling may provide a useful and structured strategy, whereby goals set by athletes can be tailored toward those attributes that athletes deem appropriate to improve. A possible weakness in this process emerges if athletes have either not identified all the appropriate performance qualities in their profile prior to subsequent ratings, or if they have been dishonest or unrealistic in their attribute ratings. If either of these scenarios were to occur during the

profiling procedure, it may result in athletes choosing unsuitable attributes for goal setting or omitting important attributes requiring improvement. Hence consultants need to be aware of the potential for such problems to emerge and attempt to identify strategies to prevent their occurrence. Such strategies may include getting athletes to partner up with fellow players to discuss profiles or to encourage coach/athlete comparison of profile qualities and ratings prior to subsequent goal setting (Butler, 1989; 1995; Butler & Hardy, 1992; Butler, Smith & Irwin, 1993; Potter & Anderson, 1998). Burton and Naylor (2002), in their recent review of goal setting research in sport, found only 1 out of 7 studies have shown self set goals to be superior in improving sporting performance when compared with assigned goals. Therefore, whilst the encouragement of athlete involvement in profiling and goal setting procedures is warranted, consultants and coaches should be wary of the level of impact that a self set goal setting approach may have on sporting performance.

The profiling procedure encourages athletes to focus their analysis of their sporting development in a self referent manner and thus may help to facilitate greater task involvement in athletes. This proposition was supported by consultants in study two who believed performance profiling would help to promote task involvement (M = 3.67, SD = 1.00). Duda and Hall (2001) suggest that increasing the predominance of task over ego goal perspectives in athletes can positively influence more adaptive thought processes (e.g., satisfaction) and behaviours (e.g., effort exerted) irrespective of the performance outcome. Hence future research may wish to establish whether profiling over time is able to significantly improve athletes' task involvement and what impact such improvements have on athlete behaviours and psychological states.

Monitoring Progress

Consultants in studies one and two provide some support for the use of profiling in monitoring progress over time. Consultant interviewees indicated that they would use the profile to monitor attributes over time, whilst a larger population of BASES accredited consultants in study two believed that profiling in such a way would be useful (M = 3.97, SD = 1.02). Some of the athletes in study three believed that they would use the profile in the future to monitor their progress over time, a finding supported in the study four APPQ (M = 3.85, SD = 0.94).

Doyle and Parfitt (1997), in examining experimentally the construct validity of the profile, suggested that profiling may only be useful in monitoring progress over such times where large performance changes were likely, for example during pre-season training or in the rehabilitation from injury. Indeed one consultant in study one indicated that they would only use profiling to evaluate the progress made at the end of an intervention. Butler, Smith and Irwin (1993) suggest that non-improvement in profile ratings over time may negatively impact on confidence as the athletes are unable to view accomplishments over time. Bandura (1997) asserts that performance accomplishments form the most influential factor in determining an individual's self efficacy. Given that the results of the present thesis support the use of profiling in monitoring athlete progress, consultants should take time to identify the most appropriate circumstances for employing the procedure in this way. Indeed it may be appropriate to increase the scoring system from 0 to 10 to a 0 to 100 scale. This would allow for greater flexibility in the rating choice made by athletes and hence increase the likelihood of subtle performance improvements to be displayed on the profile.

Confidence

Despite conflicting responses in the consultant interviews to the impact of profiling on confidence, the results of study two indicated that consultants believed profiling could be useful in building athlete confidence (M = 3.52, SD = 0.93). Athletes believed the single profiling session was (M= 3.06, SD = 0.91), and profiling in the future would be (M= 3.35, SD = 0.97), moderately useful in helping to enhance their confidence. Given Butler, Smith and Irwin's (1993) reservations regarding the negative impact on athlete confidence of non-improvement of profile ratings over time, consultants need to be innovative in developing ways in which the profiling procedure can be adapted to improve confidence. Butler (1995) suggests that getting athletes to complete a profile of their strengths may help to maintain or increase athlete confidence immediately before an important competition. Furthermore utilising a coach/athlete comparison of profile ratings could help to improve athlete confidence, particularly in those athletes who suffer from low self confidence. Adopting such an approach could enable coaches to reinforce to their athletes that they have underscored themselves on their profile attributes. Bandura (1997) asserts that such positive verbal persuasion would have the effect of increasing the individual's self efficacy. However, it is important to stress that consultants must be aware of the outcome of the coach/athlete comparison of ratings

before facilitating a discussion between both parties, as lower coach profile ratings could have a detrimental impact on athlete confidence. Future research may wish to establish what alternative profiling approaches are able to significantly improve athlete confidence. Furthermore, it would be useful to evaluate how effective these approaches are relative to other confidence enhancing interventions employed by sport psychologists.

Performance Evaluation

Performance profiling has been proposed as a potentially useful technique in facilitating the evaluation of performance (Butler & Hardy, 1992; Butler, Smith & Irwin, 1993). The present thesis findings provide support for this view both from a consultant and athlete perspective. Consultant and athlete interviews revealed higher order themes relating to the use of profiling in evaluating performance. Furthermore descriptive findings from both the CPPQ ('help the athlete to assess themselves', M = 4.11, SD = 0.90; 'help the athlete to evaluate how they're performing', M = 4.10, SD = 0.77) and APPQ ('help in the evaluation of my performance', M = 3.80, SD = 0.83; 'to provide after game analysis', M = 3.54, SD = 0.94; 'to record my improvements', (M = 3.78, SD = 0.92) indicate the potential use of profiling in this way.

The profiling procedure employed in a performance evaluation capacity may encourage athletes to restrict the reasons they give for their performances to a set number of internal, personally controllable and unstable attributes. Weiner (1986) proposes that employing such functional attributions, in the evaluation of performance, is likely to positively impact on an athlete's future affect, cognitions, expectations and behaviours. Attribution retraining research in sport has focused on replacing dysfunctional with functional attributions in order to gain the psychological and behavioural outcomes identified by Weiner's (1986) theory. Whilst still in its infancy, some attribution retraining research has been shown to be successful in this way, albeit only with novice / inexperienced participants following failure (Orbach, Singer & Murphey, 1997; Orbach, Singer & Price, 1999). Biddle, Hanrahan and Sellars (2001) suggest future research should attempt to identify what the most effective retraining strategies are. Furthermore research is required to examine strategies that may influence the attributions of experienced performers.

Performance profiling may provide a useful attribution retraining strategy by helping athletes restrict the causes they give for performances to the functional attributes found within an athlete's profile. Further research is required to establish whether performance profiling could be effective in helping athletes assume more functional attributions. Additionally it would be interesting to establish whether profiling employed in this way is able to facilitate the positive psychological (e.g., expectations of success, emotions etc) and behavioural (e.g., performance, effort etc) outcomes proposed by Weiner (1986).

Perceived Control

One of the central tenets of performance profiling is that the procedure facilitates greater athlete control over their performance development, thereby having subsequent positive influences on athlete intrinsic motivation (Butler & Hardy, 1992). Consultants completing the CPPQ believed that profiling would be moderately useful in helping athletes gain more control over their performance ($M = 3.36$, $SD = 1.05$). A review of the descriptive statistics indicate that consultants rated this the third least important impact of the technique out of a total of 25 potential impacts. One athlete in the study three interviews believed that profiling helped to get them more involved and in control of what they were doing. This was supported in study four by athletes who believed that profiling in the future would help them to take more control of their development ($M = 3.73$, $SD = 0.86$).

It is interesting to note the disparity between consultant and athlete responses in addition to the low consultant score on the control item relative to other impact items. Clearly, given the low importance placed on this impact in addition to high variability (as seen in the SD) in response to this item, consultants were undecided as to whether profiling would help athletes gain more control over their performances.

One possible reason for the disparity between consultant and athlete responses may have been in relation to the important mediating role coaches play in the subsequent use of the profiling findings. Many consultants may have believed that whilst athletes would assume more control over the evaluation of their performances during the profiling session, the controlling influence of the coach would prevent further increases or maintenance of autonomy. Indeed one consultant stated that in situations in which an

athlete's coach adopted an autocratic coaching style, the athlete would view profiling with less importance or use as they would believe their progress would be primarily dictated by the coach. Alternatively, it may be that some athletes prefer their coach to control their sporting involvement, a theme emphasised by one athlete in the study three interviews. The athlete indicated that they would prefer their coach identified the important qualities for their role within the team in addition to highlighting their strengths and weaknesses.

Deci and Ryan's (1985a) Causality Orientation Theory (COT) may provide a useful explanation for these varying responses. COT hypothesises that an individual will be predominantly predisposed to one of three personality orientations: autonomy, control and impersonal. Individuals predisposed to the autonomy orientation use information to enable them to make choices, a concept closely aligned to intrinsically motivated behaviours. However, those individuals who are predisposed to control or impersonal orientations have distinctly different thought processes and actions. Control oriented individuals allow their behaviours and opinions to be controlled by external forces (e.g., coach) and therefore are more closely aligned to extrinsically motivated behaviours. Impersonal oriented individuals believe their behaviour is regulated by external forces which they have no control over, a disposition closely associated with amotivation. Deci and Ryan (1985a) suggest that an individual's causality orientation and the characteristics of an event will combine to influence the individual's interpretation of the situation and thus their subsequent motivation and behaviour.

Vallerand and Losier (1999) propose that coaches have one of the most influential impacts on an athlete's behaviour and motivation within a sports setting. Hence, if a coach displays repetitive, autocratic and controlling behaviours to athletes who are predominantly control orientated, these athletes are likely to exhibit greater levels of extrinsic motivation. Consultants' moderate scores to the control impact item, may reflect their awareness of the larger impact that coach leadership style (either controlling or autonomy supportive) and athlete causality orientation may have on athlete perceived control in comparison to any profiling intervention.

There are a number of interesting avenues for further research in this area. Firstly, researchers should examine coach perceptions of the usefulness of performance

profiling in helping athletes assume more control over their performance development. It would also be interesting to examine the influence that coach leadership style has on those perceptions. Secondly, further research should examine the impact of an athlete's predominant causality orientation on the perceived usefulness of performance profiling. It is hypothesised that control or impersonal oriented individuals would believe profiling to be less useful than autonomy oriented individuals. Finally, the use of fixed profiles, where the qualities are already identified, has been previously employed within the sport of boxing to meet new scoring regulations (Butler, 1997). The employment of such profiles goes directly against the original theoretical rationale for profiling, as it omits the unique role of the athlete in identifying and having control over the qualities that make up their profile. Given the various causality orientations held by individuals, it would interesting to establish whether such orientations influence the usefulness of the fixed or traditional profiling approaches. It is hypothesised that control orientated individuals may perceive the fixed approach to be more useful and agreeable in comparison to the more traditional autonomy supportive profiling procedure.

Whilst Deci and Ryan (1985b) have produced a valid and reliable General Causality Orientation Scale, they recognised the need for more context specific scales to accurately measure domain specific causality orientations. Such scales have been developed for work (Deci & Ryan, 1985a) and exercise (Rose, Markland & Parfitt, 2001) settings however, a sporting Causality Orientations Scale has yet to be produced. Hence it is necessary that a valid and reliable sporting measure of causality orientation is developed to facilitate any of the above future research suggestions.

Motivation

The final area determined as a potentially useful impact of performance profiling by both consultants and athletes alike, related to its role in influencing the motivation of the athlete. Descriptive profiling literature has proposed profiling to be useful in this way (D'Urso et al., 2001; Jones, 1993). Indeed, the fundamental rationale for adopting the performance profiling procedure over and above existing assessment strategies was that the technique would facilitate greater perceived autonomy and hence positively influence athlete intrinsic motivation (Butler & Hardy 1992).

Inspection of the consultant interviews in study one revealed no motivation profiling impact themes. However consultants' responses to the CPPQ suggest that profiling could be useful for enhancing the intrinsic motivation (M = 3.61, SD = 1.06) and self determination (M = 3.41, SD = 0.98) of athletes. Analysis of athlete interviews in study three revealed that the single profiling session had been useful in being a catalyst to improve. In examining the impacts of profiling in the future, a higher order theme, 'to aid athlete motivation', emerged.

The study four APPQ revealed strong impact responses relating to the profile being useful in motivating the athletes to improve (M = 4.02, SD = 0.95) and train (M = 3.61, SD = 1.06). Given the theoretical rationale, descriptive literature evidence and the present thesis findings, the aim of the final study was to investigate whether repeated performance profiling within a group setting could significantly improve athlete intrinsic motivation over time and against other control conditions.

Vallerand's (1997) Hierarchical Model of Motivation in Sport and Exercise hypothesises that in order for social factors to influence contextual sport motivation they must be repeated regularly within the same context. Study five found profiling (social factor) on a single occasion was unable to significantly improve athlete intrinsic motivation. However, three repeat profiling sessions over a six week period within a competitive soccer season were found to be useful in significantly improving athlete intrinsic motivation and in particular intrinsic motivation to know.

The present findings provide the first empirical evidence to show that performance profiling on three occasions can significantly improve athlete intrinsic motivation. This supports one of the fundamental premises by which Butler and Hardy (1992) justified the use of profiling over and above previous performance assessment strategies. The authors hypothesised that the autonomy supportive nature of the profiling procedure would help to positively influence athlete intrinsic motivation. A key basis for Butler and Hardy's proposition was the theoretical position of Deci and Ryan (1985a) in their Cognitive Evaluation Theory. The theory hypothesises that social factors will influence an individual's motivation through three key mediators (autonomy, competence & relatedness) which are fundamental human desires that people attempt to satisfy. Deci

and Ryan suggest that social factors which reinforce these desires will facilitate more self determined motivation.

The profiling procedure enables athletes to take more control over their performance development, and when repeated, could be useful in reinforcing a person's perceived competence as they view the improvement of profile attributes over time. Profiling in groups could also enhance athlete perceptions of relatedness as fellow athletes interact, communicate and discuss the key performance attributes for their sport. Whilst the final study found a significant improvement in intrinsic motivation, it is impossible to establish whether these improvements mirrored positive changes in the mediators as these variables were not measured. Furthermore, it is less likely that relatedness would have improved due to the soccer players being randomly split up into different groups. Therefore whilst the present findings provide some support for the propositions of Cognitive Evaluation Theory, further research is required to monitor changes in the three motivational mediators in addition to intrinsic motivation as the result of a repeat profiling intervention.

Whilst the focus of the final study centred on the impact of repeat profiling on intrinsic motivation, it may also be useful for researchers to examine whether the procedure is effective in enhancing more self determined forms of extrinsic motivation. Deci and Ryan (1985a) suggest that social factors which reinforce the key motivational mediators will help individuals to internalise and integrate previously external regulated beliefs and/or behaviours into their perception of self. Whilst this has been traditionally linked with greater intrinsic motivation, Deci and Ryan believe that extrinsic motivation can be defined along a self determination continuum from highly externally regulated behaviours (e.g., external regulation) to self determined extrinsic motivational forms such as identified and integrated regulation. Identified regulation (EMID), the most self determined form of extrinsic motivation measured on the Sport Motivation Scale (Pelletier et al., 1995), is reflective of an individual who consciously identifies the personal value of an activity yet still performs the activity for external reasons. Repeat performance profiling could facilitate higher levels of EMID, by enabling athletes to consciously value the personal importance that monitoring key sporting attributes would have on themselves and their performance. Hence, future research may wish to examine whether the autonomy supportive profiling procedure is effective in enhancing the more

self determined forms of extrinsic motivation. Furthermore, it may be useful to establish whether profiling helps to significantly reduce the more externally regulated forms of extrinsic motivation (i.e. external regulation, introjected regulation) and amotivation. Indeed Beauchamp et al. (1996) found their cognitive behavioural intervention significantly decreased levels of introjected forms of extrinsic motivation in accord with significant improvements in intrinsic motivation. By examining the impact of profiling across the various forms of motivation, researchers can gain a more holistic understanding of the technique's impact on an athlete's motivation.

To date all the research examining the profiling procedure has been confined to sports settings, where generally athletes are more self determined in their motivation to participate in comparison to work and/or educational contexts. Ryan and Deci (2000) suggest that in educational contexts, teachers experience problems in motivating students for tasks which lack any discernable interest or enjoyment. The authors suggest that whilst it may be difficult to facilitate intrinsic forms of motivation in these tasks, the development of more self determined forms of extrinsic motivation may be more realistic. Profiling could provide a useful method in educational or work environments, to help individuals internalise and integrate externally regulated beliefs into more self determined forms of extrinsic motivation. In facilitating such motivational changes, more positive behavioural, cognitive and affective consequences are likely to occur (Vallerand, 2001). Further research may wish to examine the efficacy of profiling within other life contexts to determine whether it is a viable alternative to existing motivational methods in those environments.

Team/Coach Related Impacts

In both the athlete and consultant studies, themes emerged relating to potential team related impacts derived from profiling within a group setting. An inductive content analysis of consultant interviews produced five higher order themes relating to this impact. These included the profile's use in facilitating communication, discussion and interaction, in improving team dynamics and finally in helping athletes understand more about other players positions. An inspection of the exploratory factor analysis conducted on the CPPQ revealed a team related theme, accounting for 16.8% of the variance and containing all the above interview derived impacts. Descriptive analysis of the CPPQ indicated that consultants believed group profiling would be useful in

facilitating discussion (M = 4.21, SD = 0.87), communication (M = 4.04, SD = 0.86) and interaction (M = 4.00, SD = 0.90) within the team, and in helping improve team dynamics (M = 3.62, SD = 1.08).

Research by Dale and Wrisberg (1996), employing team, coach and individual profiling within a team setting, supports this view. Their research highlights the proposal that profiling within a group environment can be useful in helping to open communication channels within teams. Communication has been shown to be an important component in developing team cohesion (Carron et al., 2002, Miller, 1997) and successful performance (Carron & Hausenblas, 1998, Yukelson, 1998). Indeed, Miller (1997) suggests that coaches who encourage and show an appreciation for the thoughts of their players will help to develop team cohesion. Examination of the profiling procedure and the findings of Dale and Wrisberg (1996) suggest that profiling may be useful in this way. Furthermore role clarity has also been proposed as an important factor in influencing team cohesion and effectiveness (Carron & Dennis, 2001). The greater the clarity of athlete understanding regarding their role within the team, the more effective and cohesive a team is likely to be (Carron & Dennis, 2001). The profiling procedure encourages athletes to become more aware of the qualities required for successful performance in their chosen position. Indeed one consultant in study one suggested that profiling may be useful in providing 'a better understanding of the roles that people have within a team'. This finding was further supported in the study two CPPQ where consultants stated that they believed profiling would be useful in helping to identify roles within a team (M = 3.55, SD = 1.10). Hence it is not unreasonable to suggest that profiling could positively impact on team cohesion via the increased communication and role clarity induced by the procedure. Future research may wish to establish whether the profiling procedure employed on a single occasion or repeatedly over time is effective in significantly improving team cohesion and whether such changes result in a concomitant increase in performance.

Analysis of the athlete interviews revealed a higher order theme indicating that profiling would aid communication with their coach, a theme moderately supported in study four. The APPQ exploratory factor analysis identified a 'coach related performance development' theme explaining 10.2% of the total variance. Impacts included within this theme were: 'to aid communication with my coach' (M = 3.52, SD = 1.00), 'to

improve the coach's understanding of me' (M = 3.48, SD = 1.00) and 'to help the coach individualise my training' (M = 3.40, SD = 1.03).

The topic of coach involvement within the profiling process emerged on a number of occasions throughout the thesis. Athletes interviewed in study three indicated that they would have appreciated more coach involvement throughout the profiling session. An athlete and consultant both independently stated they believed that greater coach involvement in the generation of profile qualities would have been useful. Given the integral role coaches play in an athlete's development, this finding is not surprising and suggests that consultants employing the profiling technique in the future should attempt to involve the coach as often and as much as possible. Indeed one consultant indicated the important role that the coach can play in 'reinforcing the process'. Furthermore two athletes stated that they were likely to discuss their profile attribute choices and ratings with their coach after the profiling session.

Vallerand and Losier (1999) suggest that the coach/athlete relationship is possibly the most important interpersonal relationship within a sporting environment. Several articles have demonstrated the profile's use in facilitating interaction and communication between coaches and athletes (Butler, 1989, Butler & Hardy, 1992, Butler, Smith & Irwin, 1993, Dale & Wrisberg, 1996, Potter & Andersen, 1998). In many of these articles a coach/athlete comparison of profile findings has been employed to help enhance the awareness of both coach and athlete as to the opinion of each other regarding the athlete's performance development, and to help tailor training more closely to the needs of both individuals. Given the above athlete and consultant responses, it would be interesting to examine the opinions of coaches as to the usefulness and perceived impact of the performance profiling technique. Furthermore it would be useful to establish coach perceptions as to the most effective ways in which the profiling procedure can be adopted to facilitate improved performance.

In Summary

The first four thesis studies systematically examined the utility of Butler and Hardy's profiling technique across a variety of sporting populations as recommended by Doyle and Parfitt (1997). Despite the many thesis findings, there are a number of limitations

to the research conducted. Firstly the participant population was restricted to university athletes and British based accredited sport psychology consultants. Further research is required to examine the opinions of sport psychologists from other nationalities as to the usefulness and impact of the Butler and Hardy (1992) profiling approach. The findings of study 4 suggest that some differences existed in the perceived usefulness of profiling across alternative sports but not between genders. Given the exploratory nature of the present thesis, it would be useful to further evaluate whether the perceived usefulness and impact of the profiling procedure is moderated by athlete skill (professional versus recreational), age (youth versus senior) and/or gender (male versus female). As the present thesis centred its evaluation on the production of individual athlete profiles within a group setting, it would also be valuable to examine the usefulness and impact of other variations of the profiling procedure. These may include the use of team, coach and unit profiles, in addition to the efficacy of performance profiling on a one to one basis.

The final study provided the first empirical examination of the impact of performance profiling on a psychological indices. Given the exploratory nature of the study, more experimental research is required to examine the impact of repeat profiling on athlete intrinsic motivation and its related psychological mediators and consequences. Based on the thesis findings, further experimental research is also required to examine the usefulness of profiling in monitoring progress over time, building confidence, enhancing team cohesion and role clarity, raising athlete awareness, and in developing task involvement.

In summary, the present thesis provided a comprehensive evaluation of Butler and Hardy's (1992) performance profiling procedure utilising a strong research design. As a result of the thesis findings, several avenues for future research were identified to further our understanding of the usefulness and impact of the technique. Whilst a number of specific future research ideas have been presented here, the next section will discuss general areas for further research in this area.

The use of multimodal mental skills interventions in assisting performance development have recently received a great deal of attention within the applied literature (Curry & Maniar, 2003). Hanton and Jones (1999) combined goal setting, self talk and imagery in helping athletes to change their perceptions of precompetition anxiety. In two similarly designed studies, Thelwell and Greenlees (2001; 2003) examined the impact of a multiple mental skills training package on competitive gymnasium triathlon performance. The authors employed a relaxation strategy in addition to those utilised by Hanton and Jones (1999). Further recent research by Thelwell and Maynard (2003) examined the usefulness of a mental training intervention, including goal setting, activation regulation, imagery, self-talk and concentration strategies, on cricketing performance. Despite the employment of such multimodal interventions, no empirical research has examined the use of performance profiling in combination with other mental skills strategies. However before such investigations can occur, researchers need to identify the most appropriate mental skills to combine with performance profiling.

The present thesis focused on evaluating the efficacy of performance profiling as a single intervention strategy. Both athletes and consultants believed the technique to be a valuable strategy to utilise, with the athletes stating they would employ profiling in the future for a number of alternative reasons. One consistent finding in both athlete and consultant evaluations was that profiling would provide an excellent basis from which to set goals. Indeed a number of descriptive profiling articles have advocated the combination of profiling and goal setting strategies (Butler, 1997; Butler & Hardy, 1992; Butler, Smith & Irwin, 1993; Dale & Wrisberg, 1996; Doyle & Parfitt, 1997; D'Urso, et al., 2002; Hardy & Jones, 1994). Profiling provides an ideal basis for goal setting as it helps to identify those areas that require improvement from which performance related goal setting can develop.

There are a number of benefits that can accrue from the use of goal setting within a sporting environment. Principally goal setting has been proposed as a useful strategy in helping to develop athlete motivation (Hardy, Jones & Gould, 1996). Indeed examination of Deci and Ryan's (1985a) Self Determination Theory, provides the theoretical rationale for such motivational improvements to occur. Athlete centred goal

setting can facilitate improved perceptions of autonomy by enabling athletes to choose, with guidance, the goals they believe are most appropriate. Furthermore setting and working towards the achievement of such goals may enable athletes to internalise and integrate previously externally regulated behaviours and/or beliefs. Deci and Ryan (1985a) suggest that such processes would facilitate more self determined motivation and hence more positive future affects, behaviours and cognitions.

With reference to Bandura's (1997) Self Efficacy Theory, performance accomplishments, viewed through goal achievements, can help to improve perceived competence. Deci and Ryan (1985a) hypothesise that informational events which reinforce an individual's perceived competence, will improve their intrinsic motivation only when accompanied by a sense of autonomy. Hence if athlete centred and directed goal setting can help to improve athlete perceptions of competence and autonomy, more self determined motives for sporting participation can be developed.

The present thesis found a significant improvement in intrinsic motivation and more specifically intrinsic motivation to know as a result of a six week profiling intervention. Given the strong theoretical rationale for goal setting effects on athlete intrinsic motivation, it would be interesting to examine whether profiling combined with goal setting would be useful in providing a stronger influence on athlete intrinsic motivation. Indeed further research comparing the impact of profiling alone, a combined goal setting and profiling intervention and a control condition would establish the most appropriate approach consultants should adopt to enhance athlete intrinsic motivation.

Vallerand (2001) asserts that raised levels of athlete intrinsic motivation will result in positive affects, cognitions and behaviours. Recent research has shown increased intrinsic motivation to result in improvements in satisfaction (Frederick, Morrison & Manning, 1996; Pelletier et al., 1995), interest (Li, 1999), concentration (Pelletier et al., 1995), effort (Pelletier et al., 1995; Williams & Gill, 1995 Wilson, et al., 2004), pleasure and enjoyment (Beauchamp et al., 1996). Given the theoretical and research based evidence, future research would benefit from examining the influence of a performance profiling and goal setting multimodal intervention on athlete perceptions of competence, autonomy and intrinsic motivation. Furthermore it would be useful to

establish whether the intervention would facilitate improvements on the various behavioural and psychological outcomes identified within Vallerand's (2001) model.

Given the increasing role sport psychologists are playing in providing athletes with performance enhancing interventions (Dunn & Holt, 2003), the evaluation of those services is essential to maintain the credibility of the discipline (Anderson et al., 2002; Brewer & Shillinglaw, 1992; Dishman, 1983; Dunn & Holt, 2003; Gould, 1990; Gould, Tammen, Murphy & May, 1991; Grove, Norton, Van Raalte & Brewer, 1999; Smith, 1989; Vealey, 1988; Weigand, Richardson & Weinberg, 1999). Anderson et al. (2002) encourage sport psychology practitioners to take more responsibility for the evaluation of the services they provide. Whilst the systematic evaluation of sport psychology services is an important applied issue (Grove et al., 1999), there is little evidence describing such evaluative approaches (Anderson et al., 2002; Hardy & Jones, 1994).

The present thesis provided such a systematic evaluation of the usefulness and impacts of performance profiling within a group setting. A strong research design was employed adhering to many of the triangulation research principles proposed by Denzin (1978). The opinions of the profiling procedure's primary providers (i.e. sport psychologists) and consumers (i.e. athletes) were evaluated using both qualitative and quantitative complementary research methods. Anderson et al. (2002) suggest that a consultant administered evaluative approach, employing case study methods, may help to facilitate the effective evaluation of sport psychology practice. Whilst also evaluating the effectiveness of mental skills interventions from a qualitative and quantitative perspective, the case study approach can help to restrict the evaluation to the specific practical situation encountered by the sport psychology consultant. Indeed, both Jones (1993), in an individual setting, and Dale and Wrisberg (1996), in a team setting, have performed reflective case study research with regards to the profiling procedure. A potential weakness of case study designs is the lack of generalisability of the findings (Thomas & Nelson, 1996), a problem not encountered in the present evaluative design. Given the lack of evaluative research into the efficacy of sport psychology interventions, future research employing the Anderson et al. (2002) case study approach may help to complement the evaluative design of the present thesis. This may in turn help to increase our understanding of the efficacy of applied sport psychological intervention strategies. In doing so this should provide consultants with important

information as to the most appropriate strategies to employ in a given consultancy situation.

A further area for future research into the profiling procedure centres on the use of longitudinal research designs. Such approaches encompass the examination of subject matter on at least two occasions over a time period (Bijleveld, Van der Kamp, Mooijaart, Van der Kloot, Van der Leeden & Van der Burg, 1998). Whilst longitudinal designs can be time consuming and subject to participant drop out, they are useful in measuring change in variables over time (Menard, 1991). Furthermore, in an evaluative capacity, longitudinal research can establish the efficacy of an intervention or strategy on a target population. Examples of such designs in general sport and exercise settings are few in number (e.g., Dunn & Holt, 2003; Krawcynski & Olszewski, 2000). However, Doyle and Parfitt (1997), in examining the construct validity of Butler and Hardy's (1992) performance profile, provided some evidence of longitudinal research into the technique. The author's monitored changes in profile construct ratings and performance over the course of a winter training and competitive indoor athletic season. Partial support for the construct validity of the profile was found as significant performance improvements were found in accordance with significant reductions in the mean areas of perceived need profiling scores. Whilst the findings of Doyle and Parfitt's (1997) study provide practical information as to the usefulness of the profile in monitoring progress, further longitudinal research is required to examine more systematically the efficacy of the technique over time.

The present study employed a retrospective evaluative design in the examination of consultant opinions of the profiling strategy. The examination of athlete perceptions of the technique was restricted to an evaluation of a single profiling session and the potential usefulness of the tool if employed in the future. In order to overcome the latter prospective research design, further research is required to evaluate the usefulness of a repeat profiling intervention over a season long sporting campaign. Holt and Sparkes (2001) in examining the factors that contributed to a soccer team's cohesion, employed several research methods to assist in the evaluation process over the course of a season. Reflective journals, behavioural observation, interviews, field diaries and documentary sources provided a multidimensional approach to the evaluation. Patton (2002) suggests that the employment of multiple strategies can help to overcome the potential

problems associated with the collection of data by a single methodological approach. Furthermore, Anderson et al., (2002) suggest sport psychology practice should be evaluated during as well as after an intervention. Hence, by employing reflective journals and field diaries (Holt & Sparkes, 2001), researchers will be able to overcome any weaknesses in the retrospective or prospective nature of the present thesis design by collecting evaluative information as it occurs throughout the season. Furthermore, the adoption of a retention measurement six months following the cessation of the intervention (Krawcynski & Olszewski, 2000), will enable consultants to monitor whether performance related benefits gained during the intervention are retained over time. Therefore future research examining the efficacy of the profiling procedure may benefit from employing a season long evaluative approach, utilising several assessment methods during and immediately after the intervention. It would also be useful to employ a retention measurement some months after the completion of the profiling intervention as directed by Krawcynski and Olszewski (2000).

On a related theme, athletes and consultants in the present thesis suggested that the profiling procedure may be useful in enhancing athlete intrinsic motivation, confidence and self-awareness. The employment of a longitudinal research design, utilising pre, during and post evaluative measures, would help to identify whether the procedure is able to significantly improve these psychological impacts over time. Furthermore employing a retention measurement would help to establish whether a repeat profiling intervention is able to retain improvements on key impacts even after the intervention has been removed.

Longitudinal research designs provide an excellent basis from which to evaluate the efficacy of sport psychology practice. However, very few articles (Dunn & Holt, 2003; Weigand, Richardson, & Weinberg, 1999) have adopted such an evaluative approach. More research is required to systematically examine the efficacy of intervention strategies over time by employing a variety of during and post evaluative approaches. The employment of such longitudinal evaluative research designs will help to enhance the accountability and credibility of sport psychology practitioner work (Grove et al., 1999).

The first major implication of the present thesis findings is that BASES accredited sport psychology consultants and athletes strongly believe performance profiling to be a useful strategy. Athletes also strongly believed that they would benefit from profiling in the future. Consultants stated they employed profiling across a wide range of ages, ability levels and sports. Some consultants did highlight the possibility that difficulties may emerge in constructing the profiles of younger or less experienced athletes. The concerns expressed related to the athletes possibly lacking awareness of the correct attributes required for successful performance in their chosen sport. This finding suggests that consultants need to be wary of the usefulness of giving total autonomy over to young or inexperienced athletes when generating their profile constructs.

Ravizza (1998) suggests that enhancing self awareness is an essential ingredient in facilitating optimal performance. The present results support the use of profiling in enhancing athlete self awareness by highlighting their strengths, weaknesses, areas they need to focus/work on in addition to the demands of their and other positions. These results support descriptive profiling research which has shown profiling to be useful in this way (Butler & Hardy, 1992; Butler, Smith & Irwin, 1993; Jones, 1993).

One sport psychologist suggested that the profiling procedure may not be as useful with athletes who already have high sporting self awareness. Indeed this makes sense if the profiling procedure is purely being used to enhance athlete self awareness. However the thesis findings indicate that profiling can impact on the athlete in a number of alternative ways (e.g., intrinsic motivation, communication, confidence etc). Hence consultants must be clear in their reasons for using the profiling procedure given the nature of the client population.

Consultant findings strongly advocate the use of profiling in providing a basis for goal setting, an impact also supported by the present athlete participant population and literature evidence (Butler, 1997; Butler & Hardy, 1992; Butler, Smith & Irwin, 1993; Dale & Wrisberg, 1996; Doyle & Parfitt, 1997; D'Urso, et al., 2002; Hardy & Jones, 1994). Furthermore consultants in study two believe the profiling procedure could help to develop task involvement in athletes. Literature evidence suggests that the

predominance of task over ego involvement in athletes can help to facilitate more functional psychological and behavioural outcomes particularly in failure situations (Duda & Hall, 2001). Caution however must be taken given the descriptive nature of this thesis finding. Further experimental research is required to ascertain whether a single profiling session or repeat profiling over time is able to significantly improve athlete perceptions of task involvement.

Several team related impacts were evident from both the consultant and athlete evaluations. Firstly, the results support the view of Dale and Wrisberg (1996) that group profiling is useful in facilitating communication, discussion and interaction within teams. Furthermore, the athlete findings suggest that profiling may be useful in helping athletes to communicate with their coaches, improve the coach's understanding of them, in addition to helping the coach individualise their training. Consultant and athlete findings suggest that it is important the coach is supportive of, and involved in, athlete profiling. Hence consultants must be mindful of coach opinions of the performance profiling procedure prior to any attempt to implement the technique. Furthermore consultants should encourage coach involvement when delivering the technique to athlete populations. It may be that getting the coach to deliver performance profiling provides the most effective and influential way of employing the technique in a sporting environment. Further research is required to examine coach perceptions of their role in the delivery of the strategy, in addition to their perception of the usefulness and impacts of the technique.

Consultants in study two believe performance profiling within a group setting may be useful in enhancing athlete intrinsic motivation. Indeed athletes in studies three and four stated their belief that profiling would help to enhance their sporting motivation. The findings of study five indicate that significant improvements in intrinsic motivation are unlikely after a single profiling intervention. However significant improvements in total intrinsic motivation were found after three repeat profiling sessions. Whilst the present thesis findings suggest profiling over time to be useful in improving intrinsic motivation, further research is required to support these findings before any firm recommendations can be made.

CONCLUSIONS

It is over ten years since Butler and Hardy (1992) first introduced the performance profiling technique. Despite profiling being used frequently within a consultancy setting (Doyle & Parfitt, 1999), research examining the efficacy of the technique has been sporadic in nature and mainly limited to the positive profiling experiences of a few sport psychology consultants. The present thesis provided the first systematic evaluation of the technique from both a consultant (deliverer) and athlete (consumer) perspective. Initially employing a rigorous two stage research design, the findings strongly suggest performance profiling within a group setting to be useful. The findings support the view that profiling is useful in enhancing athlete self awareness, identifying strengths and weaknesses, as a basis for goal setting, in evaluating performance and in monitoring progress when appropriate. Furthermore, the findings suggest that profiling is useful in enhancing communication, discussion and interaction within teams, in addition to facilitating greater coach/athlete interaction. The final thesis study found repeat performance profiling over time to be useful in significantly improving athlete intrinsic motivation and in particular intrinsic motivation to know. Possibilities for future research based on the thesis findings include examining experimentally the impact of performance profiling on athlete intrinsic motivation, self awareness and confidence. Furthermore longitudinal evaluative research, employing during, post and retention measures is required to examine the efficacy of performance profiling in order to enhance the credibility of the technique. In summary, the present thesis has provided a thorough examination of Butler and Hardy's (1992) performance profiling technique resulting in a number of fruitful avenues for further research.

REFERENCES

Anderson, A.G., Miles, A., Mahoney, C., & Robinson, P. (2002). Evaluating the effectiveness of applied sport psychology practice: Making the case for a case study approach. The Sport Psychologist, 16, 432-453.

Anshel, M.H. (1991). A psycho-behavioural analysis of addicted versus non-addicted male and female exercisers. Journal of Sport Behaviour, 14, 145-154.

Anshel, M.H., & Weinberg, R.S. (1995). Sources of acute stress in American and Australian basketball referees. Journal of Applied Sport Psychology, 7, 11-22.

Atkinson, P., & Hammersley, M. (1994). Ethnography and participant observation. In N., Denzin & Lincoln, Y. (Eds.). Handbook of Qualitative Research (pp.248-261). London: Sage.

Bandura, A. (1977). Self efficacy: Toward a unifying theory of behaviour change. Psychological Review, 8, 191-215.

Bandura, A. (1997). Self-efficacy: The exercise of control. New York: Freeman.

Bartlett, R. (1997). The use and abuse of statistics in sport and exercise sciences. Journal of Sports Sciences, 15, 1-2.

Beauchamp, M.R., Bray, S.R., Eys, M.A., & Carron, A.V. (2002). Role ambiguity, role efficacy, and role performance: Multidimensional and mediational relationships within interdependent sport teams. Group Dynamics: Theory, Research and Practice, 6, 229-242.

Beauchamp, M.R., Bray, S.R., Eys, M.A., & Carron, A.V. (2003). The effect of role ambiguity on competitive state anxiety. Journal of Sport and Exercise Psychology, 25, 77-92.

Beauchamp, P.H., Hallwell, W.R., Fournier, J.F., & Koestner, R. (1996). Effects of cognitive-behavioural psychological skills training on motivation, preparation and putting performance of novice golf players. The Sport Psychologist, 10, 157-170.

Biddle, S.J.H., Hanrahan, S.J., & Sellars, C.N. (2001). Attributions: Past, present and future. In R.N. Singer, H.A. Hausenblas, & C.M. Janelle (Eds.), Handbook of sport psychology (pp. 444-471). New York: Wiley.

Biddle, S.J.H., Markland, D., Gilbourne, D., Chatzisarantis, N.L.D., & Sparkes, A.C. (2001). Research methods in sport and exercise psychology: Quantitative and qualitative issues. Journal of Sports Sciences, 19, 777-809.

Bijleverd, C.C.J.H., Van der Kamp, L.J., Mooijaart, A., Van der Kloot, W.A., Van der Leeden, R., & Van der Burg, E. (1998). Longitudinal data analysis: Designs, models and methods. London: Sage Publications.

Bond, K.A., Biddle, S.J.H., & Ntoumanis, N. (2001). Self efficacy and causal attributions in female golfers. International Journal of Sport Psychology, 31, 243-256.

Boutcher, S.H., & Rotella, R.J. (1987). A psychological skills educational program for closed-skill performance enhancement. The Sport Psychologist, 1, 127-137.

Bray, S.R., & Brawley, L.R. (2003). Role clarity, role efficacy, and performance in intercollegiate basketball. Journal of Sport & Exercise Psychology, 24, S37.

Brewer, B.W., & Shillinglaw, R. (1992). Evaluation of a psychological skills training workshop for male intercollegiate lacrosse players. The Sport Psychologist, 6, 139-147.

Bryman, A. (1988). Quantity and quality in social research. London: Routledge.

Bryman, A., Cramer, D. (1999). Quantitative data analysis with SPSS release 8 for windows: A guide for social scientists. London: Routledge.

Burton, D., & Naylor, S. (2002). The Jekyll/Hyde nature of goals: Revisiting and updating goal setting in sport. In T. Horn (Ed.), Advances in sport psychology (pp.459-500). Champaign, IL: Human Kinetics.

Burton, D., Naylor, S., & Holliday, B. (2001). Goal setting in sport: Investigating the goal effectiveness paradox. In R.N. Singer, H.A. Hausenblas, & C.M. Janelle (Eds.), Handbook of sport psychology (pp. 497-528). New York: Wiley.

Butler, R.J. (1989). Psychological preparation of Olympic boxers. In J. Kremer, & W. Crawford (Eds.), The psychology of sport: Theory and practice (pp. 74-84). Belfast: BPS Northern Ireland Branch.

Butler, R. (1995). Athlete assessment: The performance profile. Coaching Focus, 29, 18-20.

Butler, R. (1997). Performance Profiling: Assessing the way forward. In R. J. Butler (Ed.), Sports psychology in performance (pp.33-48). Oxford: Butterworth-Heinemann.

Butler, R.J., & Hardy, L. (1992). The performance profile: Theory and application. The Sport Psychologist, 6, 253-264.

Butler, R.J., Smith, M., & Irwin, I. (1993). The performance profile in practice. Journal of Applied Sports Psychology, 5, 48-63.

Carmack, M.A., & Martens, R. (1979). Measuring commitment to running: A survey of runners' attitudes and mental states. Journal of Sport Psychology, 1, 25-42.

Carron, A.V., Brawley, L.R., & Widmeyer, W.N. (1998). The measurement of cohesiveness in sport groups. In J.L. Duda (Ed.), Advancements in sport and exercise psychology measurement (pp. 213-226). Morgantown, WV: Fitness Information Technology.

Carron, A.V., Colman, M.M., Wheeler, J., & Stevens, D. (2002). Cohesion and performance in sport: A meta analysis. Journal of Sport & Exercise Psychology, 24, 168-188.

Carron, A.V., & Dennis, P.W. (1998). The sport team as an effective group. In J.M. Williams (Ed.), Applied sport psychology: Personal growth to peak performance (pp. 120-134). California: Mayfield Publishing Company.

Carron, A.V., & Hausenblas, H.A. (1998). Group dynamics in sport (2nd ed.). Morgantown, W.V.: Fitness Information Technology.

Clark-Carter, D. (1997). Doing quantitative psychological research: From design to report. Hove, UK: Psychology Press Publishers.

Coolican, H. (1999). Research methods and statistics in psychology (3rd ed.). London, UK: Hodder & Stoughton.

Connelly, D., & Rotella, R.J. (1991). The social psychology of assertive communication: Issues in teaching assertiveness skills to athletes. The Sport Psychologist, 5, 73-87.

Cupal, D.D. (1998). Psychological interventions in sport injury prevention and rehabilitation. Journal of Applied Sport Psychology, 10, 103-123.

Curry, L.A., & Maniar, S.D. (2003). Academic course combining psychological skills training and life skills education for university students and student-athletes. Journal of Applied Sport Psychology, 15, 270-277.

Dale, G.A. (1996). Existential phenomenology: Emphasizing the experience of the athlete in sport psychology research. The Sport Psychologist, 10, 307-321.

Dale, G.A., & Wrisberg, C.A. (1996). The use of a performance profile technique in a team setting: Getting the athletes and coach on the 'same page'. The Sport Psychologist, 10, 261-277.

Dawson, K.A., Gyurcsik, N.C., Culos-Reed, S.N., & Brawley, L.R. (2001). Perceived control: A construct that bridges theories of motivated behaviour. In G. C. Roberts (Ed.), Advances in motivation in sport and exercise (pp.321-356). Leeds, UK: Human Kinetics.

De Vaus, D.A. (1993). Surveys in social research (3rd ed.). London: UCL Press.

Deci, E.F., & Ryan, R.M. (1985a). Intrinsic motivation and self determination in human behaviour. New York: Plenum Press.

Deci, E.F., & Ryan, R.M. (1985b). The General Causality Orientations Scale: Self-determination in personality. Journal of Research in Personality, 19, 109-134.

Denzin, N.K. (1978). The research act: A theoretical introduction to sociological methods *(2nd ed.)*. New York: McGraw-Hill.

Dishman, R.K. (1983). Identity crisis in North American sport psychology:Academics in professional issues. Journal of Sport Psychology, 5, 123-134.

Doyle, J., & Parfitt, G. (1996). Performance profiling and predictive validity. Journal of Applied Sport Psychology, 8, 160-170.

Doyle, J.M., & Parfitt, G. (1997). Performance profiling and constructive validity. The Sport Psychologist, 11, 411-425.

Doyle, J., & Parfitt, G. (1999). The effect of induced mood states on performance profile areas of perceived need. Journal of Sports Sciences, 17, 115-127.

Duda, J.L., & Hall, H. (2001). Achievement goal theory in sport: Recent extensions and future development. In R.N. Singer, H.A. Hausenblas, & C.M. Janelle (Eds.), Handbook of sport psychology (pp. 417-443). New York: Wiley.

Dunn, J.G.H., & Holt, N.L. (2003). Collegiate ice hockey players' perceptions of the delivery of an applied sport psychology program. The Sport Psychologist, 17, 351-368.

Durand-Bush, N., Salmela, J.H., & Green-Demers, I. (2001). The Ottawa mental skills assessment tool (OMSAT-3). The Sport Psychologist, 15, 1-19.

D'Urso, V., Petrosso, A., & Robazza, C. (2002). Emotions, perceived qualities, and performance of rugby players. The Sport Psychologist, 16, 173-199.

Eys, M.A., Carron, A.V., Bray, S.R., & Beauchamp, M.R. (2003). Role ambiguity and athlete satisfaction. Journal of Sports Sciences, 21, 391-401.

Feltz, D.L., & Lirgg, C.D. (2001). Self-efficacy beliefs of athletes, teams, and coaches. In R.N. Singer, H.A. Hausenblas, & C.M. Janelle (Eds.), Handbook of sport psychology (pp. 340-361). New York: Wiley.

Filby, W.C.D., Maynard, I.W., & Graydon, J.K. (1999). The effects of multiple-goal strategies on performance outcomes in training and competition. Journal of Applied Sport Psychology,11, 230-246.

Foddy, W. (1993). Constructing questions for interviews and questionnaires: Theory and practice. Cambridge: Cambridge University Press.

Frederick, C.M., Morrison, C.S., & Manning, T. (1996). Motivation to participate, exercise affect, and outcome behaviours toward physical activity. Perceptual and Motor Skills, 82, 691-701.

Glaser, B.G, & Strauss, A.L. (1967). The discovery of grounded theory: Strategies for qualitative research. Chicago: Aldine.

Goode, K.T., & Roth, D.L. (1993). Factor analysis of cognitions during running: Association with mood change. Journal of Sport and Exercise Psychology, 15, 375-389.

Gould, D. (1990). AAASP: A vision for the 1990s. Journal of Applied Sport Psychology, 2, 99-116.

Gould, D. (1998). Goal setting for peak performance. In J.M. Williams (Ed.), Applied sport psychology: Personal growth to peak performance (pp. 190-205). California: Mayfield Publishing Company.

Gould, D., Guinan, D., Greenleaf, C., Medbery, R., & Peterson, K. (1999). Factors affecting Olympic performance: Perceptions of athletes and coaches from more and less successful teams. The Sport Psychologist, 13, 371-394.

Gould, D., Medbury, R., Damarjian, N., & Lauer, L. (1999). A survey of mental skills training knowledge, opinions, and practices of junior tennis coaches. Journal of Applied Sport Psychology, 11, 28-50.

Gould, D., Tammen, V., Murphy, S., & May, R. (1989). An examination of U.S. Olympic sport psychology consultants and the services they provide. The Sport Psychologist, 3, 300-312.

Gould, D., Tammen, V., Murphy, S., & May, J. (1991). An evaluation of U.S. Olympic sport psychology consultant effectiveness. The Sport Psychologist, 5, 111-127.

Greenspan, M.J., & Feltz, D.L. (1989). Psychological interventions with athletes in competitive situations: A review. The Sport Psychologist, 3, 219-236.

Grove, R.J., Norton, P.J., Van Raalte, J.L., & Brewer, B.W. (1999). Stages of change as an outcome measure in the evaluation of mental skills training programs. The Sport Psychologist, 13, 107-116.

Grove, J.R., & Pargman, D. (1986). Relationships among success/failure, attributions, and performance expectations in competitive situations. In L.V. Velden & J.H. Humphrey (Eds.), Psychology and sociology of sport: Current selected research I (pp.85-95). New York: AMS Press.

Hall, C.R., Mack, D.E., Paivio, A., & Hausenblas, H.A. (1998). Imagery use by athletes: Development of the sport imagery questionnaire. International Journal of Sport Psychology, 29, 73-89.

Halliburton, A.L. & Weiss, M.R. (2002). Sources of competence and perceived motivational climate among adolescent female gymnasts varying in skill level. Journal of Sport and Exercise Psychology, 24, 396-419.

Hanin, Y.L. (1980). A study of anxiety in sports. In W.F. Straub (Ed), Sport psychology: An analysis of athlete behaviour, (pp. 236-249). Ithaca, NY: Mouvement.

Hanin, Y.L. (1986). State-trait anxiety research on sports in the USSR. In C.D. Spielberger & R. Diaz-Guerrero (Eds.), Cross-cultural anxiety (Vol. 3, pp.45-64). New York: Hemisphere Publishers.

Hanton, S., & Jones, G. (1999). The acquisition and development of cognitive skills and strategies: I. Making the butterflies fly in formation. The Sport Psychologist, 13, 1-21.

Hardy, L., & Jones, G. (1994). Current issues and future directions for performance-related research in sport psychology. Journal of Sports Sciences, 12, 61-92.

Hardy, L., Jones, G., & Gould, D. (1996). Understanding psychological preparation for sport: Theory and practice of elite performers. Chichester: Wiley.

Harter, S. (1978). Effectance motivation reconsidered: Toward a developmental model. Human Development, 21, 34-64.

Henwood, K.L., & Pidgeon, N.F. (1992). Qualitative research and psychological theorizing. British Journal of Psychology, 83, 97-111.

Holder, T. (1997). A theoretical perspective of performance evaluation with a practical application. In R.J. Butler (Ed.). Sports psychology in performance (pp.68-86). Oxford: Butterworth-Heinemann.

Holt, N.L., & Sparkes, A.C. (2001). An ethnographic study of cohesiveness in a college soccer team over a season. The Sport Psychologist, 15, 237-259.

Howell, D.C. (1992). Statistical methods for psychology. Belmont, California: Duxbury Press

Jackson, S.A., & Marsh, H.W. (1996). Development and validation of a scale to measure optimal experience: The flow state scale. Journal of Sport and Exercise Psychology, 18, 17-35.

Jackson, S.A., Dover, J., & Mayocchi, L. (1998). Life after winning gold: I. Experiences of Australian Olympic medallists. The Sport Psychologist, 12, 119-136.

Jacob, C.S. & Carron, A.V. (1996). Sources of status in sport teams. International Journal of Sport Psychology, 27, 369-382.

Jones, G. (1993). The role of performance profiling in cognitive behavioural interventions in sport. The Sport Psychologist, 7, 160-172.

Kahn, R.L., Wolfe, D.M., Quinn, R.P., Snoek, J.D., & Rosenthal, R.A. (1964). Organisational stress: Studies in role conflict and ambiguity. New York: Wiley.

Karageotghis, C.I., Terry, P.C., & Lane, A.M. (1999). Development and initial validation of an instrument to assess the motivational qualities of music in exercise and sport: The Brunel Music Rating Inventory. Journal of Sports Sciences, 17, 713-724.

Kelly, G.A. (1955). The psychology of personal constructs (Vols. 1 & 2). New York: Norton.

Kendzierski, D., & DeCarlo, K.J. (1991). Physical activity enjoyment scale: Two validation studies. Journal of Sport and Exercise Psychology, 13, 50-64.

Kingston, K.M., & Hardy, L. (1994). Factors affecting the salience of outcome, performance, and process goals in golf. In A. Cochran & M. Farrally (Eds.), Science and golf (Vol. 2, pp. 144-149). London: Chapman-Hill.

Kingston, K., & Hardy, L. (1997). Effects of different types of goals on processes that support performance. The Sport Psychologist, 11, 277-293.

Kinnear, P.R., & Gray, C.D. (2000). SPSS for windows made simple: Release 10. Hove, UK: Psychology Press.

Kowal, J., & Fortier, M.S. (1999). Motivational determinants of flow: Contributions from Self-Determination Theory. Journal of Social Psychology, 139, 355-368.

Krane, V., Andersen, M.B., & Strean, WB. (1997). Issues of qualitative research methods and presentation. Journal of Sport and Exercise Psychology, 19, 213-218.

Krawczynski, M., & Olszewski, H. (2000). Psychological well-being associated with a physical activity programme for persons over 60 years old. Psychology of Sport & Exercise, 1, 57-63.

Kyllo, L.B., & Landers, D.M. (1995). Goal setting in sport and exercise: A research synthesis to resolve the controversy. Journal of Sport and Exercise Psychology, 17, 117-137.

Landin, D., & Hebert, E.P. (1999). The influence of self talk on the performance of skilled female tennis players. Journal of Applied Sport Psychology, 11, 263-282.

Li, F. (1999). The Exercise Motivation Scale: Its multifaceted structure and construct validity. Journal of Applied Sport Psychology, 11, 97-115.

Locke, E.A., & Latham, G.P. (1990). A theory of goal setting and task performance. Englewood Cliffs, N.J.: Prentice-Hall.

Loewenthal, K.M. (2001). An introduction into psychological tests and scales (2nd ed.). Hove, UK: Psychology Press.

Martens, R. (1987). Coaches guide to sport psychology. Champaign, Il: Human Kinetics.

McAuley, E., & Tammen, V..V. (1989). The effects of subjective and objective competitive outcomes on intrinsic motivation. Journal of Sport and Exercise Psychology, 11, 84-93.

McAuley, E., Peña, M.M., Jerome, G.J. (2001). Self-efficacy as a determinant and an outcome of exercise. In G. C. Roberts (Ed.), Advances in motivation in sport and exercise (pp.235-262). Leeds, UK: Human Kinetics.

Menard, S. (1991). Longitudinal research. London: Sage Publications

Miller, B.P. (1997). Developing team cohesion and empowering individuals. In R. J. Butler (Ed.), Sports psychology in performance (pp.105-125). Oxford: Butterworth-Heinemann.

Minium, E.W., King, B.M., & Bear, G. (1993). Statistical reasoning in psychology and education. Chichester: Wiley.

Moritz, S.E., Feltz, D.L., Fahrback, K.R., & Mack, D.E. (2000). The relation of self-efficacy measures to sport performance: A meta-analytic review. Research Quarterly for Exercise and Sport, 71, 280-294.

Mullen, B., & Copper, C. (1994). The relation between group cohesiveness and performance: An integration. Psychological Bulletin, 115, 210-227.

Nelson, D., & Hardy, L. (1990). The development of an empirically validated tool for measuring psychological skill in sport. Journal of Sports Sciences, 8, 71.

Nicholls, J.G. (1984). Achievement motivation: Conceptions of ability, subjective experience, task choice, and performance. Psychological Review, 91, 328-346.

Nicholls, J.G. (1989). The competitive ethos and democratic education. Cambridge, MA: Harvard University Press.

Ntoumanis, N. (2001). A step-by-step guide to SPSS for sport and exercise studies. London: Routledge.

Orbach, I., Singer, R.N., & Murphey, M. (1997). Changing attributions with an attribution training technique related to basketball dribbling. The Sport Psychologist, 11, 294-304.

Orbach, I., Singer, R.N., & Price, S. (1999). An attribution training program and achievement in sport. The Sport Psychologist, 13, 69-82.

Orlick, T. (1990). In pursuit of excellence: How to win in sport and life through mental training (2nd ed.). Leeds, UK: Human Kinetics.

Orlick, T. D., & Mosher, R. (1978). Extrinsic awards and participant motivation in a sport related task. International Journal of Sport Psychology, 9, 27-39.

Orlick, T., & Partington, J. (1987). The sport psychology consultant: Analysis of critical components as viewed by Canadian Olympic athletes. The Sport Psychologist, 1, 4-17.

Palmer, C., Burwitz, L., Collins, D., Campbell, E., & Hern, J. (1996). Performance profiling: Construct validity and utilization. Journal of Sport Sciences, 14, 41-42.

Partington, J. & Orlick, T. (1987a). The sport psychology consultant: Olympic coaches' views. The Sport Psychologist, 1, 95-102.

Partington, J. & Orlick, T. (1987b). The sport psychology consultant evaluation form. The Sport Psychologist, 1, 309-317.

Partington, J., & Orlick, T. (1991). An analysis of Olympic sport psychology consultants' best-ever consulting experiences. The Sport Psychologist, 5, 183-193.

Paskevich, D.M., Estabrooks, P.A., Brawley, L.R., & Carron, A.V. (2001). Group cohesion in sport and exercise. In R.N. Singer, H.A. Hausenblas, & C.M. Janelle (Eds.), Handbook of sport psychology (pp. 472-494). New York: Wiley.

Patton, M.Q. (2002). Qualitative research and evaluation methods, (3rd ed.). London: Sage.

Pelletier, L.G., Fortier, M. S., Vallerand, R.J., Tuson, K.M., Brière, N.M., & Blais, M.R. (1995). Toward a new measure of intrinsic motivation, extrinsic motivation, and amotivation in sports: The Sport Motivation Scale (SMS). Journal of Sport and Exercise Psychology, 17, 35-53.

Pensgaard, A.M., & Roberts, G.C. (2003). Achievement goal orientations and the use of coping strategies among Winter Olympians. Psychology of Sport and Exercise , 4, 101-116.

Potter, C.L., & Anderson, A.G. (1998). Using performance profiles with a regional junior table tennis squad. In A. Lees, I. Maynard, M. Hughes & T. Reilly (Eds.), Science and racket sports II (pp. 142-147). London: E & FN Spon.

Potter, J., & Wetherell, M. (1987). Discourse and social psychology: Beyond attitudes and behaviour. London: Sage.

Power, T.G., & Woolger, C. (1994). Parenting practices and age group swimming: A correlational study. Research Quarterly for Exercise and Sport, 65, 59-66.

Prapavessis, H., & Carron, A.V. (1997). Cohesion and work output. Small Group Research, 28, 294-301.

Raedeke, T.D., & Smith, A.L. (2001). Development and preliminary validation of an Athlete Burnout Measure. Journal of Sport and Exercise Psychology, 23, 281-306.

Ravizza, K. (1998). Increasing awareness for sport performance. In J.M. Williams (Ed.). Applied sport psychology: Personal growth to peak performance (pp. 171-181). California: Mayfield Publishing Company.

Roberts, G.C. (2001). Understanding the dynamics of motivation in physical activity: The influence of achievement goals on motivational processes. In G. C. Roberts (Ed.), Advances in motivation in sport and exercise (pp.1-50). Leeds, UK: Human Kinetics.

Robinson, D.W., & Howe, B.L. (1989). Appraisal variable/affect relationships in youth sport: A test of Weiner's attributional model. Journal of Sport and Exercise Psychology, 11, 431-443.

Robson, C. (1993). Real world research: A resource for social scientists and practitioner-researchers. Oxford: Blackwell.

Rose, E.A., Markland, D., & Parfitt, G. (2001). The development and initial validation of the Exercise Causality Orientations Scale. Journal of Sports Sciences, 19, 445-462.

Rushall, B.S. (1978). Environmental specific behaviour inventories: Developmental procedures. International Journal of Sport Psychology, 9, 97-110.

Ryan, R.M., Deci, E.L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. Contemporary Educational Psychology, 25, 54-67.

Scanlan, T.K., Lewthwaite, R. (1986). Social psychological aspects of competition for male youth sport participants: IV. Predictors of enjoyment. Journal of Sport Psychology, 8, 25-35.

Schutz, R.W. & Gessaroli, M.E. (1991). Use, misuse and disuse of psychometrics in sport psychology research. In R.N. Singer, M. Murphey, & L.K. Tennant (Eds.), Handbook of Research in Sport Psychology (pp.901-917). New York: MacMillan.

Simons, J.P., & Andersen, M.B. (1995). The development of consulting practice in applied sport psychology: Some personal perspectives. The Sport Psychologist, 9, 449-468.

Smith, R.E. (1989). Applied sport psychology in an age of accountability. Journal of Applied Sport Psychology, 1, 166-180.

Steckler, A., McLeroy, K.R., Goodman, R.M., Bird, S.T., & McCormick, L. (1992). Toward integrating qualitative and quantitative methods: An introduction. Health Education Quarterly, 19, 1-8.

Stewart, D.W., & Shamdasani, P.N. (1990). Focus groups: Theory and practice. London: Sage.

Strean, W.B. (1998). Possibilities for qualitative research in sport psychology. The Sport Psychologist, 12, 333-345.

Suinn, R.M. (1985). The 1984 Olympics and sport psychology. Journal of Sport Psychology, 7, 321-329.

Sullivan, P.A. (1993). Communication skills training for interactive sports. The Sport Psychologist, 7, 79-91.

Tabachnick, B.G., & Fidell, L.S. (1996). Using multivariate statistics. New York: HarperCollins College Publishers.

Thelwell, R.C., & I.A. Greenlees (2001). The effects of a mental skills training packge on gymnasium triathlon performance. The Sport Psychologist, 15, 127-141.

Thelwell, R.C., & I.A. Greenlees (2003. Developing competitive endurance performance using mental skills training. The Sport Psychologist, 17, 318-337.

Thelwell, R.C., & Maynard, I.W. (2003). The effects of a mental skills package on 'repeatable good performance' in cricketers. Psychology of Sport and Exercise, 4, 377-396.

Thill, E., & Mouanda, J. (1990). Autonomy or control in the sports context: Validity of cognitive evaluation theory. International Journal of Sport Psychology, 21, 1-20.

Thomas, L.F. (1979). Construct, reflect and converse: The conventional reconstruction of social realities. In P. Stringer, & D. Bannister (Eds.), Constructs of sociality and individuality (pp.49-72). London: Academic Press.

Thomas, J.R. & Nelson, J.K. (1996). Research methods in physical activity (3rd ed.). Leeds, UK: Human Kinetics.

Thomas, P.R., Schlinker, P.J., & Over, R. (1996). Psychological and psychomotor skills associated with prowess at ten-pin bowling. Journal of Sports Sciences, 14, 255-268.

Thompson, C.E., & Wankel, L.M. (1980). The effect of perceived activity choice upon frequency of exercise behaviour. Journal of Applied Social Psychology, 10, 436-443.

Vallerand, R.J. (2001). A hierarchical model of intrinsic and extrinsic motivation in sport and exercise. In G. C. Roberts (Ed.), Advances in motivation in sport and exercise (pp.263-319). Leeds, UK: Human Kinetics.

Vallerand, R.J., Losier, G.F., (1999). An integrative analysis of intrinsic and extrinsic motivation in sport. Journal of Applied Sport Psychology, 11, 142-169.

Vallerand, R.J., Pelletier, L.G., Blais, M.R., Brière, N.M., Senècal, C., & Vallières E.F. (1992). The Academic Motivation Scale: A measure of intrinsic, extrinsic, and amotivation in education. Educational and Psychological Measurement, 52, 1003-1019.

Vallerand, R.J., & Reid, G. (1984). On the causal effects of perceived competence on intrinsic motivation: A test of cognitive evaluation theory. Journal of Sport Psychology, 6, 94-102.

Vallerand, R.J., & Rousseau, F.L. (2001). Intrinsic and extrinsic motivation in sport and exercise: A review of using the Hierarchical Model of Intrinsic and Extrinsic Motivation. In R.N. Singer, H.A. Hausenblas, & C.M. Janelle (Eds.), Handbook of sport psychology (pp. 389-416). New York: Wiley.

Vealey, R.S. (1988). Future directions in psychological skills training. The Sport Psychologist, 2, 318-336.

Vealey, R.S. (1994). Current status and prominent issues in sport psychology interventions. Medicine and Science in Sports and Exercise, 26, 495-502.

Vealey, R.S., & Garner-Holman, M. (1998). Applied sport psychology: Measurement issues. In J.L. Duda (Ed.), Advances in sport and exercise psychology measurement (pp. 432-446). Morgantown, WV: Fitness Information Technology.

Webb, E.J., Campbell, D.T., Schwartz, R.D., & Sechrest, L. (1966). Unobtrusive measures: Nonreactive research in the social sciences. Chicago: Rand McNally.

Weigand, D.A., Richardson, P.A., & Weinberg, R.S. (1999). A two-stage evaluation of a sport psychology internship. Journal of Sport Behavior, 22, 83-104.

Weinberg, R., Burton, D., Yukelson, D., & Weigand, D. (1993). Goal setting in competitive sport: An exploratory investigation of practices of collegiate athletes. The Sport Psychologist, 7, 275-289.

Weinberg, R., Burke, K., & Jackson, A. (1997). Coaches' and players' perceptions of goal setting in junior tennis: An exploratory investigation. The Sport Psychologist, 11, 426-439.

Weinberg, R., Burton, D., Yukelson, D., & Weigand, D. (2000). Perceived goal setting practices of Olympic athletes: An exploratory investigation. The Sport Psychologist, 14, 279-295.

Weinberg, R., Butt, J., & Knight, B. (2001). High school coaches' perceptions of the process of goal setting. The Sport Psychologist, 15, 20-47.

Weinberg, R.S., & Comar, W. (1994). The effectiveness of psychological interventions in competitive sport. Sports Medicine, 18, 406-418.

Weinberg, R.S., Weigand, D.A. (1993). Goal setting in sport and exercise: A reaction to Locke. Journal of Sport and Exercise Psychology, 15, 88-96.

Weiner, B. (1986). An attributional theory of motivation and emotion. New York: Springer-Verlag.

Whitehead, J.R., & Corbin, C.B. (1991). Youth fitness testing: The effect of percentile-based evaluative feedback on intrinsic motivation. Research Quarterly for Exercise and Sport, 62, 225-231.

Williams, L., & Gill, D.L. (1995). The role of perceived competence in the motivation of physical activity. Journal of Sport and Exercise Psychology, 17, 363-378.

Wilson, P. & Eklund, R. (1998). The relational between competitive anxiety and self presentational concerns. Journal of Sport and Exercise Psychology, 20, 81-97.

Yoo, J. (2000). Factorial validity of the coping scale for Korean athletes. International Journal of Sport Psychology, 31, 391-404.

Yukelson, D. (1998). Communicating effectively. In J.M. Williams (Ed.), Applied sport psychology: Personal growth to peak performance (pp. 142-157). California: Mayfield Publishing Company.

APPENDICES

APPENDIX 1:

CONSULTANT INTERVIEW GUIDE &
A SAMPLE CONSULTANT INTERVIEW TRANSCRIPTION

Re: Performance Profile Consultant Interview

Dear

I would firstly like to thank you for being a participant in the above interview for my PhD thesis. Please find enclosed the interview protocol. The information is included to give you an idea of the structure and content of the interview. Additionally it should provide you with time to recall experiences and think of responses to the specific questions. Should you need further assistance as to the meaning of any of the questions please don't hesitate to contact me. The interview should last no more than one hour.

I look forward to seeing you in July and will confirm a week before the interview to make sure that you are still available to participate.

Yours sincerely,

Neil Weston (B.Sc., M.Sc.)

(Telephone: 01243 816 342; e-mail: n.weston@ucc.ac.uk)

Background Details

Name:

Number of Years BASES accredited:

Have you used the Performance Profile: YES / NO

How often do you use the Performance Profile in a consultancy setting?

In all Consultancies Frequently Sometimes Infrequently

Consultant status: FULL TIME PART TIME

Consent Form

The present investigation examines the usefulness and effectiveness of the Performance Profile from a sport psychology consultant perspective. As a BASES accredited Sport Psychologist you are in an excellent position to provide important information regarding the Performance Profile and its procedure. The investigation will involve a semi-structured interview, lasting approximately one hour.

The interview will be tape recorded and the information provided by yourself will be kept entirely confidential. If at any point you wish clarification of the meaning of any question please feel free to ask. The purpose of the interview is to gain as much detail concerning your experiences, interpretations and perceptions.

Please complete the details below if you consent to participate in current investigation as outlined above.

Print Consultant Name: Print Researcher Name:

Consultant Signature: Researcher Signature:

Date: Date:

Consultant Interview Protocol

Purpose of interview:

- Investigation is part of a more widespread investigation into the potential impacts of the performance profile in sport.

- The interview is part of a study with BASES accredited Sport Psychologists to determine their experiences and thoughts regarding the Performance Profile process.

- As a BASES accredited Sport Psychologist you are in an excellent position to provide important information regarding the Performance Profile and its procedure.

- Specifically the purpose of this investigation is to gain information that will enable a better understanding of how the profile is used in a consultancy setting.

- Specific areas include: Performance Profile population.
  Performance Profile protocol.
  Practical applications of profile use.
  Strengths & weaknesses of the Performance Profile
  Areas for improvement/future directions.

- IMPORTANT to mention that the information you provide will be tape recorded and kept entirely confidential.

- At any point that you wish clarification of the meaning of any question please feel free to ask. The purpose of the interview is to gain as much detail as to your experiences, interpretations and perceptions.

Consultant Interview Protocol

1) Performance Profile Population

(i) With which sporting populations have you utilised the Performance Profile?

(2) Performance Profile Protocol

(i) Can you describe the protocol(s) you have employed when using the profile?

(Please describe to me what I would see happening if I were present at the session)

(3) Practical applications of Profile use

(i) For what practical application(s) have you used the Performance profile?

(ii) How effective do you perceive the profile to be at achieving its practical application(s)?

(iii) In your experience have there been any occasions when you have decided it inappropriate to use the profile?

(4) Strengths and weaknesses of the Performance Profile

(i) What do you perceive to be the major strengths of the Performance Profile in a consultancy setting?

(ii) What do you perceive to be the major weaknesses/problems, if any, with the Performance Profile?

(5) Areas for improvement/future directions

(i) What changes do you perceive are required to provide a better Performance Profile process?

(ii) In a consultancy setting, what role do you perceive the Performance Profile to have in the future?

SAMPLE CONSULTANT INTERVIEW TRANSCRIPTION

NW: Could you please outline firstly the populations that you've been using the performance profile (PP) with.

P: The populations that I've used the PP with are gymnasts. They're the ones I've used it with predominantly.....rowing, track and field athletics and with swimmers.

NW: What kind of level of athletes is that with?

P: It's different levels. With gymnastics it would be with regional squad level all the way up to international level. With rowing international. Track and field athletics probably regional and some home national athletes. With the swimmers it would be regional levels.

NW: So with the international level you're talking about GB standard?

P: Yeah gymnastics and rowing would be GB.

NW: And what kind of age groups were they?

P: I used it with groups of the age of nine all the way up to 42.

NW: So you're not limiting it to any age range then?

P: I would say that...that will come up later in the interview. I have used it with those age groups but I wouldn't necessarily recommend to use it with a wide range of age groups.

NW: So generally the sports that you have talked about have been individual sports. Have you worked with any team sports using the PP?

P: Yes and no. I've worked with sports that appear to be individual sports. But with the gymnastics, that I work with, part of it is individual sports but say for sports acrobatic gymnastics that I have done a lot of work with, they would be several gymnasts working together on the floor. It's the ones where you typically see the guys doing the pyramids, women's trios, mixed pairs, men's and women's pairs.....so you'll have more than one person on the floor. So in that respect it is a team sport.

NW: Are they working together to get a score?

P: Yes, basically they have a balanced routine and they have a tempo routine. The balance one is where they will be doing balances one on top of the other whatever and the tempo will be when they are throwing each other around. So essentially it is a team sport. They are totally dependent on each other.

NW: Have you used the PP with any coaches?

P: Yeah I've used it with gymnastics coaches.

NW: Right o.k. we'll maybe discuss how you've used the PP with coaches later on. Are there any other support staff that you've used it with?

P: No I don't think so.

NW: If we now move on to discuss the protocol that you've been using the profile with the athletes. Could you describe the procedure you commonly go through with the athletes.

P: Firstly there would be a brainstorming session. Oh no if I was really to start from scratch I would firstly explain to the athletes what I was trying to do with the PP, and give the background to why it's useful and why it would be of help. Then I would use a brainstorming technique to try and generate qualities to start with. So I guess even prior to that we have a goal about what we are wanting to get out of the PP. 'What are we working towards? What do we want to get out of this?' Then we would set a specific goal from there brainstorm the qualities required in order to achieve that goal or

alternatively think of somebody that is really good at this or has already achieved this goal. What qualities do they have? So it would be a brainstorming session to try to really identify what those qualities are or that the athletes perceived were needed. Another way that I would try to do that would be that I would tend to use more comparative stuff in terms of somebody who is already there - what have they already got with younger populations. Where as with the seniors in order to work out what is required is more easily achieved directly with more mature athletes.

NW: With younger athletes do you give them an example of a profile or how do you get them to elicit the qualities?

P: I would literally write the qualities down on a piece of paper or on the board and probably talk through what the qualities were as well. To clarify what they actually meant.

NW: So you have the list of qualities and then?

P: So we got a list qualities and then it would involve a selection so then 'select the most important ones to you'. So then I give them a profile that has about ten sections. I've got the spider web, a circular one and I've got just a bar chart one. So get them to identify the qualities that they think are most important. They wouldn't be constrained by just ten it would be however many they felt were important. But if there were like three I would be trying to prompt them in the right direction for more. Really I think for stage one I think that would be as far as I'd go in a session. Now I've done it in two ways with individuals on a one to one basis which to a certain extent is a bit easier. But I've done it in group sessions, it tends to be with younger athletes to get them to all come up with a big list of qualities. So I split it into the categories physical, technical, tactical, psychological. We would talk about these things.

NW: Is that as a team or as a group of individuals?

P: It would normally be as individual athletes. If I was working as a team. The biggest team that I've probably worked with is four, because of the nature of the sport. So the way in which I would tackle it may be slightly different as we would be wanting to get

something different from it. But if it was just individual profiles then it would be fine just to use that process. But generally in terms of time, by the time I've explained what PP is and we've had a go at generating the qualities you're sort of running out of time and then to actually pursue it any further it's kind of difficult. I mean it varies for group to group or person to person. Some people are very quick and so you can go further but in general I've usually only got up to generating the important qualities.

NW: So you get up to the qualities but you don't rate the qualities is that right?

P: Yeah I see it as a sort of on going process that we do ideals and the ratings in the next session. But that's only really through experience that we've done it that way. If you really want to get the best out of it then that's the best way because they may just get to the point where they say yeah that'll do and you don't actually get an accurate profile for that athlete.

NW: So how long does that process take then?

P: Maximum of an hour. I wouldn't normally do longer than an hour.
Then the next stage would be ideals. Identifying 'where do you need to be in order to achieve that goal in each quality?'

NW: Would that be where they would ideally like to be?

P: Yes or where they think they need to be in order to achieve their goal.
Then the next stage would be to say well 'where do you rate yourself now in relation to that ideal?'

NW: Is that as far as it goes in terms of the procedure that you use?

P: Yes so they have a chart for themselves.

NW: So you've talked about individual profiles, have you done a team profile with the teams that you've worked with?

P: Yes I have. I mean if it was in a team situation and we were doing individual profiles we would probably be looking more specifically at what there was in the team and what they needed to achieve in their specific role within the team. Then we may work on developing a team profile very specifically for the whole team together. That would obviously require everyone sitting down together and identify things and then 'haggle it out' until we got something that was representative of the team as a whole.

NW: And that would take roughly an hour as well?

P: Yes that would probably take longer in a lot of cases because you have lots of battles in terms of arguing and everyone wants their own say.

NW: Again first session would elicit the constructs and second session would involve ratings?

P: Usually it would work that way in terms of time. But it determines again how switched on people are. If they are then you could probably go through the whole process in the one go.

NW: How close are the two sessions together?

P: They would be close together, probably within a day and certainly no longer than a week apart.

NW: So we've talked about individual and team profiles but you also talked about using the coach with the profile. Could you describe how that has gone.

P: I've done some stuff with coaches about their own development and what they think makes a good coach. I've found that a lot of coaches have found that process very helpful. Especially at higher levels it's quite intense for them and a lot of the time much of what we do is centred on the athlete and meeting the athletes needs. Sometimes I think coaches feel left out of it. Maybe in this day and age with the World Class Performance plans the athletes are being given the money directly, the coaches have had to continue to do their day time job and coach in the evenings. Their situation hasn't

changed yet they've seen the athletes in some cases become professional. So in terms of making them aware of meeting their own needs and identifying what their needs are can help.

NW: So you get them to profile themselves then, with a similar procedure?

P: Yes.

NW: On a one to one basis?

P: Yes.

NW: And then they rate themselves?

P: Yes.

NW: And you've found that to be effective?

P: Yeah it varies from coach to coach. The more experienced coaches who have probably been pushed to limit in terms of burn out tend to appreciate it a lot and recognise that this is a good way to do this. In some cases the coaches have said that it has helped them to keep the right attitude towards the sport. It actually makes them reflect on what the priorities are and basically when situations get tough it enables them to come back to 'well why am I here?' rather than getting stuck into the nasty bits.

NW: Right just to come back to coach, individual and team profiles, can we move onto the various visual displays that you have used. Is there any particular one that you think works best?

P: No I tried different ones and I think that the spider chart and the dart board can be quite confusing. Yet it's a strange thing because if you were to try to do the PP with the spider chart they'll always remember it 'oh yes the spider chart'. So it sticks in their mind more so than if you have a different representation for example if it's the circular one they don't seem to be as aware of it. For the youngsters that's great but I don't think

it really matters for me. I personally find that the bar chart is easier. I prefer sort of a straight diagram, I don't so much like the kind of dart board formation, I prefer to actually see it in a straight line so that it's quite straight forward. But again that's just me and I think it works different ways for different people.

NW: Moving on to the rating scales that you've used. Talking about ideal and current ratings that you've used. Just before we go on to discuss that is it a one to ten rating that you use?

P: Yes it is.

NW: Then you do the ideal and current ratings. Are there any other ratings or comparisons that you've been using?

P: No not really I just stick to the one to ten. Where one is not at all, depending on what the actual construct is, and ten is absolutely and totally important for example. So from one extreme to the other. I think that people tend to find that easier.

NW: You haven't compared the coach's rating to the athlete?

P: Yes, but that would be if I was using it for a particular purpose.

NW: For what reason would that be for?

P: I would use it for a goal setting strategy. Purely so that we can identify perceived areas of weakness by the athlete and so they can set themselves a target. Or we could do a comparison relative to what the coach thinks. So we could look at the two profiles and see whether or not there were any discrepancies. That's quite important for particular issues in sport for example if the coach and the athlete aren't getting on that well and there's all sorts of problems happening, then you might want to identify some of the issues. If it's a technical thing to do with movement and the coach believes that the constructs are important and the athlete doesn't or the coach feels that the athlete has attained certain levels that the athlete doesn't think that they have attained then those comparisons are going to have a direct affect on performance. If you've got things like

performance blocks, movements that a performer can't seem to achieve or maybe the moves have just disappeared for a reason that doesn't seem obviously then I use it for that sort of problem solving exercise. I would look at the comparison between the two.

NW: Would that then be the basis for a discussion?

P: Absolutely yeah and it would depend on the nature of the problem in terms of how exactly I might use that and what kind of discussion might I go with that. If they aren't getting on well then it might be useful to talk to each independently and then get together. But if there wasn't that kind of problem it may be possible to work with them together.

NW: In terms of the constructs that you get, do you try to get the athletes to define their qualities?

P: I would get them to talk to me about the qualities. Now if I were to take it back again and we were doing the ideals and I got a chance to speak on an individual basis then I might use that as a base for a discussion, so what do you mean by that, so that we could clarify exactly what was meant, in terms of their interpretation. So yeah I would confirm that with them and certainly once they've constructed a PP the key point is to not just look at the discrepancies but to actually talk through what the qualities actually mean and why they perceive there's a discrepancy there. What sort of things do they think they need to improve on, how can they go about that. So it's basically used as a tool to sort of initiate a discussion between myself and an athlete, or myself and a coach or myself and a coach and an athlete about what's going and what do you need to work on.

NW: In some cases consultants have said that they have used importance ratings. Is that something that you have used before?

P: Well I'd use the importance, and then where are you today and then in terms of the discrepancy.

NW: Also have you ever just given the qualities to the athletes rather than allowing them to elicit them for themselves?

P: No not really.

NW: Would you be happy doing it that way?

P: No not really because I think that somewhat goes against the entire purpose of the exercise, which is to get into the athletes mind. My feelings about this are for the athletes to generate the qualities and not for me to supply the constructs or tell them what I think are the important constructs. Now it's difficult when you're in a session and you've got youngsters maybe they're not used to opening up then I could see how you could do that. But I probably tend to steer clear of that until I felt they were ready for it. I think the whole idea of it is that it is about them it's not about what I'm giving to them or for them to interpret why I think the qualities are.

NW: O.k. that's fine. (SUMMARY GIVEN). If we could just move onto to try to understand for what reasons you use the profile in the way that you've used it. You've mentioned a few things already in terms of as a basis for goal setting, to identify weaknesses, also a basis for discussion. Are there any other reasons for using the PP?

P: I think the very first thing is that it's about them and getting into their mindset. So it's really to get their ideas down. I've used it for communication, discussion and communication between coach and athlete. I've also used it to improve team dynamics or improve the team communication and identifying roles. I suppose to open up communication channels between the team members, because in the particular gymnastics team that I was talking about earlier you would have possibly an 18 year old, maybe a 24 or 26 year old and then possibly a 12 year old. So you can imagine in terms of the communication, you obviously have some issues. Because usually the 12 year old is balancing at the top and is usually told what to do by the bases. One of the things that we've been working with is using PP in order to get at the communication within the group and maybe getting the 12 year old who is at the top to actually have an opportunity to actually put their point of view forward. So it changed the dynamics of communication from "do this do that do the other" from the more mature member to

making it a more democratic process where everyone has an input. So that's one way in which we've used it a lot. I think a lot of the break downs within the group are down to communication style within the group. It can also be with groups of two where the more mature member tends to boss the other one. When you get to the highest level the young ones begin to be sick of being told what to do all the time. The problem is that it is a learning process and your 12 year old usually becomes your 24 year old. So they learn that in order to be a good base I need to boss the top around. So you get this kind of continuous circle. So what we've been trying to do, is trying to use the PP to open communication channels and to actually get the groups to have an equal footing and to break that pattern to a certain extent.

NW: How successful have you found that in being able to achieve that goal?

P: It's a difficult one because I'd say in some of the highly successful teams it's often been driven by one person and with the tradition of this where the older one adopts the dominant role within the group and is the perfectionist in the group then they become fairly uncompromising in what they want from the group. Usually when you've got a mature member like that who will achieve fantastic results, it's sort of offsetting that with the long term so keeping them in the sport over the long term and getting that sort of perfectionist quality to be a bit more compromising so that they understand that at times it's important to listen to others. I'd say it's been very successful with some groups and we're trying to educate coaches to get into this process so that they do the PP because obviously we can't be there all of the time. So we've actually done coach education with hands on doing it with groups.

NW: So you've been teaching coaches how they can do PP with their squads?

P: Yeah so that they feel comfortable that they can do this with a group and encourage the communication styles to change. So I think we are catering it more towards the coach education just now more than we are with the athletes. Some coaches are for it others aren't. It just depends on their own perspective. So I think that's the most important way I've been using it. I'm also using it for performance blocks. I didn't mention before but I've also used it with trampolinists. I've used PP to identify areas where there has been a performance block.

NW: So your main goal for using the profile in that way is to try and identify problems and then find a solution for that problem?

P: It would be more like for a particular type of movement. It's very specific and technical. Usually when we end up working with performance blocks in gymnastics the movement has completely gone. They could do it before but now for some reason they can't. So it gets to a very severe state, typically in tumbling movements more so in backward rotations but also with forward rotations. It happens in trampolining with somersaults and also it's happened with twisting movements. It gets to the stage where they can't even run up and attempt it because of the anxiety state.

NW: So you're using the profile to get the athlete to understand why it's happening to them?

P: Well I'd probably try to discuss with them why it has happened and get a background understanding. Probably look at an athlete that can perform the skill very well and then to identify what qualities enables them to perform well. They may be only physical things but I find that the majority of the times it's a lot of technical and psychological ones that come out. So they get to do the profile of the qualities that are important and get to work out the ideal scores for each quality. Then 'how good are you at the moment?' in comparison. Then you'll get your areas of discrepancy. It isn't actually, the route of solving the problem isn't actually looking at the discrepancies of the athlete. What we do is we look at the chart with the ideals to the coach and get them to rate where they think the athlete is at that moment in time. Usually when we do the comparison of the coach and the athlete you find one or two qualities that the coach thinks that yeah they're very good at that and the athlete thinks well no I'm not. Basically what is probably happening is that during training the athlete feels that they're not good at it but because the coach thinks that they are they aren't actually working on it. So if you break it down into its components, it's often been things like transitions from say like first movement of the tumble to the next movement or some technical bit. So if you get the coach to become more aware of the athletes feelings then they can then structure the training to work on the particular areas that the athlete is not confident on,

thereby allowing the athletes confidence to build slowly relating to that technical area. So we've used it for that quite successfully.

Sometimes the athletes have had an injury. In one particular case who had broken her leg pretty severely, in fact landed on the tumble strip and bone shot through her foot. Absolutely horrific thing to happen and she associated it with the nature of the surface, because it was her own gym. So coming back to do that movement again was really difficult. So we could use the profile in a similar way. Or sometimes, a gymnast that's been told that part of her technique was poor from another well respected and experienced coach. That may have been ten years ago but it is still with them and they're still carrying it around with them. They feel that they are walking around with this and so maybe the profile could help in identifying this to try to work on it.

NW: You talked about using the profile as a discussion tool. Have you tended to use the profile just once with a population or have you used it more than once with a population?

P: Sometimes I've used it once, it just depends on the situation. Certainly if I was working with performance blocks it would be really important for them to assess themselves more than once, to see their improvement and updating it. The most important thing is that they identify a blueprint for what they need to do and then to actually monitor themselves from there on.

NW: O.k. so we discussed a number of reasons for why you use the profile: basis for discussion, communication, identifying roles within the team, also communication within the team, also using it for performance blocks and with injury in terms of identifying problems that seem to be very specific in nature. Are there any other applications or reasons for why you use the PP to benefit yourself as a consultant as well as the athlete?

P: No I think I've used it as a tool for very specific purposes. I think when I first started out when I was doing my supervised experience this technique was very popular and one of the very new things. I think that I probably used it an awful lot more then than I do now. Maybe that's through trial and error or maybe it just because I recognise some

problems are best resolved in other ways. It's a very useful tool for certain specific things but I wouldn't rely on it as a whole way of life or anything. I would mix it in with a whole load of other things and use it a whole lot less than I did before.

NW: So what other things would you use it with then?

P: In terms of discussion I would do more interview approaches. I certainly don't use questionnaires that often. Occasionally I may use them but I tend to be more interview based. I think I get more information from the athlete in that way. It would very much depend on what I would be doing. I'm happy that I know in which situations the profile works best.

NW: So we've gone through the populations that you've used the profile with, the procedure that you've adopted, and the potential impacts that you're trying to achieve by using the profile in those ways with those populations. What I like to move onto is the strengths and weaknesses of the profile as you see them. Could you outline the major strengths of the PP?

P: It's useful at getting to very specific problems. It's very good at being able to clarify what's going on from the performer's point of view and the coach's point of view and to do some comparisons to identify if the problem is a communication problem or a technical problem or whatever. I think it's useful for that. It's very useful for getting at the athlete's mindset to work out how they see a situation. I think it's also very good for encouraging independent thought and responsibility. It makes them take responsibility.

NW: Are there any strengths in the procedure that you adopt in terms of say the eliciting of the qualities?

P: I think the good thing is that it enables you the ability to compare to other people is very useful, especially for younger kids. So if you've got a situation where you've got an athlete that is perhaps not very good at expressing themselves they can compare it to somebody they know that is quite good at it. That's pretty helpful. I think also in a situation when you can't perform a move anymore there's no point in asking them 'what do you think makes this move work'? It's actually easier for them to think of

someone who is good at doing the move. It enables them to think about the move being done well instead of coming up with some sort of abstract concepts in a situation where they feel well I can't do that. I think that sort of aspect to it is useful. I think the rating scales are good at identifying the areas of perceived weakness, their point of view.

NW: Any other strengths or does that about cover it?

P: I think those are the main ones.

NW: Are there any weaknesses or problems with the PP?

P: Time consuming. Some times you feel when you're going through this process, this is probably why I don't use it as often as I used to, that well I could have got this information out of the athlete in a different way or quicker way. I think in situations when you sometimes have an athlete that is desperate to have a quick solution to the problem. You know they want to know straight away, they want you to give it to them sometimes and so this process where you sit back and say to them no you're going to have to do the work, I can't provide you with the answers to the solution. That in a way is its strength as it encourages independence and taking responsibility which is good. But the time it takes is a problem. So when I'm working on a one to one basis, I might be in a gym club and there might be say twenty athletes, individually it's going to take a long time. So I think in those sort of situations I think it may be a problem. Also when you're working in a group of say three or four athletes your going to lose at least an hour just working with one small groups of athletes and the athletes might only be in for say three to four hours so the amount you can actually do in that time.....your put in the situation where you might only be able to get around a certain number of people in a session. And that might be in a situation where everyone wants attention at a certain time. So I think that you've got those kind of issues that can develop when using the PP. The big problem is with working with athletes that are young or too young. It can be useful to introduce a concept so if they then have some input, but working with certain athletes and you try to identify qualities with them you'll get the coaches answer and not their own answer.

Two other issues. The fact that you end up with a paper and pencil exercise is a big problem for some people. A lot of athletes prefer action rather than sitting down in a classroom type situation. In fact only last week I considered one gymnast to be particularly sceptical about sport psychology and the fact was that I presented it in a sort of pen and paper way and they were not comfortable reading, writing or whatever.
I think the final problem, which is the real practical issue is if I'm working with a performer on a one to one basis and they generate a PP, I probably would want a copy of what this profile is, so that I could go away and have a think about it. Now if I'm in a situation where I'm in a gym there's usually not a photocopier around, I might want to have a copy of this to try and you know look at it in more detail, yet the athlete wants it to monitor what they're doing. So you have the opportunity of copying it out in front of the athlete by yourself which again due to time constraints is a problem or taking it away. So in terms of the practicalities of it is a problem. But I did come up with a solution to this one. Basically I did it in duplicate using some carbon paper so that I can get a copy straight away.

NW: O.k. so we have a number of strengths and weaknesses there. Finally to bring it all together could we discuss areas for improvement with the PP. Are there any areas of the PP that you perceive require improvement?

P: I find it difficult to talk about areas for improvement because for me it's a tool and I wouldn't say the process has to change maybe the way that I use it has to change. One thing that I would say is that there needs to be less paper and pencil work on it to start with because it does tend to alienate a few athletes because I'm thinking of a few that just don't enjoy writing down their thoughts.

NW: Are there any ways that you perceive that you could gain the same impacts but not do the PP paper and pencil method?

P: Well I think in terms of what you do in the profiling you could perhaps do in the form of an interview type discussion and talk about it in a qualitative rather than quantitative way.

NW: Finally could I ask you the role PP will have in your future consultancies?

P: I think it's just a useful tool for certain situations. It's useful in increasing communication and problem solving in essence and target setting. It's good as a tool for encouraging responsibility and independence. I guess the bottom line it's not the only thing. It's a tool that's good at doing certain things.

NW: O.k. I think we've covered a great deal with the populations you've used the profile with, the procedure you've adopted, the impacts you hope to gain from using the PP, the strengths and weaknesses of the profile and possible future improvements to the tool. I'd like to thank you very much for your time.

APPENDIX 2:

CONSULTANT PERFORMANCE PROFILE QUESTIONNAIRE (CPPQ)

Consultant Performance Profile Questionnaire

Directions: This questionnaire is designed to provide a better understanding of the consultant's perspective of the performance profile (Butler & Hardy, 1992). **Section One** examines the consultant's use of the performance profile. **Section Two** examines the consultant's perspective of the impact of using the performance profile specifically in a **group setting**. The questionnaire does not require your name and therefore **all responses** are completely **confidential.** Please answer every question.

Background Information

GENDER: **M / F** Number of years BASES accredited (psychology section):

SECTION ONE

(i) Please indicate, on the scale provided, the extent to which you believe the construction of the following types of performance profile would be **useful** (circle response for each type of performance profile):

Type of Performance Profile	Not At all				Very Much
			Moderately		
An athlete performance profile	1	2	3	4	5
A team performance profile	1	2	3	4	5
A coach performance profile	1	2	3	4	5
A sport psychologist performance profile	1	2	3	4	5
A support staff performance profile	1	2	3	4	5
A unit profile (e.g., midfield, forwards etc.)	1	2	3	4	5
An athlete's profile of their lifestyle	1	2	3	4	5
A profile of an athlete's strengths only	1	2	3	4	5
A fixed profile (qualities already chosen for the athlete)	1	2	3	4	5

SECTION TWO

Questions ii, iii & iv relate to the production of an **athlete performance profile** within a **group setting** (Butler & Hardy, 1992). The general stages of this session are outlined below:

- Team/squad split into groups to brainstorm qualities for their sport/position.
- Each group feeds back to the whole team the qualities that they have generated.
- Each individual athlete chooses the qualities that he/she perceives are important for their sport/position in relation to their style of play
- Once the qualities have been chosen the athletes rate themselves in relation to their perceived ability on each of the qualities at that moment in time to give the athlete their own individually specific performance profile.

(ii) Please indicate, on the scale provided, the extent to which you believe the construction of an athlete performance profile within a group setting (as outlined above) would be **useful** (circle response):

Not At All		Moderately		Very	Don't Know
1	2	3	4	5	6

(iii) **Given the appropriate circumstances** please indicate, on the scale provided, how **often** you have **used** the performance profile as outlined previously (circle response):

Never		Sometimes		Always
1	2	3	4	5

If you **have** used the performance profile in the above way then please answer the following question in relation to your **experience** of delivering such a session.

If you **haven't** used the performance profile in the above way then please answer the following question in relation to your **perception** of delivering such a session.

(iv) Originating from a literature review and BASES accredited consultant interviews, the following are potential impacts that athletes may or may not gain from producing a performance profile in a group setting. Please indicate, on the scale provided, how **effective** you believe **performance profiling in a group setting** (as outlined previously) would be in relation to the following (circle response for each item):

	Not At All		Moderately		Very	Don't Know
Help to raise the self awareness of athlete	1	2	3	4	5	6
Help the athlete focus on what's important	1	2	3	4	5	6
Help to enhance the athlete's confidence in themselves	1	2	3	4	5	6
Help to encourage independent thought	1	2	3	4	5	6
Help to encourage responsibility	1	2	3	4	5	6
Help to make the athletes more accountable	1	2	3	4	5	6
Help to enhance communication within the team	1	2	3	4	5	6
Help to identify roles within the team	1	2	3	4	5	6
Help to improve team dynamics	1	2	3	4	5	6
Help enhance the intrinsic motivation of the athlete	1	2	3	4	5	6
Help enhance the athlete's adherence to an intervention	1	2	3	4	5	6
Help enhance the self determination of the athlete	1	2	3	4	5	6
Help the athlete to gain control over their performance	1	2	3	4	5	6
Help promote task involvement in the athlete	1	2	3	4	5	6
Help increase the commitment of the athlete	1	2	3	4	5	6
Help the athlete to evaluate how they're performing	1	2	3	4	5	6
Help monitor the athlete's progress	1	2	3	4	5	6
Help provide a basis for goal setting	1	2	3	4	5	6
Help to structure an athlete's training programme	1	2	3	4	5	6
Help identify the athlete's strengths and weaknesses	1	2	3	4	5	6
Help facilitate discussion within the team	1	2	3	4	5	6
Help the athletes understand the demands of other positions	1	2	3	4	5	6
Help facilitate interaction within the team	1	2	3	4	5	6
Help the athlete to assess themselves	1	2	3	4	5	6

Thank you for completing this questionnaire.

Should you wish to make any other comments regarding the performance profile please feel free to do so overleaf.

APPENDIX 3:

CPPQ & APPQ PILOT QUESTIONS

Questionnaire Evaluation

Please answer the following questions as honestly as possible in relation to the questionnaire you have just completed.

1) Could you please state, on the scale provided, **how readable** you found the **questionnaire** to be:

Not At All		Moderately		Very Much	Don't Know
1	2	3	4	5	6

If you **did not** find the questionnaire to be readable please state which question(s) and why in the space below:

2) Could you please state, on the scale provided, the level at which you were able to **understand each question**:

Not At All		Moderately		Very Much	Don't Know
1	2	3	4	5	6

If you were unable to understand any of the questions please state which question(s) and why in the space below:

3) Could you please state, on the scale provided, **how appropriate** you found the **rating scales** to be:

Not At All		Moderately		Very Much	Don't Know
1	2	3	4	5	6

If you did not find the rating scales used in the questionnaire to be appropriate please state why and, if you can, suggest an alternative scale:

4) Please state in the space provided any other problems you found with the questionnaire:

APPENDIX 4:

CPPQ EXPLORATORY FACTOR ANALYSIS RESULTS

KOLMOGOROV-SMIRNOV NORMALITY CHECK

Tests of Normality

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Help to raise self awareness of athlete	.355	42	.000	.695	42	.000
Help the athlete to focus on what's important	.284	42	.000	.778	42	.000
Help to enhance the athlete's confidence in themselves	.249	42	.000	.858	42	.000
Help to encourage independent thought	.238	42	.000	.878	42	.000
Help to encourage responsibility	.256	42	.000	.871	42	.000
Help to make the athletes more accountable	.170	42	.004	.905	42	.002
Help to enhance communication within the team	.221	42	.000	.857	42	.000
Help to identify roles within the team	.218	42	.000	.891	42	.001
Help to improve team dynamics	.183	42	.001	.892	42	.001
Help enhance the intrinsic motivation of the athlete	.219	42	.000	.872	42	.000
Help enhance the athlete's adherence to an intervention	.221	42	.000	.905	42	.002
Help enhance the self determination of the athlete	.232	42	.000	.875	42	.000
Help the athlete gain control over their performance	.252	42	.000	.878	42	.000
Help promote task involvement in the athlete	.192	42	.000	.872	42	.000
Help increase the commitment of the athlete	.225	42	.000	.879	42	.000
Help the athlete evaluate how they're performing	.231	42	.000	.830	42	.000
Help monitor the athlete's progress	.265	42	.000	.804	42	.000
Help provide a basis for goal setting	.381	42	.000	.686	42	.000
Help to structure an athlete's training programme	.230	42	.000	.838	42	.000
Help identify the athlete's strengths and weaknesses	.374	42	.000	.691	42	.000

Help facilitate discussion within the team	.259	42	.000	.819	42	.000
Help the athletes understand the demands of other positions	.241	42	.000	.876	42	.000
Help facilitate interaction within the team	.226	42	.000	.839	42	.000
Help the athlete to assess themselves	.277	42	.000	.803	42	.000

a Lilliefors Significance Correction

KMO AND BARTLETT'S TEST

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.786
Bartlett's Test of Sphericity	Approx. Chi-Square	704.660
	df	276
	Sig.	.000

THE ROTATED FACTORS AND THEIR VARIANCE

Total Variance Explained

	Initial Eigenvalues			Rotation Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.903	41.262	41.262	4.027	16.780	16.780
2	3.177	13.239	54.501	3.291	13.711	30.491
3	1.582	6.594	61.094	2.990	12.459	42.951
4	1.304	5.431	66.526	2.866	11.941	54.891
5	1.046	4.358	70.884	2.131	8.877	63.768
6	.934	3.890	74.774			
7	.805	3.353	78.126			
8	.681	2.837	80.963			
9	.597	2.487	83.451			
10	.563	2.345	85.796			
11	.507	2.111	87.907			
12	.430	1.793	89.700			
13	.423	1.762	91.462			
14	.336	1.399	92.860			
15	.307	1.281	94.141			
16	.266	1.110	95.251			
17	.224	.934	96.185			
18	.203	.846	97.030			
19	.185	.769	97.800			
20	.153	.639	98.438			
21	.143	.594	99.032			
22	.119	.496	99.528			
23	6.800E-02	.283	99.812			
24	4.521E-02	.188	100.000			

Extraction Method: Principal Axis Factoring.

CPPQ ROTATED FACTOR MATRIX

Rotated Factor Matrix

	Factor				
	1	2	3	4	5
Zscore: Help facilitate interaction within the team	.873	-6.455E-02	.166	7.228E-02	8.094E-02
Zscore: Help facilitate discussion within the team	.841	.162	6.856E-03	-7.483E-03	-4.315E-03
Zscore: Help the athletes understand the demand of other positions	.763	7.873E-02	8.664E-02	.156	4.740E-02
Zscore: Help to enhance communication within the team	.753	8.864E-02	.165	.107	.205
Zscore: Help to improve team dynamics	.605	5.327E-02	.396	.148	.282
Zscore: Help to identify roles within the team	.556	4.574E-03	.549	.247	2.292E-02
Zscore: Help identify the athlete's strengths & weaknesses	-3.081E-02	.815	.189	.186	.179
Zscore: Help to structure an athlete's training programme	.172	.678	.399	.161	9.603E-03
Zscore: Help provide a basis for goal setting	-2.362E-02	.653	2.697E-02	.379	.324
Zscore: Help the athlete to assess themselves	.171	.638	.162	.371	.143
Zscore: help to raise self awareness of the athlete	.170	.523	-2.281E-03	.214	.407
Zscore: Help the athlete to focus on what's important	8.873E-02	.487	.319	.406	.264
Zscore: Help enhance the intrinsic motivation of the athlete	5.361E-02	.218	.685	.207	.303
Zscore: Help enhance the athlete's adherence to an intervention	.188	.148	.675	.158	.139
Zscore: Help enhance the self determination of the athlete	.298	.286	.527	.474	.163
Zscore: Help increase the commitment of the athlete	.468	.278	.506	.280	8.576E-02
Zscore: Help to make the athletes more accountable	.292	.121	.363	1.132E-02	.269
Zscore: Help the athlete evaluate how they're performing	.105	.276	.121	.758	1.566E-02
Zscore: Help monitor the athlete's progress	.104	.387	.128	.669	7.136E-03
Zscore: Help the athlete gain control over their performance	.146	.263	.336	.600	.288
Zscore: Help promote task involvement in the athlete	.331	.121	.178	.514	.460
Zscore: Help to enhance the athlete's confidence	6.879E-02	.205	.313	.371	.334
Zscore: Help to encourage responsibility	.167	.244	.478	-4.124E-03	.704

Zscore: Help to encourage independent thought	.138	.349	.231	.185	.698

Extraction Method: Principal Axis Factoring. Rotation Method: Varimax with Kaiser Normalization.

a Rotation converged in 7 iterations.

APPENDIX 5:

ATHLETE INTERVIEW GUIDE &
A SAMPLE ATHLETE INTERVIEW TRANSCRIPTION

Athlete Interview Protocol

Purpose of interview:

- Investigation is part of a more widespread investigation into the potential impacts of the performance profile in sport.

- The interview is part of a study with athletes to determine their experiences and thoughts regarding the Performance Profile process.

- As a sports performer who has just participated in a Performance Profile session you are in an excellent position to provide important information regarding the Performance Profile and its procedure.

- Specifically the purpose of this investigation is to gain a better understanding as to the effectiveness of the performance profiling session from an athlete's perspective.

  Specific areas include: Usefulness of Performance Profile
  Performance Profile Procedure
  Performance Profile Improvements/Future Uses

- IMPORTANT to mention that the information you provide will be tape recorded and kept entirely confidential.

At any point that you wish clarification of the meaning of any question please feel free to ask. The purpose of the interview is to gain as much detail as to your experience and interpretations of performance profiling.

Background Details

NAME: AGE:

POSITION YOU PLAY:

YEAR IN COLLEGE: 1st 2nd 3rd 4th

YEARS EXPERIENCE IN CURRENT SPORT: _____

CURRENT LEVEL (please circle appropriate response):

Club/college County National University National Students National Other: _____

HAVE YOU PARTICIPATED IN A PERFORMANCE PROFILE SESSION BEFORE? YES / NO

If Yes, where, when and by whom was the session taken?

_____

_____

_____

Consent Form

The present investigation examines the usefulness and effectiveness of the Performance Profile from an athlete perspective. The investigation will involve a semi-structured interview, lasting approximately one hour.

The interview will be tape recorded and the information provided by yourself will be kept entirely confidential. If at any point you wish clarification of the meaning of any question please feel free to ask. The purpose of the interview is to gain as much detail concerning your experience and interpretations of performance profiling.

Please complete the details below if you consent to participate in current investigation as outlined above.

Print Athlete Name: Print Researcher Name:

Athlete Signature: Researcher Signature:

Date: Date:

Athlete Interview Questions

1) The Usefulness of Performance Profile

(i) Did you find the performance profiling session to be **useful**?

If so why? If not why?

(ii) What do you consider to be the **major strengths** of the Performance Profile?

(iii) What do you consider to be the **major weaknesses** of the Performance Profile?

2) Performance Profile Procedure

Generating the Qualities

(i) Did you find the procedure **effective** in **generating** the **important qualities**?

If yes why? If no why?

(ii) What **improvements** could be made to **enhance** the process of **generating the qualities**?

Rating the Qualities

(i) Did you find it **difficult** to **rate yourself** on the **qualities (please explain your answer)**?

(ii) What **improvements** could be made to **enhance** the process of **rating the qualities**?

(iii) When constructing your own Performance Profile you compared your current level with the level of an elite athlete for your chosen qualities. Is there any other **rating criteria** that could be **compared** with your **current level** that would benefit you in the **analysis of your performance** or in **better understanding your performance development**?

(iv) Are there any **types of profile(s), other than** your own individual profile, which could be produced to **benefit both yourself** and/or the **team**?

Consultant Characteristics

(i) How effective was the **consultant** in **delivering** the session?

(ii) Is there anything more that the **consultant** could do to enable you to produce a profile **more reflective** of your **own** position?

Fixed Profile

(i) What benefits do you believe there would be in using a fixed profile (i.e. **where the qualities are already chosen for you**) as opposed to the profiling procedure you have just used?

3) Performance Profile Improvements/Future Uses

(i) What **changes** do you perceive are required to provide a **better** Performance Profile process?

(ii) Do you believe that you would **benefit** from participating in a similar session in the future? If yes why? If no why?

(iii) How could you **use** the Performance Profile in the **development of you as a performer** in the future?

SAMPLE ATHLETE INTERVIEW TRANSCRIPTION

NW: Firstly can I ask you did you find the performance profile process to be useful?

P: Yeah definitely, basically I hadn't done anything like this before, so from my point of view I found it incredibly useful. More than anything it made me feel sort of humble as a player. Mainly because of the way that you scale it. I mean I did my scale with zero being no degree of ability whatsoever and ten being an semi-pro player such as National league One, like Exeter because I felt I could relate to Freddie (a former player of college now at National league one level with Exeter). If was very beneficial. It kind of changed my outlook as a player and how I take myself as a player.

NW: So what did you get out of doing the profile?

P: It gives you the main areas that you think you need to work on, plus the areas that you feel you're quite good at. The thing that I found quite hard is that it's quite easy to go well I'm quite good at that and being truthful. But I also found it hard being truthful the other way in things like fitness and speed and things like that. You know I didn't really know how to rate, thinking about it I probably could have rated myself really low, but then you think I'm not that bad that I have no fitness whatsoever. But that's what I sort of thought about it. It was beneficial because it makes you look at yourself as a player. I mean no matter how much you look at yourself without maybe writing something down, you think well yeah I'm ok. But then as soon as you compare it to something else and as soon as you write it down...you can actually look at....and in a way it's actually quite a good diagram because you can almost see, you know like the taller towers. Although it's like in a circle you can see the taller towers and it's sort of easy to see where you're strong and where you're weak. You know because I'm dyslexic as well. I don't know if that's one of the key things because it's being represented almost pictorially and it's quite easy to see I'm good at this and not in that.

NW: And the comparison was good to rate yourself?

P: Yeah I think because it's individual, so ten could be the best player you've ever played against or it could be your best game, which I know some people did. But I felt there's no point in doing best game because in some aspects I would be ten out of ten

because it's easier to obtain. But if you're actually comparing yourself to someone who is actually a good player, who is making it at a good level then you can actually say well that's what I have to do to make that standard, that's where I'm at now.

NW: Ok so you found it more beneficial looking at somebody else and comparing it to yourself?

P: Yeah definitely. I mean I don't know what they might do with regards to saying in the future.....saying right instead of you scoring yourself where zero is definitely this and ten is definitely this you may compare against someone in your position in the team. If you're going to compare against different people's profiles and if one person is marking out of his best game and I'm doing mine against an international player then he is obviously going to be having much higher towers and then the comparison between players would be a bit unfair if you know what I mean. Not that that matters.

NW: So if you wanted to compare props in the club then how would you go about doing that, what scale would you use in order to compare more fairly?

P: I'd personally say the same scale and something like the first division or premiership player. The reason I didn't use premiership player was because I thought that was a bit high, because they get the opportunity to train all the time. Whereas we're at University trying to get a degree and trying to do dissertations and stuff. So I thought semi-pro player where they're going to have to work as well, I thought was more reflective of our position.

NW: So in comparing you'd prefer to compare against someone that's above your level but not too far above?

P: Yeah exactly. I think if you went too far above your level it would be ridiculous because all your scores would be so low with the exception of maybe one that would maybe only be one higher than the rest.

NW: Ok any other strengths or any other good points about the session that you can think?

P: I really did think it was good that we were told what was going to happen in a big group and then we were split into our specific groups so like props, second rows etc. I thought that was excellent because basically if I had sat there myself I wouldn't have had a starting point. So I thought that was really good. You go into little groups discuss and bounce ideas of each other, they can give you comments and you give comments and you all work together. I thought that was really good, because you've then got some sort of starting block. Then taking it up and telling the whole team. I thought that was important but maybe not as important as doing it in the little groups, because maybe you bounce off other groups which is important but after we had done our stuff in the group we didn't really change anything as a result of what say the centres had said. Because I thought that the ones that we'd done with the front row were more relevant. So when we got to the stage of doing our own individual profile I had a look at the other examples given but pretty much used our ones for my profile.

NW: So you reckon it would be more beneficial to doing it in small groups than on your own?

P: Yeah I'd say do it in small groups and then go off on your own. Definitely small groups because you get different ideas, different perspectives.

NW: Ok. We have a number of potential strengths there. Are there any potential weaknesses with the profile or the session that you can think of?

P: Not really if anything I would have said I would like to have had more time. I'm quite a slower worker anyway so more time would have been useful. But I've just thought you know that I said I thought it was quite humbling to do the profile, depending on what type of person you are you may take that badly and say well I'm rubbish what's the point. It's just shown me really how bad I am. That not my reaction to it but I thought some people may react that way.

NW: So it potentially could have a negative effect?

P: I think depending on the person. It had a good effect on me and the rest of the team. But I think it could have a negative effect on some people depending on their personality really.

NW: Or the ratings that they give themselves?

P: Yeah you know if they think right I'm going to compare myself against an international player, so they then go well I'm no way near as strong as Jason Leonard, then endurance low speed low. They're going to look at themselves and say what's the point I might as well give up.

NW: How do you reckon you could overcome that?

P: I suppose maybe have a fixed scale so that you choose Worthing standard, which is a reasonable standard, but not too far ahead of where they are now. Then they will be more confident to rate themselves higher and be happier with they're ability. Or maybe afterwards give them all positive feedback, and say look there's nothing to get worried about use this to say right I'm going to get better rather than reacting in a depressed way. Use it as a catalyst to move your career on and say look what do I need to do, strength well then I need to get into the gym work on my strength and get better at that area. You need to try to reinforce that it should be used as a positive thing and not negative.

NW: I think we've covered both the strengths and weaknesses as you see them. Can we now move on to discuss the generating of the qualities. Can I ask you how effective you found the procedure of generating the important qualities for your own position?

P: I think that was very effective because it gave you a starting point. I think if you did it individually you wouldn't get as much and I might not have been able to fill all of those boxes in. With a group doing it as we did was really good because you could work together and you get different points of view from which you can then move on.

NW: so you found working in a group fairly beneficial?

P: Yeah.

NW: Also when you talked about putting it up on the board earlier you thought that that was good. Why was that beneficial?

P: Basically because I think it gives it a nice break. I mean I'm doing a teaching degree and you try to vary the way that the lesson is going. So it's not whole class teaching all the time. On the other hand it's not individual, it's about mixing it about. So we had a whole group thing and little group work and it changes the focus it changes the attention. So you get into your groups you start to plateau out and you think right I'm not going to get much more here. Then you stopped it and bang it's up on the board so it changes again and it gets you interested again. Rather than just nodding off you see what other people had to say and I reckon that the majority of the people in there will have used some of the qualities that other people came up with. I mean if I'm truthful I did look at what other people were saying, but I think the majority of the qualities that I came up with were from our own group.

NW: Did you find it easy to generate the qualities from within your own group?

P: We didn't at first. Mainly because one of the guys in our group was new and that was the first time we had met him. As soon as we got to know him we got into it and it was fine.

NW: Specifically moving on to when you have seen everyone's examples and you move on to choosing the important qualities for you own profile. Are you happy with the qualities that you have then chosen for your own profile?

P: Yeah definitely I think because when I did mine I pretty much took my time doing it, and made sure I didn't look at anybody else's to be swayed from my own opinion. So it's all my own ideas. I mean obviously I picked qualities from the board, but having said that the qualities that I have on my profile you could probably give that to another prop and they would be pretty similar to the kind of things there looking to do as well. Which is probably what you want it to be, because most props should be able to do most of the things that I have there.

NW: Are there any specific improvements that you think are required for the generating of the qualities procedure?

P: I don't think so. I mean perhaps you could have given us a few starters. If we were really struggling to get any points done you could have given us a few starters to get us going. I mean you did give us help with splitting the qualities into the four areas. I think those four areas was a great idea to get you up and running and then it's your own work from there on.

NW: Moving on to the rating of the qualities. How effective did you find the procedure of rating the individual qualities? What were your ratings again?

P: Zero being no degree whatsoever and ten being a semi-pro player, kind of Exeter standard.

NW: How difficult did you find it to rate yourself on that scale then?

P: I did find it quite tricky really. Particularly stuff that I'm poor on say speed, endurance, strength etc. Something that at college standard I may be ok at, but when it comes to comparing yourself against a semi-pro player it becomes quite hard. I mean I know that I'm unfit but I'm not that unfit compared to say Joe Bloggs but I found it difficult to rate myself against the higher standard. But I also found it hard when you are comparing it to someone at that higher level like Freddie because he was a player of a certain type where he had a particular style. Now some of the qualities on my profile I know I'm better than him at but again that was because that was not his style of play and therefore it becomes difficult rating yourself in those particular comparisons.

NW: Is there anyway in which you could overcome that?

P: I suppose unless you show a video of Exeter playing, and you can see the standard and you have a marker then that might be good but other than that no.

NW: Having said that you found it difficult to rate are you now happy with the ratings that you have?

P: Yeah I mean don't get me wrong I wouldn't have said that it was majorly difficult it was just one of those things that I had to sit and think about it. But that's probably just because it's me. But yeah the ratings I'm happy about, they're pretty much spot on.

NW: Are there any other rating scales or comparisons that you think you could use?

P: I mean I think it's important to rate it to the limit that you could potentially reach. I said realistically I could, if I trained hard then I could reach Exeter standard or roughly that level. I think it's important to rate yourself against a standard that you think you could potentially reach.

NW: Moving on, you completed a profile that was individual to your style of play and you as a rugby player. Are there any other profiles that you could do, utilising the same procedure that we went through on Sunday that would benefit either yourself or the team as a whole?

P: Yeah you could break it down into small groups: front three, scrum, the backs and then the team as a whole. You could quite easily rate your team, how you play together, commitment in the team. Instead of putting together an individual one you would produce one for the front three. Yeah so you could definitely do that I would have thought. The other thing you could do was get the coach to do one, and do one specifically for me and then compare his one of me and my one of me. Say to him right the scale is zero is no degree and ten is semi-pro player standard and I give him my outside bits, so like tackling dominance etc. So he has all my qualities and then he just rates them. Then you can see what he actually thinks of you.

NW: So where would you go with that then once you have both rated yourself on the qualities?

P: We'd discuss the strengths and weaknesses and the various results from the profile and then we'd design some sort of fitness programme or some sort of timetable for you to improve. For example if we'd both highlighted the same areas as weak qualities then we could hopefully get together and we'd work out a plan to get it better. So it's almost like a clinic. You say what your problem is and how you feel about the problems doing your own performance profile. The coach does his performance profile of you, so he then diagnoses what the problem is and then you put them together and say well we agree on that and that. Then do some sort of clinic to improve the areas through utilising

various expertise, like yourself or a physiologist or the coach for the technical aspects. I suppose that's in an ideal world.

NW: If we move on to try to discuss how the consultant did in the session. Can I ask you how effective did you find the consultant in delivering the session?

P: I think he was very good, he came across very well. He made it clear and came round and told us bits and helped us out. He did present himself very well.

NW: Is there anything else he could have done...

P: Maybe when he gave the example I think he used mountain biking, maybe using a more specific example or a more personal example so because we always say when we're teaching it's good to demonstrate to show that you're not invincible. So I think if he had done one, so that he went through the same process, he would benefit from seeing the easy and hard parts of the process but also we would think well he's done it, he knows what he's talking about.

NW: Moving on to talk about a fixed profile. A fixed profile is basically where you have the qualities around the edge chosen for you and you then merely have to rate yourself on those qualities. Would you find that beneficial?

P: I don't know if it would be more beneficial than what we have done but I do think it would be beneficial. Just the nature of the thing that we're doing means that any opportunity you can get to do this sort of stuff would be beneficial. Even if there is something down there that isn't directly relevant to you if it's designed for a rugby player it should be relevant to you in some way. So I think it would be very beneficial but perhaps not as beneficial as doing it yourself.

NW: Are there any improvements to either the performance profile or the session as a whole?

P: Other than possibly having a bit more time to do it. I think the performance profile is generally good I think it's a good way of representing it. Maybe depending on the type of people you're working with maybe give them a bit of a clue or give the, the fixed

profile. Then that means they don't have to struggle to think of things they can just rate themselves.

NW: You say 'they' being?

P: If you were to give it to my youngest brother who plays rugby and is fifteen I think you would have problems. But I suppose it would be beneficial for him at that age to see what's important for his position. So maybe for younger age people it might be a better idea to use the fixed profile. I also think to use a fixed profile, if you did the choosing of the qualities on your own then technically you could choose only the things that you're good at. But if you weren't being completely honest and you wanted just to look good then you could choose just those qualities. But with the fixed profile there's no hiding you have to rate the important qualities. So maybe if you think you're not getting the truth out of them, get them to do the fixed profile as well then there's no way for them to hide from rating those qualities.

NW: Do you think you would benefit from participating in a similar session in the future?

P: Yeah I think anyone would. I think if you're looking to improve and looking to improve on your weaknesses then I think this is a good way of isolating or highlighting those weaknesses from which you can then work on.

NW: How might you then use the profile in the future?

P: I think it would be an excellent session to do as a theory session for my teaching next year. You could do it for school, so geography, english etc. Or you could do it for a game. So the game went this way here's your performance profile rate yourself on that game. So you could give them quite good feedback from doing the performance profile. Personal use, because it makes you look at yourself and see what needs improving.

NW: If I then try and summarise what you've said. Please speak up if you think I've missed out something or if you want to add something. (Summary given and nothing else said by the participant. Player thanked for participating in the interview)

APPENDIX 6:

ATHLETE PERFORMANCE PROFILE QUESTIONNAIRE (APPQ)

Athlete Performance Profile Questionnaire

Directions: This questionnaire is designed to evaluate the impact of using the Performance Profile from an athlete perspective. All the questions relate to aspects of the process of completing your own Performance Profile.

The questionnaire does not require your name and therefore **all responses** are completely **confidential. There are no right or wrong answers.** Please answer every question **as honestly as possible** relating to the **session you have just been involved in**. If you do not understand the meaning of any of the questions please ask the researcher for an explanation.

Background Information

GENDER: **Male** / **Female** AGE: SPORT:
YEARS OF COMPETITIVE EXPERIENCE IN CURRENT SPORT: _____
TEAM USUALLY PLAY FOR: 1st 2nd 3rd 4th 5th
HAVE YOU PARTICIPATED IN A PERFORMANCE PROFILE SESSION BEFORE?
YES / **NO**
If Yes, where, when and by whom was the session taken?

_____

_____

(i) Generally, how **useful** did you find the **Performance Profile** to be?

Not At All		Moderately		Very Much	Don't Know
1	2	3	4	5	6

(ii) How much do you believe that you would **benefit** from participating in a similar session in the future?

Not At All		Moderately		Very Much	Don't Know
1	2	3	4	5	6

(iii) How **effective** do you believe the **consultant** was in **delivering** the session?

Not At All		Moderately		Very Much	Don't Know
1	2	3	4	5	6

(iv) The following are potential impacts of the performance profile that you may or may not have benefited from doing the performance profile. Please indicate, on the scale provided, the **level of impact** the **performance profiling session** had on the following:

	Not At All	Moderately			Very Much	Don't Know
Helped to highlight my strengths	1	2	3	4	5	6
Helped to highlight my weaknesses	1	2	3	4	5	6
Helped to highlight the demands of my position	1	2	3	4	5	6
It helped to get something down on paper	1	2	3	4	5	6
It helped highlight strategies to improve	1	2	3	4	5	6
It helped to enhance my confidence in my ability	1	2	3	4	5	6
It was a catalyst to help improve myself	1	2	3	4	5	6
It made me think about setting goals	1	2	3	4	5	6
Helped to highlight the demands of other positions	1	2	3	4	5	6

(v) Please indicate on the scale provided the extent you would benefit from using the performance profile in the future:

	Not At All		Moderately		Very Much	Don't Know
To build my confidence	1	2	3	4	5	6
To help me decide what I need to work on	1	2	3	4	5	6
To monitor my progress	1	2	3	4	5	6
To aid communication with my coach	1	2	3	4	5	6
To set goals for myself	1	2	3	4	5	6
To take more control of my development	1	2	3	4	5	6
To motivate me to train	1	2	3	4	5	6
To motivate me to improve	1	2	3	4	5	6
To structure my training schedule	1	2	3	4	5	6
To help in the evaluation of my performance	1	2	3	4	5	6
To help the coach individualise my training	1	2	3	4	5	6
To improve the coach's understanding of me	1	2	3	4	5	6
To provide after game analysis	1	2	3	4	5	6
To record my improvements	1	2	3	4	5	6
To take more responsibility for my development	1	2	3	4	5	6

(vi) Please indicate, on the scale provided, the extent to which you believe you or your team would benefit from the construction of the following types of Performance Profile:

	Not At All		Moderately		Very Much	Don't Know
A profile of my team as a whole	1	2	3	4	5	6
My coach's profile of himself	1	2	3	4	5	6
A unit profile (e.g. midfield; forwards etc.)	1	2	3	4	5	6
A profile to evaluate my performance after I play	1	2	3	4	5	6
A fixed profile (qualities are already chosen for you)	1	2	3	4	5	6

Thank you for completing this questionnaire

APPENDIX 7:

APPQ EXPLORATORY FACTOR ANALYSIS RESULTS

KOLMOGOROV-SMIRNOV NORMALITY CHECK

Tests of Normality

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Helped to highlight my strengths	.264	165	.000	.820	165	.000
Helped to highlight my weaknesses	.278	165	.000	.783	165	.000
Helped to highlight the demands of my position	.212	165	.000	.852	165	.000
It helped to get something down on paper	.228	165	.000	.890	165	.000
It helped highlight strategies to improve	.201	165	.000	.900	165	.000
It helped to enhance my confidence in my ability	.217	165	.000	.885	165	.000
It was a catalyst to improve myself	.252	165	.000	.872	165	.000
It made me think of setting goals	.290	165	.000	.847	165	.000
Helped to highlight the demands of other positions	.225	165	.000	.886	165	.000
To build my confidence	.200	165	.000	.901	165	.000
To help decide what i need to work on	.263	165	.000	.795	165	.000
To monitor my progress	.236	165	.000	.853	165	.000
To aid communication with my coach	.198	165	.000	.897	165	.000
To set goals for myself	.259	165	.000	.847	165	.000
To take more control of my development	.256	165	.000	.865	165	.000
To motivate me to train	.244	165	.000	.885	165	.000
To motivate me to improve	.227	165	.000	.835	165	.000
To structure my training schedule	.203	165	.000	.903	165	.000
To help in the evaluation of my performance	.265	165	.000	.857	165	.000
To help the coach individualise my training	.190	165	.000	.905	165	.000
To improve the coach's understanding of me	.197	165	.000	.899	165	.000
To provide after game analysis	.248	165	.000	.883	165	.000

To record my improvements	.294	165	.000	.850	165	.000
To take more responsibility for my development	.284	165	.000	.854	165	.000

a Lilliefors Significance Correction

KMO AND BARTLETT'S TEST

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.888
Bartlett's Test of Sphericity	Approx. Chi-Square	1760.702
	df	276
	Sig.	.000

THE ROTATED FACTORS AND THEIR VARIANCE

Total Variance Explained

	Initial Eigenvalues			Rotation Sums of Squared Loadings		
Factor	**Total**	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**
1	8.206	34.192	34.192	3.252	13.548	13.548
2	1.978	8.241	42.433	2.451	10.215	23.763
3	1.397	5.819	48.252	2.103	8.763	32.525
4	1.260	5.248	53.500	1.600	6.665	39.190
5	1.177	4.903	58.402	1.513	6.304	45.494
6	1.026	4.274	62.676	1.222	5.093	50.588
7	.913	3.804	66.480			
8	.800	3.335	69.815			
9	.752	3.134	72.948			
10	.723	3.011	75.959			
11	.670	2.790	78.749			
12	.603	2.511	81.260			
13	.580	2.415	83.675			
14	.506	2.107	85.783			
15	.487	2.029	87.812			
16	.449	1.873	89.685			
17	.436	1.818	91.503			
18	.392	1.633	93.136			
19	.355	1.479	94.615			
20	.316	1.318	95.933			
21	.284	1.184	97.116			
22	.257	1.072	98.188			
23	.226	.941	99.129			
24	.209	.871	100.000			

Extraction Method: Principal Axis Factoring.

APPQ ROTATED FACTOR MATRIX

Rotated Factor Matrix

	Factor					
	1	2	3	4	5	6
Zscore To take more control of my development	.679	.134	.263	.103	.164	.138
Zscore: To take more responsibility for my development	.633	-5.419E-03	.264	.237	8.606E-02	.349
Zscore: To motivate me to train	.616	7.030E-02	.117	4.162E-02	.300	.116
Zscore: To motivate me to improve	.601	6.244E-02	.140	.271	.251	.128
Zscore To set goals for myself	.586	.365	.306	.319	.186	-9.680E-02
Zscore: To monitor my progress	.370	.226	.243	.256	.218	4.720E-02
Zscore: To help the coach individualise my training	-2.377E-02	.804	7.634E-02	4.431E-02	.119	.118
Zscore: To improve the coach's understanding of me	7.105E-02	.755	.157	5.496E-02	7.998E-03	.133
Zscore: To aid communicate with my coach	.189	.601	3.627E-02	.173	.206	1.745E-02
Zscore: To structure my training schedule	.461	.477	.122	8.252E-02	.132	.195
Zscore: To help in the evaluation of my performance	.281	.359	.218	.307	.265	.214
Zscore: It was a catalyst to improve myself	.440	-3.577E-02	.602	.106	.129	7.698E-02
Zscore: It helped to enhance my confidence in my ability	7.432E-02	7.124E-02	.578	6.829E-02	1.652E-02	.214
Zscore: To build my confidence	.143	.151	.531	.132	6.561E-02	9.777E-02
Zscore: It made me think about setting goals	.421	.207	.511	9.971E-02	.163	-6.117E-02
Zscore: It helped to get something down on paper	.169	.135	.334	.247	.321	2.635E-02
Zscore: Helped to highlight my weaknesses	.108	.138	3.912E-02	.676	5.697E-02	.105
Zscore: To help me decide what I need to work on	.263	.160	.315	.499	.314	-1.880E-02
Zscore: Helped to highlight my strengths	.194	1.415E-02	.195	.490	.193	.262

Zscore: It helped to highlight the demands of my position	.148	.137	-7.903E-03	.149	.629	9.534E-03
Zscore: It helped to highlight the demands of other positions	.207	7.641E-02	9.314E-02	.121	.435	8.687E-02
Zscore: It helped to highlight strategies to improve	.236	.116	.321	-3.269E-02	.414	.134
Zscore: To provide after game analysis	.161	.310	.225	.173	4.192E-02	.689
Zscore: To record my improvements	.382	.198	.179	.188	.227	.528

Extraction Method: Principal Axis Factoring. Rotation Method: Varimax with Kaiser Normalization.

a Rotation converged in 7 iterations.

FACTOR GENDER ANALYSIS

General Linear Model

Between-Subjects Factors

		Value Label	N
gender	1.00	male	99
	2.00	female	92

Descriptive Statistics

	gender	Mean	Std. Deviation	N
mean score for EFA performance evaluation theme	male	3.5859	.92868	99
	female	3.7690	.73121	92
	Total	3.6741	.84222	191
mean score for EFA sports based knowledge theme	male	3.6582	.71285	99
	female	3.6467	.64044	92
	Total	3.6527	.67718	191
mean score for EFA self awareness theme	male	4.1448	.63561	99
	female	4.2355	.61630	92
	Total	4.1885	.62638	191
mean score for EFA untitled theme	male	3.5152	.73518	99
	female	3.5370	.66559	92
	Total	3.5257	.70077	191
mean score for EFA coach related performance development theme	male	3.5040	.72294	99
	female	3.6109	.77282	92
	Total	3.5555	.74732	191
mean score for EFA motivation theme	male	3.7997	.75966	99
	female	3.8551	.70298	92
	Total	3.8264	.73151	191

Multivariate Tests

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power
Intercept	Pillai's Trace	.984	1849.571	6.000	184.000	.000	.984	11097.427	1.000
	Wilks' Lambda	.016	1849.571	6.000	184.000	.000	.984	11097.427	1.000
	Hotelling's Trace	60.312	1849.571	6.000	184.000	.000	.984	11097.427	1.000
	Roy's Largest Root	60.312	1849.571	6.000	184.000	.000	.984	11097.427	1.000
GENDER	Pillai's Trace	.019	.592	6.000	184.000	.737	.019	3.549	.233
	Wilks' Lambda	.981	.592	6.000	184.000	.737	.019	3.549	.233
	Hotelling's Trace	.019	.592	6.000	184.000	.737	.019	3.549	.233
	Roy's Largest Root	.019	.592	6.000	184.000	.737	.019	3.549	.233

a Computed using alpha = .05
b Exact statistic
c Design: Intercept+GENDER

Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power
Corrected Model	mean score for EFA performance evaluation theme	1.600	1	1.600	2.270	.134	.012	2.270	.323
	mean score for EFA sports based knowledge theme	6.317E-03	1	6.317E-03	.014	.907	.000	.014	.052
	mean score for EFA self awareness theme	.393	1	.393	1.000	.318	.005	1.000	.169
	mean score for EFA untitled theme	2.267E-02	1	2.267E-02	.046	.831	.000	.046	.055
	mean score for EFA coach related performance development theme	.544	1	.544	.974	.325	.005	.974	.166
	mean score for EFA motivation theme	.146	1	.146	.273	.602	.001	.273	.081
Intercept	mean score	2579.532	1	2579.532	3660.85	.000	.951	3660.850	1.000

	for EFA performance evaluation theme				0				
	mean score for EFA sports based knowledge theme	2544.654	1	2544.654	5520.229	.000	.967	5520.229	1.000
	mean score for EFA self awareness theme	3348.942	1	3348.942	8535.444	.000	.978	8535.444	1.000
	mean score for EFA untitled theme	2371.524	1	2371.524	4804.999	.000	.962	4804.999	1.000
	mean score for EFA coach related performance development theme	2413.951	1	2413.951	4321.753	.000	.958	4321.753	1.000
	mean score for EFA motivation theme	2794.152	1	2794.152	5201.631	.000	.965	5201.631	1.000
GENDER	mean score for EFA performance evaluation theme	1.600	1	1.600	2.270	.134	.012	2.270	.323
	mean score for EFA sports based knowledge theme	6.317E-03	1	6.317E-03	.014	.907	.000	.014	.052
	mean score for EFA self awareness theme	.393	1	.393	1.000	.318	.005	1.000	.169
	mean score for EFA untitled theme	2.267E-02	1	2.267E-02	.046	.831	.000	.046	.055
	mean score for EFA coach related performance development theme	.544	1	.544	.974	.325	.005	.974	.166
	mean score for EFA motivation theme	.146	1	.146	.273	.602	.001	.273	.081
Error	mean score for EFA performance evaluation theme	133.174	189	.705					
	mean score for EFA	87.123	189	.461					

	sports based knowledge theme								
	mean score for EFA self awareness theme	74.155	189	.392					
	mean score for EFA untitled theme	93.282	189	.494					
	mean score for EFA coach related performance development theme	105.568	189	.559					
	mean score for EFA motivation theme	101.525	189	.537					
Total	mean score for EFA performance evaluation theme	2713.063	191						
	mean score for EFA sports based knowledge theme	2635.500	191						
	mean score for EFA self awareness theme	3425.333	191						
	mean score for EFA untitled theme	2467.480	191						
	mean score for EFA coach related performance development theme	2520.650	191						
	mean score for EFA motivation theme	2898.097	191						
Corrected Total	mean score for EFA performance evaluation theme	134.774	190						

	mean score for EFA sports based knowledge theme	87.129	190						
	mean score for EFA self awareness theme	74.548	190						
	mean score for EFA untitled theme	93.304	190						
	mean score for EFA coach related performance development theme	106.112	190						
	mean score for EFA motivation theme	101.671	190						

a Computed using alpha = .05
b R Squared = .012 (Adjusted R Squared = .007)
c R Squared = .000 (Adjusted R Squared = -.005)
d R Squared = .005 (Adjusted R Squared = .000)
e R Squared = .001 (Adjusted R Squared = -.004)

General Linear Model

Between-Subjects Factors

		Value Label	N
sport	1.00	rugby	31
	2.00	hockey	58
	3.00	basketball	19
	4.00	football	51
	5.00	netball	32

Descriptive Statistics

	sport	Mean	Std. Deviation	N
mean score for EFA performance evaluation theme	rugby	3.6129	1.11587	31
	hockey	3.4569	.87502	58
	basketball	3.6711	.52739	19
	football	3.7451	.70974	51
	netball	4.0156	.73489	32
	Total	3.6741	.84222	191
mean score for EFA sports based knowledge theme	rugby	3.6559	.66379	31
	hockey	3.6667	.65487	58
	basketball	3.5614	.62165	19
	football	3.6993	.73411	51
	netball	3.6042	.70042	32
	Total	3.6527	.67718	191
mean score for EFA self awareness theme	rugby	3.9892	.61152	31
	hockey	4.0172	.72661	58
	basketball	4.5439	.33721	19
	football	4.1961	.56244	51
	netball	4.4688	.49267	32
	Total	4.1885	.62638	191
mean score for EFA untitled theme	rugby	3.6194	.80392	31
	hockey	3.5000	.82781	58
	basketball	3.5158	.47757	19
	football	3.4510	.53343	51
	netball	3.6063	.71208	32
	Total	3.5257	.70077	191
mean score for EFA coach related performance development theme	rugby	3.6774	.75309	31
	hockey	3.4000	.74927	58
	basketball	3.5000	.72188	19
	football	3.4471	.67597	51
	netball	3.9250	.76158	32

	Total	3.5555	.74732	191
mean score for EFA motivation theme	rugby	3.9301	.72108	31
	hockey	3.6609	.85838	58
	basketball	3.8333	.39382	19
	football	3.8660	.69043	51
	netball	3.9583	.69303	32
	Total	3.8264	.73151	191

Multivariate Tests

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power
Intercept	Pillai's Trace	.982	1662.636	6.000	181.000	.000	.982	9975.817	1.000
	Wilks' Lambda	.018	1662.636	6.000	181.000	.000	.982	9975.817	1.000
	Hotelling's Trace	55.115	1662.636	6.000	181.000	.000	.982	9975.817	1.000
	Roy's Largest Root	55.115	1662.636	6.000	181.000	.000	.982	9975.817	1.000
SPORT	Pillai's Trace	.269	2.210	24.000	736.000	.001	.067	53.033	.998
	Wilks' Lambda	.751	2.259	24.000	632.644	.001	.069	47.023	.994
	Hotelling's Trace	.307	2.294	24.000	718.000	.000	.071	55.064	.999
	Roy's Largest Root	.197	6.038	6.000	184.000	.000	.165	36.229	.998

a Computed using alpha = .05
b Exact statistic
c The statistic is an upper bound on F that yields a lower bound on the significance level.
d Design: Intercept+SPORT

Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power
Corrected Model	mean score for EFA performance evaluation theme	6.842	4	1.711	2.487	.045	.051	9.948	.701
	mean score for EFA sports based knowledge theme	.356	4	8.909E-02	.191	.943	.004	.764	.090

	mean score for EFA self awareness theme	7.847	4	1.962	5.471	.000	.105	21.883	.974
	mean score for EFA untitled theme	.804	4	.201	.404	.805	.009	1.618	.143
	mean score for EFA coach related performance development theme	6.890	4	1.723	3.229	.014	.065	12.917	.824
	mean score for EFA motivation theme	2.560	4	.640	1.201	.312	.025	4.804	.372
Intercept	mean score for EFA performance evaluation theme	2237.472	1	2237.472	3253.052	.000	.946	3253.052	1.000
	mean score for EFA sports based knowledge theme	2162.151	1	2162.151	4634.618	.000	.961	4634.618	1.000
	mean score for EFA self awareness theme	2941.938	1	2941.938	8203.832	.000	.978	8203.832	1.000
	mean score for EFA untitled theme	2046.032	1	2046.032	4114.190	.000	.957	4114.190	1.000
	mean score for EFA coach related performance development theme	2105.930	1	2105.930	3947.772	.000	.955	3947.772	1.000
	mean score for EFA motivation theme	2421.828	1	2421.828	4544.976	.000	.961	4544.976	1.000
SPORT	mean score for EFA performance evaluation theme	6.842	4	1.711	2.487	.045	.051	9.948	.701
	mean score for EFA sports based knowledge theme	.356	4	8.909E-02	.191	.943	.004	.764	.090
	mean score for EFA self awareness theme	7.847	4	1.962	5.471	.000	.105	21.883	.974
	mean score for EFA untitled theme	.804	4	.201	.404	.805	.009	1.618	.143
	mean score for EFA coach related performance development theme	6.890	4	1.723	3.229	.014	.065	12.917	.824
	mean score for EFA motivation theme	2.560	4	.640	1.201	.312	.025	4.804	.372
Error	mean score for EFA performance evaluation theme	127.932	186	.688					
	mean score for EFA sports based knowledge theme	86.773	186	.467					

	mean score for EFA self awareness theme	66.701	186	.359					
	mean score for EFA untitled theme	92.500	186	.497					
	mean score for EFA coach related performance development theme	99.221	186	.533					
	mean score for EFA motivation theme	99.112	186	.533					
Total	mean score for EFA performance evaluation theme	2713.063	191						
	mean score for EFA sports based knowledge theme	2635.500	191						
	mean score for EFA self awareness theme	3425.333	191						
	mean score for EFA untitled theme	2467.480	191						
	mean score for EFA coach related performance development theme	2520.650	191						
	mean score for EFA motivation theme	2898.097	191						
Corrected Total	mean score for EFA performance evaluation theme	134.774	190						
	mean score for EFA sports based knowledge theme	87.129	190						
	mean score for EFA self awareness theme	74.548	190						
	mean score for EFA untitled theme	93.304	190						
	mean score for EFA coach related performance development theme	106.112	190						
	mean score for EFA motivation theme	101.671	190						

a Computed using alpha = .05
b R Squared = .051 (Adjusted R Squared = .030)
c R Squared = .004 (Adjusted R Squared = -.017)
d R Squared = .105 (Adjusted R Squared = .086)
e R Squared = .009 (Adjusted R Squared = -.013)
f R Squared = .065 (Adjusted R Squared = .045)
g R Squared = .025 (Adjusted R Squared = .004)

Post Hoc Tests

Multiple Comparisons
Scheffe

Dependent Variable	(I) sport	(J) sport	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
mean score for EFA performance evaluation theme	rugby	hockey	.1560	.18452	.949	-.4181	.7301
		basketball	-.0581	.24164	1.000	-.8100	.6937
		football	-.1322	.18887	.974	-.7199	.4555
		netball	-.4027	.20900	.449	-1.0530	.2476
	hockey	rugby	-.1560	.18452	.949	-.7301	.4181
		basketball	-.2142	.21922	.916	-.8963	.4679
		football	-.2882	.15920	.514	-.7835	.2071
		netball	-.5587	.18263	.057	-1.1270	.0095
	basketball	rugby	.0581	.24164	1.000	-.6937	.8100
		hockey	.2142	.21922	.916	-.4679	.8963
		football	-.0740	.22291	.999	-.7676	.6195
		netball	-.3446	.24020	.725	-1.0919	.4028
	football	rugby	.1322	.18887	.974	-.4555	.7199
		hockey	.2882	.15920	.514	-.2071	.7835
		basketball	.0740	.22291	.999	-.6195	.7676
		netball	-.2705	.18703	.719	-.8525	.3114
	netball	rugby	.4027	.20900	.449	-.2476	1.0530
		hockey	.5587	.18263	.057	-.0095	1.1270
		basketball	.3446	.24020	.725	-.4028	1.0919
		football	.2705	.18703	.719	-.3114	.8525
mean score for EFA Sports based knowledge theme	rugby	hockey	-.0108	.15196	1.000	-.4836	.4621
		basketball	.0945	.19900	.994	-.5247	.7137
		football	-.0434	.15555	.999	-.5274	.4406
		netball	.0517	.17213	.999	-.4838	.5873
	hockey	rugby	.0108	.15196	1.000	-.4621	.4836
		basketball	.1053	.18055	.987	-.4565	.6670
		football	-.0327	.13111	1.000	-.4406	.3753
		netball	.0625	.15041	.996	-.4055	.5305
	basketball	rugby	-.0945	.19900	.994	-.7137	.5247
		hockey	-.1053	.18055	.987	-.6670	.4565
		football	-.1379	.18358	.967	-.7091	.4332
		netball	-.0428	.19782	1.000	-.6583	.5727
	football	rugby	.0434	.15555	.999	-.4406	.5274
		hockey	.0327	.13111	1.000	-.3753	.4406
		basketball	.1379	.18358	.967	-.4332	.7091

		netball	.0952	.15403	.984	-.3841	.5744
	netball	rugby	-.0517	.17213	.999	-.5873	.4838
		hockey	-.0625	.15041	.996	-.5305	.4055
		basketball	.0428	.19782	1.000	-.5727	.6583
		football	-.0952	.15403	.984	-.5744	.3841
mean score for EFA self awareness theme	rugby	hockey	-.0280	.13323	1.000	-.4425	.3865
		basketball	-.5546	.17448	.042	-1.0975	-.0117
		football	-.2068	.13638	.681	-.6312	.2175
		netball	-.4795	.15091	.042	-.9491	-.0100
	hockey	rugby	.0280	.13323	1.000	-.3865	.4425
		basketball	-.5266	.15829	.029	-1.0191	-.0341
		football	-.1788	.11495	.659	-.5365	.1788
		netball	-.4515	.13187	.022	-.8618	-.0412
	basketball	rugby	.5546	.17448	.042	.0117	1.0975
		hockey	.5266	.15829	.029	.0341	1.0191
		football	.3478	.16095	.327	-.1530	.8486
		netball	.0751	.17344	.996	-.4645	.6147
	football	rugby	.2068	.13638	.681	-.2175	.6312
		hockey	.1788	.11495	.659	-.1788	.5365
		basketball	-.3478	.16095	.327	-.8486	.1530
		netball	-.2727	.13505	.399	-.6929	.1475
	netball	rugby	.4795	.15091	.042	.0100	.9491
		hockey	.4515	.13187	.022	.0412	.8618
		basketball	-.0751	.17344	.996	-.6147	.4645
		football	.2727	.13505	.399	-.1475	.6929
Mean score for EFA untitled theme	rugby	hockey	.1194	.15690	.965	-.3688	.6075
		basketball	.1036	.20547	.993	-.5357	.7429
		football	.1684	.16060	.894	-.3313	.6681
		netball	.0131	.17772	1.000	-.5398	.5661
	hockey	rugby	-.1194	.15690	.965	-.6075	.3688
		basketball	-.0158	.18641	1.000	-.5958	.5642
		football	.0490	.13537	.998	-.3722	.4702
		netball	-.1062	.15529	.976	-.5894	.3769
	basketball	rugby	-.1036	.20547	.993	-.7429	.5357
		hockey	.0158	.18641	1.000	-.5642	.5958
		football	.0648	.18954	.998	-.5249	.6545
		netball	-.0905	.20424	.995	-.7259	.5450
	football	rugby	-.1684	.16060	.894	-.6681	.3313
		hockey	-.0490	.13537	.998	-.4702	.3722
		basketball	-.0648	.18954	.998	-.6545	.5249
		netball	-.1553	.15904	.916	-.6501	.3396

	netball	rugby	-.0131	.17772	1.000	-.5661	.5398
		hockey	.1062	.15529	.976	-.3769	.5894
		basketball	.0905	.20424	.995	-.5450	.7259
		football	.1553	.15904	.916	-.3396	.6501
mean score for EFA coach related performance development theme	rugby	hockey	.2774	.16250	.573	-.2282	.7830
		basketball	.1774	.21280	.952	-.4847	.8395
		football	.2304	.16634	.751	-.2872	.7479
		netball	-.2476	.18406	.771	-.8203	.3251
	hockey	rugby	-.2774	.16250	.573	-.7830	.2282
		basketball	-.1000	.19306	.992	-.7007	.5007
		football	-.0471	.14020	.998	-.4833	.3892
		netball	-.5250	.16083	.034	-1.0254	-.0246
	basketball	rugby	-.1774	.21280	.952	-.8395	.4847
		hockey	.1000	.19306	.992	-.5007	.7007
		football	.0529	.19631	.999	-.5578	.6637
		netball	-.4250	.21153	.404	-1.0832	.2332
	football	rugby	-.2304	.16634	.751	-.7479	.2872
		hockey	.0471	.14020	.998	-.3892	.4833
		basketball	-.0529	.19631	.999	-.6637	.5578
		netball	-.4779	.16471	.082	-.9904	.0345
	netball	rugby	.2476	.18406	.771	-.3251	.8203
		hockey	.5250	.16083	.034	.0246	1.0254
		basketball	.4250	.21153	.404	-.2332	1.0832
		football	.4779	.16471	.082	-.0345	.9904
Mean score for EFA motivation theme	rugby	hockey	.2692	.16241	.602	-.2361	.7745
		basketball	.0968	.21268	.995	-.5650	.7585
		football	.0641	.16624	.997	-.4532	.5813
		netball	-.0282	.18396	1.000	-.6006	.5441
	hockey	rugby	-.2692	.16241	.602	-.7745	.2361
		basketball	-.1724	.19296	.938	-.7728	.4280
		football	-.2051	.14013	.710	-.6411	.2309
		netball	-.2974	.16075	.492	-.7976	.2027
	basketball	rugby	-.0968	.21268	.995	-.7585	.5650
		hockey	.1724	.19296	.938	-.4280	.7728
		football	-.0327	.19620	1.000	-.6431	.5778
		netball	-.1250	.21142	.986	-.7828	.5328
	football	rugby	-.0641	.16624	.997	-.5813	.4532
		hockey	.2051	.14013	.710	-.2309	.6411
		basketball	.0327	.19620	1.000	-.5778	.6431
		netball	-.0923	.16462	.989	-.6045	.4199
	netball	rugby	.0282	.18396	1.000	-.5441	.6006

		hockey	.2974	.16075	.492	-.2027	.7976
		basketball	.1250	.21142	.986	-.5328	.7828
		football	.0923	.16462	.989	-.4199	.6045

Based on observed means.

* The mean difference is significant at the .05 level.

APPENDIX 8:

STUDY FIVE INFORMATION SHEET & CONSENT FORM

Information Sheet & Consent Form

The present investigation examines the perceptions of student sport performers regarding their sporting involvement over the course of a competitive season. In consenting to participate in the project you will be required to complete a Sport Involvement Perceptions Questionnaire on four occasions throughout the season. In addition you may be required to attend either a performance profiling or education sports science workshop three times throughout the season.

Any information that you supply will be strictly confidential. Should you have any questions regarding the project or at any time wish to withdraw from the project please feel free to contact the project co-ordinator Neil Weston (e-mail: neil.weston@port.ac.uk; telephone: 02392842122).

Please complete the details below if you consent to participate in the current research project as outlined above:

Print Name:

Athlete Signature:

Date:

APPENDIX 9:

THE SPORT INVOLVEMENT PERCEPTIONS QUESTIONNAIRE

Sport Involvement Perceptions Questionnaire

Directions: This questionnaire is being used to evaluate your current feelings regarding your sporting involvement. Please answer **all questions** as honestly as possible in relation to how you feel at this moment. **There are no right or wrong answers**. If you do not understand the meaning of any of the questions please ask the researcher for an explanation. You have been asked to give your name as we need to match your responses over time. However your responses will be kept **strictly confidential**.

BACKGROUND DETAILS:

Name: _____ **Age:** _____ **Sport:** _____

Years of competitive sporting experience in current sport: _____ **Gender:** M / F

WHY DO YOU PRACTICE YOUR SPORT?

Using the scale below, please indicate to what extent each of the following items corresponds to one of the reasons for which you are presently practising your sport.

	Does not correspond at all			Corresponds moderately			Corresponds exactly
1. For the pleasure I feel in living exciting experiences.	1	2	3	4	5	6	7
2. For the pleasure it gives me to know more about the sport that I practice.	1	2	3	4	5	6	7
3. I used to have good reasons for doing sports, but now I am asking myself if I should continue doing it.	1	2	3	4	5	6	7
4. For the pleasure of discovering new training techniques.	1	2	3	4	5	6	7
5. I don't know anymore; I have the impression that I am incapable of succeeding in this sport.	1	2	3	4	5	6	7
6. Because it allows me to be well regarded by people that I know.	1	2	3	4	5	6	7
7. Because, in my opinion, it is one of the best ways to meet people.	1	2	3	4	5	6	7
8. Because I feel a lot of personal satisfaction while mastering certain difficult training techniques.	1	2	3	4	5	6	7
9. Because it is absolutely necessary to do sports if one wants to be in shape.	1	2	3	4	5	6	7
10. For the prestige of being an athlete.	1	2	3	4	5	6	7
11. Because it is one of the best ways I have chosen to develop other aspects of myself.	1	2	3	4	5	6	7
12. For the pleasure I feel while improving some of my weak points.	1	2	3	4	5	6	7
13. For the excitement I feel when I am really involved in the activity.	1	2	3	4	5	6	7
14. Because I must do sports to feel good about myself.	1	2	3	4	5	6	7
15. For the satisfaction I experience while I am perfecting my abilities.	1	2	3	4	5	6	7
16. Because people around me think it is important to be in shape.	1	2	3	4	5	6	7
17. Because it is a good way to learn lots of things which could be useful to me in other areas of my life.	1	2	3	4	5	6	7
18. For the intense emotions that I feel while I am doing a sport that I like.	1	2	3	4	5	6	7
19. It is not clear to me anymore; I don't really think my place is in sport.	1	2	3	4	5	6	7
20. For the pleasure that I feel while executing certain difficult movements.	1	2	3	4	5	6	7
21. Because I would feel bad if I was not taking time to do it.	1	2	3	4	5	6	7
22. To show others how good I am good at my sport.	1	2	3	4	5	6	7
23. For the pleasure that I feel while learning training techniques that I have never tried before.	1	2	3	4	5	6	7
24. Because it is one of the best ways to maintain good relationships with my friends.	1	2	3	4	5	6	7
25. Because I like the feeling of being totally immersed in the activity.	1	2	3	4	5	6	7
26. Because I must do sports regularly.	1	2	3	4	5	6	7
27. For the pleasure of discovering new performance strategies.	1	2	3	4	5	6	7
28. I often ask myself; I can't seem to achieve the goals that I set for myself.	1	2	3	4	5	6	7

Thank you for completing this questionnaire

APPENDIX 10:

STUDY 5 REPEATED MEASURES MANOVA RESULTS

Sphericity

Effect		Likelihood Ratio	Approx. Chi-Square	df	Sig.
Between Subjects		.000	80.099	5	.000
Within Subjects	TIME	.000	66.341	5	.000

Tests the null hypothesis that the residual covariance matrix is proportional to an identity matrix.
a Design: Intercept+GROUP Within Subjects Design: TIME

STUDY 5 NORMAL DISTRIBUTION SKEWNESS & KURTOSIS RESULTS

		Intrinsic motivation stimulation pre score	Intrinsic motivation stimulation post 1 score	Intrinsic motivation stimulation post 2 score	Intrinsic motivation stimulation post 3 score	intrinsic motivation accomplish ment pre score	intrinsic motivation accomplish ment post 1 score	intrinsic motivation accomplish ment post 2 score	intrinsic motivation accomplish ment post 3score	intrinsic motivation to know pre score	intrinsic motivation to know post 1 score	intrinsic motivation to know post 2 score	intrinsic motivation to know post 3 score
N	Valid	40	40	40	40	40	40	40	40	40	40	40	40
	Missing	0	0	0	0	0	0	0	0	0	0	0	0
Skewness		-.421	-.829	-.704	-.218	.103	-.738	-.422	-.696	-.222	-.183	-.557	-.794
Std. Error of Skewness		.374	.374	.374	.374	.374	.374	.374	.374	.374	.374	.374	.374
Kurtosis		-.492	1.110	.678	.160	-.642	-.318	-1.099	.121	-.132	-.826	-.237	-.207
Std. Error of Kurtosis		.733	.733	.733	.733	.733	.733	.733	.733	.733	.733	.733	.733

Box's Test of Equality of Covariance Matrices

Box's M	201.108
F	1.252
df1	78
df2	2134.695
Sig.	.070

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a Design: Intercept+GROUP Within Subjects Design: TIME

Levene's Test of Equality of Error Variances

	F	df1	df2	Sig.
Intrinsic motivation stimulation pre score	.515	2	37	.602
Intrinsic motivation stimulation post 1 score	1.287	2	37	.288
Intrinsic motivation stimulation post 2 score	1.828	2	37	.175
Intrinsic motivation stimulation post 3 score	2.166	2	37	.129
intrinsic motivation accomplishment pre score	1.191	2	37	.315
intrinsic motivation accomplishment post 1 score	.240	2	37	.788
intrinsic motivation accomplishment post 2 score	1.108	2	37	.341
intrinsic motivation accomplishment post 3score	4.068	2	37	.025
intrinsic motivation to know pre score	1.111	2	37	.340
intrinsic motivation to know post 1 score	.164	2	37	.850
intrinsic motivation to know post 2 score	.169	2	37	.845
intrinsic motivation to know post 3 score	6.168	2	37	.005

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a Design: Intercept+GROUP Within Subjects Design: TIME

BASELINE INTRINSIC MOTIVATION ANOVA

DESCRIPTIVES

		N	Mean	Std. Deviation
intrinsic motivation to know pre score	profiling	14	17.5714	3.08132
	educational	14	16.0714	4.63207
	control	12	17.9167	4.44069
	Total	40	17.1500	4.06707
Intrinsic motivation stimulation pre score	profiling	14	21.3571	2.64886
	educational	14	19.0714	3.56186
	control	12	18.6667	2.99495
	Total	40	19.7500	3.24827
intrinsic motivation accomplishment pre score	profiling	14	18.0714	3.31580
	educational	14	17.2857	3.75046
	control	12	18.0833	4.56186
	Total	40	17.8000	3.79068
intrinsic motivation total pre score	profiling	14	20.5957	2.61685
	educational	14	17.2629	4.37776
	control	12	18.1933	3.06657
	Total	40	18.7085	3.66519

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
intrinsic motivation to know pre score	Between Groups	25.826	2	12.913	.772	.470
	Within Groups	619.274	37	16.737		
	Total	645.100	39			
Intrinsic motivation stimulation pre score	Between Groups	56.690	2	28.345	2.956	.064
	Within Groups	354.810	37	9.589		
	Total	411.500	39			
intrinsic motivation accomplishment pre score	Between Groups	5.698	2	2.849	.190	.828
	Within Groups	554.702	37	14.992		
	Total	560.400	39			
intrinsic motivation total pre score	Between Groups	146.305	2	73.152	.786	.463
	Within Groups	3442.095	37	93.030		
	Total	3588.400	39			

Descriptive Statistics

	intervention group	Mean	Std. Deviation	N
Intrinsic motivation stimulation pre score	profiling	21.3571	2.64886	14
	educational	19.0714	3.56186	14
	control	18.6667	2.99495	12
	Total	19.7500	3.24827	40
Intrinsic motivation stimulation post 1 score	profiling	20.6429	2.27384	14
	educational	18.5714	3.85735	14
	control	18.8333	3.80988	12
	Total	19.3750	3.41706	40
Intrinsic motivation stimulation post 2 score	profiling	21.2143	2.57737	14
	educational	18.5714	4.65278	14
	control	19.1667	2.85509	12
	Total	19.6750	3.61895	40
Intrinsic motivation stimulation post 3 score	profiling	21.2857	3.98900	14
	educational	18.7857	4.64391	14
	control	19.2500	2.70101	12
	Total	19.8000	3.97557	40
intrinsic motivation accomplishment pre score	profiling	18.0714	3.31580	14
	educational	17.2857	3.75046	14
	control	18.0833	4.56186	12
	Total	17.8000	3.79068	40
intrinsic motivation accomplishment post 1 score	profiling	18.5714	3.61012	14
	educational	17.3571	4.39593	14
	control	18.8333	4.82104	12
	Total	18.2250	4.21528	40
intrinsic motivation accomplishment post 2 score	profiling	18.4286	3.65249	14
	educational	16.8571	4.20361	14
	control	19.0833	3.47611	12
	Total	18.0750	3.82561	40
intrinsic motivation accomplishment post 3score	profiling	20.0714	2.46403	14
	educational	17.2143	4.70970	14
	control	17.7500	4.11483	12
	Total	18.3750	3.97871	40
intrinsic motivation to know pre score	profiling	17.5714	3.08132	14
	educational	16.0714	4.63207	14
	control	17.9167	4.44069	12
	Total	17.1500	4.06707	40
intrinsic motivation to know post 1 score	profiling	18.0714	4.41090	14
	educational	17.2143	5.02576	14
	control	17.9167	4.90748	12
	Total	17.7250	4.67392	40
intrinsic motivation to know post 2 score	profiling	17.9286	3.91180	14
	educational	16.5000	5.00384	14
	control	18.8333	5.06024	12
	Total	17.7000	4.64758	40
intrinsic motivation to know post 3 score	profiling	20.4286	2.44050	14
	educational	16.3571	5.38670	14
	control	17.5833	3.57919	12
	Total	18.1500	4.28803	40

Multivariate Tests

Effect			Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power
Between Subjects	Intercept	Pillai's Trace	.981	589.197	3.000	35.000	.000	.981	1767.591	1.000
		Wilks' Lambda	.019	589.197	3.000	35.000	.000	.981	1767.591	1.000
		Hotelling's Trace	50.503	589.197	3.000	35.000	.000	.981	1767.591	1.000
		Roy's Largest Root	50.503	589.197	3.000	35.000	.000	.981	1767.591	1.000
	GROUP	Pillai's Trace	.182	1.198	6.000	72.000	.317	.091	7.188	.442
		Wilks' Lambda	.823	1.191	6.000	70.000	.321	.093	7.146	.439
		Hotelling's Trace	.209	1.183	6.000	68.000	.326	.094	7.096	.435
		Roy's Largest Root	.175	2.100	3.000	36.000	.117	.149	6.301	.492
Within Subjects	TIME	Pillai's Trace	.179	.700	9.000	29.000	.703	.179	6.302	.272
		Wilks' Lambda	.821	.700	9.000	29.000	.703	.179	6.302	.272
		Hotelling's Trace	.217	.700	9.000	29.000	.703	.179	6.302	.272
		Roy's Largest Root	.217	.700	9.000	29.000	.703	.179	6.302	.272
	TIME * GROUP	Pillai's Trace	.736	1.939	18.000	60.000	.029	.368	34.901	.935
		Wilks' Lambda	.380	2.002	18.000	58.000	.024	.383	36.034	.942
		Hotelling's Trace	1.324	2.059	18.000	56.000	.021	.398	37.064	.947
		Roy's Largest Root	1.027	3.423	9.000	30.000	.005	.507	30.806	.950

a Computed using alpha = .05

b Exact statistic

c The statistic is an upper bound on F that yields a lower bound on the significance level.

d Design: Intercept+GROUP Within Subjects Design: TIME

Mauchly's Test of Sphericity

		Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon		
Within Subjects Effect	Measure					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
TIME	IMS	.736	10.961	5	.052	.849	.966	.333
	IMA	.514	23.742	5	.000	.722	.809	.333
	IMK	.812	7.443	5	.190	.897	1.000	.333

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

b Design: Intercept+GROUP Within Subjects Design: TIME

Univariate Tests

Source	Measure		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power
TIME	IMS	Sphericity Assumed	4.141	3	1.380	.275	.843	.007	.825	.101
		Greenhouse-Geisser	4.141	2.546	1.626	.275	.811	.007	.700	.097
		Huynh-Feldt	4.141	2.898	1.429	.275	.837	.007	.797	.100
		Lower-bound	4.141	1.000	4.141	.275	.603	.007	.275	.080
	IMA	Sphericity Assumed	6.440	3	2.147	.482	.695	.013	1.446	.145
		Greenhouse-Geisser	6.440	2.165	2.975	.482	.634	.013	1.043	.129
		Huynh-Feldt	6.440	2.428	2.653	.482	.656	.013	1.170	.134
		Lower-bound	6.440	1.000	6.440	.482	.492	.013	.482	.104
	IMK	Sphericity Assumed	17.774	3	5.925	1.193	.316	.031	3.580	.313
		Greenhouse-Geisser	17.774	2.692	6.604	1.193	.315	.031	3.212	.295
		Huynh-Feldt	17.774	3.000	5.925	1.193	.316	.031	3.580	.313
		Lower-bound	17.774	1.000	17.774	1.193	.282	.031	1.193	.186
TIME * GROUP	IMS	Sphericity Assumed	5.218	6	.870	.173	.984	.009	1.039	.093
		Greenhouse-Geisser	5.218	5.093	1.025	.173	.973	.009	.882	.089
		Huynh-Feldt	5.218	5.797	.900	.173	.982	.009	1.004	.092
		Lower-bound	5.218	2.000	2.609	.173	.842	.009	.346	.075
	IMA	Sphericity Assumed	41.629	6	6.938	1.558	.166	.078	9.346	.580
		Greenhouse-Geisser	41.629	4.329	9.616	1.558	.190	.078	6.743	.481
		Huynh-Feldt	41.629	4.856	8.573	1.558	.182	.078	7.564	.514
		Lower-bound	41.629	2.000	20.815	1.558	.224	.078	3.115	.309
	IMK	Sphericity Assumed	71.441	6	11.907	2.398	.032	.115	14.388	.799
		Greenhouse-Geisser	71.441	5.383	13.271	2.398	.039	.115	12.909	.764
		Huynh-Feldt	71.441	6.000	11.907	2.398	.032	.115	14.388	.799
		Lower-bound	71.441	2.000	35.721	2.398	.105	.115	4.796	.454
Error(TIME)	IMS	Sphericity Assumed	557.432	111	5.022					
		Greenhouse-Geisser	557.432	94.218	5.916					
		Huynh-Feldt	557.432	107.238	5.198					
		Lower-bound	557.432	37.000	15.066					
	IMA	Sphericity Assumed	494.402	111	4.454					
		Greenhouse-Geisser	494.402	80.087	6.173					
		Huynh-Feldt	494.402	89.835	5.503					
		Lower-bound	494.402	37.000	13.362					
	IMK	Sphericity Assumed	551.140	111	4.965					
		Greenhouse-Geisser	551.140	99.587	5.534					
		Huynh-Feldt	551.140	111.000	4.965					
		Lower-bound	551.140	37.000	14.896					

a Computed using alpha = .05

IMK Simple Effects Results

General Linear Model

Within-Subjects Factors
Measure: MEASURE_1

TIME	Dependent Variable
1	IMTOKN1
2	IMTOKN2
3	IMTOKN3
4	IMTOKN4

Between-Subjects Factors

		Value Label	N
intervention group	1.00	profiling	14
	2.00	educational	14
	3.00	control	12

Estimated Marginal Means

1. TIME * intervention group

Estimates
Measure: MEASURE_1

		Mean	Std. Error	95% Confidence Interval	
TIME	intervention group			Lower Bound	Upper Bound
1	profiling	17.571	1.093	15.356	19.787
	educational	16.071	1.093	13.856	18.287
	control	17.917	1.181	15.524	20.310
2	profiling	18.071	1.278	15.482	20.661
	educational	17.214	1.278	14.625	19.804
	control	17.917	1.381	15.119	20.714
3	profiling	17.929	1.247	15.401	20.456
	educational	16.500	1.247	13.972	19.028
	control	18.833	1.347	16.103	21.563
4	profiling	20.429	1.072	18.256	22.601
	educational	16.357	1.072	14.185	18.530
	control	17.583	1.158	15.237	19.930

Pairwise Comparisons
Measure: MEASURE_1

			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference	
TIME	(I) intervention group	(J) intervention group				Lower Bound	Upper Bound
1	profiling	educational	1.500	1.546	.338	-1.633	4.633
		control	-.345	1.609	.831	-3.606	2.916
	educational	profiling	-1.500	1.546	.338	-4.633	1.633
		control	-1.845	1.609	.259	-5.106	1.416
	control	profiling	.345	1.609	.831	-2.916	3.606
		educational	1.845	1.609	.259	-1.416	5.106
2	profiling	educational	.857	1.808	.638	-2.805	4.520
		control	.155	1.881	.935	-3.657	3.967
	educational	profiling	-.857	1.808	.638	-4.520	2.805
		control	-.702	1.881	.711	-4.514	3.110
	control	profiling	-.155	1.881	.935	-3.967	3.657
		educational	.702	1.881	.711	-3.110	4.514
3	profiling	educational	1.429	1.764	.423	-2.146	5.003
		control	-.905	1.836	.625	-4.625	2.816
	educational	profiling	-1.429	1.764	.423	-5.003	2.146
		control	-2.333	1.836	.212	-6.054	1.387
	control	profiling	.905	1.836	.625	-2.816	4.625
		educational	2.333	1.836	.212	-1.387	6.054
4	profiling	educational	4.071	1.516	.011	.999	7.144
		control	2.845	1.578	.080	-.353	6.043
	educational	profiling	-4.071	1.516	.011	-7.144	-.999
		control	-1.226	1.578	.442	-4.424	1.972
	control	profiling	-2.845	1.578	.080	-6.043	.353
		educational	1.226	1.578	.442	-1.972	4.424

Based on estimated marginal means
a Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

2. TIME * intervention group

Estimates
Measure: MEASURE_1

		Mean	Std. Error	95% Confidence Interval	
TIME	intervention group			Lower Bound	Upper Bound
1	profiling	17.571	1.093	15.356	19.787
	educational	16.071	1.093	13.856	18.287
	control	17.917	1.181	15.524	20.310
2	profiling	18.071	1.278	15.482	20.661
	educational	17.214	1.278	14.625	19.804
	control	17.917	1.381	15.119	20.714
3	profiling	17.929	1.247	15.401	20.456
	educational	16.500	1.247	13.972	19.028
	control	18.833	1.347	16.103	21.563
4	profiling	20.429	1.072	18.256	22.601
	educational	16.357	1.072	14.185	18.530
	control	17.583	1.158	15.237	19.930

Pairwise Comparisons
Measure: MEASURE_1

			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference	
intervention group	(I) TIME	(J) TIME				Lower Bound	Upper Bound
profiling	1	2	-.500	.962	.606	-2.449	1.449
		3	-.357	.906	.696	-2.194	1.479
		4	-2.857	.814	.001	-4.506	-1.208
	2	1	.500	.962	.606	-1.449	2.449
		3	.143	.812	.861	-1.502	1.788
		4	-2.357	.876	.011	-4.132	-.582
	3	1	.357	.906	.696	-1.479	2.194
		2	-.143	.812	.861	-1.788	1.502
		4	-2.500	.648	.000	-3.813	-1.187
	4	1	2.857	.814	.001	1.208	4.506
		2	2.357	.876	.011	.582	4.132
		3	2.500	.648	.000	1.187	3.813
educational	1	2	-1.143	.962	.242	-3.092	.806
		3	-.429	.906	.639	-2.265	1.408
		4	-.286	.814	.728	-1.935	1.364
	2	1	1.143	.962	.242	-.806	3.092
		3	.714	.812	.385	-.931	2.359
		4	.857	.876	.334	-.918	2.632
	3	1	.429	.906	.639	-1.408	2.265
		2	-.714	.812	.385	-2.359	.931
		4	.143	.648	.827	-1.170	1.456
	4	1	.286	.814	.728	-1.364	1.935
		2	-.857	.876	.334	-2.632	.918
		3	-.143	.648	.827	-1.456	1.170
control	1	2	3.553E-15	1.039	1.000	-2.105	2.105
		3	-.917	.979	.355	-2.900	1.067
		4	.333	.879	.707	-1.448	2.115
	2	1	-3.553E-15	1.039	1.000	-2.105	2.105
		3	-.917	.877	.303	-2.694	.860
		4	.333	.946	.727	-1.584	2.251
	3	1	.917	.979	.355	-1.067	2.900
		2	.917	.877	.303	-.860	2.694
		4	1.250	.700	.082	-.168	2.668
	4	1	-.333	.879	.707	-2.115	1.448
		2	-.333	.946	.727	-2.251	1.584
		3	-1.250	.700	.082	-2.668	.168

Based on estimated marginal means

a Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

APPENDIX 11:

STUDY 5 BIVARIATE CORRELATION RESULTS

Correlations

		Intrinsic motivation stimulation pre score	Intrinsic motivation stimulation post 1 score	Intrinsic motivation stimulation post 2 score	Intrinsic motivation stimulation post 3 score	intrinsic motivation accomplishment pre score	intrinsic motivation accomplishment post 1 score	intrinsic motivation accomplishment post 2 score	intrinsic motivation accomplishment post 3score	intrinsic motivation to know pre score	intrinsic motivation to know post 1 score	intrinsic motivation to know post 2 score	intrinsic motivation to know post 3 score
Intrinsic motivation stimulation pre score	Pearson Correlation	1	.545	.654	.602	.531	.296	.524	.565	.482	.277	.391	.540
	Sig. (2-tailed)	.	.000	.000	.000	.000	.063	.001	.000	.002	.083	.013	.000
	N	40	40	40	40	40	40	40	40	40	40	40	40
Intrinsic motivation stimulation post 1 score	Pearson Correlation	.545	1	.626	.506	.319	.608	.404	.433	.385	.506	.361	.460
	Sig. (2-tailed)	.000	.	.000	.001	.045	.000	.010	.005	.014	.001	.022	.003
	N	40	40	40	40	40	40	40	40	40	40	40	40
Intrinsic motivation stimulation post 2 score	Pearson Correlation	.654	.626	1	.815	.603	.412	.556	.570	.510	.451	.529	.595
	Sig. (2-tailed)	.000	.000	.	.000	.000	.008	.000	.000	.001	.004	.000	.000
	N	40	40	40	40	40	40	40	40	40	40	40	40
Intrinsic motivation stimulation post 3 score	Pearson Correlation	.602	.506	.815	1	.532	.376	.520	.629	.352	.370	.503	.662
	Sig. (2-tailed)	.000	.001	.000	.	.000	.017	.001	.000	.026	.019	.001	.000
	N	40	40	40	40	40	40	40	40	40	40	40	40
intrinsic motivation	Pearson Correlation	.531	.319	.603	.532	1	.590	.832	.733	.802	.527	.667	.674

accomplishment pre score													
	Sig. (2-tailed)	.000	.045	.000	.000	.	.000	.000	.000	.000	.000	.000	.000
	N	40	40	40	40	40	40	40	40	40	40	40	40
intrinsic motivation accomplishment post 1 score	Pearson Correlation	.296	.608	.412	.376	.590	1	.703	.588	.649	.839	.666	.665
	Sig. (2-tailed)	.063	.000	.008	.017	.000	.	.000	.000	.000	.000	.000	.000
	N	40	40	40	40	40	40	40	40	40	40	40	40
intrinsic motivation accomplishment post 2 score	Pearson Correlation	.524	.404	.556	.520	.832	.703	1	.832	.762	.652	.783	.782
	Sig. (2-tailed)	.001	.010	.000	.001	.000	.000	.	.000	.000	.000	.000	.000
	N	40	40	40	40	40	40	40	40	40	40	40	40
intrinsic motivation accomplishment post 3score	Pearson Correlation	.565	.433	.570	.629	.733	.588	.832	1	.675	.582	.715	.907
	Sig. (2-tailed)	.000	.005	.000	.000	.000	.000	.000	.	.000	.000	.000	.000
	N	40	40	40	40	40	40	40	40	40	40	40	40
intrinsic motivation to know pre score	Pearson Correlation	.482	.385	.510	.352	.802	.649	.762	.675	1	.681	.719	.693
	Sig. (2-tailed)	.002	.014	.001	.026	.000	.000	.000	.000	.	.000	.000	.000

	N	40	40	40	40	40	40	40	40	40	40	40	40
intrinsic motivation to know post 1 score	Pearson Correlation	.277	.506	.451	.370	.527	.839	.652	.582	.681	1	.788	.697
	Sig. (2-tailed)	.083	.001	.004	.019	.000	.000	.000	.000	.000	.	.000	.000
	N	40	40	40	40	40	40	40	40	40	40	40	40
intrinsic motivation to know post 2 score	Pearson Correlation	.391	.361	.529	.503	.667	.666	.783	.715	.719	.788	1	.800
	Sig. (2-tailed)	.013	.022	.000	.001	.000	.000	.000	.000	.000	.000	.	.000
	N	40	40	40	40	40	40	40	40	40	40	40	40
intrinsic motivation to know post 3 score	Pearson Correlation	.540	.460	.595	.662	.674	.665	.782	.907	.693	.697	.800	1
	Sig. (2-tailed)	.000	.003	.000	.000	.000	.000	.000	.000	.000	.000	.000	.
	N	40	40	40	40	40	40	40	40	40	40	40	40

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

APPENDIX 12:

STUDY 5 REPEATED MEASURES TOTAL IM ANOVA RESULTS

Bartlett's Test of Sphericity

Likelihood Ratio	.000
Approx. Chi-Square	100.630
df	9
Sig.	.000

Tests the null hypothesis that the residual covariance matrix is proportional to an identity matrix.
a Design: Intercept+GROUP Within Subjects Design: TIME

Statistics

		intrinsic motivation total pre score	intrinsic motivation total post 1 score	intrinsic motivation total post 2 score	intrinsic motivation total post 3 score
N	Valid	40	40	40	40
	Missing	0	0	0	0
Skewness		-.009	-.564	-.387	-.508
Std. Error of Skewness		.374	.374	.374	.374
Kurtosis		-.502	-.145	-.612	-.053
Std. Error of Kurtosis		.733	.733	.733	.733

Box's Test of Equality of Covariance Matrices

Box's M	27.562
F	1.157
df1	20
df2	4676.421
Sig.	.282

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.
a Design: Intercept+GROUP Within Subjects Design: TIME

Levene's Test of Equality of Error Variances

	F	df1	df2	Sig.
intrinsic motivation total pre score	1.452	2	37	.247
intrinsic motivation total post 1 score	1.202	2	37	.312
intrinsic motivation total post 2 score	.385	2	37	.683
intrinsic motivation total post 3 score	2.277	2	37	.117

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.
a Design: Intercept+GROUP Within Subjects Design: TIME

Descriptive Statistics

	intervention group	Mean	Std. Deviation	N
intrinsic motivation total pre score	profiling	19.0007	2.43879	14
	educational	17.4757	3.75257	14
	control	18.2225	3.33284	12
	Total	18.2335	3.19796	40
intrinsic motivation total post 1 score	profiling	19.0957	2.71238	14
	educational	17.3086	4.22846	14
	control	18.5283	4.05778	12
	Total	18.3000	3.69494	40
intrinsic motivation total post 2 score	profiling	18.6900	3.38146	14
	educational	17.3100	4.20699	14
	control	18.5558	3.38113	12
	Total	18.1668	3.65292	40
intrinsic motivation total post 3 score	profiling	20.5957	2.61685	14
	educational	17.2629	4.37776	14
	control	18.1933	3.06657	12
	Total	18.7085	3.66519	40

Mauchly's Test of Sphericity

Measure: MEASURE_1

	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon		
Within Subjects Effect					Greenhouse -Geisser	Huynh-Feldt	Lower-bound
TIME	.716	11.927	5	.036	.819	.929	.333

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

b Design: Intercept+GROUP Within Subjects Design: TIME

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power
TIME	Sphericity Assumed	6.122	3	2.041	.539	.657	.014	1.616	.158
	Greenhouse-Geisser	6.122	2.458	2.491	.539	.622	.014	1.324	.146
	Huynh-Feldt	6.122	2.788	2.196	.539	.644	.014	1.502	.153
	Lower-bound	6.122	1.000	6.122	.539	.468	.014	.539	.110
TIME * GROUP	Sphericity Assumed	25.027	6	4.171	1.101	.366	.056	6.606	.419
	Greenhouse-Geisser	25.027	4.915	5.092	1.101	.365	.056	5.412	.372
	Huynh-Feldt	25.027	5.576	4.488	1.101	.366	.056	6.140	.401
	Lower-bound	25.027	2.000	12.513	1.101	.343	.056	2.202	.229
Error (TIME)	Sphericity Assumed	420.492	111	3.788					
	Greenhouse-Geisser	420.492	90.931	4.624					
	Huynh-Feldt	420.492	103.156	4.076					
	Lower-bound	420.492	37.000	11.365					

a Computed using alpha = .05

Tests of Between-Subjects Effects

Measure: MEASURE_1

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power
Intercept	53611.169	1	53611.169	1399.506	.000	.974	1399.506	1.000
GROUP	112.737	2	56.368	1.471	.243	.074	2.943	.294
Error	1417.367	37	38.307					

a Computed using alpha = .05

Paired sampled t-test results:

T-Test

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	intrinsic motivation total pre score	19.0007	14	2.43879	.65179
	intrinsic motivation total post 1 score	19.0957	14	2.71238	.72491

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	intrinsic motivation total pre score - intrinsic motivation total post 1 score	-.0950	2.19265	.58601	-1.3610	1.1710	-.162	13	.874

T-Test

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	intrinsic motivation total pre score	19.0007	14	2.43879	.65179
	intrinsic motivation total post 3 score	20.5957	14	2.61685	.69938

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	intrinsic motivation total pre score - intrinsic motivation total post 3 score	-1.5950	1.78535	.47715	-2.6258	-.5642	-3.343	13	.005

Final Time Phase IM ANOVA

Oneway

Descriptives
intrinsic motivation total post 3 score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
profiling	14	20.5957	2.61685	.69938	19.0848	22.1066	16.67	25.67
educational	14	17.2629	4.37776	1.17000	14.7352	19.7905	10.33	24.00
control	12	18.1933	3.06657	.88524	16.2449	20.1417	12.33	23.33
Total	40	18.7085	3.66519	.57952	17.5363	19.8807	10.33	25.67

ANOVA
intrinsic motivation total post 3 score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	82.305	2	41.153	3.448	.042
Within Groups	441.607	37	11.935		
Total	523.913	39			

Post Hoc Tests

Multiple Comparisons
Dependent Variable: intrinsic motivation total post 3 score
Scheffe

		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
(I) intervention group	(J) intervention group				Lower Bound	Upper Bound
profiling	educational	3.3329*	1.30577	.050	.0028	6.6629
	control	2.4024	1.35909	.223	-1.0637	5.8684
educational	profiling	-3.3329*	1.30577	.050	-6.6629	-.0028
	control	-.9305	1.35909	.792	-4.3965	2.5356
control	profiling	-2.4024	1.35909	.223	-5.8684	1.0637
	educational	.9305	1.35909	.792	-2.5356	4.3965

* The mean difference is significant at the .05 level.