

A New Way of Looking at Intrinsic Motivation in Sport

by

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ABSTRACT

The aim of the research was, essentially, to clarify the nature and dimensionality of intrinsic motivation in competitive sport. A working definition of intrinsic motivation was established, narrowing the field of inquiry down to the feelings of subjects at the actual point of participation in a sporting event.

A qualitative study was carried out, using a series of five focused group discussions involving competitive sportspeople (n=19). Analysis of the content of the discussions produced a series of 18 constructs or ways of describing feelings during sport.

On the basis of the findings of the qualitative study, an initial 72-item parent questionnaire was devised. This comprised the 18 constructs, each of which was represented by four statements about feelings during sport participation. The questionnaire was then administered to a sample of subjects (n=236) who took part in a variety of sports. Factor analysis of the results then reduced the dimensionality of the instrument to six construct-groups. These were assigned the names of spiritual well-being (or “buzz” as it was known), self-efficacy, toughness, competition, social bonding, and environmental mastery.

The second version of the instrument, intended for use at the actual point of participation in sport, was known as the in-situ IIMS. It comprised six items, each of which represented one of the six dimensions.

A study was then carried out in real-life settings, using the in-situ IIMS. A total of 105 subjects from six different sports completed the questionnaire before,

during, and after a sporting event. Statistical analysis of the results showed that the six dimensions were independent of one another, and moving in different ways across the three time points. The most popular dimensions overall were social bonding and competition, with the least popular being toughness.

There were also differences in the ways in which men's and women's scores on the dimensions changed over the three time points. Specifically, men's sense of spiritual well-being remained fairly stable before, during, and after an event, while women felt more of a "buzz" at the end. On the dimensions of self-efficacy and competition, men's ratings were consistent across the three time points, while women's ratings were at their lowest during the actual event. There were no differences between the sexes on toughness or environmental mastery ratings at any of the time points. On environmental mastery, the ratings of both sexes dropped during the event but recovered to original levels after the event.

These findings have important implications for research and practice. Firstly, it has been shown that the way in which competitive sportspeople rate their own intrinsic motivation varies according to the point in time at which they are asked about it. The in-situ questionnaire should prove to be a useful addition to the armoury of the sport psychologist in providing a means of measuring levels of intrinsic motivation in sport at the actual time of participation.

Secondly, specific recommendations are provided as to the timing of questions about intrinsic motivation in a sporting context. Depending on the type of information that is being sought, asking questions at the end of an

event may not provide an accurate reflection of the way subjects feel when they are actually taking part.

Thirdly, the multi-dimensional model and the diagnostic IIMS will be of use in applied settings. An awareness of the motivational profiles of individual sportspeople will be invaluable in planning training and competition programmes.

Finally, the research poses questions about what it is that people actually get out of sport. The findings suggest that the most important aspect of sport participation is the interaction with other people, whether they be team mates or opponents. Self-efficacy plays a less important part than was originally predicted. It is argued that this is because athletes have a particular need to have their achievements socially approved and admired, and the experience of efficacy may be less meaningful without an audience. Toughness may be rated lowest because it has more to do with individual control.

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Author's Declaration

I hereby affirm that the thesis entitled "A New Way of Looking at Intrinsic Motivation in Sport" is entirely my own work.

A handwritten signature in cursive script that reads "Elizabeth Adam". The ink is black and the signature is fluid and connected.

ELIZABETH J. B. ADAM

May, 1996

CHAPTER 1

INTRODUCTION

This thesis describes an investigation into the way in which competitive athletes experience their sport at the actual time of participation. The original idea for the research grew out of the author's observation that sportspeople often appear to be in abject misery when they are taking part in their sport, despite assertions to the contrary. The author herself retired from long distance running when she came face to face with the realisation that she found taking part in it a "living hell".

This research argues the case for a new way of looking at intrinsic motivation in sport. It breaks new ground by studying the ways in which competitive athletes view their own intrinsic motivation at the actual point of participation in their sport. In doing so, it attempts to establish by means of systematic psychological research whether or not sport participation is "all it is cracked up to be".

1.1. WHY STUDY THE TOPIC?

1.1.1. The need for sport-specific research

Sport psychology is a relatively young academic discipline. Nideffer (1984) has traced its origins as an "official" discipline back to the beginning of the 1970's, although it is likely that undocumented attempts were being made to apply psychological principles to sporting situations prior to this.

Many of the findings about motivation that will be discussed here are not derived specifically from sport. This does not mean that they are not relevant. On the contrary, it is important that sport psychology does not degenerate into what Morgan (1989) describes as "disciplinary isolationism" - working completely separately from other branches of psychology.

Morgan (1989) also points to the dangers of what he terms the sport psychology "trash heap", which contains the theories that the discipline has abandoned, yet remains influenced by. Examples of discarded theories identified by Morgan are

"Freudian psychoanalytic theory, Hullian drive theory, Catellian personality theory, locus of control theory, and attribution theory" (p.100).

Morgan points also to the fickle nature of the discipline, which is just as likely to dump any or all of the theories that are currently in favour at some point in the future - for example, cognitive psychology, self-efficacy, and self-appraisal measures. The truth must surely be that the psychological make-up of the sportsperson is no less complicated and no easier to form theories about than that of any other individual. Equally, there is no obvious reason to assume that the motivation of athletes is any more capable of explanation solely by empirical observation than that of anyone else.

Feltz's (1989) survey of the sport psychology literature notes that a common practice in the early days of the discipline was to test out general psychological theories and concepts in an applied sport setting. Feltz argues

that this is an inadequate means of explaining sport behaviour as sport psychology really needs to develop theories of its own.

Is it possible for sport psychology to develop theories of its own while avoiding disciplinary isolationism, thereby reconciling these two views? In this thesis an attempt is made to do this by means of qualitative research into the constructs by which sportspeople evaluate their own intrinsic motivation. In other words, it looks at the "language" that sportspeople use when they talk about their feelings and attitudes, which may not be the same as that of the rest of the population.

For example, when an athlete speaks of "enjoying" taking part in sport, he or she may mean something entirely different from a businessperson who claims to "enjoy" work. There is a need for psychometric tests that are meaningful to the athlete so that it is possible to measure levels of intrinsic motivation at the actual time of participation in sport. In this way, it should be possible to make the research sport-specific without needing to abandon to the trash-heap what has already been learned about motivation in other research contexts.

1.1.2. Priority research areas in sport psychology

In 1992 the Sports Council commissioned a document by Hardy and Jones entitled "Future Directions for Performance Related Research in Sport Psychology". This fulfilled, firstly, an important role in drawing together and summarising the findings of many of the major pieces of research that have been carried out in this area. Secondly, Hardy and Jones identified the areas of performance related research in which there was a clear need for further work. The areas that were considered to be priorities were as follows:

- (1) The dynamics of motivation.
- (2) The pursuit of dangerous sports.
- (3) Attributions.
- (4) Athletic burnout.

This thesis attempts to investigate the dynamics and content of intrinsic motivation in sport and to produce a new means of measuring it. It is also hoped that its conclusions and the instruments of measurement that it develops will be of use in future research in the other three key areas of research identified above.

1.2. *PURPOSES OF THE RESEARCH*

The present research has five main aims, as follows:

- (1) To study qualitatively the nature of the motivation of competitive sportspeople with particular reference to intrinsic motivation as experienced at the actual point of participation in sport.
- (2) To develop a short questionnaire capable of measuring intrinsic motivation at the actual point of participation in sport.
- (3) To produce a psychometric test, for use by researchers and coaches in practical situations. The purpose of this will be to identify means of optimising the intrinsic motivation of individual competitive sportspeople and teams. The test will be capable of

- (a) measuring levels of intrinsic motivation in individual athletes and/or teams and
 - (b) clarifying the motivational style of individual athletes and/or teams
- (4) To attempt to fill a gap in the existing literature by comparing levels of intrinsic motivation as measured at the actual time of participation with anticipated or retrospective intrinsic motivation.
- (5) To provide general recommendations as to appropriate means of enhancing the intrinsic motivation of competitive sportspeople.

CHAPTER 2

WHAT IS ALREADY KNOWN ABOUT MOTIVATION?

This chapter will outline what is already known about the functional nature of human motivation in general. The following areas will be covered:

- (1) The historical perspective.
- (2) The contribution of achievement theory to understanding of motivation.
- (3) The role of attributionary processes.
- (4) The role of intentionality.
- (5) The distinction between intrinsic and extrinsic motivation.
- (6) The manipulability of intrinsic motivation.
- (7) “State” and “trait” theories of intrinsic motivation.

2.1. THE NATURE OF MOTIVATION

2.1.1. The historical perspective: mechanistic versus cognitive views.

Historically, theories of human motivation have been regarded from three main viewpoints:

- (1) Mechanistic
- (2) Behaviourist
- (3) Cognitive

These three main types of theory may be regarded as lying on a continuum, with mechanistic and cognitive theories at opposite ends and behaviourism (sub-divided into mechanistic and cognitive schools of behaviourism) forming a "half-way house".

2.1.2. Mechanistic theories.

This type of theory was popular at the turn of the century. It is based on the premise that people are little more than glorified machines whose behaviour is a series of physiological responses to external stimuli over which they have no conscious control. Motivation was regarded as the external stimulus that provokes the response. Titchener (1898) saw the means of understanding motivation as being by studying objectively the contents of the human mind via "trained introspections", using a method of inquiry similar to that of biology. The "mind" was held by Titchener to be a collective name for a system of psychophysical functions. Dewey (1896) counter-argued that, since behaviour can be observed to be adaptive to changes in context or situation, there must be a purposive aspect to human behaviour.

2.1.3. Behaviourism.

Behaviourism is based on the premise that the only data suitable for study by psychologists is that which is publicly observable. Behaviour can be viewed objectively: motives, on the other hand, are private mental events and cannot be studied objectively.

Early behaviourist theories (for example, Watson, 1913) left little room for motives or purpose, regarding behaviour as an entity separate from human consciousness.

Later theories admitted a cognitive element into behaviourism (Tolman, 1922), distinguishing behaviourism sharply from physiology, and acknowledging the possibility of making a rational selection from the available stimuli (Tolman, 1948).

Maslow (1943) rejected the mechanistic premise that physiological drives, such as hunger, are at the centre of human motivation. He argued that motivated behaviour is the medium whereby needs (which may be emotional rather than physical) are expressed. Needs are arranged in hierarchies, with one need dependent on another, and behaviour having more than one motivation.

There were two main schools of thought in early behaviourism as to the way in which behaviour is shaped. Considerable emphasis has been placed by some psychologists on the role of rewards in controlling behaviour, and the role of conditioned fear responses. Skinner (1938) analysed behaviour in terms of instrumental contingency. Behaviour is seen by Skinner as a conditioned response to stimuli, and is shaped by positive or negative reinforcers. For example, rats learn to press a lever for food when they realise from experience that the provision of food is contingent on their producing the desired behaviour. Conversely, negative reinforcement, such as a loud noise when the lever is pressed, can be used to decrease the frequency of the behaviour, or even terminate it. Skinner would argue that it is pointless to analyse motives on account of their subjectivity. In this type of

model, all that matters is the observable behaviour and it is meaningless to try to find explanations for it in terms of motives or wishes.

The other main theory as to the way in which behaviour is shaped is that of classical conditioning, pioneered by Pavlov (1927). Pavlov noted that the salivation response in dogs (normally produced by the presentation of food) could be elicited eventually by a neutral stimulus such as the ringing of a bell. This was achieved by ringing a bell just before presenting food repeated occasions, until eventually the ringing of the bell alone was sufficient to elicit the salivation response. A more modern account of Pavlovian conditioning is provided by Rescorla (1988), who saw it as more than a stimulus-response mechanism, and admitted the possibility of the animal learning the relation between events.

The effects of classical conditioning can be observed in many life situations. For example, the apparently neutral act of pulling one's suitcases out of the loft can arouse feelings of great excitement. This is because the sight of the suitcases has become closely associated with the emotionally rewarding experience of going on holiday. The reverse effect can also occur, and negative emotions can be invoked. For a former student, walking into to the hall where he or she sat examinations many years ago may induce feelings of disquiet or even fear. In such situations, people are often heard to remark that "it brings it all back".

Some more recent behaviourist thinkers reject the idea that all behavior is governed by basic drives (Hull, 1943), or created by reward contingencies (Skinner, 1938, 1971). An alternative view takes into account the role of species-specific behaviour, which is thought to be governed by innate neural circuits, and prefers to study animals in more natural settings (Rescorla,

1988). This makes it possible to observe how animals bring their species-specific behaviour into a situation. For example, domestic cats often engage in “hunting” behaviour, even when they are well fed. (Malim, Birch, and Hayward, 1996).

Some forms of behaviour, such as eating and drinking, are held to be inherently rewarding for both humans and animals (Logue, 1991). People will often continue to eat and drink beyond the point necessary to quell the pangs of hunger or thirst, or to sustain life. They will also, on occasions, eat or drink extra in anticipation of a thirsty or hungry period.

Empirical observation of animals suggests that physical activity is also inherently rewarding. For example, a caged rodent will run on a wheel when no reward is provided for doing so, and a dog which is let loose on a beach will tear about in all directions. Premack (1965) found that rats would increase their drinking in order to obtain the opportunity to run.

2.1.4. Cognitive theories.

Cognitive theories view human behaviour as being the end-product of a process of rational choice. What many such theories seem to have in common is the analysis of human motivation in terms of a desire to feel in control of one's own destiny. An example of a cognitive theory would be attribution theory, which will be discussed in Section 2.3., which describes ways in which the mind interprets events in the world through a process of reasoning and attempts to make sense of them.

It is also possible to reconcile a cognitive standpoint with behaviourism. For example, Rotter (1990) drew a distinction between people who see the

reinforcers that shape their behaviour as being controlled by their own actions (internals) and people who see their reinforcers as coming from the outside world (externals).

2.2. THE CONTRIBUTION OF ACHIEVEMENT THEORY TO UNDERSTANDING HUMAN MOTIVATION

2.2.1. Defining achievement theory

Achievement theory (Atkinson and Feather, 1966) holds that the basis of human motivation is an in-born need for achievement. Weiner (1972) held this formulation to be only "quasi-cognitive" on account of the fact that it pays little attention to the actual process of cognition. The motivation to succeed and the motivation to avoid failure are regarded as in-born traits of character that provide the stimulus for behaviour. Either way, we might predict that competitive sport would provide an outlet for people with a high need for achievement as it provides constant opportunities to test oneself.

DeCharms and Carpenter (1968) categorised people as "origins" and "pawns". Origins are held to be individuals who like to be in control of their own behavioural outcomes, while pawns see themselves as at the mercy of external forces. Bandura (1982) formulated a theory of motivation based on a need for "self-efficacy", and Weiner (1985) expressed motivation in terms of a quest for "mastery" of one's environment. The common thread running through these is a need to feel in control of one's own destiny and of one's environment. Again, competitive sport might provide an outlet for this need. Winning, or just feeling that one is playing well, may enhance an individual's sense of efficacy and strength.

2.2.2. Weiner's criticisms of achievement theory

Weiner and various co-workers developed achievement theory over a period of time in such a way as to allow the actual process of cognition to enter the picture. (Weiner, 1972; Weiner, Heckhausen, Meyer, and Cook, 1972; Weiner, Russell, and Lerman, 1979, and Weiner, 1985). Weiner considered achievement theory to be mechanistic in style, with the in-built need for achievement being seen as a drive that acts as a stimulus to produce behavioural responses. He regarded Atkinson and Feather's (1966) formulation of achievement theory as being "quasi-cognitive", because of the fact that it pays little attention to the actual process of cognition. Weiner and his various co-workers developed achievement theory in such a way as to allow the actual process of cognition to enter the picture.

While accepting the proposed causal link between achievement motivation and behaviour, Weiner brings into play a "higher-order" cognitive process known as "attribution". This acts as a medium between the original behavioural stimulus (the in-built need for achievement) and the behavioural outcome. This is covered in more detail in the next section.

2.3. THE ROLE OF ATTRIBUTIONARY PROCESSES IN MOTIVATED BEHAVIOUR

2.3.1. Defining attribution.

Attribution is a cognitive process whereby we ascribe causes to our behavioural outcomes. The type of attribution that we make to our successes or failures can influence our behavioural choices on future occasions. This section outlines some of the main work that has been done

in this area, with particular reference to that which is applicable to a sporting context.

2.3.2. The causal dimensions of behaviour.

Weiner, Heckhausen, Meyer, and Cook (1972) identified two main causal dimensions underlying behaviour. These are the locus of control (internal versus external causes, or the self versus environmental responsibility) and stability (stable, or fixed, versus unstable or variable factors). Ability and effort are regarded as being internal, or personal, causes of success and failure; task difficulty and luck are regarded as being external. On the other hand, perceived ability and task difficulty are categorised as stable factors, while effort and luck are seen as unstable.

2.3.3. The dimension of controllability.

Weiner, Russell, and Lerman (1979) extended the model to include "controllability", which admits the possibility of the individual having some control over unstable factors (such as effort) in some circumstances. For example, a runner may consciously decide to try harder on a particular occasion because the event is being televised. Mark, Mutrie, Brooks, and Harris (1984) found that winners in sporting situations made more stable and controllable attributions than losers.

2.3.4. Weiner's (1985) modifications to the dimensionality model

A further modification was made to the model by Weiner (1985). He proposed that the basic categories of ability, effort, task difficulty, and luck should be changed to

- (1) aptitude (on account of the fact that ability may be unstable where learning and improvement are possible),
- (2) temporary exertion (because effort could be regarded in some situations as a stable trait, such as "lazy" or "industrious"),
- (3) objective task characteristics, (on account of the fact that task difficulty levels can change, and therefore cannot be regarded as being totally stable),
- (4) chance rather than luck (since it could be argued that luck or "being lucky" is a property of the individual).

2.3.5. The role of attributionary processes in coping with perceived failure in a sporting context.

How does the attributionary process work in practice? Let us suppose that a highly ranked tennis player is beaten in the quarter-final at Wimbledon by an unseeded player. There are various possible ways in which the player can react to this defeat:

- (1) He or she might choose to blame the defeat on internal factors, such as poor ability. This internal attribution will make defeat hard to bear -

particularly in view of the fact that ability tends to be a relatively stable factor - unless the player can reassert control of the situation by finding ways of augmenting his or her ability, perhaps by learning new tactics.

- (2) The player may attribute the loss to insufficient effort on his or her part, which is also an internal factor, but, being unstable, is more amenable to change. Telling oneself that one will try harder next time may provide hope of future success. Thus the situation remains within the player's control, and his or her self-esteem is intact.
- (3) On the other hand, the player might attribute failure to external factors, such as task difficulty. Since no one expects winning Wimbledon to be easy, there is no need to feel shame at losing. Yet the player may find it difficult to try again as the difficulty level of the task is stable and unlikely to change much. Weiner (1972) argues that tasks of intermediate difficulty are most likely to attract motivation as they are most open to effort attributions. Where a task is perceived as extremely difficult, trying again after failure will not come easily.
- (4) The player may also choose to attribute failure to bad luck - an unstable factor - leaving it open to reason that he or she might have better luck next time. In these circumstances, the player's self-esteem is likely to remain intact on the short-term, but, as he or she has relinquished control of the situation, success will be less likely in future.

2.3.6. The relationship between perceived success or failure, attributionary processes, and motivation.

Constant perceptions of failure can lead to a sense of inadequacy or "helplessness" (Seligman, 1975), which in turn is liable to be demotivating. Weiner (1972) argues that trying again after failure is least likely to be inhibited where the failure is attributed to unstable factors (lack of effort and/or bad luck). Bad luck can, in some cases, function as a stable factor where individuals have come to regard themselves as "naturally unlucky". In such situations, the attribution is really ascribed to what is considered to be a stable personality trait and is likely to inhibit trying again after failure.

Weiner (1972) also argues that the likelihood of trying again after success is greatest where the success is attributed to internal causes, bringing about a heightening of positive affect based on self-esteem. Kernis, Cornell, Sun, Berry, and Harlow (1993) found the stability of self-esteem to be important - even more important than whether it was high or low, in that people with unstable self-esteem were more likely to be ego-involved in everyday activities. Such individuals were thought to be more likely to perceive testing situations as a threat to their self-worth, and, presumably, more likely to feel ego-threatened by failure.

2.4. *THE ROLE OF INTENTIONALITY IN MOTIVATION*

2.4.1. Defining intentionality

Cognitive analyses of motivation regard motivated behaviour as intentional, that is, the end process of a rational process. The original stimulus behind

this process may be a perceived need (Maslow, 1943), a set of circumstances (Bandura and Walters 1963), or an emotion, (Lyons, 1980). Intentionality is also related to controllability (Weiner, 1985).

2.4.2. The relationship between motives and circumstances

Bandura and Walters regard intentionality as referring to the circumstances or context that are in existence just prior to the behaviour, rather than being a property of the behaviour itself. They give the example of a child throwing a ball at another child. This could be done with the deliberate intent of hitting the other child in the face (aggressive intention), or as an invitation to play (non-aggressive intention). If the ball injures the other child, an observer might form a judgement based on the circumstances leading up to the throwing of the ball as to whether aggressive intention was involved. Thus the significance, or moral status of an action may be altered by reference to the circumstances in which it was carried out.

In a sporting context, antecedent circumstances can provide insight into an athlete's motives. For example, if an athlete omits the "difficult" parts of a circuit session, we would infer something different about the significance of the athlete's motives in so doing if we knew that he or she had either been in the pub just prior to training, or had just received some extremely bad news.

2.4.3. The relationship between motives and emotions

Lyons (1980) regards motives as having their locus in our emotions, which are what he describes as the "putative" causes of our actions. Lyons argues that it is possible to have a motive to do something without actually having any intention of doing it. He illustrates this by the example of Hercule Poirot, the fictional detective, declaring that "Everyone in this room had a motive for

murdering the dead man", when not everyone would have had any intention of committing murder.

In a sporting context, it is possible for a person to have a motive to train harder (for example, to win the next race) without having any intention of doing so.

2.4.4. The relationship between motives and controllability

Weiner (1985) changed the locus of control dimension to a locus of causality, and introduced intentionality as a possible cause. This is related to controllability inasmuch as we can intend to do something but find that it is actually outwith our control.

For example, an athlete may intend to train harder but be prevented from doing so by illness.

2.5. *DISTINGUISHING INTRINSIC AND EXTRINSIC MOTIVATION*

A distinction has often been drawn between intrinsic and extrinsic motivation. This section sets out to clarify this distinction in terms of a continuum, and by sub-dividing intrinsic motivation into primary and secondary versions.

2.5.1. Primary intrinsic motivation

Intrinsic motivation has been defined variously as applying to situations where people perform activities "for no apparent reward except the activity itself" (Deci, 1972), and "for the interest and enjoyment inherent in engaging in the activity itself" (Tripathi, 1992). Wong and Csikszentmihalyi (1991) drew

a distinction between two different kinds of motivation in scholastic achievement: namely, between "work orientation", which refers to motivation which is geared to achieving long-term goals, and "intrinsic motivation while studying", which refers to the extent to which the individual enjoys studying at the time when he or she is actually engaged in it. Intrinsic motivation as experienced at the actual time of participation in an activity is classified here as primary intrinsic motivation.

Primary intrinsic motivation comes in two versions, as follows:

- (1) Behaviour that is purely instinctual and provides its own rewards. We know from animal studies and from observing young children that activity is inherently rewarding. It may be that, for many people, sport simply provides a convenient venue or forum for engaging in physical activity.
- (2) Some activities may be experienced as pleasurable via a process of classical conditioning (Pavlov, 1927). The act of running may have become very closely associated for some people with the anticipatory enjoyment of socialising with team mates after training. For some, the association of the two experiences may have become so close that the act of setting out on a run is enough in itself to elicit the conditioned response of warm feelings. Providing these warm feelings are experienced while the person is actually running, they may be regarded as part of the person's primary intrinsic motivation.

2.5.2. Extrinsic motivation

Conversely, extrinsic motivation has been defined as

"engaging in activities that are instrumental in obtaining some external reward" (Tripathi, 1992),

and as

"the motivation to work primarily in response to something apart from the work itself, such as reward or recognition or the dictates of other people" (Amabile, Hill, Hennessey, and Tighe, 1994).

For example, an intrinsically motivated marathon runner might simply enjoy the act of pounding the pavements; while an extrinsically-motivated runner might run for the sake of the prize money. Extrinsic motivation begins to look as if it is nothing more than the type of operant conditioning which Skinner (1938,1971) described.

Extrinsic motivation can be said to be in operation where the individual is primarily conscious of the rewards that he or she hopes to attain at the actual point of participation in the activity. For example, an extrinsically motivated marathon runner may spend most of the time in a race being spurred on by the thought of a medal at the end, or by the thought of weight loss as a result of all the effort involved. Extrinsic rewards also have to be removed from the activity itself in time. An intrinsically motivated runner, on the other hand, may simply enjoy the physical sensations involved in pushing him or herself to the limit. This is experienced at the actual point of participation.

Vallerand and Bissonnette (1992) have identified four sub-categories of extrinsic motivation:

(1) External regulation

The behaviour of the individual is externally regulated by rewards or constraints. In other words, the person's reasons for participation do not lie in the activity itself. An example of this would be training purely in the hope of winning prize money, or out of fear of the coach.

(2) Introjected regulation

The individual sets his or her own rewards and constraints. For example, a runner may promise him or herself a night out at a restaurant if a certain number of miles is run in a particular week. Although the locus of control is internal in that it is the runner who has made the rules, the behaviour is not really self-determined as it is still being controlled by external rewards rather than the love of the activity itself.

(3) Identified regulation

An example of this would be where an athlete chooses to do extra training because this is believed to increase his or her chances of winning a gold medal. Although the behaviour is self-determined in that the athlete has undertaken it voluntarily, it has still been chosen because it is seen by the athlete as a means to the end of winning a gold medal. Consequently, Vallerand and Bissonnette (1992) would

argue that the motivation is still extrinsic and the locus of control of the behaviour is external.

(4) Integrated regulation

In this type of extrinsic motivation, the individual "integrates" extrinsic motives into his or her overall value system, or self-concept. An example of this would be training hard to win a gold medal because it is important to the individual's self concept to achieve as an athlete, and a gold medal is tangible proof of that achievement. This could also apply to more mundane extrinsic motives, such as controlling one's weight. In this case, it might be important to the individual's self concept to have an athletic image, and a lean and muscular body would enhance this.

Biddle and Brooke (1992) conclude from a study of the intrinsic motivational orientations of children in sport that children's intrinsic motivation is multi-dimensional. They regard it as being closely allied with competence motivation and the child's self-perceptions of control and competence.

2.5.3. Secondary intrinsic motivation

A third category of motivation is proposed here by the author. This will be known in this thesis as "secondary intrinsic motivation". This applies to situations where an individual is motivated by aspects of running which, although theoretically extrinsic by nature, are actually so close to the intrinsic experience of running itself as to be conceptually difficult to separate from it. Examples of this are the pleasure of chatting with one's running partner, or the enjoyment of wearing the latest running gear. Where classical

conditioning occurs, some of the content of an individual's secondary intrinsic motivation may be absorbed (by virtue of the closeness of the association) into his or her primary intrinsic motivation.

2.5.4. The intrinsic-extrinsic continuum

Probably the most useful way of looking at intrinsic and extrinsic motivation is as the opposite poles of a continuum. Secondary intrinsic motivation is a chameleon-like “half-way house” that can be absorbed into either of the two poles. The enjoyment of a refreshing drink with club mates in the bar after a long run would begin to look like an extrinsic motive if the run itself was regarded as a highly aversive experience to be endured as a means to the end of enjoying the post -run relaxation. On the other hand, the drink in the bar could become absorbed into an individual's primary intrinsic motivation if the run had been an enjoyable experience of which the post-run socialising was just an extension. In this way, the mechanism whereby an activity is defined as intrinsically or extrinsically motivating is partly attributional.

The next section discusses the main ways in which it is possible to manipulate people's intrinsic motivation.

2.6. *THE MANIPULABILITY OF INTRINSIC MOTIVATION*

It seems to be an important characteristic of intrinsic motivation - in both its primary and secondary forms - that it cannot be imposed on an individual by others. It can, however, be enhanced, reduced, or destroyed by other people or external factors under certain circumstances.

2.6.1. The effect of extrinsic rewards on intrinsic motivation.

The provision of extrinsic rewards has been shown to undermine intrinsic motivation (for example, Deci, 1971; Lepper, Greene, and Nisbett, 1973). Where an individual is extrinsically motivated, the locus of causality is seen as external - that is, as lying in the reward rather than in the person - and the individual feels less self-determining as a result. It might be predicted from this that children who expect to receive rewards for achieving training goals in sport will produce lower standards of performance than children who are not rewarded, although the quantity of training which is done is likely to be the same in both cases.

Lepper, Greene, and Nisbett (1973) also found in their study of the intrinsic motivation of children that the provision of unexpected rewards did not produce a subsequent upsurge of intrinsic interest in the task. In addition, the quantity of work produced by the children who expected a reward was the same as that produced by the children who did not expect a reward, but the quality of the work produced by the expected-reward group was lower.

Further work by Deci, Nezlek, and Sheinman (1981), looking at teaching styles, indicates that certain characteristics of the rewarder influence the effect that the provision of rewards has on intrinsic motivation. The more "controlling" the teaching style, the more the locus of control was seen as lying in the reward itself with a subsequent detrimental effect on the intrinsic motivation of the students.

2.6.2. The effects of verbal reinforcement and positive feedback on intrinsic motivation.

Deci (1971) also found, however, that existing intrinsic motivation could be increased by means of verbal reinforcement and positive feedback. Horn (1985), studying the effects of coaches' feedback on performance on child athletes, distinguished between feedback regarding competence and praise for successful performance. Praise was found to be demotivating where it was seen by the athletes as being non-contingent to their performance, that is, where it was higher than the level which the athletes perceived their performance as meriting, or excessively frequent. Criticism was actually more helpful in these circumstances.

The provision of feedback has also been found to produce an increase in practice frequency, especially in lower-skilled child athletes (Rickard, 1991).

2.6.3. The effects of performance-contingent rewards on intrinsic motivation.

Performance-contingent rewards have been found to have a positive effect on performance, intrinsic motivation, and perception of self-control, providing it is performance rather than performance-outcome which is being rewarded (Lopez, 1981). Rewards for carrying out set tasks without reference to competence, however, have a detrimental effect on intrinsic motivation. This is because the locus of control shifts away from the individual to the reward itself (Rosenfield, Folger, and Adelman, 1980).

2.6.4. The effect of combining intrinsic motivations

There is some evidence that combining intrinsic motivations, or combining intrinsic and extrinsic motivations, can undermine interest (Higgins, Lee, Kwon, and Trope, 1995). Although the work cited here was carried out with school children on reading and colouring activities, it is reasonable to hypothesise that this effect will also occur with adult sportspeople. If this is the case, then it will be possible to undermine the intrinsic motivation of sportspeople by combining their participation in sport with another activity which they find enjoyable. An example of this would be combining running with listening to music, or with an activity which the athlete finds aversive, such as engaging in conversation with someone whom the person finds boring.

2.6.5. The effects of characteristics of the rewarder on intrinsic motivation.

In some cases the damaging effect of extrinsic rewards on intrinsic motivation can be mediated by characteristics of the person giving the reward. In pre-school children, damage was not found to occur where the reward agent was the child's mother, or an individual seen as a "benign figure" (Aloise and Miller, 1991), but only where the rewarder was not seen as having any ulterior motives. In 4th-6th grade children, rewards have been found to undermine intrinsic motivation primarily where the reward agent is perceived as controlling (Deci, Nezlek, and Sheinman, 1981). Conversely, (in the same study) it was also found that rewards can actually help sustain intrinsic motivation where the rewarder has an autonomous, rather than authoritarian or controlling, style. Where children have opportunities to make some decisions for themselves,

their intrinsic motivation is likely to be stronger than where they perceive all the decisions to be being made for them by an authority figure such as a coach.

2.6.6. Family factors related to intrinsic motivation.

Ginsburg and Bronstein (1993) looked at the influence of parental supervision of homework, parental reaction to grades, and general family style on children's motivational orientation. While their findings were derived from an educational context, they are likely to have implications for sport also.

Children were held to have an extrinsic motivational orientation where they had a tendency to see their happiness as being controlled by external forces or fate. Intrinsic motivational orientation was defined as where children saw their destiny as being within their own control.

Ginsburg and Bronstein's (1993) study produced five important findings:

- (1) High parental supervision of homework was associated with an extrinsic motivational orientation and lower academic performance.
- (2) The way in which parents reacted to grades was important. Where the response was controlling in a negative way (that is, in the form of negative comments or punishments), or uninvolved, or focused on extrinsic rewards, this was related to an extrinsic motivational orientation and lower academic performance.
- (3) Over- and under-controlling family styles are related to extrinsic motivational orientation and lower academic performance.

- (4) Parental encouragement with regard to grades is associated with an intrinsic motivational orientation.
- (5) Autonomous family styles - where children have some say in decisions which affect them - are associated with an intrinsic motivational orientation and higher academic performance.

What seems to be significant is that where the locus of control is regarded by the child as being external to the child, that is, when the child feels excessively supervised, criticised, or controlled by parents, intrinsic motivation is undermined. On the other hand, where the child experiences autonomy and positive encouragement, intrinsic motivation thrives.

2.6.7. Competition and intrinsic motivation.

Tripathi (1992) found that indirect competition (that is, competition with a standard) produced greater intrinsic motivation to a task than competition against a person, although the level of task performance was higher in direct competition. Indirect competition was considered by Tripathi to be less stressful, making intrinsic motivation more likely. Direct competition may, however, have an informational role to play in fostering feelings of efficacy as winning a match against an opponent who is known to be of high ability provides positive feedback as to one's present level of achievement.

2.6.8. Cultural factors related to intrinsic motivation.

An individual's cultural background may influence the extent to which he or she regards sport participation as intrinsically motivating. Corlett and

Mokgwathi (1986) compared the preferred leisure activities of urban and rural children. Few chose active games or sports as their favourite ways of spending their time. The main cultural difference between urban and rural children lay in preferences for active or passive pursuits. Urban children preferred passive sedentary activities such as reading or listening to music; rural children, on the other hand, preferred "work" activities.

Tripathi (1992) studied the effects of competition on the motivation of children in India. He argues that the value of extrinsic rewards may be subject to cultural influences, as extrinsic rewards may be valued more highly in societies with scarce resources.

2.6.9. The role of context in defining intrinsic motivation

Studies have shown that the context has a role to play in the way in which people define their emotional states. Schachter and Singer (1962) found that cognitive factors have a major say in labelling feelings when physiological states of arousal are induced in subjects. A variety of emotional labels can be attributed to the same arousal-state: which one is chosen depends on the context. In sport, it is likely that high states of physiological arousal can be labelled as enjoyable or aversive depending on situational factors. These would include whether the individual is playing well or struggling, or whether there is a lot of audience support.

2.6.10. The role of emotional contagion in defining intrinsic motivation.

The phenomenon of emotional contagion also has a part to play in determining emotional states. There are various ways in which emotions can be "caught" from others. One way in which this might be done would be by

deliberate cognitive means. This would involve trying to empathise with other people by trying to see their point of view. A young athlete might try to think in the same way as a sporting hero, in the sharing the joy of the hero.

It is also possible that an individual might “catch” the emotions of others via an indirect attributionary process. An emotional response to sport participation may occur as a result of a form of classical conditioning (Hatfield, Cacioppo, and Rapson, 1994). For example, the experience of competition may be experienced repeatedly as aversive by a squash player because of its close association with the bad temper of the coach or the aggressive style of play of certain team mates. The mechanism behind this is at least partially attributionary. In this type of situation, just the sight of the people concerned may come to be enough to elicit feelings of anxiety or revulsion in the player. The player may think that he or she has been “infected” by the bad humour of the others. In turn, these negative feelings may come to be attributed to the game itself, thus causing damage to the person’s primary intrinsic motivation.

An individual might also “catch” the emotions of others via mimicry or synchrony (Hatfield, Cacioppo, and Rapson, 1994). This may occur consciously or unconsciously. Hatfield and co-authors argue that imitative behaviour will elicit feedback (presumably from the imitated party or from observers). If the feedback is positive, the behaviour will be reinforced and will become a continuing source of positive affect.

2.7. “STATE” AND “TRAIT” THEORIES OF INTRINSIC MOTIVATION

Argyle (1987) in his work on the nature of happiness, summed up the “state-trait” issue with the question “Are there happy people?” (p.112). The

implication of this is that there might be people who just have a greater tendency than others to feel happy, even in adverse circumstances. Similarly, it might be reasonable to ask the question "Are there intrinsically motivated people?" - that is, people who have a built-in tendency to perceive themselves as intrinsically motivated in any activity in which they happen to be taking part. On such a model, intrinsic motivation might be regarded as a trait of personality, rather than a temporary state of mind.

Diener (1984) categorised theories of happiness as either "top-down" or "bottom-up". In the case of "top-down" theories, an individual's perceived level of happiness is seen as deriving from that person's disposition towards feeling happy. According to "bottom-up" analyses, a person's perception of his or her self as happy depends on the number of pleasant situations that occur in the person's life. In other words, it is possible to regard happiness as either a state ("bottom-up") or a trait ("top-down"). Diener and Larsen (1984) found that an overall rating of personal happiness had more to do with the personality and outlook of the person than with life events.

Extending this to a sporting context, it may be that those who profess to enjoy sport are simply people who have a general tendency to view situations positively. In other words, they may simply be the "non-moaners" of the world.

2.8. SUMMARY AND CONCLUSIONS

The discussion so far has led to various conclusions about the nature and function of motivation.

2.8.1. There seems to be a good case for arguing that motivation is a cognitive process of which intentionality is an important component. The original stimulus may be a physiological need, an emotion, or a psychological need, such as the need for achievement. Motivation should not, however, be confused with the stimulus that provoked it in the first place.

It is also possible for individuals to switch their perceptions of their own motivation by means of attributionary processes. The causes of behavioural outcomes can have an entirely different meaning for a person depending on whether they are viewed as internal or external, or stable or unstable.

2.8.2. There is a crucial distinction between intrinsic and extrinsic motivation. Two types of intrinsic motivation are identified here: primary and secondary. The working definition of primary intrinsic motivation that is adopted here is the positive affect that is derived from an activity at the actual time of participation. Secondary intrinsic motivation accounts for the feelings of well-being that are not part of the actual act of participation, but are very closely associated with it, such as enjoyment of socialising after training, or of travelling to and from events. Extrinsic motivation, on the other hand, refers to the rewards (which may be material or non-material) which are derived as a result of participation.

2.8.3. It does not seem to be possible for intrinsic motivation to be imposed on one individual by another. Already existing intrinsic motivation does, however, seem to be capable of being enhanced. It is possible to do this by means of verbal reinforcement, positive feedback,

performance-contingent rewards, indirect competition, emotional contagion, and the extent to which the individual perceives him or herself to be in possession of autonomy.

2.8.4. It is debatable whether intrinsic motivation is a state or a trait.

2.9. *PREDICTIONS ABOUT SPORT*

2.9.1. The diversity of views

This section speculates as to the predictions that the various schools of thought in the general psychological literature would make about primary intrinsic motivation in sport.

The mechanists might suggest that taking part in sport is no more than a mechanical response to a biological drive to exercise the body.

Behaviourists would be likely to have a somewhat different view. Those who were committed to an operant behaviourist view would regard motivation as essentially extrinsic. Sportspeople would be seen as taking part in sport mainly for the sake of various rewards, such as prizes or weight control. On such a view, intrinsic enjoyment is defined in terms of anticipation of these intermittent reinforcers. An alternative form of behaviourist view might define primary intrinsic motivation in terms of a classically conditioned response. On this view, it might not be the act of participation in the sport that is producing the positive affect. The act of participation may be made more pleasurable by anticipatory enjoyment of socialising with team mates after the event. Yet another type of behaviourist view would be that sport provides an opportunity to engage in physical

activity, which is a form of species-specific behaviour, which is inherently rewarding.

Achievement theorists would say that sport provides a venue for testing oneself against standards (such as records) and by comparison with others. This makes it possible for participants to enjoy a sense of achievement, which is held to be an innate need. It is possible to regard this as an intrinsic view so long as the sense of achievement refers to feelings which the individual experiences at the actual point of participation. It may, however, be an extrinsic view in disguise if the athlete does not really enjoy a sense of achievement during sport, but merely endures it as a means to feeling better about him or herself generally.

Finally, theorists who emphasise the role of intentionality in shaping behaviour would see cognitive processes as defining the content of primary intrinsic motivation. It is possible for an individual to define the same situation as either enjoyable or aversive by means of cognitive processes, such as by reference to the context (Bandura and Walters, 1963; Schachter, 1959).

Attributionists might also argue in favour of the view that athletes can define the content of primary intrinsic motivation by cognitive means. This view starts from the assumption that sportspeople participate in sport for the experience of controllability that it provides. If, as the achievement theorists hold, the need for success is inherent, then attributionary processes can contribute to this by making it possible for people to feel successful all the time. Paradoxically, this is possible even when an individual is losing. For example, as discussed in Section 2.3.5., a sportsperson losing a

competition can attribute the loss to external factors, such as task difficulty, or unstable factors, such as bad luck.

2.9.2. The common threads

This section has been concerned so far with speculating as to the predictions which various types of theorist would make as to the content of primary intrinsic motivation in sport. There are some common threads running through the predictions.

Most of the theories that have been discussed so far seem to pre-suppose that sport provides a forum for the expression of various needs. It is not to say that the individuals concerned could not satisfy these needs in any other context. It is just that sport provides a convenient outlet for many people. The two basic needs that have been postulated are physical challenge and achievement, or a sense that one is successful.

This chapter has discussed the objective, functional aspects of motivation. The next chapter will look at what is already known about the subjective experience of intrinsic motivation.

CHAPTER 3

THE SUBJECTIVE EXPERIENCE OF INTRINSIC MOTIVATION

What is it that people actually experience when they feel intrinsically motivated by an activity? What kind of feelings do they have at the actual time of participation? This chapter will look at what is already known in a general context about the content of the subjective experience of intrinsic motivation. It will use this as a basis for making predictions about the nature of intrinsic motivation in sport.

A survey of the main literature in this area reveals five main ways of describing the subjective experience of intrinsic motivation, which this chapter will discuss:

- (1) Satisfaction
- (2) "Flow"
- (3) Quasi-religious accounts
- (4) Existentialist accounts
- (5) Catharsis

3.1. SATISFACTION AND INTRINSIC MOTIVATION

3.1.1. Defining "satisfaction"

Various terms have been used to describe states of intrinsic motivation. Typical examples are "subjective well-being" (Diener, 1984), "positive hedonic

tone” (Teasdale and Russell, 1983), “affective beneficence” (Morgan, 1984), and “positive emotional experience” (Argyle, 1987).

The term “satisfaction” (Jahoda, 1981; Loher, Noe, Moeller, and Fitzgerald, 1985) seems to carry an extra shade of meaning. This brings in the notion of “what you get out of the activity”. This is slightly different from a generalised feeling of well-being that happens to be experienced at the time when one is taking part in the activity. “Satisfaction” seems to suggest a causal relationship between the activity and the feeling of well-being. This is different from extrinsic rewards so long as it refers to the benefits that are experienced at the actual time of participation.

3.1.2. Satisfaction in work contexts

The nature of intrinsic motivation conceptualised as satisfaction has been investigated variously in work contexts.

Firstly, the notion of satisfaction seems to be multi-dimensional.

Secondly, the constructs or criteria that people use as a yardstick for evaluating their own intrinsic motivation in a work context are crucial to our understanding of it.

Kabanoff (1980) found that people analysed the content of their jobs in terms of influence or autonomy, variety, skill utilisation, pressure, and interaction.

Jahoda (1981) proposed the following as dimensions of satisfaction, or intrinsic motivation, in work:

- the imposition of a time structure
- shared experiences
- being linked with goals beyond one's own
- personal status and identity
- enforced activity

Loher, Noe, Moeller, and Fitzgerald (1985) found, in a meta-analysis, that the following were key components of job satisfaction:

- task identity
- task significance
- skill variety
- autonomy
- feedback

3.1.3. Predictions which can be made about the dimensions of intrinsic motivation in sport from analyses of “satisfaction” in work contexts

If sportspeople think in the same way as workers, they might be concerned with the following:

- | | |
|----------------------|--|
| (1) Autonomy: | They are likely to feel most satisfied when they have a sense of being in control of their own destiny, and will not feel under undue pressure from others to perform. |
| (2) Variety: | It will be important that the sporting activity does not become boring or repetitive. |

- (3) **Skill utilisation:** Sportspeople are likely to feel best when they are putting their skills to best use, or employing the right tactics.
- (4) **Social interaction:** Part of the intrinsic enjoyment of sport is likely to be the company of others and sharing the experience of sport participation.
- (5) **Goals / feedback:** Sportspeople are likely to gain satisfaction from the feeling that they are achieving goals that they have set themselves.
- (6) **Status and identity:** Participation in sport may provide individuals with an "image". For example, a person may enjoy seeing him or her self as a runner or squash player.
- (7) **Discipline / Structure:** sportspeople may derive satisfaction from the feeling that participation in sport is imposing a discipline on their leisure time, and that they are using their time constructively.

3.2. "FLOW" AND INTRINSIC MOTIVATION

3.2.1. The experience of "flow"

"Flow" refers to the experience of a kind of alternative reality that is quite distinct from the "real" world.

Csikszentmihalyi (1975) described intrinsic motivation in terms of the "little world of their own" which certain activities offer their participants. Similarly,

Slade (1954), writing on the subject of children's improvised drama, used the term "the Land" to describe the fantasy world in which children become absorbed in creative play. They enter this world when they are engaged in what Slade calls "coma-acting".

Csikszentmihalyi (1975) studied participants in activities that he describes as "autotelic", such as rock climbing (for example, providing few conventional rewards). He found that such people seem to enter into what he describes as a state of "flow" at various stages of participation. This is a state of total detachment from the "real" world, which is not necessarily the same thing as enjoyment. "Flow" seems to involve concentration at an extremely deep level. For example, Csikszentmihalyi (1975) describes surgery as a "flow" activity, but questions whether or not it could be said that a surgeon actually enjoys carrying out an operation.

The "flow" experience has been found to be capable of occurring during a variety of activities, including work (Allison and Duncan, 1988), writing (Larson, 1988), and study (Wong and Csikszentmihalyi, 1992). "Flow" is also more likely to be reported during work than when at leisure (Csikszentmihalyi and LeFevre, 1989).

Nakamura (1988) found that high achieving school students experienced "flow" more often (40% of the time) in academic activities than lower achievers (16%). She argues that this is why high achievers study more, and low achievers study less to avoid the aversive stimulus of anxiety when "flow" does not happen.

Allison and Duncan (1988) described the opposite of "flow" as "antiflow". This refers to the frustration and boredom produced by tasks that are experienced as tedious and repetitive, and beneath the capabilities of the individual.

3.2.2. Predictions about the nature of intrinsic motivation in sport from the idea of "flow"

If the notion of "flow" is transferable to a sporting context, it can be predicted that intrinsic motivation in a sporting context involves a sense of complete detachment from the "real" world and deep concentration. "Anti-flow" would occur where the activity was boring, and perceived by the individual as being beneath his or her capabilities

3.3. *QUASI-RELIGIOUS ACCOUNTS OF INTRINSIC MOTIVATION*

3.3.1. Description of quasi-religious accounts

These might be described best as a particularly intense form of flow. This occurs when people are carrying out tasks to the very peak of their ability, perhaps better than they had dreamed possible.

Ravizza (1984) borrowed Maslow's (1968) term "peak experience" to describe primary intrinsic motivation. Maslow uses the term in a quasi-religious sense to describe perceptions of objects or events that are "ego-transcending". Such an experience, in Maslow's view, is felt as "a self-validating, self-justifying moment which carries its own intrinsic value with it" (p.74). Csikszentmihalyi (1988, 1989) uses the term "optimal experience" in a similar way.

3.3.2. Predictions about the nature of intrinsic motivation in sport from quasi-religious accounts

Ravizza (1984) uses the term "peak experience" in a sporting context to describe the type of total immersion in an activity, and detachment from reality, to which Csikszentmihalyi refers as "flow". In the case of peak experiences, this is enhanced by a sense that one is performing to the very peak of one's ability. Ravizza argues that, although such experiences are rare, "their intensity acts as a standard, or qualitative reference point, for subjectively evaluating future performance" (p.455). This suggests that the pursuit of "peak experiences" is highly motivating in its own right, perhaps further enhanced by the intermittent nature of the reinforcement. It may be, then, that the hope of having a peak experience is in itself a dimension of the intrinsic motivation of sportspeople.

The imagery of religious experience often crops up in writing about sport participation. For example, Graham (1982) epitomises the quasi-religious aspects of running as follows:

"the change into religious clothing, the pain of running, and the shower of cleansing constitute a daily rebaptism into newness of life" (pp 149-150).

3.4. *EXISTENTIALIST ACCOUNTS OF INTRINSIC MOTIVATION*

3.4.1. Description of existentialist accounts

In existentialist terms, intrinsic motivation might be viewed as the experience of self-actualisation. This will happen when the individual is engaged in an activity that has been freely chosen.

Sartre (1948) argues that we define our own being by our actions, and our personality is not given, but chosen by ourselves. We are, quite simply, what we do.

Sartre sums this up when he states:

“Man is nothing else but what he purposes, he exists only in so far as he realises himself, he is therefore nothing else but the sum of his actions, nothing else but what his life is”.

3.4.2. Predictions about the nature of intrinsic motivation in sport from existentialist accounts

Sport participation might be regarded as a form of self-actualisation, providing it has been freely chosen. In popular terms, this might be expressed as “being all you can be “. To take part in, say, athletics, is a means of defining one’s own personality as “an athlete”. This would not work if the person only participated for the sake of being seen in this way by others. This would be what Sartre describes as “bad faith”, or out of tune with one’s freely chosen true “self”.

3.5. *CATHARSIS AND INTRINSIC MOTIVATION*

3.5.1. The experience of catharsis

The experience of intrinsic motivation has been expressed in terms of catharsis. The notion of catharsis was derived originally from the theories of

drama expounded by Aristotle in Ancient Greek philosophy. Aristotle believed that, by releasing unpleasurable emotions, such as pity or fear in a “safe” context by watching them in a play, one is somehow “purged” of them.

Aristotle did not, however, actually propose that aggression should be channelled in this way. The notion of catharsis has been widened considerably in modern times to include the type of feeling of relief which people often report when they express pent-up feelings of aggression, either physically or verbally.

3.5.2. Predictions about the nature of intrinsic motivation in sport from catharsis theories

Berkowitz (1964) reviewed some of the literature on the expression of anger and noted that it often did, indeed, make the aggressor feel better. It is feasible that this sense of catharsis as experienced at the time of participation in sport could be intrinsically motivating. It may, however, apply in only certain types of sport, notably those which involve explosive action, such as football or squash. It is less easy to see how a cathartic effect involving the expression of anger could occur in sports that emphasise grace and elegance, such as synchronised swimming. It is also unlikely that aspects of some sports that emphasise skill and concentration rather than strength or force, such as putting in golf, will be cathartic.

The actual experience of catharsis should not be confused with extrinsic benefits of catharsis. One popular argument that is often put forward in favour of participation in competitive sport is that sport provides people with an outlet for natural aggression. This may make it less likely that they will behave aggressively in other situations. Berkowitz (1964) concluded that expressing

one's anger in this way seemed to make the aggressor temporarily less likely to wish to attack the object of his or her wrath. This would be an effect of catharsis, however, rather than the experience of catharsis itself.

The fact that the experience of catharsis in sport is intrinsically motivating is borne out by the repeated outbursts of aggressive behaviour on the part of certain professional football players. The temporary release of tension may provide a sense of relief that is so highly reinforcing that it is likely to be sought out again despite the high cost to the player in terms of fines and suspensions. It is, therefore, predicted that temporary relief from negative emotions such as anger will be found to be a dimension of the intrinsic motivation of competitive sportspeople.

3.6. SUMMARY AND CONCLUSIONS

3.6.1. Summary of ways of describing primary intrinsic motivation

The subjective experience of primary intrinsic motivation has been described in five main ways:

- (1) In terms of satisfaction
- (2) As "flow", or detachment from reality
- (3) In quasi-religious terms
- (4) In existentialist terms
- (5) As a form of catharsis

All of these have something to contribute to our understanding of the subjective experience of intrinsic motivation in sport. It is clear, then, that primary intrinsic motivation is multi-dimensional.

The concepts of “flow”, “peak experiences”, and “self-actualisation” may simply be different ways of describing the same experience. All three refer to a temporary sense of particularly deep fulfilment that results from the realisation that at this point in time one is carrying out an activity to the best of one’s ability. The difference in the vocabulary that is used may simply lie in whether the individual looks at life from a religious or a humanistic viewpoint.

This idea of self-fulfilment is not incompatible with the notion of “satisfaction”. It may simply be that “flow”, “peak experiences” and “self-actualisation” form collectively another dimension of what has been termed “satisfaction”.

Equally, the notion of catharsis need not be discarded. Although on the surface, this appears as a negative concept, being concerned with release from aversive emotions, it is also possible to view this experience of release as something positively pleasurable.

3.6.2. Predictions about the dimensions of primary intrinsic motivation in sport

On the basis of the five main accounts of the subjective experience of intrinsic motivation summarised in 3.6.1. above, it is possible to make some predictions about primary intrinsic motivation in sport.

It is likely that the following will be key dimensions:

- (1) Autonomy or self-determination
- (2) Variety
- (3) Putting one's skills to good use
- (4) Social interaction and social co-ordination
- (5) Setting and achieving goals
- (6) Status and identity
- (7) A sense of having a discipline and structure imposed on one's leisure time
- (8) A sense of total absorption in the activity, to the exclusion of the "real" world.
- (9) Attaining, or having the hope of attaining, moments of self-transcendence when the individual perceives him or herself as performing to the absolute peak of his or her ability.
- (10) Relief from negative emotions.

The purpose of the next chapter will be to examine some of the research that has already been done in a practical sporting context into the nature of the intrinsic motivation of the competitive sportsperson.

CHAPTER 4

INTRINSIC AND EXTRINSIC MOTIVATION AND THE COMPETITIVE SPORTSPERSON.

This chapter will look at some of the research that has been done in motivation in a sporting context, and will look at some of the flaws in the work to date. It will also attempt to make further predictions about the dimensions of intrinsic motivation in sport.

The research falls into four categories:

- (1) Outset motivation. This is concerned with the reasons why people take up their sport in the first place.
- (2) Intrinsic motivation as perceived generally by athletes throughout their career.
- (3) Intrinsic motivation as perceived retrospectively by athletes after retirement from their sport.
- (4) Existing work on intrinsic motivation as measured at the actual time of participation in the sport.

4.1. OUTSET MOTIVATION

Outset motivation refers to the way in which sportspeople perceive their own motives for participation when they first take up their sport.

Mutrie and Knill-Jones (1984) conducted a survey of 5% of the runners registering for the Glasgow People's Marathon. In this case, the researchers inquired specifically into the runners' reasons for starting running.

The three most popular reasons for taking up the sport were:

- | | | | |
|-----|-------------------|---|--------------------------|
| (1) | Fun | : | Women: 61.4%; Men: 47.5% |
| (2) | To improve health | : | 52% |
| (3) | Weight control | : | 18.3% |

The popularity of the hope of having "fun" as a motive for starting running suggests an expectation on the part of a large number of prospective runners that the activity will be intrinsically motivating. It should be mentioned, however, that one problem with this study (acknowledged by its authors), was that the survey was carried out at registration in September, whereas the original entries had been submitted in May, so the results may not be a true reflection of the runners' outset motives. It is feasible that their memories of their own original motives might be inaccurate.

4.2. MOTIVATION AS PERCEIVED DURING SPORTING CAREER.

"Motives" are construed in the following two studies as reasons for participation.

4.2.1. Reasons for running

Harris (1981) conducted a survey of 411 runners, inquiring into their reasons for running. The main reasons for running which were reported were as follows:

(1)	Feeling better physically	:	92.5%
(2)	Psychological benefits	:	87.3%
(3)	Weight control	:	58.14%
(4)	Relaxation	:	55.5%

These may all be regarded as extrinsic rewards which are received as a result of running. With the exception of weight control, they may also refer to intrinsic enjoyment of the act of running itself. It is quite possible that runners may feel better physically, have a sense of psychological well-being, and enjoy a feeling of relaxation, at the actual point of participation. What is not clear is whether the subjects in the study were referring to the way that they normally felt when they were actually running or to the extrinsic rewards of running.

It is also interesting to note that the hope of having "fun" is viewed as a motive for starting running in the Mutrie and Knill-Jones study, but not, as suggested by the Harris study, as a motive for continuing to participate in the sport.

Perhaps, then, running proves to be not as much "fun" as people expect, and other motives take over later? This does not, however, exclude the possibility of the secondary form of intrinsic motivation which was discussed in Chapter 1 continuing to operate. If this were the case, the runners would be motivated by activities closely related to their sport, like going for a drink afterwards or travel to events, rather than the actual act of participation in the sport itself.

4.2.2. Motives for sport participation

Ashford, Biddle, and Goudas (1993) found the three most commonly stated motives for participation in sport to be:

- (1) To maintain health.
- (2) To develop physical fitness.
- (3) As an aid to relaxation.

Of these three major motives for participation, (1) and (2) could definitely be described as extrinsic.

Motive (3) may also be extrinsic. It depends on whether it refers to a sense of relaxation which is experienced at the actual time of participation. In this case, the sense of relaxation would be part of an individual's intrinsic motivation. If, on the other hand, it refers to a more general sense of relaxation which is achieved as a result of participation, then the sense of relaxation would be more appropriately classed as an extrinsic motive. The use of the phrase "as an aid to ..." (p.249) by the authors in this study may be significant. It does seem to suggest that what is meant here is that participation in sport is

viewed as being instrumental in achieving a relaxed lifestyle rather than necessarily being a relaxing experience in its own right.

Both of these studies involved asking sportspeople specific questions about their motives for participation in their sport. The subjects in both cases were currently actively involved in their sport. Significantly, both groups seemed to favour extrinsic motives for participation.

4.3. *INTRINSIC ENJOYMENT AS PERCEIVED RETROSPECTIVELY AFTER RETIRAL FROM THE SPORT.*

Scanlan, Stein, and Ravizza (1989) investigated the sources of intrinsic enjoyment as experienced by former elite figure skaters. The study was carried out by means of interviews in which the subjects were asked open-ended questions about what they enjoyed about skating during the most competitive phase of their career. Four major sources of enjoyment were identified:

- (1) Social and life opportunities (mentioned by 92% of subjects)
- (2) Perceived competence, or the feeling of being good at something. (88%)
- (3) Social recognition (being perceived by others as good at something) (81%)
- (4) The act of skating (intrinsic motivation in its purest form) (61%)

Responses (1) (social and life opportunities), (2) (perceived competence and (3) (social recognition) may be regarded as referring to either extrinsic or intrinsic motives. It depends on whether the subject is referring to the way in which he or she remembers feeling at the actual point of participation, or to the feelings which he or she gains as a result of taking part in skating. These are benefits which the skaters received as a result of skating.

Response (4) (the act of skating) definitely refers to primary intrinsic motivation. The very fact that there is a separate category for enjoyment of the act of skating suggests that responses in categories (1)-(3) were expressions of extrinsic motivation.

The major difference between the findings of this study and those of Mutrie and Knill-Jones (1984), Harris (1981) and Ashford, Biddle, and Goudas (1993) is that intrinsic motivation plays a more significant role in the findings of Scanlan and co-workers.

As this study was retrospective, however, it is possible, firstly, that absence may have made the heart grow fonder, causing subjects to overestimate their levels of intrinsic motivation. Secondly, it is also significant that all of the subjects were currently involved in coaching at the time of the study. It could also be that their perceptions of the sport had changed as a result of being actively engaged in "selling" it to others rather than participating in it themselves.

Even allowing for this, it is still interesting to note that the act of skating is rated only fourth in the list of sources of enjoyment, by 27% less of the subjects than those who rated social and life opportunities highly. Although the 65% of subjects who rated the act of skating as a major source of

enjoyment is still a fairly high proportion, it is still worth noting that this leaves a good 35% who did not mention it at all.

4.4. *INTRINSIC ENJOYMENT OF SPORT AS MEASURED AT THE ACTUAL TIME OF PARTICIPATION.*

Most studies that look at intrinsic motivation in sport do so by asking people how they feel about their sport before or after an event, or between sessions. The problem with this is that it is not clear whether their responses are a true representation of their primary intrinsic motivation. It is possible that people's recollections of how they felt during an event are inaccurate. It is also likely that questions framed in terms of reasons for participation will elicit extrinsic rather than intrinsic motives.

If we want to know for sure how people feel when they are actually taking part in their sport, then we need to ask them at the actual point of participation. This has rarely been attempted. Why should this be so? It may be that most researchers are put off by the obvious practical difficulties involved in persuading people to answer questions when they are engaged in a sporting activity. On the other hand, it may simply be that it does not occur to people that any different answers would be obtained at the point of participation.

Sacks, Milvy, Perry, and Sherman (1981) did, in fact, make a serious attempt to study what actually goes on in the minds of sportspeople during competition, rather than relying on retrospective recollections. The researchers asked questions of ten participants during a 100 mile ultramarathon race, by cycling alongside them every three hours and having them answer questions into a small tape recorder. The questions concerned

the subjects' feelings, both current and during the last lap (2.5 miles). They were asked to rate their present feelings on a scale of 0-100, with 50 being regarded as normal.

All of the runners talked about pain, but the authors noted that they seemed to regard pain as "more of a signal, a sign, than something distressing in itself". Only one dropped out because of pain, but he attributed this to a decrease in his tolerance of it rather than the pain itself, as the pain had already been there for a while. Three weeks later, however, the runner said that he had dropped out because of the pain, so the significance of the pain appeared to have changed after time.

Sacks describes most of the comments made by the runners during the race as falling into the category of "associative thinking". This means that they tended to think about the race itself and coping strategies, rather than "dissociative thinking" which would have involved thinking about distractions, for example, a forthcoming holiday, to take their minds off the pain. Certainly, intrinsic enjoyment of the experience of the race did not seem to feature prominently in their comments.

How does this fit in with Tripathi's (1992) theory that indirect competition is more conducive to intrinsic motivation than direct competition? Most of the runners in this study seemed more interested in finishing the race than winning: that is, they perceived themselves as being in an indirectly competitive situation. Tripathi's findings would seem to predict that such athletes would be high in intrinsic motivation.

One difficulty with the Sacks and co-workers' ultramarathon study is, of course, that participation in a 100 mile race would be unlikely to be expected

by many people to be enjoyable, as this is, by definition, one of the ultimate "endurance" events. We may have to set this type of event apart from other sports in our thinking about motivation. It may be that participants in endurance events have a different view of "enjoyment" from other sportspeople, or a higher threshold for suffering, so that the experience of pain does not rule out the possibility of intrinsic motivation.

Alternatively, it may be possible for the experience of pain to be admitted into an individual's intrinsic motivation. Although ultramarathon running is an extreme example of a sport which involves pain, many other sports also involve pain in some form, albeit to a lesser degree. Examples of this are squash, or fencing. In fact, most sports will involve a certain amount of pain in the later stages of a match, when the same muscles have been used repeatedly beyond the point of fatigue.

The author proposes here a process of "cognitive reshaping" to explain the role of pain in intrinsic motivation. It is possible that at the time of participation the individual takes the aversive stimulus of the pain - as it were "by the scruff of the neck" - and reshapes it into something more bearable by means of cognitive processes. The pain then becomes a symbol of one's toughness or athletic prowess, or one's strength in overcoming it, rather than merely an aversive physiological event. This differs from masochism, which involves enjoyment of the pain itself.

The process of cognitive reshaping of pain is summed up in the words of Grete Waitz, former Olympic marathon runner (1986):

"When you realise that you are in control of your pain and that you're prepared for it, it becomes 'friendly' pain". (p.127)

Pain, for Waitz is a kind of badge of toughness, but, most importantly, it is an integral part of the sporting experience:

“This pain is not the enemy, rather a discomfort you have learned to endure as part of your achievement. It’s running’s biggest cliché, but it says it all: ‘No pain, no gain’. It’s also been said that everything else being equal among competitors, the winner is the person who can sustain the pain the longest.”
(p.126)

4.5. *THE FLAWS IN THE SPORT-RELATED RESEARCH IN INTRINSIC MOTIVATION TO DATE*

The existing work in the area of intrinsic motivation in sport is flawed in the following three ways:

- (1) There is a tendency for the notions of primary and secondary intrinsic motivation to be confused.
- (2) There is a lack of clarity as to what is meant by the term “enjoyment”. It seems to be possible for an activity to be intrinsically motivating without being “enjoyable” in the popular sense of provoking laughter or bringing a smile to the face of the participant. The term “enjoyment” may mean different things to different people. This is explained partly by Csikszentmihalyi’s concept of “flow”. It may be more helpful in some instances to use such phrases as “positive affect” rather than “enjoyment”.

- (3) The research so far has not really tapped into the way sporting activities are experienced by the participants at the actual time of participation. It has tended to look at the way sportspeople feel between sessions, or retrospectively after retiral, when their recollections may be inaccurate.

Wong and Csikszentmihalyi (1991) argue in a similar vein about research into intrinsic motivation in education. They point out that questionnaire studies of motivation for doing schoolwork may not produce the same findings as measures of students' feelings while they are actually studying. In an attempt to solve this problem, Wong and Csikszentmihalyi (1991) propose the use of the Experience Sampling Method (Csikszentmihalyi and Larsen, 1987) which involves subjects carrying an electronic pager over a period of time and answering questions as to their feelings whenever they are signalled.

Wong and Csikszentmihalyi (1991) found that two distinct kinds of motivation were involved in scholastic achievement.

One kind of motivation is labelled by them as "work orientation", which is directed towards long-term goals. This type of motivation sounds very like the "integrated regulation" which Vallerand and Bissonette (1992) class as extrinsic (already discussed in 2.5.2 (4)). "Work orientation" could be regarded as being part of an individual's value system or self-concept, into which the individual integrates his or her long-term extrinsic goals.

The other kind of motivation identified by Wong and Csikszentmihalyi (1991) is described by them as "directed toward the enjoyment of experience while one studies". This is intrinsic motivation in its purest form. Wong and Csikszentmihalyi found no relation between work orientation and primary

intrinsic motivation. Possessing a high level of one of these types of motivation does not necessarily imply that one is high in the other. They also found that high levels of pure intrinsic motivation defined in terms of feelings of happiness at the actual time of studying were not linked with higher levels of academic success.

4.6. *PREDICTIONS ABOUT THE DIMENSIONS OF INTRINSIC MOTIVATION IN SPORT BASED ON EXISTING WORK IN SPORT PSYCHOLOGY*

Can any predictions be made about the dimensions of intrinsic motivation in sport on the basis of the literature which has been reviewed in Sections 4.1. - 4.4. of this chapter? Collating the findings of these studies, the following might be predicted:

- (1) Intrinsic motivation is likely to involve a feeling of physical well-being at the actual time of participation in sport.
- (2) A sense of psychological well-being is also likely to be experienced.
- (3) It is also predicted that a sense of relaxation at the time of participation will be found to be a dimension. It is unclear, however, whether relaxation refers to a positive feeling, or to the negative experience of relief from other aversive stimuli.
- (4) Interaction with fellow sportspeople is likely to be a dimension.
- (5) It is predicted that the feeling that one is good at something will also be a dimension of intrinsic motivation.

- (6) Enjoyment of being perceived by others as good at something may also be a dimension in its own right.
- (7) The cognitive process involved in reshaping the experience of pain may actually be intrinsically motivating although the pain itself is aversive.

Chapters 2, 3, and the present chapter have presented a survey of the motivational literature. This covers the topics of the objective, functional nature of motivation, the subjective experience of primary intrinsic motivation, and sport-specific research. This has made it possible to make predictions as to the content of primary intrinsic motivation in sport on the basis of each of the three areas which have been reviewed. The next section of this chapter attempts to draw together and summarise the predictions from the three areas of inquiry.

4.7. *SUMMARY OF ALL PREDICTIONS REGARDING THE CONTENT OF PRIMARY INTRINSIC MOTIVATION IN SPORT*

The main predictions emerging from the review of literature as a whole are as follows:

(1) Efficacy / achievement

It is strongly predicted that primary intrinsic motivation will involve a sense of self-efficacy, experienced at the actual time of participation in a sporting event. This is closely allied to the fulfilment of the basic need for achievement. The sense of achievement comes from signs that one is performing well, such as scoring points, the feeling that one is using one's

skills well, social feedback or reinforcement, and achieving goals which one has set oneself.

(2) Structure

It is predicted that the discipline and structure, and also the variety, of sporting events will be part of the primary intrinsic motivation of competitive sportspeople. This prediction was derived from the research in a work context which suggested that work fulfilled this role in people's lives (Jahoda, 1981; Loher, Noe, Moeller, and Fitzgerald, 1985, Section 3.1.2.). In a sporting context, this may mean that sport participation provides temporary relief from boredom. It may also provide a temporary respite from other negative emotions, such as frustration. The structured nature of competitive sport may also be a source of positive affect in that it provides a framework for measuring one's achievements.

(3) Self-determination

It is likely that a sense of autonomy, self-determination, or of being in control of one's environment, will be involved. This is compatible with the idea of discipline and structure provided the athlete regards him or herself as participating in the sport voluntarily.

(4) Absorption / peak performance

It is predicted that a feeling of total absorption in the activity, to the exclusion of the "real world" will be important. This may be tied up with the feeling that one is performing to the absolute peak of one's ability, and may be allied to the notions of achievement and self-efficacy.

(5) Physical well-being

The notion of physical well-being is also likely to be important. It is possible that this may be tied up with an instinctual need to engage in physical activity. It is less clear whether the need to be physically active would have to extend to the extreme forms of self-punishment which some sports involve. As a generality it is more likely that it is linked with self-efficacy, and the need for achievement expressed in the form of pushing oneself to one's limit physically.

(6) Relaxation

It is predicted that a feeling of relaxation will be an important component. It is not, however, quite clear whether this refers to a positive sense of well-being, or a just a form of relief from other stresses of life.

(7) Social interaction

It is likely that being in the company of other people will be an important part of primary intrinsic motivation in sport. It is not clear at this stage how exactly this is a source of positive affect. In most sports, it will be difficult to engage in normal social chit-chat during a competition. At the actual point of participation, other people are more likely to be of use as a means of evaluating one's own performance via social feedback and comparisons.

(8) Status and identity

Status and identity may also be important. When an individual is taking part in a sporting event, he or she is no longer a bank clerk or a teacher, but a fencer, or a football player. The joy of this may simply be a temporary escape from reality, or a feeling that one is transcending oneself and becoming a

“hero”. A team player may have the added bonus of being able to lose his or her own individual identity behind the greater persona of “the team”.

(9) Overcoming pain

This is likely to be experienced as enjoyment of the cognitive process involved in overcoming pain, rather than enjoyment of the pain itself.

What is clear is that primary intrinsic motivation in sport is likely to be multi-dimensional. This thesis will search for the truth as to what these dimensions are, by going back to grassroots level and asking sportspeople themselves about their feelings during competitive sport. The predictions which are set out in Sections (1) - (7) above will be used for comparison purposes later.

In order to carry out this research, an instrument will be needed. The next chapter will evaluate critically the main existing methods of measuring intrinsic motivation in sport. It will also explain why a new measure is needed.

CHAPTER 5

EXISTING METHODS OF MEASURING INTRINSIC MOTIVATION IN SPORT: A CRITICAL EVALUATION

5.1. TYPES OF RESEARCH

Research may be categorised according to the type of knowledge which it is trying to gain. Phillips and Pugh (1993) have identified three types of research: exploratory, testing-out, and problem-solving. Exploratory research involves tackling a new issue, looking at what theories and concepts are appropriate, and developing new ones if necessary. The other two types of research involve testing-out existing theories, or specific aspects of them, in an attempt to find their limits, or trying to find solutions to problems “in the real world”.

The present research draws on all of these categories. Firstly, it is exploratory, in that it sets out to explore the dimensions of intrinsic motivation in sport. Secondly, it will attempt to test the author's theory that there is a mismatch between athletes' perception of their own intrinsic motivation as experienced at the actual time of participation and as anticipated or remembered. Thirdly, the research aims to develop better method of measuring levels of intrinsic motivation and of clarifying the nature of individuals' intrinsic motivation. A need has been identified for such a measure both in research and for diagnostic purposes in practical situations.

Thomas and Nelson (1990) have identified four main types of research in physical activity:

(1) Analytical research.

This involves the study and analysis of the information which is already available on a particular topic. Its purpose is to clarify what is already known without necessarily adding any new data. Reviews of literature, or philosophical discourses on such topics as "The Meaning of Motivation" would come into this category.

(2) Descriptive research.

This involves studying what is currently the case, or the way people view a situation at present, without attempting to manipulate the status quo or make anything new happen. In sport psychology to date, this type of research has mainly taken the form of questionnaire studies.

Three main types of instrument of measurement have been used in descriptive research. Sometimes, researchers use already-existing questionnaires which are thought to have some relevance. These are often borrowed from mainstream psychology, or from other disciplines.

Some studies use a compilation of items which are deemed to be relevant from more than one other existing questionnaire, or adapt the wording of a questionnaire which is not sport-related to make it applicable to sporting contexts. In other cases, questionnaires are devised specifically for use in a sporting context. The formation of these often forms the basis of a research paper in its own right.

Examples of these three types of questionnaire will be discussed in detail later.

(3) Experimental research.

This type of research is concerned with the relationship between cause and effect in a given situation. An attempt is made to manipulate only one aspect (or "variable") of a situation so that the effect of doing so can be measured scientifically. The outcome is normally compared with that of a control group in order to screen for the effects of factors which are not being measured.

An example of an experimental study is Weinberg's (1979) study of intrinsic motivation in a competitive setting. Subjects in this study were assigned the task of balancing on a stabilometer. They were told that success on this task was predictive of success in particular sports. The study looked at the effects of introducing an element of competition for a reward on the intrinsic motivation of the subjects for the task.

One main difficulty with this type of research in a sporting context is that it may not be valid to generalise from a laboratory situation to real-life sporting situations. On the other hand, it is likely to prove difficult in practice to persuade subjects to take part in psychological experiments while they are taking part in their sport.

(4) Qualitative research.

This type of research involves interpretation on the part of the researcher, as opposed to straightforward description of observable data. There is a scarcity of this type of research in the field of sport psychology. Two of the main examples have already been discussed. these are Scanlan, Stein, and Ravizza's (1989) study of the intrinsic enjoyment of ice-skaters, and the study carried out by Sacks and co-workers (1981) of the subjective feelings and thoughts of ultramarathon runners during a race.

Both of these studies involved asking subjects open-ended questions about their feelings about their sport. The advantage of this type of study is that its findings are not restricted in advance by the contents of the questions which are being asked. The validity, on the other hand, is weakened somewhat by the element of subjectivity on the part of the researcher which is involved in the interpretation of the findings.

Table1-1 shows the main instruments of measurement of intrinsic motivation in sport that are already in use. These are discussed in more detail in the next section.

5.2. INSTRUMENTS OF MEASUREMENT OF INTRINSIC MOTIVATION ALREADY IN USE.

Author/s	Instrument	Origins	Description	Shortcomings
Ashford, Biddle, and Goudas (1993)	Scale probing motives for participation in community sport centres (untitled)	Based on survey of previous research.	Likert scale. 15 items.	Not about competitive sport.
Carmack and Martens (1979)	Commitment to Running Scale (CR)	From an initial pool of 30 items , derived from running literature and interviewing local runners.	12 items, 5-point Likert scale. Describes extent to which each item describes feelings about running.	Focused on feelings about running rather than during running.
Dishman, Ickes, and Morgan (1980)	Self-Motivation Inventory (Smo)	From an original pool of items developed by one of the authors, administered to undergraduate students.	Designed to assess the tendency to take part in strenuous activity regardless of extrinsic reinforcement. 40 items, 5-point Likert scale	Concerned with strenuous activity in general rather than competitive sport. Items devised by one of the authors from own thinking rather than by consulting athletes.
Gill, Gross, and Huddleston (1983)	Participation Motivation Questionnaire (PMQ)	Based on a 37-item questionnaire derived from a review of youth sport literature and 2 pilot projects administered to participants at a summer sports school.	Probing participation motives in youth sport. 30 items, 3-point ordinal scale.	Focused on youth. Looking at participation motives - primarily extrinsic motivation.

Table 1-1: Instruments for measurement of Intrinsic Motivation

Author/s	Instrument	Origins	Description	Shortcomings
Goode and Roth (1993)	Thoughts During Running Scale (TDRS)	Developed on the basis of previous research and on results of interviews with experienced runners	Looking at link between associative vs. dissociative cognition and fatigue levels.	Not really looking at dimensions of intrinsic motivation as such. Concerned only with running.
Johnsgard (1985)	(1) Runner Motivation Test (RMT) (2) Test of Endurance Athlete Motives (TEAM)	Not really clear how the 10 motives were derived - described as "the 10 motives which appeared to encompass the major reasons for running".	10 motives / 45 forced choices - random paired comparison format (both tests)	(1) Concerned only with running. (2) Concerned only with endurance athletes.
Kendzierski, D. and De Carlo, K.J. (1991)	Physical Activity Enjoyment Scales (PACES)	Devised by authors.	18 items. Bipolar statements, with 7 points between.	Designed for use with youth. Description of feelings very general, for example, "I enjoy it/I hate it"
Markland and Hardy (1993)	Exercise Motivations Inventory (EMI)	Responses to an open-ended questionnaire and from a review of the literature on exercise adherence.	44 items, 6-point Likert scale. 12 scales: - stress management - weight management - re-creation - social recognition - enjoyment - appearance - personal development - affiliation - ill-health avoidance - competition - fitness - health pressures	Focusing on exercise, rather than competitive sport. Concerned with extrinsic motivation, that is, what they get out of it or what they hope to get out of it.

Table 1-1: (continued)

Author/s	Instrument	Origins	Description	Shortcomings
Masters and Ogles (1990)	Masters-Ogles Marathon Scale (MOMS)	Review of the literature.	56 items, rated on 7-point ordinal scale. Subject rates each item re importance as a reason for training for a marathon.	Focusing on benefits of running as reasons for participation, that is, extrinsic motives.
McAuley and Courneya (1994)	Subjective Exercise Experience Scale (SEES)	Items taken from a variety of measures of affect found in the literature for example, POMS, PANAS, Multiple Affective Adjective Check List, Affective Dictionary.	7-point Likert scale. 12 one-word descriptions of feelings.	Looking much of the time at negative constructs. About exercise rather than sport.
Applied in a competitive sport setting by McAuley, Duncan, and Tammen (1989)	Intrinsic Motivation Inventory (IMI)	Developed as a multi-dimensional measure of experience regarding experimental tasks by Ryan (1982)	Likert scale, 18 statements, 4 dimensions: - interest /enjoyment - perceived competence - effort / importance - tension /pressure	More about “what it is that makes me try hard” than “what it is about it that causes me to feel positive affect - that is, concerned more with extrinsic motives.
McNally and Orlick (1977)	Sport Non-Participation Questionnaire (PMQ)	Based on a review of literature and discussions with teachers, coaches, sport psychologists, and a pilot study of 144 females responding to open-ended questions	55 items, 10-point ordinal scale.	Focused on reasons for non-participation.

Table 1-1: (Continued)

Author/s	Instrument	Origins	Description	Shortcomings
Parfitt, Hannynngton, and Markland (1994)	Sport and Exercise Questionnaire	Compiled from 5 other questionnaires, excluding those items which were repeated. Factor analysis revealed 7 factors: <ul style="list-style-type: none"> - expense - health problems - disliking exercise - time constraints - programme satisfaction - social support - facility constraints. 	72 items. Looking at factors predicting low exercise participation.	Focused on exercise rather than competitive sport. Looking at negatives - that is, why people do not exercise. Lack of enjoyment found to be main reason, but no attempt to analyse dimensions of enjoyment.
Pelletier, Fortier, Vallerand, Tuson, Brière, and Blais (1995)	Sport Motivation Scale (SMS)	English language version of the Échelle de Motivation vis-a-vis les Sports. Based on the forms of motivation described by Deci and Ryan (1985).	7 subscales. 28 items. 7-point Likert scale.	Not solely concerned with intrinsic motivation - brings in extrinsic motivation and “amotivation”. Questions in terms of reasons for taking part - sounds extrinsic.
Siegel and Newhof (1984)	Women’s Sports Orientation Scale (WSOS)	Derived from a review of literature. Concepts then reviewed by coaches and graduate P.E. students.	15 bipolar adjective scales. Evaluating reasons for participation.	Looking at reasons for participation (extrinsic). Scales not derived specifically from competitive athletes.

Table 1-1: (Continued)

Author/s	Instrument	Origins	Description	Shortcomings
Wankel and Kreisel (1982)	Minor Sport Enjoyment Inventory (MSEI)	Derived from a review of literature on intrinsic motivation and youth sport participation and open-ended interviews with 50 young athletes.	Looking at reasons underlying sport enjoyment in youth sport participants. 10 items. Paired comparison technique.	Looking at reasons for enjoyment rather than the dimensions of enjoyment itself. Focused on youth.
Weiss, Bredemeier, and Shewchuck (1985)	Motivation Orientation in Sport Scale (MOSS)	Modification of Harter's (1980) Scale of Intrinsic Motivation in the Classroom.	5 sub-scales: - challenge - curiosity - mastery - judgement - criteria 4-choice structured alternative item format	Constructs derived originally from education. Focused on youth.
Whittall and Orlick (1979)	Sport Satisfaction Inventory (SSI)	Review of sport and industrial psychology literature.	Items cover 6 dimensions of sport satisfaction: - the sport or game itself - practice - coach - team-mates - opposition - personal ability and performance	Looking more at secondary intrinsic motivation. The sport or game itself (primary intrinsic motivation) is seen as just one factor in motivation. Not looking at its dimensions.

Table 1-1: (Continued)

5.2.1. Questionnaires "borrowed" from mainstream psychology and/or other disciplines.

Many studies - particularly those carried out in the early days of sport psychology have relied on questionnaires which were developed in other branches of psychology, or in other disciplines. Two of the most popular are the Profile of Mood States (POMS) (McNair, Lorr, and Droppleman, 1971), and the Positive and Negative Affect Schedule (PANAS) (Watson, Clark, and Tellegen, 1988).

5.2.2. Questionnaires which compile or adapt relevant items from existing questionnaires.

The following are examples of this:

- Subjective Exercise Experience Scale (SEES)
(McAuley and Courneya, 1994)
Compiled from four other questionnaires.
- Sport and Exercise Questionnaire
(Perfitt, Hannyngton, and Markland, 1994)
Compiled from five other questionnaires.

5.2.3. Questionnaires which are devised specifically for use in a sporting context.

There is at present a burgeoning number of these in sport and exercise psychology. The main examples are:

- Intrinsic Motivation Inventory (IMI)
(McAuley, Duncan, and Tammen, 1989)
- Untitled scale probing motives for participation in community sport centres
(Ashford, Biddle, and Goudas, 1993)
- Thoughts During Running Scale (TDRS)
(Goode and Roth, 1993)
- Exercise Motivation Inventory (EMI)
(Markland and Hardy, 1993)
- Sport Motivation Scale (SMS)
(Pelletier, Fortier, Vallerand, Tuson, Brière, and Blais (1995)

5.3. *WHY DO WE NEED YET ANOTHER INSTRUMENT FOR MEASURING INTRINSIC MOTIVATION IN SPORT?*

The present study has two main purposes. The first of these is to devise a means of measuring, in a competitive sporting context, levels of primary intrinsic motivation, that is, as experienced at the actual point of participation. The second is to clarify the dimensions of intrinsic motivation of competitive sportspeople.

In these respects, the existing instruments have been found to be inadequate or inappropriate in the following ways:

- (1) Many of the scales in common use in sport psychology were not devised in a sporting context (for example, The POMS and PANAS) There is some uncertainty as to whether their validity is transferable to other situations.
- (2) There is a tendency for some scales to concentrate on negative factors, for example, the Sport and Exercise Questionnaire, which looks at the factors which put people off exercise, and the Sport Non-Participation Questionnaire.
- (3) There is a need for a clear distinction between primary and secondary intrinsic motivation. The Sport Satisfaction Inventory, for example, tends to look more at aspects of secondary intrinsic motivation, seeing primary intrinsic motivation, or the sport itself, as just one uni-dimensional factor of motivation.
- (4) In some instances, reasons for participation - which are often mainly extrinsic - are treated as if they were dimensions of intrinsic motivation. Examples of this are the Exercise Motivations Inventory, and Ashford, Biddle, and Goudas' (1993) untitled scale probing motives for participation in community sport centres.
- (5) Many scales are concerned with recreational or health-related exercise rather than competitive sport (for example, the Exercise Motivations Inventory).
- (6) None of the other scales studied uses the comprehensive range of constructs covered by the scale developed in the present study.

- (7) The items in some questionnaires seem too vague and general and are open to a wide range of subjective interpretations on the part of the subject. For example, the SEES uses terms like "crummy" and "drained".
- (8) There is a general lack of clarity as to the nature of intrinsic motivation, or what is actually meant by "enjoyment" in many of the scales.
- (9) Some scales were developed specifically for use with children and youths, for example, the Minor Sport Enjoyment Questionnaire, and the Participation Motivation Scale.
- (10) Some scales do not derive their items from athletes themselves, but from other interested parties, such as the authors themselves (for example, the Self-Motivation Inventory) or from coaches and/or students or academic colleagues (for example, the Women's Sport Orientation Scale)

5.4. *STYLES OF QUESTIONNAIRE ALREADY IN USE IN MEASURING INTRINSIC MOTIVATION IN SPORT*

5.4.1. Open-ended

This type of questionnaire is most likely to be used in qualitative research, and is often administered orally. It may be devised specially by researchers for use in a particular study, such as in the interview which Scanlan, Stein, and Ravizza (1989) carried out with former ice skaters. Its strength is the fact that it does not place restrictions on the type or amount of information which the subject can provide. Its weakness is, however, the fact that the

information yielded is open to subjective interpretation and is difficult to quantify or verify.

5.4.2. Closed

These generally consist of closed questions which elicit factual answers, such as "How many times a week do you train?", or "Which of these words best describes the way you feel during a training session: bored - stimulated - neutral?".

This type of questionnaire is more likely than the open-ended type to yield quantitative data, but it leaves little room for self-expression on the part of the subject. Its weakness lies in the fact that the information obtained is limited to that which is asked for in the questions.

5.4.3. Likert scales

This type of scale is popular in sport psychology. One example is McAuley, Duncan, and Tammen's Intrinsic Motivation Inventory (1989). Much of the appeal of Likert scales may lie in the fact that they are relatively easy to understand and administer, and in their ability to tap into varying degrees of applicability of an item. A typical item might read "I take part in sport because it helps me to control my weight". In this case, the respondent might be asked to rate the extent to which this statement applies to him or her on a 7-point scale.

Likert scales also provide a convenient means of quantifying information. Their weakness, however, lies in the fact that this information is restricted to that which is overtly sought by the questions.

5.4.4. Projective techniques

These attempt to probe covertly into the innermost feelings and attitudes of the respondent. These are not commonly in use in sport-related contexts. An example of these (not related to sport) would be Morgan and Murray's (1935) Thematic Apperception Test (TAT), in which subjects are asked to write stories to describe what is happening in a series of pictures. Although a scoring guide is available, interpretation is a highly subjective affair. As a result, this type of technique has lost a great deal of favour in mainstream psychology in recent years and has never really caught on in sport psychology.

5.4.5. Paired comparisons

This is where a number of factors considered to be of relevance are each paired randomly with all of the other factors. Subjects are asked in each case to state which of the pair he or she considers to be more important. Examples of this are Johnsgard's (1985) Runner Motivation Test and his Test of Endurance Athlete Motives (also 1985). These are quick and easy tests to administer and analyse, but they do have the disadvantage of all closed questionnaires of restricting their findings to that which is specifically asked by the questionnaire. They do not provide any information as to why certain factors are considered preferable to others, only as to their rank order of preference.

5.5. *STRUCTURED VERSUS UNSTRUCTURED METHODS OF INQUIRY*

Questionnaires are normally a fairly structured form of inquiry, making an attempt at standardisation. The same questions are asked of all respondents, ideally in the same order and under the same conditions. It is possible for qualitative work to be carried out in a semi-structured manner, for example if the same open-ended questions are asked of all subjects, even in a one-to-one interview situation. An example of this was in Scanlan, Stein, and Ravizza's (1989) study of the intrinsic motivation of ice-skaters. This type of approach makes it possible to compare the responses of subjects to specific questions, while providing them with some space for self-expression. It does not, however, allow for categorisation of completely spontaneous comments unconnected with the questions.

5.6. *THE TYPE OF MEASUREMENT USED IN THE PRESENT STUDY*

It was felt that the best of all worlds could be gained by using a combination of descriptive and qualitative methods of enquiry. There was a clear need for qualitative research into the constructs, or "language" which sportspeople used to describe their intrinsic motivation, and the dimensions of that motivation. Consequently, qualitative methods were used to gather the information which formed the basis of structured questionnaires. These questionnaires were then used in a descriptive, statistical study of the most commonly occurring dimensions of intrinsic motivation in competitive sportspeople.

The next chapter will describe in detail a research study which attempts to provide a qualitative analysis of the language and constructs which athletes characteristically employ in describing and evaluating their own intrinsic motivation in a sporting context.

CHAPTER 6

A PRELIMINARY INVESTIGATION INTO PRIMARY INTRINSIC MOTIVATION IN SPORT

The purpose of this study was to form the basis of predictions as to the nature and extent of primary intrinsic motivation in sport.

6.1. METHOD

The investigation was carried out by means of a questionnaire. The questionnaire had three sections, as follows:

(a) Personal details

This section sought basic information as to the name, age , sex, and occupation of the subject.

(b) Details of sport involvement

This section sought details of the sport in which the person spent most time participating, the highest level at which he or she had competed in the last year, and how recently the person had trained or competed. This section established that subjects met the criteria for participation in the study. The protocol was that subjects had to have competed within the last year and trained within the last three months.

(c) Levels of enjoyment

The third section looked at the extent to which individuals found training and competition enjoyable at the actual time of participation. It also asked subjects about the types of circumstances in which they normally experienced positive affect during sport.

Firstly, subjects were asked to estimate the percentage of the time during training and competition which they found enjoyable.

Secondly, subjects had to think of three particular situations which might arise during training or competition which would cause them to have good or positive feelings at the time of participation. They were then asked to describe in words anything that these positive feelings had in common. This process was then repeated with regard to negative feelings.

6.2. SUBJECTS

A total of 17 subjects, comprising 12 men and five women, participated in this preliminary study. The subject pool was made up of six students, one research assistant, and ten business or professional people.

6.3. RESULTS

6.3.1. Percentage enjoyment levels

The mean proportion of the time during training which subjects experienced as enjoyable was approximately 77%, ranging from 10% -100%. The mean proportion of the time during competition which subjects experienced as enjoyable was approximately 68%, ranging from 20% -100%. This leads us to suspect that, for the majority, training is more enjoyable than competition.

A total of five subjects indicated that they found competition more enjoyable than training. Two of these were golfers, who regarded themselves as being in a competition every time they played. Two team players (rugby and ice hockey) enjoyed the extra challenge of competition. One fencer said that she preferred competition because it was "more concentrated".

6.3.2. Positive feelings

The common threads running through the positive feelings which people reported were as follows:

- satisfaction
- sense of achievement (general)
- sense of achievement (sport-specific)
- fun
- use of technical skills
- confidence-boosting
- sense of friendly rivalry

- performing as well as expected against own standard
- playing a good shot
- enjoying the countryside, and doing something physical at the same time
- feeling that one's form is good or improving
- playing well
- sense of physical well-being

Summing this up, subjects' main sources of positive affect during sport participation were a sense of achievement, friendly rivalry, the feeling that one is using one's skills well, and playing well regardless of competitive achievement. All subjects without exception referred to this type of feeling. Only one mentioned winning as a particular source of pleasure. In general, it was considered more important to perform well relative to one's own standard.

6.3.3. Negative feelings

The common threads which ran through the subjects' negative feelings are listed below:

- poor play
- poor concentration
- problems with sport organisation
- feeling incompetent
- pressure of competition
- frustration at not achieving all one is capable of
- letting oneself down
- loss of morale

- dissatisfaction
- boredom
- bad relationships with others in sport
- disappointment
- bad weather

The sources of negative affect seem to be mainly the opposite of the positive sources. Lack of achievement, incompetence, disappointment, bad relationships with others in one's sport, and the feeling that one is playing badly regardless of competitive outcome seem to be the main barriers to enjoyment. Losing only mattered where the opponent was seen as having poorer ability.

6.4. CONCLUSIONS

What is it possible to predict about primary intrinsic motivation in sport from this preliminary investigation? Even with the relatively small subject-pool, there are very clear indications that the most important aspect of primary intrinsic motivation in sport is a sense of achievement. Sport provides ample opportunity to measure achievement by the acquisition of specific skills and by comparison with others in competition. Primary intrinsic motivation does not seem to depend on winning or anticipating victory, as it is enough for most people to perform well relative to their own standard. It seems reasonable to predict that a sense of achievement will emerge as an important dimension of primary intrinsic motivation in sport.

CHAPTER 7

STUDY 1

A QUALITATIVE STUDY OF THE LANGUAGE AND CONSTRUCTS USED BY COMPETITIVE ATHLETES IN DESCRIBING AND EVALUATING THEIR OWN INTRINSIC MOTIVATION FOR THEIR SPORT.

7.1. AIMS OF THE STUDY.

The study had two main aims:

- (1) To investigate qualitatively and clarify the dimensions of intrinsic motivation of competitive sportspeople. These dimensions are seen as the constructs which individuals use as a yardstick for evaluating their own levels of intrinsic motivation. The term "intrinsic motivation" is used here in its purest sense, as denoting positive affect experienced at the actual time of participation in the activity.
- (2) To provide the basis of an instrument for measuring levels of intrinsic motivation in competitive sportspeople.

7.2. METHODOLOGY

7.2.1. The role of focused group discussions in the present study.

A series of five focused group discussions yielded a wide range of views and descriptions of feelings during sport. Groups of sportspeople were asked to sit and talk about the feelings which participation in their sport causes them to have. These discussions were recorded. Later the discussion was analysed in terms of the constructs, or criteria, by which the participants evaluated their own levels of intrinsic motivation.

7.2.2. The value of the focus group technique as a research tool

Focused group interviews have been used primarily in market research, as a means of gaining information as to what the public is likely to want to buy.

Churchill (1979) lists seven main uses of the focused group interview as a market research tool:

- (1) Generating hypotheses - that is, stimulating the formation of questions which will provide the basis of research.
- (2) Generating information to be used in structuring questionnaires (as in the present study).

- (3) Providing background information on a product category. In the present study, the "product" is the feelings and emotions stimulated in the sportspeople by the act of participation in their sport.
- (4) Gauging public reactions to new product ideas before they are placed on the market. In the case of the sportspeople, the technique could be used in a further study as a basis for forming recommendations as to how the intrinsic motivation of sportspeople could be enhanced.
- (5) Stimulating new ideas about older products. In the present study, the focused group discussions might have the effect of helping the participants to take a clearer view of their own motivation.
- (6) Stimulating ideas for new creative concepts. As in (4) above, "brainstorming" in this way might lead to new ideas about influencing motivation in the future.
- (7) Interpreting previously obtained quantitative results. In the present study, it is more relevant to regard the findings of the focus group as complementing the findings of the other qualitative measures which were employed in the study.

Mercer (1992) saw the value of focus groups as lying in the fact that they allow participants to "develop their own ideas in an unstructured fashion, interacting with and stimulating others" (p.77). In Mercer's view, the focus group discussion can reveal "hidden attitudes" as the group situation provides participants with a sense of security.

The main hazards of this technique as identified by Mercer (1992) are:

- (1) The fact that sample sizes are likely to be too small for any sound statistical conclusions to be drawn.
- (2) Any conclusions which are drawn are dependent on the subjective interpretations of the researcher.

Some of the findings from the more general area of the social psychology of small groups also provide insight into the potential hazards of the focused group interview. Davis, Laughlin, and Komorita (1976) reviewed the literature on the phenomenon of the "choice shift" in group decision-making. This refers to the very common changes of choice as to what should be believed or done which often occur in individuals as a result of being in a group. The obvious danger which this points to in the focused group interview is that participants will change their views under the influence of the group.

Davis and co-workers found that risk-takers were particularly persuasive in group situations, leading others to take riskier decisions, sometimes by presenting convincing arguments in favour of risk-taking. They also argue that responsibility for decisions can be diffused across the group, lessening the burden of guilt for the individual if the decision turns out to have been the wrong one. Davis and co-workers also argue that cautious shifts can occur in the group situation where the issue being addressed is one in which caution would normally be socially valued.

These findings highlight further hazards of focused group interviews:

- (1) Risk-takers - perhaps in the form of people with particularly strong or unconventional views - may influence the other members of the group

to express views which are not really their own. For example, a flamboyant individual may not wish to admit that he/she actually loathes competition for fear of damage to his or her "image" and may lead others along with this.

- (2) Because of the potential for diffusion of responsibility in the group situation, some individuals may be inclined to go along with opinions which they have not thought through properly. In the group situation, individuals may feel that the views which they express will be identified as belonging with the group rather with them as individuals. For example, an individual may be tempted to go along with an extreme opinion such as "The taking of performance-enhancing drugs is justifiable in certain circumstances" if this seems to be acceptable to the rest of the group.
- (3) The phenomenon of the cautious shift may also occur. For example, athletes may be reluctant to speak negatively about their relationships with their team mates if they believe that holding good relationships with team mates is part of being a morally good athlete.

Other potential hazards may be added to this list as follows:

- (4) The amount of useful information produced may be dependent on how articulate the members of the group are in expressing their views.
- (5) Even in a supportive group environment, some particularly reticent personalities may be reluctant to contribute to the discussion, leading to a potential imbalance in the conclusions which are reached. This need not be a problem in the present study, however, as the purpose

of the group discussion is to tap into the language of sportspeople, not to determine statistical trends. A particular construct need only be mentioned briefly by one person to be considered relevant in this situation.

- (6) The phenomenon of "social loafing" may occur, whereby group members may tend to hold back from contributing to the discussion to avoid doing what they perceive as more than their fair share of the "work" of the group. (Latané, Williams, and Harkins, 1979).

Despite these difficulties, the use of focused group interviews has considerable value as a research in construct analysis. The benefits of the technique will be discussed in the next section.

7.2.3. The value of the focus group technique in the present study

- (1) It was felt that focus groups would provide a medium for sportspeople to express their feelings about sport participation without being restricted by the preconceived ideas of the researcher.
- (2) Focus groups could provide more scope for participants to explore their own ideas than responding in isolation to a questionnaire.
- (3) Some individuals might find it easier to express themselves with the support of the group than in a one-to-one interview.
- (4) Most of the potential difficulties of focused group interviews could be avoided by appropriate group leadership. The role of the group leader

was to facilitate discussion without dominating it, and to make sure that all participants had an equal opportunity to express their views.

7.3. SUBJECTS

A total of 19 subjects participated.

There were ten men and nine women, of ages ranging from 19 - 55. The group comprised seven undergraduates, two academic staff of the University, one member of the non-academic staff, four part-time post-graduate mature students holding full-time managerial posts, four professional people, and one retired professional person.

The subjects were divided into five groups. The groups consisted of two, three, four, and five members (there were two groups of five). The small groups were considered to be appropriate to the level of articulacy of the subjects.

The criteria for admission to the groups was that members should be current active voluntary participants in at least one sport at a competitive level. "Competitive" was defined in a fairly broad sense, requiring, as a minimum, entry in at least one formally-organised competition in the last 12 months, as opposed to informal "knockabout" matches with friends.

7.4. SPORTS REPRESENTED

A total of 20 competitive sports was represented in the discussions. The aim was to cover a wide range of sports.

The list comprised the following:

- athletics
- badminton
- basketball
- fencing
- football
- golf
- gymnastics
- hockey
- lacrosse
- long and middle-distance running
- rock climbing
- rowing
- rugby
- shorinji kempo
- showjumping
- squash
- swimming
- table tennis
- tennis
- triathlon

Some people currently took part in more than one sport, and some had taken part in other sports in the past.

7.5 PROCEDURES

7.5.1. Informed consent.

Subjects were informed that the purpose of the discussions was to generate items for a questionnaire designed to investigate the nature of the motivation of competitive athletes. They were told that the findings of the study would form part of a Ph.D thesis at the University of Glasgow, and that their anonymity was assured. It was explained that it was crucial to later analysis of the content of the discussions that they should be tape recorded. All subjects granted permission for this to be done.

7.5.2. Timing of discussions

Discussions were timed to last approximately 40 minutes. The first group (comprising four members) was told that they would be stopped when the discussion seemed to have drawn to a natural conclusion. After 40 minutes, it became obvious that participants had run out of things to say. They were given a final opportunity to add any further comments, then the discussion was terminated by the researcher. As 40 minutes seemed to be an appropriate length for the discussion, it was decided to make this standard for all the groups.

7.5.3. Instructions to subjects

The group members were asked to discuss informally their reasons for participating in their sport, and what they liked and disliked about it. The

researcher opened the discussion by asking the members to introduce themselves to the group one by one and state which sport/s they would be speaking about. The discussion was then thrown open. The only part played by the researcher was to ask occasional prompt questions when there was a temporary lull in the conversation.

The standard prompt questions, which were deliberately non-directive, were:

- “Why did you take up your sport in the first place?”
- “What do you like best about your sport?”
- “What do you like least about your sport?”
- “What thoughts go through your head at the time when you are actually participating in your sport?”

In practice, very little intervention was required as the discussions were generally very lively and enthusiastic.

7.6. *METHOD OF ANALYSIS*

7.6.1. Recording the discussions

As well as tape recording the discussions, the researcher recorded on paper as much as possible of the discussions. No attempt was made to edit this at this stage. This purpose of the written notes was to provide a “safety net” in the event of a technical mishap. After the group members had departed, the tape was played back and all relevant remarks were noted. The aim was to obtain as comprehensive as possible a picture of the range of views held by the subjects on the experience of sport participation.

7.6.2. Analysis

The comments made by the participants were then collated and organised into categories, or “constructs”. The organisation and naming of the constructs involved a degree of subjective judgement on the part of the researcher, but, wherever possible, motivational categories which were already familiar in the literature were employed. Examples of this were the categories of Goal-Setting and Competition. The reliability of the categories was confirmed by extensive discussions with one of the Ph.D. supervisors. The main test which was applied to each category was whether it was in fact a distinct category, or whether it should be sub-divided. There had to be 100% agreement between researcher and supervisor as to the exclusiveness of a category. Where there was doubt, a new category was created.

No attempt was made to rate the frequency of occurrence of any particular category of comment. A comment had to occur only once for it to merit inclusion in the list. The reason for this was that the purpose of the focus groups at this stage was to obtain the broadest possible range of opinions on the subject rather than being concerned with issues of statistical significance.

7.6.3. Results

The comments were found to fall into 18 identifiable categories or “constructs” as follows:

(1) Personal well-being

This category involved feelings of general well-being during sport, as expressed by popular terms such as “getting a high”.

(2) Positive therapy

This referred to therapeutic effects which were enjoyable in their own right during sport, as opposed to being a form of relief from aversive stimuli. Such feelings were expressed in terms of being “invigorated” or “revived”.

(3) Negative therapy (escapism)

This was the opposite of the positive effects in (2) above. This involved enjoying sport participation as a form of temporary escape from other less pleasant activities, such as work. This was expressed in such terms as “enjoying forgetting about work”.

(4) “Flow” experiences

“Flow” tended to be expressed in terms of detachment “from the real world”, or of being totally absorbed in the activity.

(5) Goal-setting

Some participants spoke of deriving pleasure from working towards specific goals during sport. This was expressed in terms of “improving” and “making progress”.

(6) Personal challenge

This was epitomised by phrases like “pushing myself to my maximum” and “the challenge of trying to master something difficult”.

(7) Competitive achievement (winning)

The idea of winning, or feeling that one might have a chance of winning, was popular. Beating someone who was considered to be a “good” opponent was particularly appealing.

(8) Companionship

Many participants spoke of the feeling of “camaraderie” involved in their sport. This was expressed in terms of enjoying “being in the company of like-minded people”, and “identifying with people who get the same thing out of sport”. It seemed to be something more than a simple antidote to loneliness, but involved a kind of tribal identification.

(9) Competition (enjoying competing for its own sake)

Some group members spoke enthusiastically of enjoying the act of competition for its own sake, as opposed to seeing it as a means to the end of winning. They spoke of the “feeling of exhilaration” which they experienced during competition, and of enjoying “being in direct competition with an opponent”. One participant summed this up as “I’m just naturally competitive”.

(10) Skill mastery

This referred to the feeling of enjoying the realisation that one has managed to master a particular technique. This would be experienced at the moment when the individual produces an example of a particular skill or tactic during a match or competition. Examples of this would be a good serve in tennis, or a good save in hockey. Typical comments in this category referred to “the feeling that I have mastered a particular skill well”, and “the feeling that I have used the right tactic at the right moment”.

(11) Social co-ordination (sharing the experience)

Some of the comments suggested that there might be a second “social” category, distinct from camaraderie. This was expressed in terms of enjoying “working together with my sporting companions” and “the feeling that my team-mates or training companions and I are pulling each other along.” This seemed to refer to something different from the type of companionship which is derived from like-mindedness. Companionship is also a component of secondary intrinsic motivation, as it is likely to continue to exist in the pub after the event. Social co-ordination, on the other hand, refers exclusively to the experience of physically sharing the experience of taking part in the sport, and can only be experienced at the actual point of participation.

(12) Reactions of others

One participant summed this up as “being a ‘hero’”. Others spoke of their enjoyment of “being cheered on by my team-mates or club-mates”, and of “doing well in my sport for other people”.

(13) Self-determination

In this category, participants used phrases like “the feeling of solo responsibility” and “in control of my own destiny”. This was often set in contrast against other life situations, such as work, where they did not feel in control.

(14) Environment

There was a feeling that the environment in which sport participation took place was part of the enjoyment. Pleasant surroundings were considered important, as was a comfortable temperature.

(15) Mental stimulation

The need for mental stimulation during sport participation was mentioned, and was also expressed in terms of “variety”, “tactical aspects”, and an “intense level of concentration”. In general, it seemed important for the mind to be actively engaged during the activity.

(16) Thrill from danger

This brought pleasure to some via the “surge of adrenalin” which it brought about. This was interpreted by some as a physiological event. The thrill from danger was also enjoyed in a more cognitive way by those who liked the feeling of being in control of the risks in their sport. It was seen as less applicable to some sports (for example, golf) than others (for example, rock climbing or combat sports)

(17) Masochism (pleasure from pain)

This was expressed variously as “going through a pain barrier” “overcoming/ being in control of pain”, and “using pain to spur me on”. The general feeling was that it was not the pain itself that was pleasurable, but the feeling that one was in control of it.

(18) Self- image

Having a positive self-image was important to many participants. sometimes, subjects spoke of this in esoteric terms, such as having “a kind of mystique”, or “as if my personality is somehow magnified”. Sport participation was also described as “character-building”, suggesting that sport somehow made you a better person. This was also expressed as enjoying “the feeling that I am doing something that most of the population couldn’t do”. In general, people felt good about themselves when they were taking part in their sport.

7.7. DISCUSSION

7.7.1. Comparison between results and predictions based on previous research

How do the findings of this qualitative study compare with the predictions which have been made about the dimensions of primary intrinsic motivation in competitive sport so far? The predictions which were made from existing research are summarised in Section 4.7.

To recap, the major predictions were as follows:

- (1) A sense of efficacy or achievement
- (2) Structure
- (3) Self-determination, or being in control of the environment
- (4) Absorption or peak performance
- (5) Physical well-being
- (6) Relaxation
- (7) Social interaction
- (8) Status and identity
- (9) Pleasure from overcoming pain

Table 1-2 compares the findings of the focus group study with these predictions. Where a particular construct appears on only one side of the table, this indicates that this particular construct is not common to both the previous research and the findings of the focus group study. Some of the new constructs are similar to the existing ones, but are expressed in a different way.

What do these findings tell us that is new? As can be seen from Table 1-2, some of the main predictions from the review of literature have been confirmed.

Firstly, the focus group study has confirmed that primary intrinsic motivation in sport is multi-dimensional.

Secondly, some of the main predictions with regard to the content of primary intrinsic motivation have been confirmed. Primary intrinsic motivation in sport seems to involve a sense of achievement, variety, and temporary respite from negative emotions. In addition, a feeling of total absorption in the activity, and the feeling that one is performing to the peak of one's ability (at least some of the time) are key components. The feeling that one is using one's skills well is important. Overcoming pain was also viewed positively.

PREDICTIONS BASED ON EXISTING RESEARCH	FINDINGS OF FOCUS GROUP STUDY
Physical well-being	Personal well-being (more general)
Relaxation	Therapy (positive or negative?)
Social interaction	Companionship
Feeling good at something	More specifically related to mastery of particular skills, for example, the feeling that one has used "the right tactic at the right moment"
Being perceived by others as good at something	Reactions of others - a broader category, encompassing the vicarious pride and encouragement of others.
Autonomy	Self-determination
Variety	Mental stimulation (including variety, but also involves other concepts, such as tactical aspects)
Skill utilisation	Skill mastery
Social co-ordination	Social co-ordination
Goal-setting	Goal-setting
Status and identity	Self-image
Discipline and structure	
Total absorption	"Flow"
Self transcendence (quasi-religious)	A higher-order version of "flow"?
Catharsis/ relief from negative emotions	Negative therapy
	Competitive achievement (winning)
	Competition (for its own sake)
	Environment
	Mental stimulation, including wider aspects, such as tactical aspects and concentration
	Thrill from danger
Pleasure from overcoming pain	Pleasure from overcoming pain
	Self-image - often spoken of in esoteric terms, such as "mystique".

Table1-2: Comparison Between Focus Group Findings And Predictions With Regard To The Dimensions Of Primary Intrinsic Motivation

Some of the key predictions from the research that was reviewed were not confirmed by the focus group study. The idea of sport imposing a discipline and structure on one's leisure time was not mentioned by anyone as a source of positive affect during sport participation. No one referred to enjoyment of physical activity as enjoyable for its own sake, and there was no suggestion that sportspeople find any positive affect in fulfilling an instinctual need to engage in physical activity. This could be because the level of effort required in most of the sports represented is so high that it is no longer inherently rewarding.

Finally, four new constructs emerged from the qualitative research, as follows:

- (1) Competitive achievement, defined in terms of winning.
- (2) Competition for its sake, that is, just enjoying the act of competing regardless of whether one is winning or losing.
- (3) Environmental factors
- (4) Thrill from danger

In addition some constructs appeared in a slightly different form:

- (1) Personal well-being in a broader sense took over from purely physical well-being.

- (2) The construct of therapy separated out into two separate constructs of positive therapy (creating positive affect in its own right) and negative therapy (escapism).
- (3) The idea of social interaction became more specific, to incorporate companionship. It was found that it was not enough just to be with others while taking part in sport, but one had to feel at one with them.
- (4) It was not enough just to be perceived by others as being good at something. Other people had to be actively expressing their pleasure at one's achievements in order for this to be a dimension of primary intrinsic motivation.
- (5) Mental stimulation has become a wider construct than just variety. It includes other aspects, such as tactics and concentration.
- (6) Skill utilisation and skill mastery may not be exactly the same. While skill utilisation implies using skills which already exist, skill mastery implies that the individual suddenly acquires a new skill while he or she is actually participating in sport.
- (7) Self identity and status may be different from the construct of psychological self-image. Self-image is often spoken of in esoteric terms, such as "mystique".

7.7.2 Validity issues

How much faith can we place in these findings? The findings of a research study need to have internal and external validity. Internal validity is concerned with “the extent to which the variables accurately reflect or measure the behavior of interest” (Elmes, Kantowitz, and Roediger, 1992, p.50). In the case of qualitative research, it is perhaps more meaningful to express internal validity in terms of whether the findings “capture what is really there” (Thomas and Nelson, 1990, p.336).

External validity refers to “the extent to which the observations can be generalised to other settings and subject populations” (Elmes, Kantowitz, and Roediger, 1992, p.51). Thomas and Nelson (1990) argue that the concept of “user generalizability” (p.336) is more important in qualitative research. This means that the findings of the research need to be capable of application in one’s own situation.

Precautions were taken to avoid the main threats to the internal validity of the study. One potential danger lay in the sampling methods which were used. The purpose of the focus groups was to generate as many different views of intrinsic motivation as possible. The rule was that a particular viewpoint only had to be mentioned once for it to be included in the parent questionnaire. The reasoning was that if it was a viewpoint which was idiosyncratic to one individual it would be “sieved out” in the practical application of the questionnaire.

There is, however, a potential problem with the fact that it would be perfectly possible for a reasonable viewpoint, representative of the views of a

substantial proportion of the general sporting population, not to be mentioned at all by anyone in the focus groups. One of the strengths of the use of the focus group technique in the present research is that there was no pre-determined decision about the number of subjects or groups which would be used in the study. Groups continued to be convened until it became obvious that the same ground was being covered by subjects and no further new observations were being produced.

Another potential difficulty with the focus group study was that the participants were primarily middle-class and well educated. It remains a possibility that some other constructs would have emerged if some of the participants had been from other socio-economic groups. A strength of the groups was, however, that they included approximately equal numbers of men and women. Another good point was that the groups were not composed totally of undergraduate students, which is so often a weakness of university-based research studies.

The subjectivity of certain aspects of the qualitative methodology could be seen as a potential threat to validity. To what extent was this a problem? The decision as to when was the right point to discontinue the convening of groups was mainly subjective on the part of the researcher. An attempt was made to introduce some objectivity into the decision as to when to discontinue the groups by discussing the results of each successive focus group meeting with the two Ph.D. supervisors, and involving them in the decision-making process.

Another risk factor was the possibility that some subjects might be inclined to tell the researcher what they thought she wanted to hear. This was a particular danger in the situations where the subjects viewed themselves as

taking part in the study as a personal favour to the researcher. There was also a risk that some subjects might express views which they thought enhanced their athletic image. Some precautions were taken to avoid problems of this type. Focus group participants were given very general guidelines as to what they were actually to discuss. The purposes of the study were kept deliberately vague. While the discussions were taking place, the researcher intervened only when there was an obvious lull in the conversation, and a set of standard prompt questions was used for this purpose.

7.7.3. Replicability of the focus group study

A form of replication took place during the study itself. A total of five groups was convened, and the groups were discontinued only when no further new ideas were being generated in the discussions. As far as possible, the format of the groups and the instructions and prompts given to the participants was standardised. This would be capable of being repeated by other researchers in other situations. The question of whether a replication of the study with another set of subjects and/or another researcher would yield a different set of constructs is open to challenge.

The use of the qualitative methodology did, however, have some major strengths in this instance. One of the greatest strengths of the qualitative methodology in the present research is that the instrument was developed on what might be described as a "grass-roots" basis. The term "grass-roots" is used here to mean that the constructs were generated, via the focus groups, from a sample of the very people whose motivation the instrument was designed to assess.

The converse of this would be the generation of items from “received wisdom”. This might be done by consulting the findings of other research in the field, or by discussion with people in charge of sportspeople, such as coaches, rather than by consulting the sportspeople themselves. The main weakness of this type of methodology is the fact that it relies heavily on the accuracy of information which is derived second-hand. It assumes that the findings of previous research are correct and provide a complete explanation of what goes on inside the minds of sportspeople. In cases where it relies on the impressions of coaches, it assumes that their views are accurate and unbiased.

The strength of the “grass-roots” method in this case lies in the fact that it presents an opportunity for a fresh look at the subject. This use of qualitative methodology in the initial stages made it possible for the instrument to generate its own theories, rather than forming part of the “grand system” of another theory. When new theories are generated in this way, it is then possible to compare them objectively with what could have been predicted from existing theories.

In the case of the present research, the focused group interviews produced a pool of ideas which was to form the basis of a new psychometric test. The process by which this was devised is discussed in the next chapter.

CHAPTER 8

STUDY 2

DEVISING THE INVENTORY OF INTRINSIC MOTIVATION IN SPORT (IIMS)

8.1. *PURPOSES OF THE IIMS*

The IIMS was designed for two main purposes: as a research tool and for diagnostic use. As a research tool, it could be used in situations where a measure of subjects' intrinsic motivation for sport participation was required. It was to be capable of use in quantitative research, for example in pre- and post-testing. As a diagnostic instrument, the inventory was designed to be used by sport psychologists and coaches. Diagnostically, its purpose would be to give information about the way in which competitive sportspeople feel when they are actually taking part in their sport.

8.2. *DESIGNING THE IIMS*

8.2.1. Stage 1: selecting the items for inclusion in the “parent” questionnaire

A pool of statements describing feelings about participation in competitive sport was compiled, based entirely on the content of the focus group discussions which were carried out in Study 1. No attempt was made to

rank the statements in order of frequency or perceived validity. A particular comment only had to occur once for it to merit inclusion in the pool. The comments were not edited in any way, and, as far as possible, the actual words used by the focus group participants were retained.

8.2.2. Stage 2: Devising the “parent” questionnaire

A parent questionnaire was devised based on the pool of statements derived from the focus group study. It consisted of 72 items. (See Appendix 1). This long questionnaire was to form the basis of a subsequent shorter questionnaire.

The 72-item version covered 18 construct-categories. Each of these construct-categories was represented by four statements. In a few cases, there were less than four statements in the pool which corresponded clearly to a particular category. When this happened, one or more additional item was specially devised by the researcher. Additional items were kept as close as possible to the statement derived from the focus group discussion, with a minor change of wording or sentence structure. The items took the form of simple statements describing possible feelings about sport participation. Examples of these are “I enjoy the feeling that I am winning”, or “I enjoy the camaraderie involved in sport participation”.

The instructions at the beginning of the questionnaire emphasised the point that the subject's answers should refer to his or her feelings about sport participation at the actual time of participation. (See Appendix 1). In all, this was referred to four times in one page of instructions. To reinforce the point, 23 of the 72 items in the questionnaire specifically used the words

“when I am taking part in my sport” and many other items used variants of this phrase.

Wherever possible, the wording of the statements in the questionnaire was based on actual words and phrases used by the focus group participants. This meant that some of the statements involved colloquial language, such as “I get a ‘big buzz’ when I am taking part in my sport”, or “I get a ‘high’ when I am taking part in my sport”. The purpose of this was to make the items easily assimilated by sportspeople.

8.3. *METHOD OF ADMINISTRATION OF THE PARENT QUESTIONNAIRE*

Subjects completed the questionnaire individually. The instructions on the front page explained that the questionnaire was part of a study inquiring into the motivations of competitive sportspeople. It was made clear that the findings would form part of a Ph.D. thesis at The University of Glasgow. An assurance was given that the results of the study would not, if published, name or identify any of the participants.

Subjects were asked to rate on a 0-5 Likert scale the extent to which each statement applied to them. They were also asked to give the first response of which they thought, and to avoid “agonising” over their responses.

8.4. *PILOT STUDY*

The parent questionnaire was administered initially to a sample of 13 subjects, comprising six women and seven men. These people were friends, neighbours, and academic colleagues of the researcher. Subjects

were asked to comment on any aspects of the questionnaire which they found ambiguous or difficult to understand. No real problems were revealed with the format and content of the questionnaire. The wording of a few items was amended slightly to emphasise the point that the study was concerned with the subject's feelings at the actual point of participation.

8.5. RECRUITMENT OF SUBJECTS

Subjects were recruited by a variety of means. The emphasis was on obtaining a wide range of sports and types of people. The four main methods of recruitment were:

- (1) People were approached as they left the University sports centre.
- (2) Requests were issued at University exercise classes for volunteers to complete the questionnaire. It was specified that the study was concerned with competitive sportspeople.
- (3) Member of sports clubs were asked to give out questionnaires to their club-mates. In many cases, these subjects also passed on copies of the questionnaire to friends and family, many of whom took part in other sports. This resulted in a kind of "chain letter" effect which generated a good variety of sports.
- (4) Some questionnaires were administered postally. The mailing list consisted of an assortment of the following:

- Current and former postgraduate students in the University Sport and Exercise Science Department who were known to take part in a competitive sport.
- Individuals who had recently attended Mental Skills for Sport courses run by the Department.
- University sport bursars.
- Friends and acquaintances of the researcher who were known to take part in a competitive sport.

In some cases, spare questionnaires were sent out to the subjects with a request to pass these on to friends.

8.6. *RESPONSE RATE*

The total number of completed valid questionnaires was 236.

Because of the “chain letter” approach which evolved, it is not possible to give precise details as to the proportion of refusals to complete the questionnaire which were encountered. This was, however, estimated to be very low (about 5%). The low refusal rate is attributed to the goodwill which was generated by the personal approach which was adopted.

8.7. STATISTICAL ANALYSIS

8.7.1. Aims of the analysis

The original 72-item parent questionnaire had comprised 18 “constructs”, or ways of looking at primary intrinsic motivation in sport. Each of the 18 constructs was represented in the questionnaire by four items.

The aim of the analysis was to identify any areas of communality which might be underlying these 18 constructs. The question which needed to be answered was whether it was possible to reduce the dimensionality of the 18 constructs. In other words, were there really 18 distinct constructs in operation - or were some of them just different ways of expressing the same thing?

8.7.2. Reasons for reducing the dimensionality

It was considered important to reduce the dimensionality of the instrument for the following reasons:

- (1) The length of the final versions of the questionnaire (both diagnostic and in-situ) needed to be shorter to be of any practical use. In particular, the in-situ version had to be capable of administration in a very short time. The diagnostic version had to avoid appearing excessively repetitive.

- (2) It was felt that the reduction of the original 18 constructs to a smaller number of construct groups would provide further insights into the significance of the qualitative data.

8.7.3. Choice of methodology

Factor analysis was chosen as an appropriate method of dimensionality-reduction in this case. The statistical package Minitab was used for this part of the work.

Statistical analysis of the results of the parent questionnaire was carried out using principal components factor extraction with varimax rotation. The purpose of this was to extract the dominant “factors”, or construct-groups. At the same time, varimax rotation was employed as a means of linking each of the original items in the parent questionnaire to one and only one of these underlying factors.

A decision had to be made as to how many construct-groups the final model should include. As each of the construct-groups had to be represented once in the final version of the in-situ questionnaire, it was crucial that the number of construct-groups identified by the factor analysis should not be high. On a trial-and-error basis, a five-factor model was constructed initially. This was found to explain 72% of the variability. Moving up to a six-factor model explained 77% of the variability. The six-factor model was selected as explaining the maximum variability without increasing the number of construct-groups to an unmanageable level.

Table 1-3 depicts the factor loadings. The significant ones are marked by an asterisk.

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
1. Personal well-being	.75*	.17	.29	.21	-.20	-.05
2. Positive therapy	.79*	.17	.05	.04	-.35	.21
3. Negative therapy	.54*	.13	.38	.19	-.22	.22
4. "Flow"	.75*	.12	.25	.12	.07	.17
5. Goal-setting	.44	.69*	.01	.28	-.11	.02
6. Personal Challenge	.34	.76*	.12	.30	-.19	.02
7. Competitive Achievement	.15	.40	.06	.80*	-.08	.02
8. Companionship	.18	.25	-.08	.21	-.81*	.16
9. Competition	.15	.23	.18	.75*	-.15	.05
10. Skill Mastery	-.02	.82*	.21	.15	-.22	.07
11. Social co-ordination	.16	.27	.17	.20	-.85*	-.03
12. Reaction of others	.13	.01	.29	.70*	-.38	.05
13. Self-determination	.36	.37	.12	.30	.10	.60*
14. Environment	.12	.04	.08	-.04	-.14	.90
15. Mental Stimulation	.10	.68*	.30	.09	-.24	.34
16. Thrill from danger	.07	.23	.85*	.09	-.09	.13
17. Pleasure from pain	.35	.07	.79*	.15	-.02	-.03
18. Self-image	.42	.16	.65*	.32	.01	.12

Table 1-3: Rotated Factor Loadings

Each of the six construct-groups which emerged from the factor analysis was given a new title as follows:

- (1) Spiritual
- (2) Self-efficacy
- (3) Toughness
- (4) Competition
- (5) Social Bonding

(6) Environmental Mastery

Table 1-4 depicts the six construct-groups and the constructs which of which they are compiled.

Construct-group	Components of each construct-group
1. Spiritual Well-being	1. Personal well-being 2. Positive therapy 3. Negative therapy (escapism) 4. "Flow" experiences
2. Self-efficacy	5. Goal-setting 6. Personal challenge 10. Skill mastery 15. Mental stimulation
3. Toughness	16. Thrill from danger 17. Pleasure from overcoming pain 18. Self-image
4. Competition	7. Competitive achievement (winning) 9. Competition for its own sake 12. Reactions of others
5. Social Bonding	8. Companionship 11. Social co-ordination
6. Environmental Mastery	13. Self-determination ("freedom of the road") 14. Environment for its own sake

Table 1-4 : Construct-group compilation

8.7.4. Selecting the top individual item in each construct-group

Two methods were used to determine which individual items in the questionnaire represented each construct-group most strongly. This was done via both factor analysis and computation of total scores.

Table 1-5 sets out the content of each of the factor-groups as determined by the two different methods of analysis. The number in front of each construct title refers to the number of the specific item in the parent questionnaire. The percentage depicted in brackets under each group refers to the amount of variation explained by that particular set of items. The table demonstrates clearly that for each construct-group better prediction of the total scores (i.e., scores obtained by summing scores on the single items loading significantly on that factor) than for the factor scores is achieved. Consequently, the individual items identified by the total scores method as being the best predictors of their construct-group were selected for inclusion in the final 18-item questionnaire,

Construct Group	Individual Questions which Best Predict Factor Score for Construct Group	Individual Questions which Best Predict Total Score for Construct Group
1. Spiritual Well-Being	37. Personal Well-Being 4."Flow" 2. Positive Therapy (66%)	37. Personal Well-Being 58."Flow" 21. Negative Therapy (79%)
2. Self-Efficacy	60. Personal Challenge 46. Skill Mastery 24. Personal Challenge (73%)	60. Personal Challenge 23. Goal-Setting 33. Mental Stimulation (84%)
3. Toughness	70. Thrill from Danger 35. Pain Mastery (75%)	71. Pain Mastery 52. Thrill from Danger (89%)
4. Competition	45. Competition for its Own Sake 61. Competitive Achievement (66%)	61. Competitive Achievement 45. Competition for its Own Sake 12. Reactions of Others (85%)
5. Social Bonding	29. Social Co-ordination 11. Social Co-ordination (69%)	29. Social Co-ordination 44. Companionship 65. Social Co-ordination (89%)
6. Environmental Mastery	68. Environmental 32. Environmental 50. Environmental 67. Self-Determination (81%)	68. Environmental 13. Self-Determination 31. Self-Determination 50. Environmental (88%)

Table 1-5: Factor group content by two different methods of analysis

8.8. DESCRIPTION OF THE SIX CONSTRUCT-GROUPS

The six construct-groups were broken down as follows:

8.8.1. Spiritual

This construct-group comprised the constructs of Personal Well-Being, “Flow”, and Negative Therapy. These might also be described as “New Age” concepts, involving the idea of being in touch with some kind of “higher self”. The title “spiritual” was chosen because it summed up the non-material aspect of this factor-group.

8.8.2. Self-efficacy

This collective title was given to the constructs of Personal Challenge, Goal-Setting, and Mental Stimulation. They all involve the idea of making the most of one’s self, or of striving to be better.

8.8.3. Toughness

This group includes the constructs of pleasure from overcoming pain and thrill from danger, as distinct from deriving any pleasure from the pain or danger itself. The obvious link between the constructs in the group is the idea of being tough, brave, or “macho”.

8.8.4. Competition

This is the title given to the group comprising competitive achievement (winning), competition for its own sake, and reactions of others. The link

here lies in the fact that winning is pleasurable because of the way in which it makes others perceive the winner. The act of competition may be pleasurable simply because of the presence of the possibility of winning, which is intermittently reinforcing.

8.8.5. Social Bonding

This includes social co-ordination and companionship. The need for companionship in the form of “camaraderie” seems to be tied up with the need to do things with other people, as opposed to simply wanting to be in their company.

8.8.6. Environmental Mastery

This group included the environmental and self-determination constructs. The link between these might be explained in terms of the notion, popular among runners, of the “freedom of the road”. Feeling good about one’s environment may involve feeling that one is in control of it, rather than vice-versa.

8.9. *COMPILING THE FINAL VERSION OF THE IIMS*

The top three individual items in each of these six categories were determined, using the results of the total scores method of analysis. In the case of the “toughness” group, only two items were found to be necessary to explain 89% of the variation. The “next best” item was added on in the interest of making the questionnaire “symmetrical”. In the environmental mastery group, four items were required to achieve 85% of the variation. In this case, the “weakest” of the four items was dropped.

The 18 items derived from the top three items in each of the six construct-groups formed the basis of the IIMS. The final version can be seen in Appendix 2.

The IIMS was to be capable of diagnostic use by sport psychologists or coaches, or by researchers in applied settings. It could be used either as a measure of an athlete's overall level of primary intrinsic motivation for his or her sport, or as a means of determining which aspects of the individual's intrinsic motivation are particularly weak or strong. The instructions and format were identical to that of the 72-item "parent" questionnaire.

8.10. VALIDITY ISSUES

This section discusses the extent to which the new instrument has construct and external validity.

8.10.1. Construct validity

Elmes, Kantowitz, and Roediger (1992) describe construct validity as "the extent to which the variables accurately reflect or measure the behavior of interest" (p.50). Put more simply, does the instrument which has been devised really measure what it says it measures?

Firstly, there was a danger of subjectivity in the production of the 72-item parent questionnaire. It might be argued that the identification and categorisation of the 18 constructs on the basis of the content of the focus group discussions was subjective on the part of the researcher. Equally, the

criticism could be levelled that the naming and defining of the six construct-groups that emerged as a result of statistical analysis was a subjective affair. An attempt was made to introduce an element of objectivity by involving the two Ph.D supervisors and the statistician in the decision-making process.

Secondly, a potential criticism of all pen-and-paper tests is that they are dependent on subjects having a particular level of literacy. It is necessary for subjects to be able to read and understand the items in the questionnaires in order to be able to complete them meaningfully. There is always a danger that a subject with a low level of literacy may wish to disguise the fact and simply circle the numbers in the Likert in a random fashion. In the event of it being known that a subject is unable to read the test items, the questionnaire could be administered orally. The effect that this would have on validity is at present an unknown quantity. This could be determined only by carrying out a comparative study.

Thirdly, there was a danger that some of the subjects who completed the 72-item parent questionnaire might be inclined to tell the researcher what they thought she wanted to hear. This was a particular danger in the situations where the subjects viewed themselves as taking part in the research as a personal favour to the researcher. There was also a risk that some subjects might be inclined to produce what they judged to be the most socially acceptable responses.

To guard against this possibility, participants in the questionnaire study were simply asked to complete a questionnaire concerned with the motivation of competitive sportspeople. They were given written instructions on how to complete the questionnaire, which said only that the study was

concerned with the motivation of competitive sportspeople and that it formed part of a Ph.D. thesis in sport psychology at The University of Glasgow. It was emphasised in the written instructions that subjects should rate the extent to which each statement was true for them personally. It was made clear that the statements referred to the way that they felt when they were actually taking part in their sport. They were also asked to give the first response which they thought of. The researcher did not engage with the subjects in any way when they were actually completing the questionnaire.

8.10.2. External validity

With respect to the external validity of this part of the research, the most important question which needs to be asked is whether the instrument is generalisable to sportspeople other than those who took part in the present study.

The subject-pool involved in the generation of the instruments was highly heterogeneous in nature. Although the pool of focus group participants might be described as a fairly homogeneous group with regard to socio-economic status and educational background, a wide range of sports and ages was represented. There were also roughly equal numbers of men and women in the focus groups. The pool of 236 subjects who completed the 72-item parent questionnaire included a wide range of ages, socio-economic backgrounds, and sporting abilities. Although more men than women completed the questionnaire, women were still well represented (38.5%).

In this case, the heterogeneity of the sample could be described as a "two-edged sword". On the one hand, the use of a broad subject-pool in the formation of the instruments makes it possible for both versions to be used with a wide range of people. This means that they can be used with sportspeople at all levels of ability and in any sport. This is an advantage where a coach is working in club situation with a range of athletes. This only holds good, however, if the findings of the instruments are interpreted in a general way. For example, the diagnostic version can give us information as to how "normal" a particular fencer's primary intrinsic motivation is relative to competitive sportspeople in general. On the other hand, the instrument as it stands tells us nothing about that individual's motivation relative to other fencers or other sportspeople at a comparable level of achievement.

This does not, however, mean that the diagnostic questionnaire has no practical worth. What it does mean is that its findings need to be interpreted within the context of what is already known about the athlete. It should be seen as extending and clarifying what is known about an individual rather than turning existing knowledge on its head. For example, an athlete may score particularly low in the "spiritual" category for reasons which have nothing to do with his or her sport, such as personal problems, or a bad day at the office.

It is also important to take into account any situational factors which may be operating at the actual point in time when the subject is completing the questionnaire. For example, a subject who has just played against a disliked opponent may score low on the competition construct on that day, without it necessarily meaning that he or she generally does not enjoy competing.

The need to look at the findings of the instrument in the wider context of what is already known about the athlete and the particular sporting situations does not need to be a disadvantage. It just means that the user needs to realise that the questionnaire provides guidance rather than all the answers. It is no substitute for taking time to get to know the athlete as an individual.

8.10.3. Reliability

The reliability of a study refers to the extent to which it is

- (a) likely to “yield consistent results” (Elmes, Kantowitz, and Roediger, 1992), that is, the test will produce a similar set of results if it is replicated with other subjects and/or in other settings and
- (b) likely to produce results which hold true for individuals over a period of time.

There is, of course, always a risk that if the same instrument is used with the same group of subjects on more than one occasion a “practice effect” may occur. If the questionnaire is not presented “fresh” to the subjects, they will have had time to think about their responses in the interim. This may make them more likely to produce what they consider to be socially acceptable responses.

Perhaps the greatest barrier to establishing reliability of an instrument over time is the risk of losing the co-operation of the subjects. Repeated intrusions into real-life sporting events - which are often very important to the participants - are likely to strain the goodwill of the subjects.

As Thomas and Nelson (1990) put it:

“The subjects would probably think the researcher was suffering from senility if he or she tried to interview the same people with the same questions on the same day” (p.355).

It was considered important that the diagnostic questionnaire produced consistent responses over time. The author acknowledges that it may well be possible for an individual's motivational profile to change over a prolonged period of time (such as one year). This could occur as a result of an intervention by a psychologist, perhaps in the form of a stress management programme. It could also be an effect of traumatic life events. It is more important from a practical point of view that the instrument is consistent over shorter periods of time (such as two or three weeks) if it is to be of any diagnostic use.

The consistency of the diagnostic instrument over short periods of time was put to the test. The questionnaire was administered postally to a total of 18 subjects, and a second copy sent to all subjects after an interval of two weeks. The respondents were advised that they would receive a £5 voucher on return of the second questionnaire. This tactic produced a 100% response rate.

Pearson test-retest correlations were obtained for each dimension between Time 1 and Time 2. The results of the reliability testing are shown in Table 1-6.

Spiritual well-being (“buzz”)	r=.89 p<.01
Self-efficacy	r=.78 p<.01
Toughness	r=.97 p<.01
Competition	r=.83 p<.01
Social bonding	r=.46 Not significant
Environmental mastery	r=.93 p<.01

Table 1-6: Pearson test-retest correlations of Time 1 and Time 2

As the reliability testing shows, the test-retest reliability is high in all of the dimensions except social bonding. The reason for this may be that relationships with others are essentially fickle, and subject to the mood of the day. It is easy to imagine a person's scores on this dimension being affected by, say, an exchange of cross words in the changing room just before a competition.

8.11. “USER-FRIENDLINESS” OF THE INSTRUMENT

It is always important that psychometric tests should be presented in such a way as to avoid being off-putting to the user. It is the experience of the author that sportspeople are often initially reluctant to complete questionnaires, particularly when they suspect that this will in some way put them off their game. With this in mind, the IIMS was designed to be particularly “user-friendly”.

8.11.1. Ease of administration

The diagnostic IIMS had to be concise, and easy to administer and complete.

The diagnostic questionnaire is contained on one side of A4 paper and is accompanied by the instructions which were used with the 72-item parent questionnaire. As it can be completed at any time, little or no disruption needs to be caused to training or competition.

Notes for coaches on interpreting the results are also available (see Appendix 3).

8.12. *DISCUSSION*

The research leading up to the formation of the IIMS has shown that primary intrinsic motivation is multi-dimensional. The six major dimensions are spiritual well-being, self-efficacy, toughness, competition, social bonding, and environmental mastery. This section suggests some ways in which this multi-dimensional model adds to our understanding of primary intrinsic motivation in sport, with particular reference to the state-trait issue.

As has already been noted in Section 2.7., general happiness seems to be linked more closely with personality than with life events (Dieter and Larsen, 1984). The same may be true of primary intrinsic motivation in sport. Does the breaking down of primary intrinsic motivation in sport into six major dimensions throw any light on the state-trait issue in a sporting context? If there is good reason to believe that each of these dimensions is in itself a trait of personality rather than a transient affective state, then this adds conviction to the suggestion that primary intrinsic motivation in sport is also a trait. Each of the six dimensions will now be considered in the light of this question.

(1) Spiritual well-being

At this stage, it is unclear whether this is simply a collective way of describing the other five dimensions. On the other hand, the spiritual dimension may have an independent “life” of its own as a trait of personality which inclines people to experience primary intrinsic motivation in almost everything they do. We will return to this question later.

(2) Self-efficacy

Common sense would suggest that self-efficacy is a state rather than a trait. It is clearly observable that people feel more efficacious in some situations than in others. This is likely to depend on the amount of ability, skill, or experience that they have in a particular activity. For example, an opera singer might feel very efficacious when singing, but very non-efficacious when playing table tennis. Russell (1993) sums up self-efficacy as the “belief that one has the capabilities to attain a designated performance” (p.66). In the context of primary intrinsic motivation, the dimension of self-efficacy is the enjoyment of the feeling that one is efficacious in the present situation. This is different from the feeling that what one is currently doing will be instrumental in increasing one’s general level of efficacy. A person’s belief in his or her capabilities will depend on situational variables, such as the quality of the opposition, or how well-trained the individual is at the time.

Russell (1993) argues that self-efficacy should not be confused with self-confidence. It may be that self-confidence, or self-esteem is an underlying trait which influences an individual’s likelihood of feeling efficacious in any given situation. The opera singer may feel perfectly confident while playing

table tennis, yet still be aware that he or she is not skilled at the game. A person with high global self-esteem may not need to feel efficacious in every situation.

The reverse is also true. A particular fencer may suffer from low global self-esteem. It is still possible for such an individual to feel efficacious in a competition. This is likely to depend on the feedback which the fencer receives from the competition. For example, if the fencer scores a high number of hits in the initial bouts, he or she may begin to feel efficacious. If the individual has low global self-esteem, however, the feeling will always be present that disaster could occur at any moment.

A person with high global self-esteem is less likely to be troubled by such thoughts. Why should this be the case? The self-confident person may have an in-built disposition to make attributions which do not damage his or her feeling of efficacy. This can be done in two ways. Firstly, a self-confident individual is less likely define his or her performance as poor in the first place. A self-confident fencer who fails to score many hits might focus instead on the way his or her footwork has improved. The other way in which it is possible to protect self-esteem is to attribute poor performance to external factors. For example, a self-confident fencer who is not scoring many hits in a particular bout may attribute his or her poor performance to a lack of crowd support, or even to bad luck, rather than to poor ability. The fencer with low self-esteem is more likely to attribute poor performance to poor ability. The truth may be that the tendency to feel efficacious is itself a trait of character allied closely to self-confidence.

(3) Toughness

The dimension of toughness incorporates the idea of pleasure from overcoming pain and thrill from danger. Is this need to perceive oneself as tough in a sporting context a temporary state or a trait? At a common sense level, toughness seems to be more closely associated with some sports than with others. For example, it is easy to see how a marathon runner could claim to enjoy overcoming pain in his or her sport, but it is more difficult to see how a golfer could make a similar claim. In the same way, sports like diving or rock climbing provide more obvious scope for enjoying a thrill from danger than badminton.

Nevertheless, focus group participants from a variety of sports spoke of enjoying “going through a pain barrier” when they pushed themselves to their limit. A golfer does not experience the extremes of physical discomfort that are faced by a marathon runner, but is still prepared to endure tiredness and adverse weather conditions. Indeed, the language of toughness is often used by golfers. Elliott (1996) writes of Nick Faldo “gritting his teeth” and “pulling his nerve and his game together” (p.57) on the way to winning his third Open Championship. He goes on to sum up Faldo’s achievement by saying that he “had looked into the jaws of a particularly nasty beast at Muirfield that day.....and had slain it”.

The question is whether this need to feel tough in sport is something that is always part of the experience, or whether it depends on the mood of the day. An individual might have a particularly strong need to feel tough on the squash court after a stressful day at work. For example, a junior bank clerk might have spent the day dealing with difficult customers and arrive at the squash court feeling very small. The act of taking part in a squash match

might make the bank clerk feel a lot stronger, as the physical and mental demands of the sport provide opportunities for feeling tough. This will not, of course, always work to the person's advantage. The match may go badly, and make the frustrated bank clerk feel worse about him or herself, rather than better. Feeling tough in sporting situations must be a state, because it is not experienced on all occasions. The tendency to seek out situations in sport that provide opportunities to display toughness may, however, be a trait.

Toughness may also be linked with self-efficacy. Feeling tough may be another way of expressing the idea of having the necessary skills and ability to cope with the demands of the sport.

(4) Competition

Is enjoyment of competition a state or a trait? The answer to this may depend on the way in which enjoyment of competition is viewed. This study found that enjoyment of competitive achievement is part of the same construct-group as enjoyment of competition for its own sake, and the reactions of others. This suggests that the three constructs are expressing the same feeling in different ways. How can this be explained?

Franken, Hill, and Kierstead (1994) showed that "desire to win" and "motivation for high performance" are two distinct factors. They found that motivation for high performance was the stronger predictor of sport interest, but the desire to win was still a good predictor in its own right. They concluded that it was possible to explain the co-existence of these two factors by saying that people are simply interested in sport for different reasons.

It is possible to explain the apparent divide between the enjoyment of winning and the enjoyment of competition for its own sake as follows. The hope of winning may be enough to sustain intrinsic motivation even when the individual is losing. An occasional win will provide sufficient intermittent reinforcement to keep the hope of winning alive. Competition is also a source of informational feedback as to the individual's progress. It is possible for feedback to be positive even when the individual is losing, if the person perceives him or herself as having played a few good shots, or just played well generally. This also explains why competition is intrinsically motivating both to people who are motivated to win and to people who are motivated to perform well. In both cases, competition provides informational feedback as to the individual's prowess as an athlete.

The content of the competition dimension begins to look very like the content of the self-efficacy dimension. Ultimately, the main source of affect in competition seems to be the information that it provides the individual with about his or her efficacy in sporting situations. Franken and Brown (1995) found that enjoyment of competition was made up of five factors:

- (i) Satisfaction from improving one's performance
- (ii) Desire to win
- (iii) Motivation to put effort into competitive situations
- (iv) Satisfaction from performing well
- (v) Preference for difficult tasks

All of these have obvious links with self-efficacy. Factors (i), (ii), and (iii) are about the sense of efficacy that comes from competitive achievement, measured either by winning or by performing well. A high need for

achievement is expressed by factors (iii) and (v), which involve the idea of enjoying the challenging aspects of competition. The link between challenge and efficacy is that people have to perceive a task as difficult and requiring some effort before it can offer any sense of achievement. The effect which competitive outcomes have on the self-efficacy of an individual is also likely to be mediated by the types of attributions which the individual assigns to success or failure.

The reactions of others is also a component of the competition dimension. This is also linked with efficacy, in that the pride or admiration of others reinforces the significance of winning or performing well.

(5) Social bonding

In this research, social bonding has been found to be an important dimension of primary intrinsic motivation in sport. This is slightly different from the idea of team cohesion. Cox (1990) sums up the main literature in this area. Team cohesion is divided into two dimension: social and task cohesion. Social cohesion refers to enjoyment of companionship with team mates, while task cohesion is about working together towards common goals. Social bonding, as identified in the present research, unites the constructs of companionship and social co-ordination. This analysis can apply to individual sports as well as team sports. Social co-ordination involves enjoyment of carrying out an activity side by side, or in tandem with a sporting companion, without necessarily sharing any common goals. An example of this would be two hill walkers walking in step with one another while sharing a companionable silence. Companionship refers to simple enjoyment of the company of others, while social co-ordination brings in the notion of sharing an activity.

At first sight, the dimension of social bonding looks like a trait rather than a state. Baumeister and Leary (1995) reviewed the literature on the "need to belong" and concluded that this was almost certainly "part of the human biological inheritance" (p.518). Although this has not been proven absolutely, Baumeister and Leary felt that it was reasonable to assume it to be the case on the basis of current available evidence. It is possible, however, that in-situ enjoyment of social bonding could depend on the mood of the day. We all have days when the people around us get on our nerves: this may be equally true of our sporting companions.

Competitive sport provides scope for expressing the need to belong. Sports clubs are usually organised in such a way as to allow opportunities for socialisation. This often takes the form of fund raising events or simply drinking in the club house after training. Social co-ordination occurs during training and competition, when people can enjoy sharing the activity. This was expressed by one of the focus group participants as "the feeling that my team-mates or training companions and I are pulling one another along".

The social bonding dimension could also be linked with the self-efficacy dimension. Other people contribute to our feelings of efficacy by providing a source of feedback and a yardstick by which to compare ourselves. Videbeck (1960) demonstrates how we use the feedback that we gain from other people's evaluations of us as a basis for our evaluations of ourselves. A competitive athlete may come to have feelings of efficacy as a result of his or her coach's words of encouragement. We also build up a picture of our own efficacy by comparing ourselves with others (Festinger, 1954). If an athlete notices that he or she regularly runs faster than others in the club

in training sessions, this will contribute to his or her sense of efficacy. In these ways, the social dimension plays an important part in developing individuals' self-efficacy.

(6) Environmental mastery

The research has shown that feeling in command of one's environment is a major part of primary intrinsic motivation in sport. Weiner (1985) also expressed motivation in terms of "mastery" of the environment. The dimension of environmental mastery is made up of the constructs of environment and self-determination. Many sports involve environmental mastery in an obvious way. Sports like rock climbing and rowing involve interacting directly with the natural environment and trying to conquer it. Mountaineer Joe Simpson (1995) described his sport as "a direct, intensely personal competition with the challenge of the mountains". Other sports involve mastery of the environment in subtler ways. For example, a squash player has to cope with the claustrophobia of the four white walls. A golfer plays as much against the course as the opponents.

The importance of being in control of one's environment in sporting situations is demonstrated clearly by the phenomenon of the "home advantage" in competition. The temptation is to think that the home team has a greater chance of winning because the players do not arrive at the match tired from travel. This does not seem to be an adequate explanation, as the home advantage has been found to apply even where the away team only has to travel across its own city. In addition, it still occurs when the away team brings a large contingent of fans with it (Pollard, 1986).

Traditionally, the home advantage has been attributed to the emotionally arousing effect of crowd support (Varca, 1980; Cox, 1990). This provides only part of the explanation. Russell (1993) argues that discourteous crowds who direct hostility towards the visiting side can actually interfere with the home team's performance by creating a "bad" atmosphere. Not only this, but there have been instances in Scottish professional football of fans abusing, rather than encouraging, their own team when they are losing.

The real explanation for the home advantage probably lies in the dimension of environmental mastery. Emerging from a familiar changing room and playing on a familiar ground confers an immediate advantage. Running a road race on a course on which a runner has trained frequently gives an immediate feeling of being in control of the situation. The runner knows every dip in the pavement and every tight bend and is ready for them. The golfer who has played a course before is prepared for the challenging hills and bunkers.

8.13. SUMMARY

The research has shown that primary intrinsic motivation is multi-dimensional. The six key dimensions are spiritual well-being, self-efficacy, toughness, competition, social bonding, and environmental mastery.

There are some tentative indications that the tendency to experience primary intrinsic motivation in sport is a trait of personality. Another way of looking at this might be to say that there is a particular personality "type" which finds a convenient means of expression in sport. How would we sum

this personality up from the evidence so far? The “sport prone” personality would have a high need to feel efficacious and in control of the environment. Sport provides an outlet for this by setting up testing situations with plenty of informational feedback from competitive outcomes and comparisons with others. It also provides ample opportunities for demonstrating toughness.

The diagnostic IIMS was designed to be used in practical situations. The next chapter describes how it was piloted in a real-life setting to assess its potential usefulness to coaches.

CHAPTER 9

PILOTING THE DIAGNOSTIC IIMS

The questionnaire was designed to be capable of diagnostic use by sport psychologists or coaches working directly with competitive sportspeople, or by researchers in applied settings. It could be used either as a measure of an athlete's overall level of intrinsic motivation for his or her sport, or as a means of determining which aspects of the individual's intrinsic motivation are particularly weak or strong. It could also be used to provide information about the collective motivation of teams.

9.1. RECRUITMENT OF SUBJECTS

The questionnaire was applied in a practical setting in order that its potential usefulness and relevance to coaches could be assessed qualitatively. A basketball coach agreed to assist in the pilot run. He was asked to seek the co-operation of some of the players whom he coached on a regular basis. A total of 16 players took part.

9.2. INFORMED CONSENT

The coach and all subjects participated voluntarily. They were informed that this study formed part of a Ph.D thesis in Sport Psychology at The University of Glasgow. An assurance of individual confidentiality was given. In this case,

they were asked to put their real names on the forms as the questionnaire was designed to help individuals. It was explained that the questionnaire was designed to provide information about which aspects of sport participation were enjoyable to sportspeople at the time when they were actually taking part in their sport.

9.3. *METHOD OF ADMINISTRATION OF THE DIAGNOSTIC QUESTIONNAIRE*

The coach gave the questionnaires to the athletes to complete during breaks in training sessions. They were given the opportunity to do this in an unpressured way. An instruction page was attached to each copy of the questionnaire (Appendix 2). Subjects were asked to rate each statement on a scale of 0-5 according to the extent to which it represented the way in which they normally felt while they were taking part in their sport. They were also asked to give the first response which they thought of, rather than agonising over the questions.

The response rate was high as the completion of the questionnaire was seen as part of the day's training activities. The coach gathered in the completed questionnaires and returned them to the researcher.

9.4. *RESULTS*

Of the 16 completed forms, eight were selected for detailed analysis. The eight forms which were not selected used scores almost entirely from the top end of the Likert scale (4 and 5).

The researcher provided the coach with a summary motivational profile on each of the eight players. This took the form of comments on the significance of dimensions on which the player had scored particularly high or low, and included the total scores on each dimension. Some recommendations for enhancing their motivation were also provided. The contents of the written report were also discussed in more detail with the coach. (Sample reports can be seen in the Appendix 4).

The researcher also discussed with the coach the extent to which he had found the recommendations helpful, and the extent to which he felt the motivational profiles matched with his own perceptions of the athletes. The coach felt that the instrument had provided an accurate profile of the players, with some new and useful insights. His intention was to put some of the recommendations into practice. He asked for profiles to be carried out on some other players, who had not been present when the questionnaires had been given out, as he felt that this would be useful to him.

9.5. DISCUSSION

The main strengths of the instrument in a practical situation were, as expected, its ease of administration and its user-friendliness. No difficulties were reported in understanding or completing the questionnaire.

The one area of uncertainty which arose was with regard to the reasons why some subjects who scored all the items at the top end of the scale. One possibility is, of course, that they did so because they are highly motivated athletes. If this is the case, then it is good news for the coach. On the other hand, it is feasible that they scored all the items high because they saw this

as a way of pleasing the coach. This might be a particular hazard in cases where the coach has an authoritarian style, and athletes are afraid to reveal any chinks in their armour in case they are not selected for the next match. Unfortunately, it may be that in some situations an over-authoritarian coaching style was the cause of diminished intrinsic motivation in the first place. This does not mean that the test is no use. It just means that it will be necessary to impress on coaches that athletes should be allowed to complete it in an unpressured way, and it should be emphasised to them that there are no “right” answers.

9.6. CONCLUSIONS

Firstly, it was generally felt that the diagnostic questionnaire had the potential to be a useful tool in applied settings, and no real problems were found in its administration. The one note of caution which emerged was that care would need to be taken to ensure that sportspeople did not feel under any pressure to provide the “right” answers to the questionnaire.

Secondly, the pilot study demonstrated how it was possible to use the questionnaire in a way that provided information that could be used by coach and sport psychologist alike. The results were not intended to be in any way definitive, but provided a good starting-point in working towards enhancing the intrinsic motivation of competitive sportspeople.

CHAPTER 10

STUDY 3

DEVISING THE IN-SITU VERSION OF THE INVENTORY OF INTRINSIC MOTIVATION (IIMS)

10.1. PURPOSES OF THE IIMS (IN-SITU)

This short questionnaire was devised for use in research, to measure levels of intrinsic motivation at the actual point of participation in sport.

10.2. DESIGNING THE IN-SITU QUESTIONNAIRE

10.2.1. Statistical analysis

The in-situ questionnaire was a distilled version of the 18-item version of the IIMS. It was compiled using the top individual item in each of the 6 construct-groups.

This was carried out by two methods:

- (1) Stepwise regression of factor scores on each of the appropriate questions.

- (2) Stepwise regression of the total scores of each factor group on each of the appropriate questions.

10.2.2. Results

Table 1-7 depicts the results of the statistical analysis. The numbers refer to the single individual items from each of the construct-groups which best predicted the factor score or total score.

Construct-Group	Number of Individual Item which is Best Predictor of Factor Score	Number of Individual Item which is Best Predictor of Total Score.
1. Spiritual	37	37
2. Self-Efficacy	60	60
3. Toughness	70	71
4. Competition	45	61
5. Social	29	29
6. Environmental	68	68

Table 1-7 : Individual item in each construct group which best predicts factor score and total score

The results for the two methods of analysis were compared. In all cases except for toughness and competition, the results were identical. A decision had to be made as to which of the two items to use in the in-situ questionnaire in each of these cases. This was done on the following bases:

(1) Toughness

The choice was between an item referring to the dangerous aspects of the sport (Question 70) and one referring to being in control of pain (Question

71). As it was felt that the idea of being in control of pain was relevant to more sports than danger, Question 71 was selected.

(2) Competition

In this case, a decision was made to form an amalgamation of the two items. One of the items referred specifically to enjoying competition for its own sake, and the other was concerned with enjoying beating “good “ opponents. The compromise of “Right now I am enjoying competing against my opponent(s)” was felt to encompass both aspects.

The six items which were finally selected were as follows:

1. Right now I am getting a “big buzz” out of taking part in my sport. (spiritual well-being)
2. At this moment I am enjoying the challenge of mastering something difficult. (self-efficacy)
3. Being in control of pain is part of the pleasure that I feel just now. (toughness)
4. Right now I am enjoying competing against my opponent(s). (competition)
5. I am enjoying the feeling of being part of a team, club, or group just now. (social bonding)

6. At this moment the environment in which I am taking part in my sport is making me feel good. (environmental mastery)

Three versions of the in-situ questionnaire were devised, for use just before an event, during the event, and immediately afterwards. These can be seen in Appendix 5. This involved only minor changes in the wording of each item, for example, “I am expecting to get a ‘big buzz’ out of taking part in this event”.

Two extra questions were added to the third version, which asked subjects to state whether they had won or lost the match, or what their place in the race had been. Subjects were also asked to rate the extent to which they had been pleased with their performance on a 0-5 Likert scale.

10.2.3. Validity issues

(1) Internal validity

The items in the in-situ version of the IIMS came from the same source as the 18-item diagnostic version (namely, the focus groups, followed by the application of the 72-item parent questionnaire), and as such, have the same construct validity. The purpose of the in-situ questionnaire is, however, different. The shorter instrument is designed to measure primary intrinsic motivation as a temporary state. It is intended primarily for use in research.

(2) External validity

The main question which needs to be asked with regard to the external validity of the in-situ questionnaire is whether the instrument could be used with confidence with subjects other than those who took part in the present research. The same arguments apply here as to the diagnostic questionnaire. The items in the in-situ questionnaire all appeared in exactly the same form in the 18-item version of the IIMS.

(3) Correlations between the two version of the IIMS

The six individual items which made up the final version of the in-situ questionnaire were all embedded in the final version of the 18-item diagnostic questionnaire. To test whether the short version provided a reliable measure of the six dimensions by comparison with the longer version, Pearson's correlations were carried out.

Each single item on the in-situ questionnaire was correlated with the sub-group of questions which made up that factor on on the 18-item version. For example, the single item representing "buzz" on the in-situ version was correlated with items 1, 7, and 13 on the 18-item questionnaire. This indicated how accurate a measure a single question is of the sub-scale as a whole. The correlations are shown below. They are all highly significant.

"Buzz"	$r = .71$
Efficacy	$r = .82$
Toughness	$r = .81$
Competition	$r = .79$
Social Bonding	$r = .70$
Environmental Mastery	$r = .78$

10.2.4. “User-friendliness” of the instrument

One of the main strengths of the IIMS (in-situ) is that it has been designed to be particularly “user-friendly”. The questionnaire is concise, and is designed to be easy to administer and complete. Its three versions (for use before, during, and after an event) are each contained on one page. The instructions for completing the questionnaire are repeated at the top of each page. Subjects are required only to circle the number on a 0-5 Likert scale which reflects most closely the extent to which a statement corresponds to their own feelings. They are not required to write anything on the form except their name.

The in-situ questionnaire is also designed to be easy to assimilate. The individual items are presented in large, bold print and each is in a separate box so that they are easy to read. This will be particularly important when questionnaires are being administered during an event as subjects' vision is often blurred by perspiration when they pause briefly during strenuous physical activity. It is also the case that subjects who would normally wear glasses for reading often remove them for sport participation. As the three versions of the in-situ questionnaire (before, during, and after) are virtually identical except for changes in wording and grammatical tense, subjects are already familiar with the items by the time they come to read them during the event.

10.2.5. Practical usefulness of the IIMS (in-situ)

The in-situ version of the IIMS is designed specifically for the purpose of probing the primary intrinsic motivation of competitive sportspeople as experienced at the actual point of participation in the sport. In practical situations, the diagnostic version will normally be the best first line of attack as it is easier and less intrusive to administer than the in-situ version. The in-situ questionnaire may be called into play where there is reason to suspect that an individual is particularly prone to “forgetting” how he or she normally feels during sport. It also gives additional information as to the way an individual's overall levels of intrinsic motivation change over the course of an event. For example, an individual may routinely look back on events “through rose-tinted spectacles” even when he or she has clearly performed badly. This may indicate that the person has difficulty in looking critically at his or her performance in a particular event.

The in-situ version could be used in research in various ways. Some examples are as follows:

- (1) The in-situ questionnaire could be used whenever it is important to ascertain the extent to which an individual or team feels intrinsically motivated by sport participation at the actual point of participation.
- (2) The in-situ questionnaire could be used to evaluate the effectiveness of an intervention which has been directed specifically at enhancing primary intrinsic motivation.

- (3) It could be used in controlled experiments to assess the effects of particular situational factors on primary intrinsic motivation.
- (4) It could be used to compare the levels or dimensions of the primary intrinsic motivation of one group with another (for example, men versus women, or fencers versus tennis players).

The next chapter will describe a practical application of the IIMS (in-situ).

CHAPTER 11

PUTTING THE IN-SITU QUESTIONNAIRE INTO PRACTICE

11.1. METHOD OF ADMINISTRATION OF THE IN-SITU QUESTIONNAIRE

The three versions of the questionnaire were given to subjects to complete immediately prior, during, and immediately after, participation in a competitive sporting event.

11.2. INFORMED CONSENT

Subjects were informed that the study was concerned with the intrinsic motivation of competitive sportspeople. It was explained that it formed part of a Ph.D. thesis in Sport Psychology at The University of Glasgow. An assurance of individual confidentiality was given. In addition, subjects were told that they were free to put an assumed name on the forms, providing they put the same name on all three forms.

11.3. SUBJECTS

The total number of subjects was 105.

Six sports were represented: tennis, distance running, shorinji kempo, hockey, football, and squash. The subjects all trained and competed regularly.

11.4. RECRUITMENT OF SUBJECTS

Subjects were recruited by approaching representatives of clubs, who in turn persuaded members to take part. All subjects participated in the study voluntarily. In the tennis study, the research was carried out during an inter-club tournament. The squash players took part in the study during matches forming part of a West of Scotland league. The hockey and football players completed the questionnaires before, at half-time, and after one of their normal league matches. In the case of the runners and the shorinji kempo, competitions were specially arranged. This had to be done because

- (a) the runners were unwilling to lose time in an “official” race by stopping to complete a questionnaire, and
- (b) shorinji kempo competitions occur relatively infrequently, and, as such, are not easy to access.

11.5. THE RESEARCH PROTOCOLS

11.5.1. The tennis study

In the case of the tennis players, the research was carried out during an inter-club tournament. Participants were competing for a prize which was

awarded by the host club for the overall winners of the men's and ladies' competitions.

The subjects were asked to complete the short questionnaire immediately prior to the start of their match. This was done in the presence of the researcher so that any questions about the instructions could be answered. They were then asked to take the questionnaire on to the court with them and complete it at the end of the second set, during the changeover. Immediately on returning to the pavilion after the match, they were asked to complete the post-situ version of the questionnaire.

11.5.2. The running study

The runners were drawn from two separate clubs, and took part in one of two specially arranged races on club nights. A prize of a sports' voucher was awarded for the first to finish in each race.

Subjects were asked to complete the questionnaire immediately before the start of the race. They were informed that they would be asked to stop briefly at the half-way point to complete the in-situ version of the questionnaire. When this happened, they were given an opportunity to have a drink of water at the same time. Subjects were also asked to complete the post-situ version of the questionnaire as soon as they passed the finish line.

11.5.3. The shorinji kempo study

The shorinji kempo participants took part in a specially-arranged competition on a club night involving all available members of the club. As

shorinji kempo is a minority sport with only a few members in Scotland, the competition involved a wide spectrum of ability levels ranging from beginner to black belt. To accommodate this, the competition was arranged as a “round robin” team event, in which each team competed against every other team in succession, with opponents being equally matched as far as possible. As the underlying philosophy of the sport shuns the idea of prizes and material rewards, no prize was awarded in this part of the study.

11.5.4. The hockey study

The questionnaires were completed by two separate women’s teams, as follows:

- (1) Glasgow University First Eleven, during one of their normal league matches.
- (2) Two opposing teams from the National League during a friendly match. One of the teams was from Division 3, while the other was from Division 2.

As both groups of subjects were already competing in an organised match, there was no need for a specific prize to be awarded as part of the study.

11.5.5. The football study.

The subjects were members of the reserve team of a Scottish Premier League professional club.

The subjects completed the questionnaires before the match, at half-time, and at the end.

11.5.6. The squash study.

Subjects (all male) were participating in a West of Scotland league. They completed the questionnaire before the match, during the brief break between the second and third games, and at the end.

11.6. *RESPONSE RATE*

Because the various events in the study were arranged on a good will basis, the response rate was high. In the tennis study, only one of the competitors in the tournament refused to participate in the study, on the ground that it might interfere with the person's game. The squash players all completed the full set of questionnaires. All of the runners took part willingly, although one participant failed to finish the course and did not return to complete the final questionnaire, and another arrived at the start too late to complete the first questionnaire. The football players all completed the full set of questionnaires. The lowest rate of usable responses was on the part of the hockey players, two of whom were taken to hospital during the match on account of injuries. A further five did not complete all three parts of the questionnaire.

11.7. *STATISTICAL ANALYSIS*

The total number of subjects was 105. They were selected from six sports. The sample comprised 61 men and 42 women. Two subjects omitted to indicate their sex on the questionnaire.

Statistical analysis was carried out using the statistical package Statistica, with a view to determining whether ratings on the six dimensions varied according to the time when the questionnaires were administered, that is, before, during, or after an event. The profiles of men and women on the various dimensions and their interaction with the time of measurement were also compared.

The dependent measures were the six dimensions. These were measured

- (a) across time, at selected points before, during, and after a competition
- (b) between men and women
- (c) across sports

Essentially, it is a 3x2 ANOVA with six dependent variables, namely, the six dimensions. However, each dependent variable in turn is analysed by a univariate F.

Factor 1 (time) has three levels - before, during, and after.

Factor 2 (sex) has two levels - male/female and between groups.

The time factor is repeated measures.

We can also consider the ratings on the dependent variables as a function of sex (M, F) and sport category (six cells). This will be done by means of a 6x2 ANOVA for each of the six ratings.

It is not possible to control for sport and sex simultaneously because the cell sizes become too small.

Each dependent variable is analysed first by sport and time and then by sex and time.

Because of the number of dependent variables involved, there is a risk of making Type 1 errors if univariate statistics are used exclusively. It was, therefore, decided to conduct an overall multivariate ANOVA with sex, time, and dimension as the factors. After that, analysis would proceed at a univariate level for each dimension.

Statistically significant results are shown in all tables with an asterisk. The significant results are all rounded up to .001, .01, or .05 in the tables.

Effect	df Effect	MS Effect	df Error	MS Error	F	p-level
sex	1	9.15	101	13.06	.70	.40
time	2	18.35	202	2.24	8.17	< .001*
dimens	5	131.82	505	1.85	71.37	< .001*
sex/time	2	6.57	202	2.24	2.93	.06
sex/ dimens	5	2.60	505	1.85	1.41	.22
time/ dimens	10	2.86	1010	.42	6.86	< .001*
sex/ dimens	10	1.07	1010	.42	2.57	< .01*

Table 1-8: General MANOVA: sex, time, and dimension

As can be seen from Table 1-8, there is a significant overall time effect, and a significant effect due to the dimension. There is also a significant interaction between time and dimension, and there is a significant three-way

interaction between sex, time, and dimension. This means that the motivational measures behave differently before, during, and after. The different components of motivation vary from one another and behave differently across time. Finally, men and women behave differently across time for the different sub-components of motivation.

It was felt that given the high levels of statistical significance, analysis could proceed to the univariate tests.

Similarly, the general MANOVA was conducted for sport, time, and dimension.

Effect	df Effect	MS Effect	df Error	MS Error	F	p-level
sport	5	62.96	99	10.51	5.99	< .001*
time	2	9.13	198	2.10	4.35	< .01*
dimens	5	147.53	495	1.64	90.00	< .001*
sport/ time	10	5.82	198	2.10	2.77	< .001*
sport/ dimens	25	7.21	495	1.64	4.40	< .001*
time/ dimens	10	2.04	990	.40	5.03	< .001*
sport/ time/ /dimens	50	.73	990	.40	1.80	< .001*

Table 1-9: General MANOVA: sport, time, and dimension

As can be seen from Table 1-9, all main effects and interactions were significant. Caution should, however, be exercised because of the small numbers in each sport category. Nevertheless, it was felt to be worthwhile proceeding with the univariate analysis.

Firstly, each dimension in turn, beginning with “buzz”, was analysed by sport and time, and then sex and time.

UNIVARIATE ANALYSIS

All F ratios for repeated measures are adjusted using the Greenhouse-Geisser correction factor.

11.7.1. Spiritual well-being (“Buzz”)

Univariate analysis was carried out with regard to the dimension of spiritual well-being.

First, the mean scores before, during, and after (averaged over the two sexes) were obtained for the six sports. These are shown in Table 1-10.

Sport	Before (B)	During (D)	After (A)	Overall BDA Mean for Each Sport
Tennis	2.95	2.79	2.89	2.88
Running	3.30	3.55	4.25	3.70
Kempo	2.80	3.47	3.80	3.36
Hockey	3.38	2.77	3.73	3.29
Squash	3.07	3.29	3.29	3.22
Football	3.27	3.18	3.36	3.27
Mean Over All Sports	3.13	3.18	3.55	

Table 1-10: Means: “Buzz”

An ANOVA was then carried out with regard to “buzz” as a function of sport and time. Table 1-11 shows the results.

Effect	df Effect	MS Effect	df Error	MS Error	F	p-level
Sport	5	4.05	99	2.99	1.36	.25
Time	1.58	5.30	156.9	.78	6.79	.0015
Interact	7.9	1.66	156.9	.78	2.13	.036

Table 1-11: Summary of All Effects: “Buzz” as a Function of Sport and Time

“Buzz” by sport and time

As can be seen from table 1-11, there is no significant difference between sport categories on “buzz” ratings ($p=.25$).

The main effect for time with “buzz” as the dependent variable is significant. $F=6.79$ $df(1.58, 156.9)$ $p=.0015$. This shows that there is a significant difference between the before, during, and after ratings averaged over both sexes on the “buzz” dimension.

There is also a significant interaction between sport category and changes from before, during, to after averaged over both sexes. $F=2.13$ $df(7.9, 156.9)$ $p=.036$. This means that the ratings from different sports change in different ways over the three time points.

Post-hoc testing (Scheffé)

Post-hoc testing was carried out to establish how the ratings on “buzz” varied over the three time points, when scores were averaged over all sports and both sexes. No significant difference was found between before and during scores. There was, however, a significant difference between during and after scores, and before and after scores. This indicates that post-event scores on “buzz” rise to a higher level than the starting point. The mean before, during, and after scores in this respect are 3.13, 3.18, and 3.55.

Further post-hoc (Scheffé) testing was carried out to establish where the differences lay between the ways in which “buzz” profiles of the different sports changed over time.

Despite the significant ANOVA, none of the relevant comparisons was significant.

The mean scores for men and women before, during, and after were then obtained. The results are displayed in Table 1-12.

Time	Men	Women
Before	3.11	3.19
During	3.30	2.83
After	3.52	3.64

Table 1-12: Means: Men’s and Women’s Ratings on “Buzz” Before, During, and After

An ANOVA was then carried out with regard to “buzz” as a function of sex and time. The results are shown in Table 1-13.

Effect	df Effect	MS Effect	df Error	MS Error	F	p-level
Sex	1	.59	101	3.03	.20	.66
Time	1.59	7.69	161	.81	9.49	.0001
Interact	1.59	2.60	161	.81	3.21	.043*

Table 1-13: ANOVA Summary of All Effects: “Buzz” as a Function of Sex and Time

“Buzz” by sex and time

As can be seen from Table 1-13, there is no significant overall difference between men and women’s ratings on this dimension (p=.66).

There are, however, significant differences in the ways in which the ratings change over time when averaged over both sexes. F=9.49 df (1.59, 161) p=.0001.

There is a significant interaction between sex and time. $F=3.21$ df (1.59, 161) $p=.043$. This shows that the before, during, and after profile is different for the two sexes on “buzz”. Post-hoc testing was carried out to ascertain the nature of these differences.

Post-hoc testing (Scheffé)

Scheffé post-hoc tests revealed that there is no significant difference between men’s and women’s scores before, during, or after on “buzz”. (See Table 2-1 in Appendix 6)

There is a significant rise for women from during to after, suggesting that women feel more of a “buzz” after the event is over than they do at the actual point of participation. The mean during score for women on “buzz” is 2.83, rising to 3.64 after.

The graph (figure 1) below shows the way in which men’s and women’s scores on “buzz” change over time.

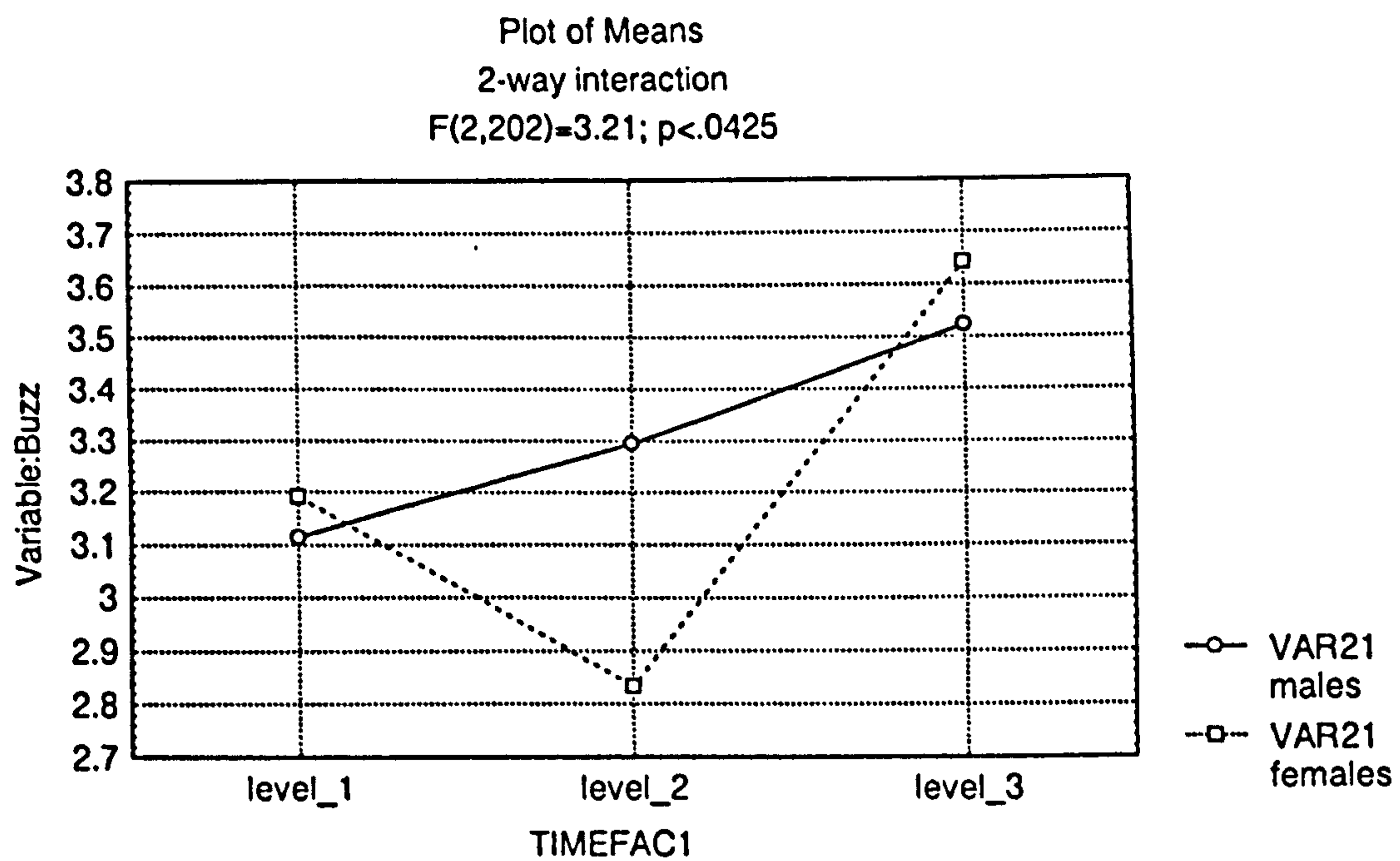


Figure 1 : 'Buzz' :men's and women's mean ratings before,during and after.

11.7.2. Self-efficacy

Univariate analysis was then carried out with regard to self-efficacy.

First, means for each of the six sports before, during, and after, were obtained. These are shown in Table 1-14.

Sport	Before (B)	During (D)	After (A)	Overall BDA Mean for Each Sport
Tennis	3.53	2.58	2.53	2.88
Running	2.70	3.45	3.60	3.25
Kempo	3.47	3.67	3.47	3.54
Hockey	3.42	2.85	3.73	3.33
Squash	3.21	3.36	3.36	3.31
Football	3.91	3.64	3.73	3.76
Mean Over All Sports	3.37	3.23	3.40	

Table 1-14: Means: Self-Efficacy

An ANOVA was then carried out with regard to self-efficacy as a function of sport and time. The results are shown in Table 1-15

Effect	df Effect	MS Effect	df Error	MS Error	F	p-level
Sport	5	3.96	99	2.87	1.38	.24
Time	2	.58	198	.70	.83	.44
Interact	9	3.02	179	.70	4.34	< .001*

Table 1-15: Summary of all effects: Self-efficacy as a function of Sport and Time

Self-efficacy by sport and time

Table 1-15 shows that there is no significant difference between the ratings supplied by different sport categories on self-efficacy (p=.25).

There are also no significant overall changes in rating-levels over time on self-efficacy (p=.44).

There is, however, a significant interaction between sport category and time $F=4.34$ df (9, 179) $p<.001$. This means that individual sport categories have a different before, during, and after profile on self-efficacy.

Post-hoc tests (Scheffé)

Post-hoc testing was carried out in an attempt to ascertain how the efficacy ratings on the six sport categories differed over time, but no relevant significant results were obtained.

Means were then obtained for men's and women's scores on self-efficacy before, during, and after. These are shown in Table 1-16.

Time	Men	Women
Before (B)	3.30	3.40
During (D)	3.44	2.83
After (A)	3.38	3.43

Table 1-16: Means: Men's and Women's Ratings on Efficacy before, During, and After

An ANOVA was then carried with regard to self-efficacy as a function of sex and time. The results are shown in Table 1-7.

Effect	df Effect	MS Effect	df Error	MS Error	F	p-level
Sex	1	1.66	101	2.96	.56	.46
Time	2	1.95	202	.79	2.48	.09
Interact	1.75	3.96	177	.79	5.04	.0075*

Table 1-17: Summary of All Effects: Self-efficacy as a Function of Sex and Time

Self-efficacy by sex and time

Table 1-17 shows that there is no overall significant difference between men and women on efficacy ratings ($p=.46$).

There are also no overall significant changes in efficacy ratings over time averaged over both sexes ($p=.09$)

There is, however, a significant interaction between sex and time $F=5.04$ df (1.75, 177) $p=.0075$. This means that the before, during, and after profiles of men and women are different on self-efficacy. Post-hoc (Scheffé) testing was then carried out to determine the precise nature of these differences.

Post-hoc testing (Scheffé)

The post-hoc testing showed that there was a significant difference between men's and women's during scores on efficacy ($p=.04$) (See table 2-2 in Appendix 6). Men's efficacy ratings remain relatively stable across time. Women's levels drop significantly during, from a mean of 3.40 to a during mean of 2.83, rising at the end to a mean of 3.43. This is in contrast to

men's before, during, and after means of 3.30, 3.44, and 3.38 respectively. The before and after levels are similar for both sexes.

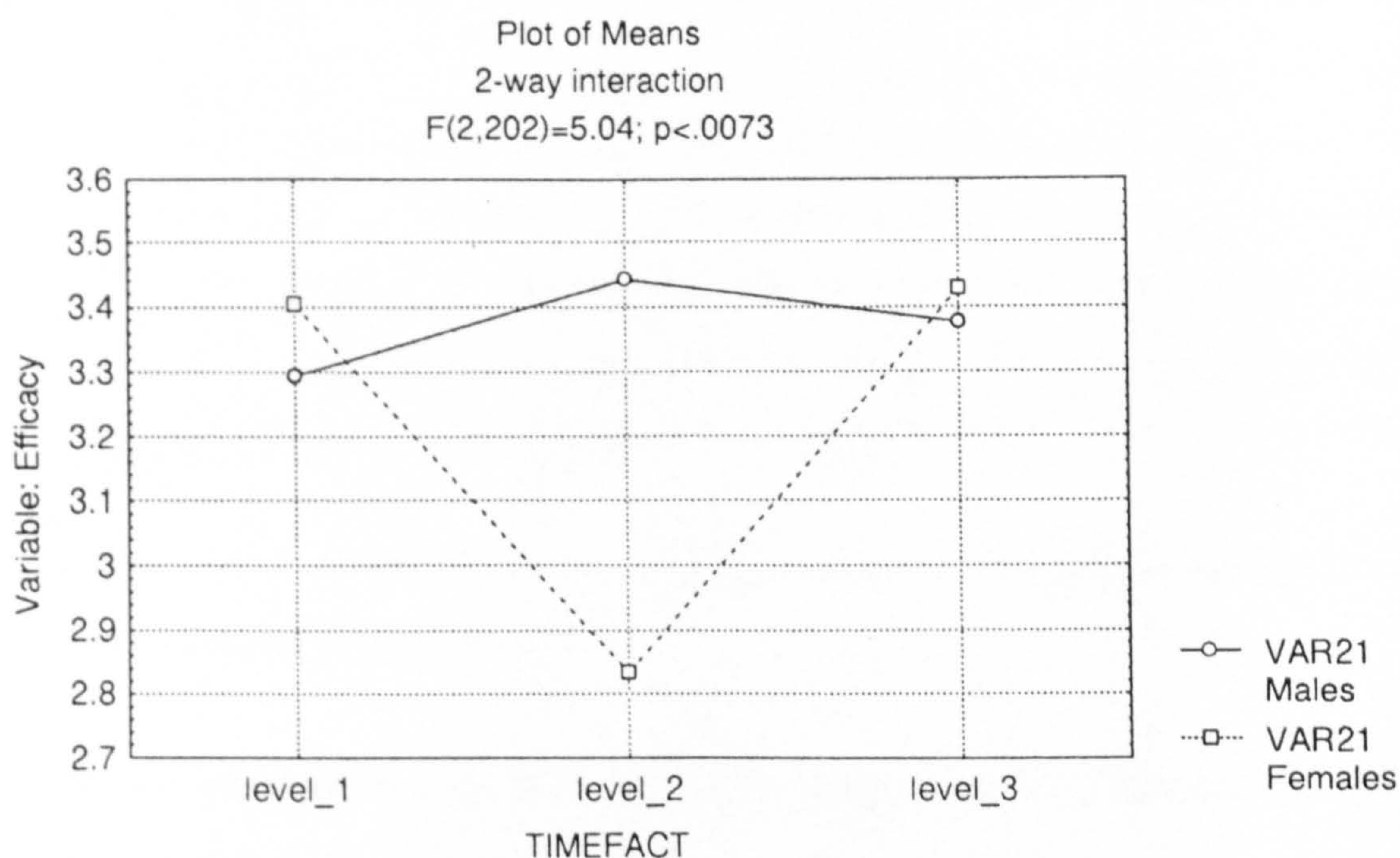


Figure 2 : Efficacy:men's and women's mean ratings before,during and after.

Figure 2 shows the ways in which men and women's efficacy scores change across time

11.7.3. Toughness

Univariate analysis was then carried out with regard to the toughness dimension.

The mean scores before, during, and after (averaged over the two sexes) were obtained for the six sports. These are shown in Table 1-18.

Sport	Before (B)	During (D)	After(A)	Overall BDA Mean for Each Sport
Tennis	.74	.95	.89	.86
Running	2.90	2.75	3.05	2.90
Kempo	1.20	1.20	1.60	1.33
Hockey	2.38	2.19	2.69	2.42
Squash	1.57	1.57	1.64	1.59
Football	2.91	2.73	2.91	2.85
Mean Over All Sports	1.95	1.89	2.13	

Table 1-18: Means: Toughness

An ANOVA was carried out with regard to toughness as a function of sport and time. Table 1-19 shows the results.

Effect	df Effect	MS Effect	df Error	MS Error	F	p-level
Sport	5	37.46	99	3.81	9.84	< .001*
Time	2	1.46	198	.63	2.33	.10
Interact	10	.27	198	.63	.43	.93

Table 1-19: Summary of All Effects: Toughness as a Function of Sport and Time

Toughness by sport and time

Table 1-19 shows that there was a significant difference between sport categories on the toughness dimension $F=9.84$ df (5, 99) $p<.001$. This means that the separate sport categories produced individual toughness ratings.

There were no significant changes over the three time points averaged over both sexes ($p=.10$).

There was also no significant interaction between sport category and time ($p=.93$). This means that the ratings from the different sports moved in a similar way across the three time points.

Post-hoc testing was then carried out to find out which sports produced significantly different toughness ratings from each other.

Post-hoc tests (Scheffé): Sport category and toughness ratings

(See Table 2-3 in Appendix 6)

Post-hoc testing showed that there is a significant difference in overall toughness ratings between categories 1 and 2 (tennis and running), 1 and 4 (tennis and hockey, and 1 and 6 (tennis and football). The mean overall toughness score for tennis was .86, while the means for running, hockey, and football were 2.9, 2.42, and 2.85 respectively. Running, hockey, and football did not differ significantly from each other on overall toughness scores.

There is also a significant difference between the toughness levels of sports 2 and 3 (running and shorinji kempo), with means of 2.9 and 1.33 respectively.

The highest overall toughness ratings came from the runners, with a mean of 2.9.

Means were then obtained of men's and women's scores before, during, and after on toughness. These are shown in Table 1-20.

Time	Men	Women
Before	1.95	2.07
During	1.84	2.07
After	2.11	2.31

Table 1-20: Means: Men's and Women's Ratings on Toughness Before, During, and After

An ANOVA was then carried out with regard to toughness as a function of sex and time. The results are shown in Table 1-21.

Effect	df Effect	MS Effect	df Error	MS Error	F	p-level
Sex	1	2.51	101	5.39	.47	.50
Time	2	1.83	202	.62	2.94	.06
Interact	2	.08	202	.62	.14	.87

Table 1-21: Summary of All Effects: Toughness as a Function of Sex and Time

Toughness by sex and time

Table 1-21 shows that there is no overall significant difference between men and women on toughness ratings ($p=.50$)

There were no significant changes in toughness ratings over time ($p=.06$), but it is worthy of note that this was marginal and the drop in toughness ratings during was very nearly significant.

The graph (figure 3) illustrates the ways in which the scores on the toughness dimension change over time for men and women.

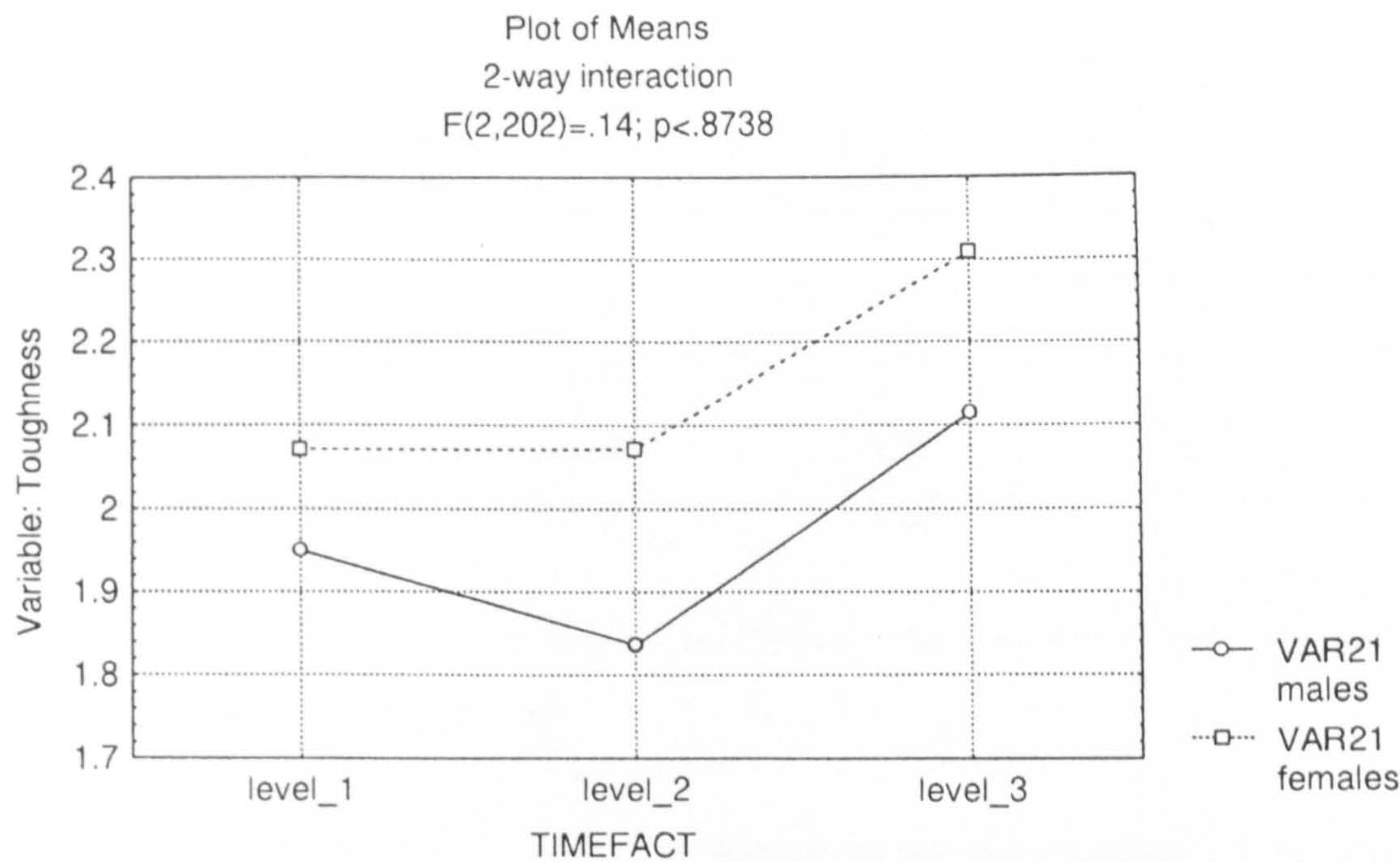


Figure 3 : Toughness:men's and women's mean ratings before,during and after.

11.7.4. Competition

Univariate analysis was then carried out with regard to the competition dimension.

First, means were obtained for the before, during, and after scores for each of the six sports. These are shown in Table 1-22.

Sport	Before (B)	During (D)	After (A)	Overall Mean for Each Sport
Tennis	4.00	3.32	3.16	2.44
Running	3.65	3.60	3.75	3.67
Kempo	3.93	3.93	4.27	4.04
Hockey	4.35	3.50	4.00	3.95
Squash	4.07	3.79	3.71	3.86
Football	4.73	4.36	4.36	4.48
Mean Over All Sports	4.12	3.75	3.88	

Table 1-22: Means: Competition

An ANOVA was then carried out with regard to competition as a function of sport and time. The results are shown in Table 1-23.

Effect	df Effect	MS Effect	df Error	MS Error	F	p-level
Sport	5	5.00	99	3.07	1.63	.16
Time	1.5	3.48	156	.65	5.36	.006*
Interact	10	1.10	198	.65	1.69	.08

Table 1-23: Summary of All Effects: Competition as a Function of Sport and Time

Competition by sport and time

As can be seen from Table 1-23, there was no overall difference between sport categories on competition ratings ($p=.16$)

There were, however, significant changes over the three time periods averaged over all sports and both sexes $F=5.36$ $df(1.5, 156)$ $p=.006$.

There was no significant interaction between sport category and time ($p=.08$). This means that individual sports did not differ significantly in the way in which their ratings changed over time. Once more, this finding needs to be treated with caution on account of the small cell sizes.

Post-hoc testing (Scheffé) was carried out to establish how the competition ratings supplied by the two sexes differ in the ways in which they change over time.

Post-hoc (Scheffé): Competition

Post-hoc testing showed that there is a significant drop in ratings on competition from before to during when averaged over both sexes, dropping from a mean before rating of 4.12 to a mean of 3.75 during and rising to a mean of 3.88 after. (See Table 2-4 in Appendix 6)

Mean scores were then obtained for men and women on competition before, during, and after. These are displayed in Table 1-24.

Time	Men	Women
Before	4.05	4.19
During	3.84	3.40
After	3.95	3.67

Table 1-24: Means: Men’s and Women’s Ratings on Competition Before, During, and After

An ANOVA was then carried out with regard to competition as a function of sex and time.

Effect	df Effect	MS Effect	df Error	MS Error	F	p-level
Sex	1	2.73	101	3.17	.86	.36
Time	1.6	6.33	161	.65	9.70	.0001*
Interact	1.6	2.20	161.8	.65	3.37	.036*

Table 1-25: Summary of All Effects: Competition as a Function of Sex and Time

Competition by sex and time

Table 1- 25 shows that there was no significant difference between men’s and women’s ratings on competition. There are, however, significant changes in the ratings from before, during, to after averaged over both sexes. $F= 9.70$ $df (1.6, 161)$ $p<.0001$.

There is also a significant interaction between sex and time. $F= 3.37$ $df (1.6, 161.8)$ $p= .036$.

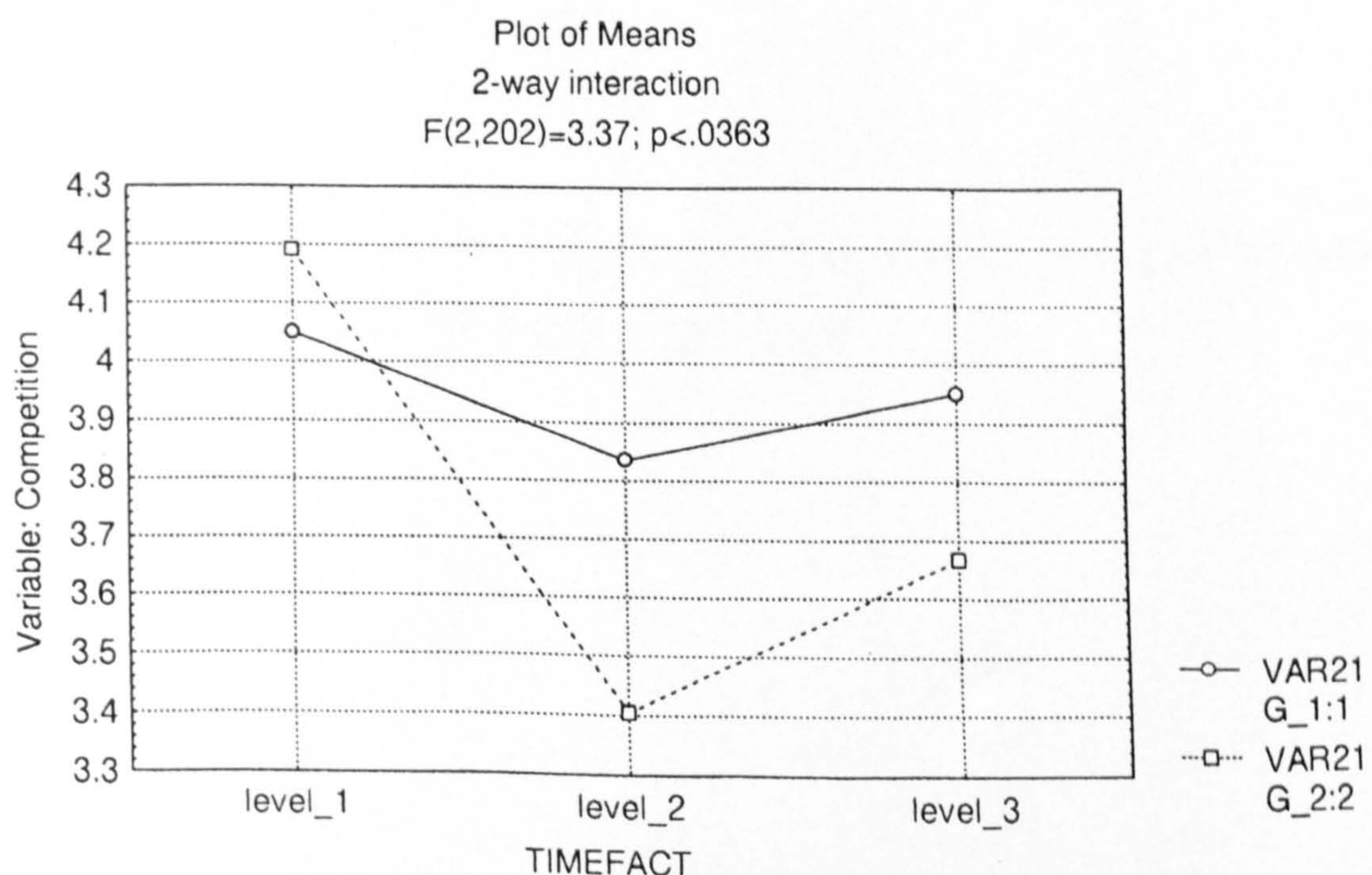
Post-hoc testing (Scheffé)

Post-testing was then carried out to establish the ways in which men's and women's ratings on competition differed over time. The results are shown in table 2-5 in Appendix 6.

Post-hoc testing also showed that men's and women's competition ratings are similar before and after an event, but women drop to a lower level during. Men's ratings do not drop significantly during. Women drop from an outset mean of 4.19 to a during mean of 3.40, rising to 3.67 after. Men, on the other hand, do not drop so far during, going from an outset mean of 4.05 via 3.84 to an after mean of 3.95. There is no significant difference between before or after scores for either men or women.

The graph below (figure 4) shows the ways in which the scores on competition change over time for men and women.

Figure 4 : Competition: men's and women's mean ratings before, during and after.



11.7.5. Social bonding

Univariate analysis was carried out with regard to the dimension of social bonding.

Means were obtained of the before, during, and after scores for each of the six sports (averaged over both sexes). These are shown in Table 1-26.

Sport	Before (B)	During (D)	After(A)4.16	Overall BDA Mean for Each Sport
Tennis	3.16	2.21	2.05	2.47
Running	4.45	4.15	4.40	4.33
Kempo	4.27	4.20	4.40	4.29
Hockey	4.38	3.96	4.15	4.16
Squash	4.00	3.64	3.86	3.83
Football	4.55	4.55	4.45	4.51
Mean Over All Sports	4.13	3.79	3.89	

Table 1-26: Means: Social Bonding

An ANOVA was then carried out with regard to social bonding as a function of sport and time. Table 1-26 shows the results.

Effect	df Effect	MS Effect	df Error	MS Error	F	p-level
Sport	5	30.45	99	2.76	11.04	< .001*
Time	1.8	3.14	180	.50	6.31	.002*
Interact	9.1	.98	180.6	.50	1.96	.046*

Table 1-27: Summary of All Effects: Social Bonding as a Function of Sport and Time

Social bonding by sport and time

Table 1-27 shows that there was a significant difference between sport categories on the social dimension. $F=11.04$ $df(5,99)$ $p<.001$.

The second main effect was that there were significant changes over time, averaged over all sports and both sexes. $F=6.31$ $df(1.8, 180)$ $p=.002$

There is also a significant interaction between sport category and time $F=1.96$ $df(9.1, 180.6)$ $p=.046$. This means that the before, during, and after profiles are different for individual sports.

Post-hoc testing (Scheffé)

Post-hoc testing was carried out with regard to the ratings produced by the different sports at different time points on the social dimension. The significant findings all involve tennis in one way or another.

The before ratings of the tennis players are significantly lower than either running ($p=.02$) or hockey ($p=.02$). The mean before rating for tennis on the social dimension is 3.16, and the means for running and hockey are 4.45

and 4.38 respectively. There are no significant differences between any of the other sports before.

During an actual event, the ratings supplied by tennis players are significantly lower than those of the participants in running ($p<.01$) shorinji kempo ($p<.01$), or hockey ($p<.01$). The mean during rating for tennis is 2.21, and the means for running, shorinji kempo, and hockey are 4.15, 4.20, and 3.96 respectively.

After the event, ratings on the social dimension are significantly lower for tennis players than those for any other sport. There is no significant difference between the after scores of any of the other five sports. The mean after score for tennis is 2.05. The mean after scores for the other five sports are shown below. The probability levels for the differences between the tennis after scores and the after scores for the other five sports are in brackets:

- running : mean after score=4.40 ($p=.03$)
- shorinji kempo : mean after score=4.40 ($p<.01$)
- hockey : mean after score=4.15 ($p<.01$)
- squash : mean after score=3.86 ($p<.01$)
- football : mean after score=4.45 ($p<.01$)

Figure 5 illustrates the differences between the ratings of the tennis players across the three time points on social bonding and the ratings of the other five sports.

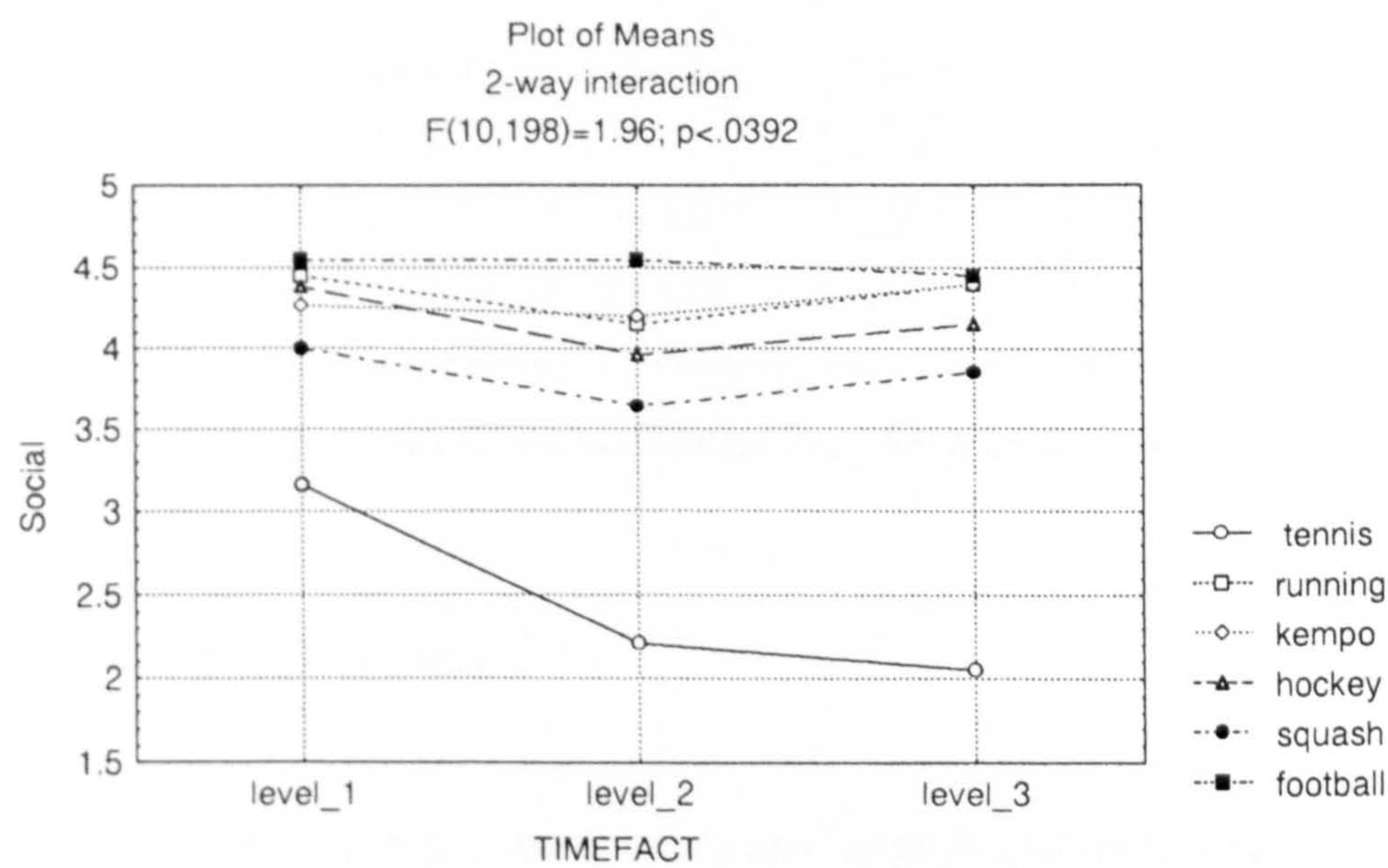


Figure 5 : Social Bonding:mean before, during and after scores for each sport.

Means were then obtained of men’s and women’s scores on social bonding before, during, and after. These are shown in Table 1-28.

Time	Men	Women
Before	4.21	4.05
During	3.90	3.52
After	3.93	3.76

Table 1-28: Means: Men’s and Women’s Ratings on Social Before, During, and After

An ANOVA was then carried out with regard to social bonding as a function of sex and time. The results are shown in Table 1-29.

Effect	df Effect	MS Effect	df Error	MS Error	F	p-level
Sex	1	4.25	101	3.89	1.09	.30
Time	1.77	4.52	179.6	.53	8.50	.0003*
Interact	2	.36	202	.53	.68	.51

Table 1-29: Summary of All Effects: Social Bonding as a Function of Sex and Time

Social bonding by sex and time

Table 1-29 shows that there were no overall significant differences between men and women on social bonding ($P=.30$).

There were significant changes from before, during, to after averaged over both sexes. $F=8.50$ $df(1.77, 179.6)$ $p=.0003$.

There was no significant interaction between sex and time ($p=.51$) This means that the changes in ratings over the three time points do not differ for men and women.

Post-hoc testing (Scheffé) was then carried out to establish where the differences between before, during, and after scores lay on the dimension of social bonding.

Post-hoc tests (Scheffé)

The Scheffé post-hoc testing showed that the main effect for all subjects over the three time points on social bonding was that there was a significant

difference between before and during scores, and before and after scores (See Table 2-6 in Appendix 6). There was no significant difference between during and after scores. This means that, for all subjects, levels drop significantly from before to during and do not recover to original levels after.

The graph (figure 6) illustrates the way in which ratings on the social dimension change over time. It should be noted, however, that the differences between men and women are not statistically significant.

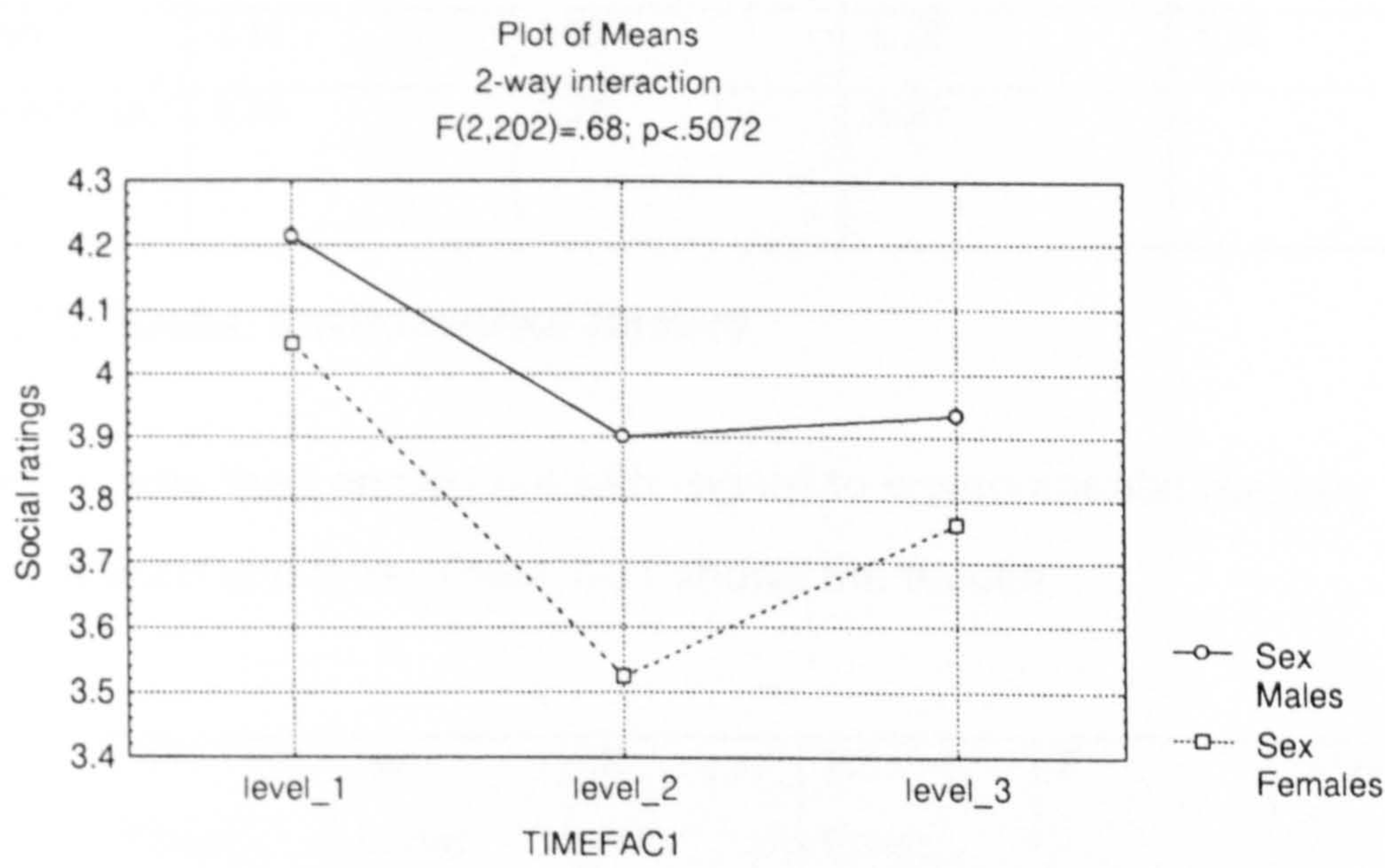


Figure 6 : Social Bonding:men's and women's mean ratings before,during and after.

11.7.6. Environmental mastery

Finally, univariate analysis was carried out with regard to the dimension of environmental mastery.

Means scores were obtained for before, during, and after, for each of the six sports on environmental mastery. Table 1-30 shows these.

Sport	Before (B)	During (D)	After (A)	Overall BDA Mean for Each Sport
Tennis	3.37	1.95	2.32	2.55
Running	4.15	3.55	4.25	3.98
Kempo	3.60	4.00	4.13	3.91
Hockey	3.73	2.81	3.15	3.23
Squash	3.21	3.36	3.29	3.29
Football	4.18	3.82	4.18	4.06
Mean Over All Sports	3.70	3.25	3.55	

Table 1-30: Means: Environmental Mastery

An ANOVA was then carried out with regard to environmental mastery as a function of sport and time. Table 1-31 shows the results.

Effect	df Effect	MS Effect	df Error	MS Error	F	p-level
Sport	5	18.12	99	3.21	5.65	< .01*
Time	1.6	5.35	159	.87	6.15	.0027*
Interact	8	2.44	159.5	.87	2.80	.0062*

Table 1-31: Summary of All Effects: Environmental Mastery as a Function of Sport and Time

Environmental mastery by sport and time

There was a significant difference between the ratings of individual sport categories on the environmental mastery dimension. $F=5.65$ df (5, 99) $p<.01$.

There was also a significant main effect with regard to time. $F=6.15$ df (1.6, 159) $p=.0027$.

There was also a significant interaction between sport category and time. $F=2.80$ df (8, 159.5) $p=.0062$. This indicates that there was a difference between the way in which ratings over the three time points changed for each of the sport categories.

Post-hoc testing (Scheffé)

Firstly, post-hoc testing was carried out to establish where the overall changes in scores lay over time when averaged over all subjects (See table 2-7 in Appendix 6). There was a significant overall drop in environmental mastery scores from before to during, with levels not recovering to their original height after.

Secondly, post-hoc testing was carried out to establish where the differences between sport categories over time lay on the environmental dimension. As with the social dimension, all of the interesting results were connected with tennis. The only significant results which were considered meaningful in this respect were as follows:

The runners' scores during and after were significantly lower on environmental mastery than the tennis players during and after scores (in both cases, $p<.001$). There was, however, no significant difference between tennis players' and runners' scores before an event.

The tennis players' scores during and after were significantly lower on environmental mastery than the during and after scores of the participants in shorinji kempo ($p<.01$; $p=.02$ respectively).

Means were then obtained of men's and women's before, during, and after scores on environmental mastery. The results are shown in Table 1-32.

Time	Men	Women
Before	3.70	3.71
During	3.34	2.79
After	3.69	3.12

Table 1-32: Means: Men's and Women's Ratings on Environmental Mastery Before, During and After

Next, an ANOVA was carried out with regard to the interaction between sex and time on environmental mastery. The results are shown in Table 1-33.

Effect	df Effect	MS Effect	df Error	MS Error	F	p-level
Sex	1	10.38	101	3.87	2.68	.10
Time	1.59	10.34	161.2	.93	11.17	.0001*
Interact	2	2.73	202	.93	2.95	.06

Table 1-33: Summary of All Effects: Environmental Mastery as a Function of Sex and Time

Environmental mastery by sex and time

There was no significant difference between the ratings supplied by the two sexes on the environmental dimension. ($p=.10$)

There were, however, significant changes over the three time points in the ratings averaged over the two sexes $F=11.17$ $df(1.59, 161.2)$ $p=.0001$.

There was no significant interaction between sex and time ($p=.06$). This indicates that there were no significant differences in the way the ratings of men and women changed over the three time points. However this was a marginal effect and just missed being significant

Post-hoc testing was carried out to obtain more information about the changes in ratings on environmental mastery over time.

Post-hoc tests (Scheffé)

The results of post-hoc (Scheffé) testing showed that for all subjects there is a significant drop in ratings on the environmental dimension during an event. This recovers to the original level at the end.

The graph (figure 7) illustrates the ways in which the scores on environmental mastery vary over time for men and women.

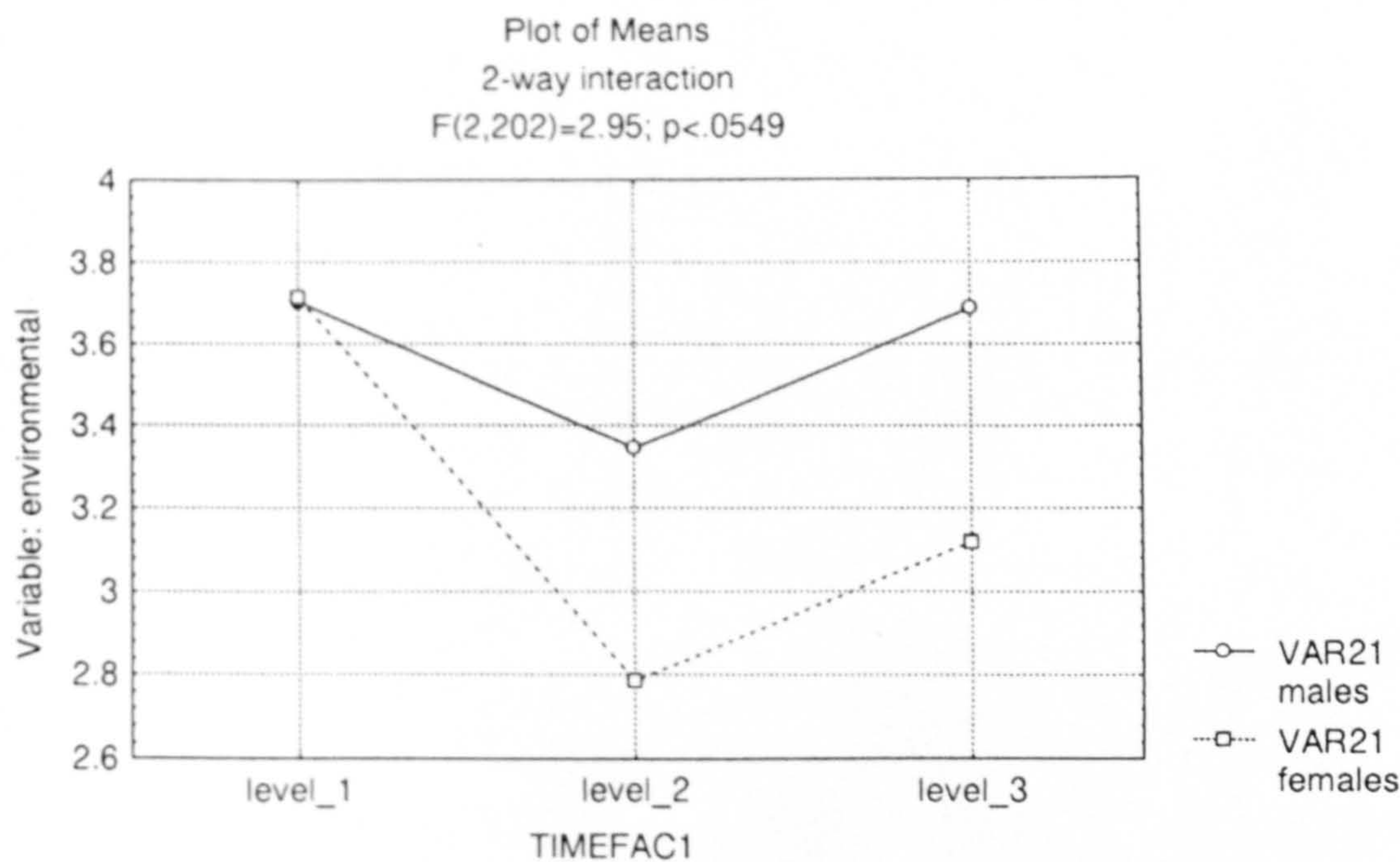


Figure 7 : Environmental :men's and women's mean ratings before,during and after.

11.7.7. Summary of results

The Table 1-34 presents the most important results in summary form. Significant results are marked "S". All other results were not significant.

Dimension	Time	Sex	Time/Sex	Sport	Time/ Sport
"Buzz"	S		S		S
Efficacy			S		S
Toughness				S	
Competition	S		S		
Social B.	S			S	S
Environ. M.	S			S	S

Table 1-34: Univariate F: Summary of All Results

As can be seen from the summary Table 1-34, most of the significant results were all with regard to the way in which the scores on the dimensions changed over time. Sport alone had some overall influence over the ratings on three of the dimensions, while sex alone had no overall influence on any of the dimensions. On three of the dimensions there was a significant interaction between time and sex and there were four significant interactions between sport and time.

11.7.8. Summary of results: general observations

The following initial observations were made from the general MANOVA:

- (1) The six dimensions were found to be independent of each other and moving in different ways across time. The effects of time and sex on the dimension-ratings were found to be highly significant.
- (2) There was an interaction between sex and dimension-ratings. The profile of motivations was generally different for men and women.
- (3) There was an interaction between dimension-ratings and time. Overall, there were significant differences between the before, during, and after profiles for the dimensions.
- (4) There was a three-way interaction among sex, dimension-ratings, and time. The profiles of the dimensions move from before, during, to after in different ways. The way in which they move across time is also different for men and women.

This initial summary of all effects tells us straight away that the research was worthwhile in that the six dimensions do in fact function independently of each other. It is also clear that people feel differently about sport participation before, during, and after participation in an event. The research also shows that women's intrinsic motivation works in different ways from men's.

11.7.9. Specific findings: gender differences

This section presents a summary of the main findings of the in-situ study with regard to gender differences. The implications of these findings will be discussed in more detail in Chapter 13.

The graph (figure 8) illustrates the profiles over time of the six dimensions for men and women.

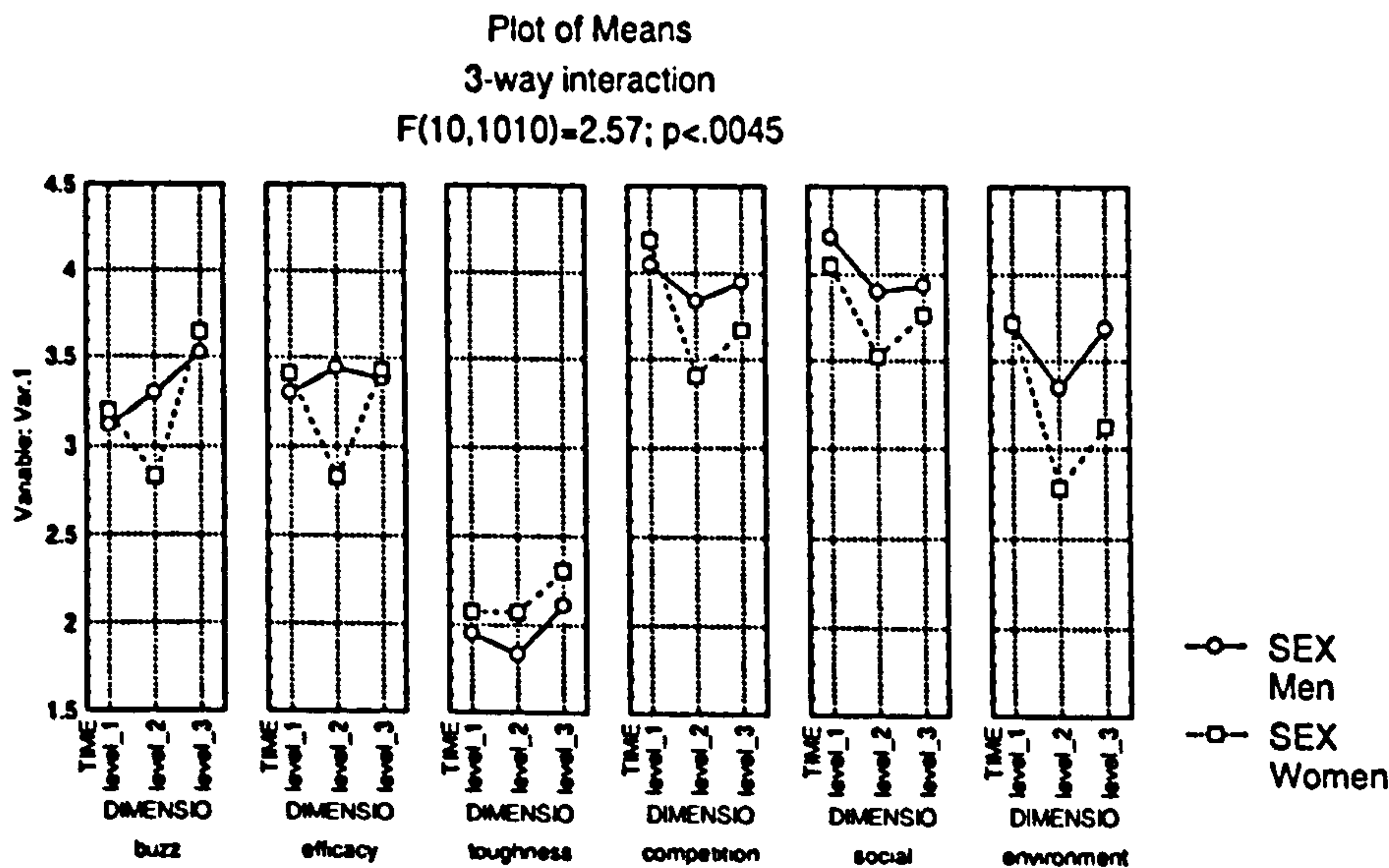


Figure 8 : Six Dimensions:men's and women's mean ratings before,during and after.

The graph shows clearly that the dimensions of social bonding and competition are more popular than any other dimension. The lowered during scores on these dimensions are still at least as high, in most cases, as the highest points on the other dimensions. The graph also illustrates how much lower the toughness ratings are than any of the other six dimensions.

The rest of this chapter will summarise the main findings with regard to each of the six individual dimensions.

(1) Spiritual well-being (“buzz”)

The main finding with regard to spiritual well-being, or what athletes describe as a “buzz” lies in the differences between the two sexes. The “buzz” factor seems to be common to all sports, even ones which are qualitatively quite different, like shorinji kempo, which is skill based, and distance running, which is essentially an endurance event. While men’s “feel-good factor” remains fairly stable before, during, and after an event, women feel more of a “buzz” after the event is finished. There is no clear reason why post-competition “buzz” feelings should be more pronounced for women than for men.

Although there is no satisfactory explanation for this phenomenon, it may go part of the way to explain why women take part in sport in the first place, when they seem to find some aspects of the experience less agreeable at the point of participation. They may consider that it is worth it for the sake of the good feelings that come when it is all over.

The major difficulty with this dimension is that there is no certainty about what exactly it is that sportspeople mean by “getting a buzz”. Part of the problem lies in the fact that this dimension is hard to quantify. It was suggested initially that the spiritual dimension might simply be a collective way of describing the other five dimensions. The fact that the statistical analysis shows that the spiritual dimension behaves differently from the other dimensions confirms that it does, in fact, have an independent “life” of its own. The question in the in-situ questionnaire which represents this dimension was “Right now I am getting a ‘big buzz out of taking part in my sport”. In the original factor analysis, this item was shown to be the individual item which expressed most clearly what athletes felt about sport participation. Yet it remains unclear what they meant by this. The other items in this category in the 72-item parent were equally esoteric, referring to feeling “amazing” or “happy”, or “getting a ‘buzz””.

(2) Self-efficacy

The research shows that, overall, men and women experience similar amounts of self-efficacy during sport. The most interesting finding on this dimension is that women’s experience of efficacy drops when they are actually taking part in an event, while men’s remains relatively stable. This suggests that something is happening during an event that rocks women’s feelings of self-confidence. While some possible explanations for this are suggested in Chapter 12, it is, in general, an area which needs further research.

There were also indications that different sport-groups differ in the way in which their feelings of efficacy change from before, during, to after an event. Unfortunately it was not possible to obtain more precise information about

this on account of the small numbers in the sport-groups. It may be that some sports provide more scope for experiencing feedback on self-efficacy at the point of participation, but further research would be needed to confirm this.

(3) Toughness

There were no differences between the sexes with regard to enjoyment of feelings of toughness. On the basis of traditional sex-typing, the idea of toughness might have been linked with aggression, and might have been expected to be more intrinsically motivating to men than to women. In this research, however, athletic toughness has been identified as being primarily concerned with endurance. This is borne out by the fact that the highest overall toughness scores came from distance running, which is the only true endurance sport represented.

Toughness ratings did not change significantly over time for either sex. This suggests that a person's perception of him or herself as tough is affected only slightly - if at all - by what happens in a particular event. There are two possible explanations for this. One is that the tendency to view oneself as tough is an in-born trait of character. The other is that an individual's perception of him or herself as tough depends more on the image which comes from being known as, say, a marathon runner or a climber, than on anything that happens during sport participation.

(4) Competition

The results of this study show that there is no difference in the extent to which participants in different sports enjoy the act of competing. This leads

us to believe that enjoyment of competition is a common thread that runs through all sport participation. This lends weight to the idea that sport competitiveness is a trait of personality.

It is interesting to note that women's enjoyment of competition drops at the actual time of participation, unlike that of their male counterparts, whose levels of competition enjoyment remain fairly consistent. The drop in women's scores on competition and efficacy at the point of participation may be caused by a similar mechanism. Women may simply be less adept than men at extracting positive informational feedback about their own sporting abilities from the way in which a competitive situation develops. Women may be more easily disheartened by, say, playing a bad shot, or by failing to gain control of the ball at a crucial point.

(5) Social bonding

For all subjects, enjoyment of social bonding dropped during the event and did not recover to original levels at the end. This was the same for men and women. There may be practical explanations for this. It may be to do with the fact that it is difficult to be sociable in the normal ways during strenuous exercise. For example, there is less scope for smiling, or for laughing at one another's jokes. In addition, competition causes people to view individuals whom they would normally regard as friends as adversaries.

Perhaps the most curious finding in the social bonding dimension is with regard to the differences between sports. The research has shown that tennis players experience far less social bonding than any of the other sports, particularly at the end of an event. There are no obvious reasons

why this should be the case. the most likely explanation is that this was an artefact of the test situation.

The precise nature of this is difficult to pin down. The subjects came from several clubs and both sexes were represented. Data collection was carried out over three separate occasions and there were no obvious situation-specific circumstances, such as feuds or bickering, to explain why the participants were not gaining a great deal of satisfaction from taking part in their sport together. The possibility of the lack of sociability being caused by the face-to-face confrontation element in the sport is ruled out by the fact that the social bonding scores on squash and shorinji kempo did not suffer in this way. The only possible explanation which springs to mind is that the matches were played under unusually stressful circumstances in that they formed part of a tournament which was crammed into one weekend. This meant that the unseeded players would have the stress of playing against a seeded player in the earlier rounds. The players who got through to the later rounds would have to cope with the stress and fatigue of playing in two or more matches over a short time period. This type of arrangement did not apply in the case of any of the other sports which were represented in the study. To throw any light on this mystery, it would be necessary to conduct a second study with another set of tennis players to see if similar results were obtained.

(6) Environmental mastery

The research shows that a sense of being in control of one's environment drops during the actual event for both sexes, but returns to its original level at the end. This may be partly to do with the fact that certain undesirable features of the environment, such as excessive heat, are likely to be

exacerbated when one is engaged in strenuous exercise. There was no significance difference between the extent to which the scores of the two sexes dropped at the actual point on this dimension. It should be noted, however, that women scored lower than men to a point which just missed being significant. It may be, that for women, the drop in enthusiasm on this dimension during the actual event is made worse by the fact that their efficacy and enjoyment of competition are also low, and these may contribute indirectly to their feeling that they are not fully in control of their environment.

11.7.10. Specific findings: sport categories

The research showed that there are some differences between the ways in which participants in different sports rate the six dimensions. The most interesting significant results are produced in the dimensions of toughness and social bonding.

On the toughness dimension, the highest ratings were produced by the runners. This is hardly surprising, as distance running was the only endurance sport studied, and it would seem likely that this sport would attract people who gained satisfaction from feeling "tough". The lowest toughness ratings came from tennis. There is no obvious reason for this.

On the social dimension, the lowest ratings at all three time points came from the tennis players. One possible reason for this may lie in the face-to-face nature of the sport. The only other sport which involved this was shorinji kempo, which may not have suffered in this way because of the pacifist philosophy of the sport. In the case of squash, the only other racquet sport, the fact that the ball is aimed at the wall rather than directly

at the opponent might help to diffuse feelings of hostility. For the tennis players, the level of social tension may have been increased by the fact that the matches formed part of an inter-club tournament concentrated into one weekend, with some players playing more than one match, and unseeded players competing against seeded players in some cases.

It was decided not to carry out a comparison between team and individual sports because shorinji kempo and tennis could not be allocated readily into one of these categories. The shorinji kempo players competed as teams but fought their matches individually, and some of the tennis took the form of doubles matches.

11.7.11. Conclusions

The in-situ study has produced several interesting findings. The main ones are concerned with the differences between the motivational profiles of men and women. Women's levels of enjoyment of self-efficacy, competition, social bonding, and environmental mastery all drop at the point of participation. This is in contrast to men, whose feelings of efficacy and enjoyment of competition do not drop significantly during an event. Strangely enough, however, women experience a heightened level of spiritual well-being, or "buzz" after an event is over which is not enjoyed to nearly the same extent by men. This suggests that women may take part in sport primarily for the way it makes them feel when they stop.

We may well be inclined at this stage to ask what it is that people get out of sport, given that some of the key dimensions of primary intrinsic motivation are not viewed very positively at the time of participation.

Table 1-35 shows the overall mean score for each dimension, in order of “popularity”.

Social bonding	3.93
Competition	3.92
Environmental mastery	3.5
Self-efficacy	3.33
Spiritual well-being	3.29
Toughness	2.06

Table 1-35: Overall Mean Ratings for Each Dimension

As can be seen from Table 1-35, the dimensions which score highest overall are social bonding and competition, with the lowest being toughness. It seems as if sportspeople like most of all the interaction with their fellow athletes, irrespective of whether they are a team mate or an opponent. The implications of these findings will be discussed in more detail in Chapter 13.

The next chapter describes some ways in which the findings of this study could be put into practice in real-life sporting situations.

CHAPTER 12

IMPLICATIONS FOR FUTURE RESEARCH AND PRACTICE

The research which has been described in this thesis has important implications for future research and practice. This chapter will look, firstly, at some of the implications of the new way of measuring intrinsic motivation in sport for coaching practices. Some suggestions will be made as to how coaches can enhance the primary intrinsic motivation of their athletes.

Recommendations will then be made on the basis of the in-situ study as to the best time to ask sportspeople questions about their primary intrinsic motivation, depending on the aspects of their motivation that are being measured.

Finally, some of the implications of the present research for ongoing work in sport psychology will be discussed. The contribution that the knowledge-base which the present research has provided can make to other areas of concern will be examined.

12.1. IMPLICATIONS OF THE RESEARCH FOR COACHING PRACTICES

12.1.1. Implications of the new definition of intrinsic motivation

There are various ways in which the research in this thesis points to possible improvements in coaching practice. Firstly, coaches need to be aware of the

difference between primary intrinsic, secondary intrinsic, and extrinsic motivation. We have seen that emphasis on extrinsic rewards is likely to have a negative effect on intrinsic motivation (Deci, 1971; Lepper, Greene, and Nisbett, 1973). Coaches who refer constantly to medals and prizes are liable to undermine the intrinsic motivation of their athletes.

The difficulty with extrinsic motivation is that it comes in many disguises. Often, what appears to be intrinsic motivation is actually extrinsic. For example, during a particularly arduous training session when an athlete's spirits appear low, a coach might say something like, "Don't worry, this will soon be over and you will be in the bar with your friends". On the surface, this looks like a harmless reference to the pleasures of secondary intrinsic motivation. In fact, it reinforces the idea that the act of participation in the sport is not meant to be pleasurable in its own right. It also turns the content of an athlete's secondary intrinsic motivation into an alternative form of extrinsic reward, so that the locus of control of the athlete's behaviour lies in his or her secondary rather than primary intrinsic motivation.

This type of process is damaging even where it is the athlete who sets up the "reward" of the drink in the bar. This is what Vallerand and Bissonnette (1992) call "introjected regulation" (See Section 2.5.2.). In this type of scenario, the athlete's behaviour is not really self-determined, although the locus of control may appear internal. This causes a blurring of the boundary between secondary intrinsic and extrinsic motivation.

Quite simply, coaches need to place emphasis on enhancing the primary intrinsic motivation of their athletes, by making sure that athletes are as happy as possible when they are actually taking part in their sport.

12.1.2. The implications for coaching practices of the new way of measuring primary intrinsic motivation.

The diagnostic IIMS provides an effective, user-friendly means of obtaining an individual motivational profile for individual athletes. Without such a measure, coaches would have to rely on their own subjective judgements. These would not necessarily be accurate.

In the course of the research, one coach remarked, "I don't need a questionnaire. I already know what motivates all my lads". The problem with this type of stance is that coaches are more likely to be aware of the type of extrinsic motive which is most attractive to the athlete. It is possible to make inferences about the content of an individual's extrinsic motivation from simple observation of his or her behaviour, unlike intrinsic motivation, which is part of the private mental life of the individual. Inferences from behaviour are not really reliable, however, as interpretation of behaviour depends on its context and the intention behind it (See Sections 2.4.1. and 2.4.2.). A coach's presumptions about what motivates people may be based on very superficial impressions. The IIMS provides a systematised way of looking at something which is normally presumed to be a matter of common sense.

12.1.3. Implications of the multi-dimensional nature of primary intrinsic motivation for training programmes

In the qualitative stage of the research, six key dimensions of primary intrinsic motivation in sport were identified, namely, spiritual well-being, self-efficacy, toughness, competition, social bonding, and environmental mastery. The in-situ study confirmed that these were independent dimensions. Each of these has implications for the ways in which training programmes should be

planned. In addition, the in-situ research identifies some key differences between the intrinsic motivation of men and women. Some suggestions as to how the theory could be put into practice are as follows:

(1) Spiritual well-being

It has not been possible to quantify this dimension as no one is really sure what athletes mean by “getting a ‘buzz’”. What is clear, however, is that *they* seem to know what they mean. We also now know that this dimension is independent of the other five, so it cannot be viewed as a collective term for the other five dimensions. The fact that women experience an increase in “buzz” immediately after an event could, however, be useful. This might be a good time to plan new training or competition schedules with female athletes, when they are feeling on top of the world.

(2) Self-efficacy

The research has shown that competitive sportspeople experience a sense of well-being when they feel that they are using their abilities to the full, and when they sense that they are mastering particular skills. To maximise this, training programmes should involve goal-setting and include an element of challenge. The goals should be realistic, but hard enough to provide a sense of achievement when they are attained. The emphasis should be on aiming for measurable targets, such as a particular time for a distance, or attainment of a particular skill. Progress can be charted with reference to specific criteria which the athlete strives to meet. Most importantly, the athlete should have a major say in deciding what the goals and criteria are to be. This ensures that the locus of control remains with the athlete rather than with the coach or with the goals themselves. A possible exception to this might be in the case of

people with very high self-esteem. Baumeister, Heatherton, and Tice (1993) found that individuals with high self-esteem were more prone to fall short of self-set criteria. They argued that such people were in danger of setting themselves up to fail. Coaches might need to take a more dominant part in the goal-setting process with such individuals.

(3) Toughness

Sportspeople appear to derive pleasure from the feeling of “toughness” that comes from overcoming pain or fear. This is distinct from the idea of masochism, which implies that the pain itself is enjoyable.

The need to feel tough can be incorporated into training programmes. There are risks, however, in encouraging the need to feel tough. Some individuals may take it to extremes and persist with punishing training regimes even when injured, with disastrous consequences. There are ways in which sportspeople can be made to feel that they are being tough without negative effects. For example, some distance runners speak of enjoying running in adverse weather conditions. So long as there is no actual danger involved, a coach can praise runners who turn up for training in wet weather for their toughness. In certain sports, such as gymnastics, athletes can be praised for overcoming fear in appropriate circumstances. Use of visualisation and imagery can also be helpful, whereby athletes can prepare for events by imagining themselves performing up to peak capacity. even in adverse circumstances.

(4) Competition

The research shows that competition is an important dimension of the intrinsic motivation of competitive sportspeople. This is not quite as obvious as it seems. There was always a possibility that the research might have found that they saw competition as an aversive experience, endured only for the extrinsic rewards. On the contrary, competition has emerged as a major positive dimension of the intrinsic motivation of sportspeople. Athletes claim to enjoy the act of competing for its own sake. This is not even dependent on winning, although the feeling that one is winning is also a source of positive affect. What athletes do not like, however, is the feeling that they are being beaten by someone whom they consider to be a lesser sportsperson.

The research shows that reported levels of enjoyment of competition drop significantly at the point of participation. This is particularly true for women. Even at its lowest ebb, however, competition is still relatively enjoyable when compared with most other dimensions. Competition may simply be a potent source of informational feedback as to efficacy and achievement. It may also be valued for the opportunities which it provides to display one's skills and bask in the admiration of others. Taking part in competitive events may also provide a high level of secondary intrinsic motivation, perhaps in the form of enjoyment of travel to and from events, meeting people, and post-event socialising.

The enjoyment of competition for its own sake can be exploited positively by coaches in training situations. This is most likely to be an effective strategy where the participants see themselves as evenly matched with their opponents. Mini-leagues or races can be set up on training nights, preferably on a handicap basis so all have an equal chance of winning. These

competitions should be for fun only, with no material rewards for winning. As individuals gradually improve, their club handicap can be increased, serving as a form of informational feedback on their progress. Athletes should also be given opportunities to receive praise from others in non-competitive situations, such as by putting on displays of particular skills.

Coaches still need to bear in mind that there are a few competitive athletes who report that they do not actually enjoy competition. These athletes may endure competition for the sake of the extrinsic rewards which it sometimes brings, or they may consider it to be the price which they have to pay for being allowed to take part in training. Where competition is identified as being demotivating for an individual, that person should not be forced to compete all the time. The coach should take time to talk to the athlete and try to find out what he or she finds aversive about competition. It may then be helpful to offer training in appropriate mental skills as a means of overcoming this, such as relaxation or imagery.

(5) Social Bonding

Enjoyment of camaraderie is an important dimension of primary intrinsic motivation in sport. Opportunities for informal socialisation can be built into training sessions, with refreshment breaks and occasional “fun” activities, such as games. It is also a good idea to organise occasional social events which are nothing to do with training, such as meals out, which help club mates to get to know one another informally. This may be particularly important with young people, who are most likely to be lost to sport because they want to pursue a fuller social life. In addition, coaches should always be alert to any social tensions within their club, and be willing to counsel anyone who is having difficulty fitting in with the rest of the group.

The present research has shown, however, that for most athletes sport participation needs to involve more than working towards common goals or enjoyment of other people's company on an everyday social level. It has to involve participating in the sport "in tandem" with other people. Other people are also an important source of informational feedback on a person's achievements, and of social approval.

Training sessions should be built around this. In the type of competitive training which is described in (4) above, club members can be arranged in teams from time to time to enhance the feelings of social co-ordination and companionship, even when the particular sport is not normally a team event.

It is also possible for two or more team-mates to work together on improving specific skills. Where one athlete has already mastered a skill, he or she may be able to teach it to another by means of a "mirroring" technique. This incorporates both companionship and social co-ordination.

(6) Environmental Mastery

The research has shown that it is important for competitive sportspeople to feel good about the environment in which they take part in their sport. They also need to feel that they have mastery over the environment in which they are taking part in an event so that it does not impede their performance in any way. For example, an excessively hot court may impede the game of a squash player and cause frustration. It is important that sportspeople should train in a comfortable environment whenever possible.

It may be helpful to some sportspeople to change the training venue occasionally, to avoid boredom. A change of environment provides a new challenge. For example, distance runners may maintain their primary intrinsic motivation better if they have changes of route from time to time.

A change of venue is less likely to be helpful in competition. Understanding of the reasons behind the home advantage can be helpful. Section 8.12 (6) summed up the benefits of playing at home in terms of familiarity with the home environment. Coaches should always try to make their athletes familiar in advance with the environment in which an important competition is to take place. This can be done by organising friendly matches, or having training runs on the route which is to be used for the race.

12.2. IMPLICATIONS FOR FUTURE RESEARCH

The development of the new multi-dimensional model of primary intrinsic motivation in sport has implications for future research in sport psychology. Previous models have overlooked some of the key dimensions. In particular, the dimensions of toughness and environmental mastery have not been explored fully before.

In addition, the new model expands and clarifies some dimensions which have already been identified. The spiritual concepts have been explained in terms of “flow”, and the idea of personal well-being has been extended beyond physical well-being into something more general. The act of competing has emerged as intrinsically motivating in its own right, irrespective of whether the individual is winning or losing. The social dimension has also been redefined to incorporate a sense of being “at one”

with one's companions in a way that goes beyond merely enjoying being in their company. There is also some reason to suspect that sporting companions play an important role in providing an audience for one's competitive achievements.

The findings of the in-situ study have important implications for the way research is carried out in the area of motivation in competitive sport. In particular, the timing of questions about people's primary intrinsic motivation is important. The next section discusses this in more detail.

12.2.1. The implications for the timing of questions in motivational research

The research in this thesis has shown that asking sportspeople tend to rate their own primary intrinsic motivation before or after an event does not always provide an accurate reflection of their feelings at the actual time of participation. While a common sense view might suggest that people's recollections about their feelings would be fresh immediately after an event, it is now clear that the end of an event is not always the best time to present questionnaires.

The results of the in-situ study show that the most accurate reflection of the way people feel when they are actually taking part in sport will be obtained by asking them questions at the point of participation. This may not always be practical. It may be difficult to persuade athletes to interrupt the flow of their game, and coaches and officials may not permit outsiders to be present during a competition. In many cases, people will simply not see the point of asking questions during an event, and will protest that they will give equally accurate responses at the end. Last but not least, in some sports it is

impossible to ask people questions during an event for organisational or safety reasons. For example, competitive rock climbers are unlikely to welcome the presence of a researcher half way up a rock face.

Where it is impossible to test during an actual event, it will be helpful to have some guidelines as to when the researcher should ask questions in order to obtain the second best results in terms of accuracy. Where a very general impression of the overall levels of subjects' primary intrinsic motivation is all that is required, then it probably makes very little difference whether questions are asked before or after the event. On the other hand, where more specific information is required about individual dimensions, more thought is required.

In the light of the findings of the in-situ research, it is possible to make recommendations about the best time to ask people questions about their feelings during sport. A separate protocol is recommended for each dimension, and, where appropriate, for men and women, as follows:

(1) Spiritual well-being

In the case of men, it makes no real difference when testing is carried out with regard to the spiritual dimension, as men's scores remain relatively stable throughout. With women, however, scores before an event are likely to be more reflective of the way they feel during than scores which are obtained after an event. This is of the fact that women experience a rise in "buzz" feelings at the end to a level which is higher than either before or during an event.

(2) Self-efficacy

As there was no significant shift from before to after for either sex, it is unimportant whether testing is carried out before or after an event. It needs to be borne in mind, however, that women's levels drop significantly during, meaning that inferences from their before or after scores should be used with caution.

(3) Toughness

As there was no significant change in scores on toughness from before, during, through to after for either sex, it makes little difference when testing is carried out on the toughness dimension.

(4) Competition

As there is no significant difference between scores before or after an event on competition for either sex, it makes little difference when testing is carried out. As with self-efficacy, however, women's scores on the competition dimension drop dramatically during an event, meaning that inferences from their scores before or after should be regarded cautiously.

(5) Social Bonding

As the scores of both men and women drop during an event on the social bonding dimension and do not recover to their original levels at the end, the most accurate reflection of the way people feel about social bonding during an event would be obtained at the end.

(6) Environmental Mastery

For all subjects, there was a significant drop in ratings during an event on this dimension, and a return to the original level after. This means that it makes little difference for either sex whether testing is carried out before or after an event. Once more, however, inferences from before or after scores should be regarded with caution.

12.3. IMPLICATIONS FOR SPORT PSYCHOLOGY

The research also has important implications for sport psychology in general. The introduction to the thesis refers to four areas of research which have been identified as priority areas for further work (Hardy and Jones, 1992):

- (1) The dynamics of motivation
- (2) The pursuit of dangerous sports
- (3) Attributions
- (4) Athletic burnout

This section identifies ways in which this thesis makes a contribution to these four areas of priority.

12.3.1. The dynamics of motivation

The main body of this thesis has been concerned with making a contribution to existing knowledge in the area of the dynamics of motivation. This has been done in six main ways:

- (1) Establishing a working definition of intrinsic motivation in sport, by distinguishing between primary and secondary intrinsic motivation.
- (2) Studying qualitatively the language and constructs used by competitive sportspeople to describe their own primary intrinsic motivation.
- (3) Formulating a multi-dimensional model of primary intrinsic motivation in sport.
- (4) Devising a diagnostic psychometric test capable of clarifying the primary intrinsic motivation of individuals or teams.
- (5) Devising a psychometric capable of measuring levels of primary intrinsic motivation at the time of participation.
- (6) Conducting an investigation, using the in-situ IIMS, into the ways in which scores on the six dimensions vary before, during , and after participation in sporting events.

12.3.2. The pursuit of dangerous sports

The dimensions of primary intrinsic motivation provide some clues as to why people take part in dangerous sports. At a speculative level, it is possible that self-efficacy plays an important part in this. In a dangerous sport, staying alive is the ultimate “proof” of efficacy. If you do not have the necessary skills, you will fall off the rock face. Since the stakes are high, it is easy to conclude that no one would take part unless they were good at the sport. This is also

closely allied to the idea of toughness. Participants in dangerous sports may take pleasure in overcoming fear, and, in some cases, discomfort or even pain. Putting one's life on the line must surely be the ultimate badge of toughness. It is also easy to see how people can fulfil a need for environmental mastery by taking part in dangerous sports. Many dangerous sports involve conquering the environment in an obvious way, such as rock climbing or abseiling. In addition, many dangerous sports take place in "the great outdoors", and involve an element of "stretching one's horizons".

Unfortunately the present research did not include many participants in dangerous sports. In the case of the in-situ study, this was partly for practical reasons. It is neither easy nor safe to complete a questionnaire half-way up a rock face, or when one is suspended in mid-air. It is also true to say, however, that this group was by far the most difficult to persuade to take part, even at the stage of the focus group study and the administration of the 72-item parent questionnaire. If it were possible to overcome the practical difficulties, a possible question for future research to address would be whether people in dangerous sports score higher in the dimensions of toughness, environmental mastery, and self-efficacy.

12.3.3. Attributions

Does the multi-dimensional model have anything to contribute to what is already known about attributionary processes in sport? The six dimensions may be seen as the "building blocks" of attributionary processes. An athlete who has just lost a competition may try to attribute this to external factors, so that his or her self-esteem can remain intact. In this case, the person may try to externalise the six dimensions. For example, the competition dimension

can be rewritten as an external reason for poor performance, by claiming that the opponent cheated. The social bonding dimension can be externalised by shifting the blame for one's own poor showing by blaming it on the rest of the team. It is also possible to attribute poor performance to environmental factors, such as a muddy pitch. This demonstrates the way in which social bonding, competition, toughness, and environmental mastery all contribute to the wider construct of self-efficacy. Self-efficacy, by definition, cannot be externalised in an attributionary process. To blame an unsuccessful outcome on self-efficacy is just another way of blaming one's own incompetence.

12.3.4. Burnout

The findings of the present research have some important implications for research in the area of athletic burnout.

Smith (1986) defines athletic burnout as:

“...a psychological, emotional, and at times a physical withdrawal from a formerly pursued and enjoyable activity”.

It seems to be an essential feature of burnout that the activity should have been enjoyed in the past. Physical withdrawal is not seen as an essential feature of burnout. The individual may continue to keep plodding on in a burnt-out condition, as if trapped on what Smith describes as an “aversive treadmill”.

Hardy and Jones (1992) have identified a need for specific research into burnout in both coaches and sports performers.

There are two main schools of thought as to the causes of burnout:

- (1) One popular view is that burnout is a response to a higher level of stress than the individual is able to handle. There is no clear agreement as to whether the stress which leads to burnout is physical or psychological. Powell (1993) regards burnout in a work context as being stress-related, describing it as “a state of mental exhaustion and emotional strain” (p.9). Chambers (1993) defines burnout comprehensively as “the syndrome of emotional exhaustion, depersonalization, low productivity and feelings of low achievement” (p.442). She regards burnout as being related to perceived rather than actual stress.
- (2) It is also possible to view burnout as a cognitive process. Smith (1986) attempts to explain burnout using Thibaut and Kelley's (1959) social exchange theory. Thibaut and Kelley regard relationships as forming a kind of “contract” whereby each member has something to offer which makes involvement seem worthwhile to the other. Smith (1986) views athletes as being in a “relationship” with their sport. The athlete gives a great deal to the sport, in the form of time and effort, and, in return, receives certain benefits, such as prize money, fame, opportunities for travel, etc. For the “relationship” to continue to be rewarding, it is necessary that the benefits of participating in the sport are believed to outweigh the costs. Put more simply, the individual begins to feel that participation in his or her sport has come to be “more hassle than it is worth”. It is also important that the individual perceives the benefits to compare favourably with the available alternatives. A person may

continue to take part in sport simply because he or she cannot think of anything better to do.

Schmidt and Stein (1991) have proposed an investment model of burnout. They argue that sportspeople continue to participate in their sport either because they find it enjoyable or because of the amount that they have already invested in it, or for a combination of these two reasons. This notion of "investment" is similar to Smith's (1986) idea of "cost". The investment can take various forms: for example, time, money, or emotional and/or physical effort. Where the individual perceives the investment to be high, it is harder to throw it all away by dropping out of the sport prematurely even if it is no longer experienced as enjoyable or intrinsically motivating. As Smith (1986) has pointed out, it is possible to continue to participate in a burnt-out state.

Problems begin to arise, however, when the individual starts to see little return for his or her investment - perhaps in the form of prizes or publicity. The content of a person's secondary intrinsic motivation may also be part of the return for the investment. The value of the investment-return may drop if circumstances change. For example, if some of the person's friends leave the club, the drink in the bar after matches may be a lot less enjoyable. The combination of a perceived lack of investment-return and low levels of primary intrinsic motivation is a lethal one as far as motivation is concerned, as it is likely to lead to both burnout and dropout. Where primary and secondary intrinsic motivation and extrinsic motivation are all low, there is nothing left for the athlete to cling to.

It is hypothesised here that athletic burnout occurs when an individual's primary intrinsic motivation for participation in sport reaches such low levels that it is impossible for participation to be sustained by extrinsic motives.

Dreaming of a few minutes' glory on the winners' dais may not be enough to compensate for daily misery during training or the stress of competition. If the act of participation in sport is aversive enough, even the presence of a high level of secondary intrinsic motivation may not be enough to keep a burnt-out individual in the sport.

The multi-dimensional model of primary intrinsic motivation in sport has something to add to existing understanding of the causes of burnout. Research has identified situational factors conducive to burnout. Firstly, inadequate peer support seems to be a major factor in burnout (Russell, Altmaier, and Van Veltzen, 1987; Chambers, 1993). Social support has the function of boosting self-esteem (Russell, Altmaier, and Van Veltzen, 1987). This need for social support sounds very like the dimension of social bonding in primary intrinsic motivation.

Secondly, the right level of challenge is necessary in order to avoid burnout. The task should be demanding, but not too demanding. Smith (1986) argues that overload and underload are equally likely to lead to burnout. Where there is an imbalance between the demands made on a person and the person's available resources, this can lead to frustration. Overload can lead to chronic fatigue. Underload, on the other hand, can be as bad because lack of adequate challenge can lead to chronic boredom. Where a person is not sufficiently challenged, he or she will have insufficient opportunities to experience feelings of self-efficacy, toughness, or environmental mastery during sport. If a person is not adequately challenged in competition or training, he or she cannot receive meaningful feedback from his or her performance.

The present research has shown that the act of participation in sport is less pleasurable to most people than the anticipation or the memory. We also already know that intrinsic motivation is capable of being damaged in various ways (See Section 2.6.). It might be possible to prevent this damage if athletes and coaches had a clearer understanding of the psychological processes which cause it. If burnout is an index of loss or diminution of primary intrinsic motivation, it too could be prevented if appropriate steps were taken to protect the primary intrinsic motivation of athletes. The diagnostic questionnaire provides a means of obtaining information as to the individual's strengths and weaknesses on particular dimensions. This makes it possible for coaches to take steps to enhance the primary intrinsic motivation of individual athletes, thus preventing burnout. The link between loss or diminution of primary intrinsic motivation and burnout is, of course, speculative at this stage and is a potential area for future research.

This chapter has looked at ways in which the work of this thesis can be put to use in practical situations. The final chapter will now summarise and explain the significance of what has been achieved in the thesis as a whole.

CHAPTER 13

CONCLUSIONS

13.1. A NEW WAY OF LOOKING AT INTRINSIC MOTIVATION IN SPORT

This thesis set out to devise a new way of looking at intrinsic motivation in sport. It has done this in three main ways. Firstly, it has established a new working definition of intrinsic motivation, by drawing a clear distinction between primary and secondary intrinsic and extrinsic motivation. Secondly, it has produced two new instruments for measuring primary intrinsic motivation. Thirdly, it has challenged the assumption that athletes' recollections of the ways in which they feel during sporting events are accurate.

The IIMS is special in four main ways:

- (1) It is the only test that isolates primary intrinsic motivation as a concept in its own right. It treats primary intrinsic motivation as being distinct from secondary intrinsic motivation and extrinsic motivation. Other tests, such as Markland and Hardy's (1993) Exercise Motivations Inventory, tend to focus on reasons for participation, which are really extrinsic.

- (2) The IIMS (in-situ) is the only test in the field of motivation in sport which is designed specifically for use at the actual point of participation in a competitive sporting event. The diagnostic version can be used at any time, but is designed to reflect the way that sportspeople tend to feel during actual sporting events.
- (3) The qualitative roots of the IIMS make it possible for it to look at the subjective experience of primary intrinsic motivation. On the other hand, the structured nature of the final versions of the instrument makes it capable of producing quantitative data.
- (4) The test items in both versions of the IIMS were generated at a grass-roots level. Some other tests, such as McAuley and Courneya's (1994) Subjective Exercise Experiences Scale simply "re-vamp" the assumptions of established tests. The IIMS was designed specifically for use with competitive sportspeople, using their own language and constructs.

13.2. THE WAY FORWARD

There are various ways in which the work of this thesis points to possible directions for future research. This section outlines some suggestions for future developments.

- (1) There is scope for replication of the qualitative study with a different subject group. This would establish whether the constructs which emerged reflected a middle-class bias on the part of the subjects, or subjective interpretation on the part of the researcher.

- (2) The instrument needs to be applied to a wider subject pool, to incorporate a wider range of sports. In particular, it would be a good idea to look at dangerous or sensation-seeking sports. Despite the obvious practical difficulties, it might be possible to at least get a bit closer to the actual point of participation in certain sensation-seeking sports. For example, divers could be asked questions between dives. It would also be worthwhile to ascertain whether there is a difference between the scores of elite and recreational athletes.
- (3) The question remains as to whether the six dimensions are really unique to competitive sportspeople. For example, would similar results have been obtained if the research had been carried out with recreational exercisers, or participants in a less strenuous form of leisure activity, such as train-spotting or amateur dramatics? A possible direction for future research would be to carry out the same series of procedures using subjects who participate regularly in other activities. This would clarify the question of whether the present research has made discoveries which are unique to competitive sportspeople, or whether they apply to the intrinsic motivation of people in general.

One area in which the existing literature reveals interesting comparisons with the dimensionality of intrinsic motivation in sport is in the area of gambling, particularly on arcade fruit machines. Some recent research into the motivations of gamblers reveals parallels with sport. Gamblers seem to experience a kind of "high" which is associated with physiological signs of arousal, such as increased heart

rate (Anderson and Brown, 1984; Griffiths, 1995). This may correspond to the “buzz” which sportspeople report.

Gamblers often overestimate the role of skill involved in playing machines, reinforced by the fact that their money tends to take longer to run out when they learn to use such facilities as “nudge” and “hold” efficiently. In this sense, perceived self-efficacy plays a role in this type of gambling.

Toughness may also be involved in the form of the “machismo” image which is held by some to be attached to fruit machine players (Griffiths, 1995). In addition, a form of competition may take place between players who wish to be seen as the “best” player, and players may see themselves as being in competition with the machine.

Fruit machine gambling is also seen by many as a social event (Griffiths, 1995) as the arcades are a place to meet friends. Scheibe and Erwin (1979) note that some players appear to regard the machine as a friend, attributing human qualities to it. Social co-ordination, experienced in playing the machines side by side with others, may also be part of the social dimension.

Griffiths (1995) also identified the atmosphere of gambling arcades as an important factor. This sounds very like the environmental mastery dimension of sport. These places are attractive to players because they are warm, relaxed, and unsupervised. Part of their appeal may also be attributed to a classically conditioned response, induced by the association of the venue with the intermittently reinforcing experience of winning.

The existence of these common motivational dimensions should not, however, be taken as conclusive evidence that the motivational profiles of gamblers and athletes are identical. The pattern of scoring on these dimensions may be different, and there may be other dimensions of gambling motivation which are not shared by sport. It would also be unreasonable to assume that because fruit machine gambling and sport have these dimensions in common that they are common to all leisure activities.

- (4) The nature of primary intrinsic motivation in sport could be investigated further by addressing the issue of whether it is part of a wider trait of personality or something specific to sport. The question which needs to be asked is, are the people who experience high primary intrinsic motivation simply people who have an in-built tendency to enjoy things that they do? Section 2.8., discussed state and trait views of happiness. In particular, Diener and Larsen's (1984) finding that overall happiness has more to do with personality than life events is cited in support of the trait theory. Weight is also lent to the trait theory by Kavussanu and McAuley's (1995) finding that optimists engage in exercise more often than pessimists.
- (5) The diagnostic IIMS is suitable for use as a pre- and post-test in longitudinal studies as it has been found to be reliable over time, on all of the dimensions with the exception of social bonding. This makes it possible to assess the effects of various types of intervention on primary intrinsic motivation. Examples of possible

interventions would be teaching athletes relaxation techniques, or training them in the use of imagery to increase their self-confidence.

- (6) It may be possible to use the diagnostic IIMS as a means of identifying which athletes are prone to burnout. The unhappy experience of burnout may occur when individuals' primary intrinsic motivation drops to a very low level over all or most of the dimensions. The results of the IIMS could be compared with a recognised general measure of burnout, such as the Maslach Inventory of Burnout (Maslach and Jackson, 1981). The advantage of the IIMS in this respect is that it has been designed specifically for use in a sporting context. If coaches and sport psychologists were able to identify burnout-prone athletes at an early stage, it might be possible to prevent them from dropping out of their sport.

13.3. THE MAIN FINDINGS

We now have a new way of looking at intrinsic motivation in sport, both in terms of the way in which it is defined, and of the way in which it is measured. The devising of the Inventory of Intrinsic Motivation in Sport (IIMS) has provided a means of measuring the intrinsic motivation of competitive sportspeople at the time when they are actually taking part in their sport. We now know that the way in which athletes say that they feel at the actual point of participation does not always match up to their expectations or recollections.

This confirms the supposition that intrinsic motivation is subdivided into primary and secondary intrinsic motivation. Primary intrinsic motivation refers to the way in which a person feels at the actual time of participation in an activity. Secondary intrinsic motivation applies to aspects of an activity which, although technically extrinsic, are so close to the intrinsic experience as to be difficult to separate from it conceptually.

The review of literature formed a set of predictions about the possible content of primary intrinsic motivation in sport. The predictions can be summarised as follows:

- Efficacy / achievement
- Structure and discipline
- Self-determination
- Absorption / peak performance
- Physical well-being
- Feeling relaxed
- Social interaction
- Status and identity
- Overcoming pain

The work of this thesis has shown that primary intrinsic motivation in sport is multi-dimensional. The value of a multi-dimensional model is that it makes it possible to look diagnostically at the intrinsic motivation of individual athletes. If an athlete's scores are especially high or low on a particular dimension, the coach can use this information in planning training schedules for that person.

Six major dimensions of primary intrinsic motivation in sport have been identified, and assigned names.

Listed in order of “popularity”, these are social bonding and competition (equally popular); environmental mastery; self-efficacy; spiritual well-being (“buzz”); and toughness.

The dimension of self-efficacy was strongly predicted by the review of literature and the preliminary investigation which was described in Chapter 6 . Recent work by Williams and Gill (1995) further clarifies the role of perceived competence in sport motivation. Williams and Gill found that task-oriented individuals have higher intrinsic motivation than ego-oriented individuals. This is because ego-oriented individuals are concerned about their performance relative to others. This leads to feelings of external control, and, consequently, diminished intrinsic motivation. Task-oriented individuals, on the other hand, focus more on the task in hand, and tend to have higher intrinsic motivation.

There are important differences between men and women on self-efficacy. The research in this thesis shows that women’s experience of efficacy is reduced during sport participation, while men’s remains relatively stable. There are various possible explanations for this.

Horner (1978) argued that women’s achievement motivation is hampered by a fear of success, but this has been strongly contested more recently (Matlin, 1987). Women do, however, tend to experience less confidence in tasks which they view as inappropriate to their feminine sex role (Plaisted, 1995). It has also been suggested that women are less confident in situations where social comparisons are involved, and sport participation involves social comparisons in a big way (Cox, 1990).

Lirgg (1991) conducted a meta-analysis of gender differences in physical activity. She concluded that, although various studies pointed to the situations which were most likely to reveal gender differences, there were no clear answers as to why these differences existed in the first place. Lirgg's review revealed a conflict between explaining the gap between men's and women's levels of confidence either in terms of male boastfulness, or of female modesty.

None of this explains, however, why women's experience of self-efficacy should be lower at the point of participation than it is either before or after an event. It may be that women are more easily put off their game by negative feedback about their performance. For example, women's self-confidence is more likely than men's to be undermined by comments from other people (Matlin, 1987).

On the basis of the review of literature and the preliminary investigation in Chapter 6, it might have been predicted that self-efficacy would turn out to be the most popular dimension. This did not prove to be the case. In fact, the social bonding and competition dimensions attracted the highest scores overall. The absolute values during an event on these two dimensions were higher than almost any other rating on any of the dimensions.

The social bonding and competition dimensions have in common the fact that they both involve sharing an activity with other people. This might simply mean that people enjoy taking part in sport because it provides them with an opportunity to interact with other people. Another possibility is that what people get out of sport is a social environment in which they feel that they are "someone". It may be that sport provides a means of establishing a social identity for oneself through competition. This suggests that sportspeople tend

to be more ego-oriented than task-oriented, which would imply that their intrinsic motivation is likely to be compromised. This confirms the finding of Farmer, Vispoel, and Maehr (1991) that sport achievements are more related to social values than to mastery values, and, as such, are externally controlled. In other words, in a sporting context, people value most of all being admired by others and pleasing people who are important to them.

Self-efficacy may be less important as a dimension in its own right because displays of one's own efficacy are much less rewarding if there is no one there to admire them. A golfer's pride in achieving a hole in one would be much less if there were no witnesses. It may not be enough for an athlete to be good at something: it seems to be necessary to be seen to be good by other people.

On the competition dimension, women's scores drop during an event, while men's scores remain relatively stable. As with self-efficacy, this may be linked with conflict with feminine image, the stress of social comparisons, and with perceived negative feedback from others.

On social bonding, the scores of both sexes drop during an event and do not recover to their original levels after. We can only speculate as to the reasons for this. It may be because during a competition the nature of the relationship with one's fellow athletes changes. In the case of one's opponent, the reasons for the change are obvious. In other circumstances, the sporting opponent may be a friend with whom one enjoys socialising, but in competition he or she becomes a deadly adversary. When this happens, it means that an individual ends up holding two inconsistent related beliefs: in this case, that the same person is both a friend and an enemy at the same time.

This is the type of uncomfortable situation that Festinger (1954) described as “cognitive dissonance”. To extricate oneself from this, it is necessary to change one of the two views. In sporting competition, this may involve suspending temporarily one’s normal view of the other person as a friend in order to maximise one’s chances of winning. In the case of one’s own team mates, it may become increasingly difficult to view them in a positive light during a competition when they are perceived as playing badly and letting the rest of the team down.

It is also interesting that the social bonding dimension, although one of the two most popular dimensions, is also the most fragile in terms of reliability over time on the diagnostic IIMS. This is not, however, entirely surprising as people’s feelings about other people can be observed to be subject to mood changes. For example, an uncomplimentary remark from one’s opponent in the changing room may be enough to produce negative feelings on the part of the recipient for the duration of the match.

The dimension of social bonding was partly predicted by the notion of social interaction, but added something extra in the form of feeling at one with one’s fellow sportspeople. It also brought in the idea of social co-ordination in the sense of enjoying carrying out an activity in synchrony with one another.

Competition was the only new dimension which was not predicted by the review of literature. Sportspeople seem to enjoy competition both for its own sake and for the sense of achievement which it provides. The sense of achievement is not always dependent on winning. Competition provides an excellent means of measuring one’s achievements, and scope for peak performances. It also provides an audience for one’s achievements.

Emotional contagion may also have a role to play in the dimensions of competition and social bonding. We have already discussed in Section 2.6.10 the ways in which it is possible to “catch” the emotions of others (Hatfield, Cacioppo, and Rapson, 1994). Part of the pleasure of sport may lie in sharing the joy of the victor. This can apply both to the losers and to spectators.

Elliott, 1996, (p.52) sums this up when he describes how golfer Seve Ballesteros' victories bring joy to others:

“There is a pride and an excitement and a sheer exuberance with Seve that sucks the rest of us into his private world, allows us fleetingly to feel part of it so that his victories are at least a little bit ours as well”.

Spiritual well-being is still an unknown quantity, often referred to by athletes as “getting a ‘buzz’” or “a high”. It may be that it brings together the ideas of absorption, Ravizza's (1984) concept of “peak performance”, and Csikszentmihalyi's (1975) idea of “flow”. It may also incorporate feelings of physical well-being and relaxation, but this is only speculation. It is also interesting that women experience an increase in “buzz” or “high” feelings after an event which is not shared by men. The question of what it is that women actually get out of sport is an important direction for future research. It may be that many women participate more for the sake of the good feelings which they experience when they stop than for the joy of actually taking part.

There is no obvious reason for this. The finding does, however, confirm Johnsgard's (1985) observation that women runners who completed a

questionnaire about their motives for running rated what was termed “afterglow” more highly as a motive than their male counterparts.

The dimension of environmental mastery is really just another way of expressing the idea of self-determination, as it fuses this with the notion of being in control of the physical environment.

Environmental mastery is less popular than either social bonding or competition. This may be because it has more to do with individual control. This may also be true of toughness, which is, essentially about a battle against one's own weaknesses. In this sense, toughness also involves the idea of individual control. To some extent, toughness is also about a person's image. It may be as important to be known as a tough person as it is to feel tough. In this sense, the dimension of toughness also fulfils the prediction of status and identity, but to a lesser extent than social bonding or competition.

The only prediction which does not fit in anywhere is the idea of enjoyment of the imposition of structure and discipline on a person's life. Athletes, unlike workers, do not seem to gain any particular satisfaction from the imposition of structure and discipline on their lives. Perhaps most people who participate in sport already have enough structure and discipline in their lives. It may even be that one of their reasons for taking part in sport is to provide an alternative to the constraints of their working lives.

In conclusion, the research has provided some insights into the ways in which competitive sportspeople feel when they are actually taking part in their sport. It should be remembered, however, that these findings only describe overall trends. Sportspeople are, and always will be, individuals, and not all will conform to the “set” patterns of feelings which the research has brought

to light. Not all, for example, will score highest on the dimensions of social bonding and competition. There will always be individuals who will score higher on other dimensions, such as toughness. The great value of the diagnostic version of the IIMS is that makes it possible to look at individual motivational profiles.

13.4. FINAL WORDS

The thesis began with the question: is sport participation “all that it is cracked up to be”? This is just a way of asking whether people really enjoy taking part in sport as much as they say they do. The research which has been carried out has demonstrated how, in some important respects, the anticipation and memory of the experience of taking part in competitive sport produce more positive affect than the actual act of participation. The possibility that the act of participation in competitive sport might be anything less than totally agreeable must beg the question: why do people take part in the first place?

Brohm (1978) described sport as a “prison of measured time”. He argues that organised sport is a bourgeois mechanism for suppressing the masses, and that it

“reproduces and strengthens the ideology of alienated labour: work, continuous effort, struggle, the cult of transcending one’s own limitations, the cult of suffering, the cult of self-denial, self-sacrifice....”

This makes sport participation sound like an entirely aversive experience, endured only out of obligation or a sense of duty. This is, perhaps, an unduly

pessimistic view, but it does raise some important issues. The present-day sport culture dangles lucrative rewards over the heads of athletes. Sport is becoming inexorably linked with money and material rewards. Even the laudable practice of running to raise money for charities has connotations of commercialism, as charitable organisations vie with one another to attract sponsorship-seekers.

Everywhere, there is an emphasis on the importance of winning. Dunn (1996) reported on an interview with Sally Gunnell, Olympic 400 metres hurdles champion, entitled "Why running is important to me".

Gunnell summed up her pleasure in returning to competition after injury:

"It's good to have that winning feeling again. For the last 10 metres, I was smiling because it felt so good to win. I badly wanted that feeling again....."

At the extreme end of the scale, some athletes have been found guilty of taking illegal performance-enhancing drugs in their determination to win, despite the risks to their health and lives.

Even children's sport is not immune to this distortion of values. Martens (1978) argued the case for more joy in children's sport:

"I believe children's sports can be more, much more, than merely a means of identifying winners and losers. I believe sports can help nudge this world towards being just a little better place in which to live. I believe the qualities needed to find joy in sports are the qualities needed to find joy in life.

I want young athletes to take sport seriously - seriously enough that they can obtain the full benefits of sports. I want young athletes to strive for excellence, for real joy comes to youngsters who know they have give their best - win or lose - and know their best is appreciated by others."

Martens (1978) reports how he played a part in the development of a Bill of Rights for Young Athletes. The final clause in this was concerned with "the right to have fun in sports".

This should apply also to adults. To protect the intrinsic motivation of *all* athletes, we need to look at ways of making sport more enjoyable - particularly at the point of participation. People need to have opportunities to experience success and admiration, but not at the expense of enjoyment, and without always having to win.

André Agassi, former Wimbledon winner, summed this up in an interview with Craig Gabriel (1996):

"I think that the thing that makes you regret or not is whether you maximise the ability that's been given to you"

Most importantly of all, there should be a sense of joy just at being there and taking part. This is true, also, of recreational exercise. Parfitt, Hannyngton, and Markland (1994) studied people's barriers to exercise, and found that the factor which best predicted low exercise participation was dislike of exercise. They concluded that exercise needs to be made "more attractive and

enjoyable". There is a case for repeating the work of this thesis with recreational exercisers to find out what enjoyment means to them.

Sport, too, - even at the highest level - needs to be enjoyable. Larkins (1996) describes how Fernando Ribeiro, world record holder in the 5,000 metres, was captivated by the sheer joy of running as a young girl in a small Portuguese village. He relates how she ran "over fields and along local dirt tracks", and, on other occasions, even ran "around the school playground with her dolls as spectators" Running, for Ribeiro, "was a game, and she loved it".

Larkins, in the same article, goes on to describe how Ribeiro's times began to deteriorate around the time of the 1988 Olympics as a result of pressure to train. Her form returned later, in 1993, when she acquired a new coach, who recommended "more running in the purest sense and less intensity."

This advice could be applied in a wide variety of sporting contexts. In conclusion, there needs to be joy in sport. This can be achieved by switching the emphasis from "going for the burn" to "going for the buzz".

Appendices

The questionnaires in the appendices have been reduced in physical size and typefaces altered to take account of the restrictions imposed by the binding process and regulations for the submission of this thesis.

Appendix 1 : Parent Questionnaire- 72 items
SPORT MOTIVATION INVENTORY

Name.....

Date of Birth..... Sex M / F

Occupation.....

Main sport currently participated in.....

Give details of the highest level at which you have competed in the last year (e.g., national championship, club or works league)

.....
.

On the following pages are a number of statements concerning the ways that people say that they feel during competitive sport. Please read each statement carefully and indicate, by circling the appropriate number, whether each statement is true for you personally. **Please answer with respect to your participation in the “main sport” which you have identified above.**

If you do not consider a statement to be true at all, circle the ‘0’.

If you think a statement is very true for you, circle the ‘5’.

If you think a statement is partly true for you, then circle the ‘1’, ‘2’, ‘3’, or ‘4’, according to how strongly you feel that it represents the way that you feel while you are participating in your sport.

Remember, we want to know how you personally feel while you are participating in your sport, not whether you think the statements reflect the ways that people in general feel while they are participating in sport.

This questionnaire is part of a study inquiring into the motivations of competitive sportspeople. The findings will form part of a Ph.D. thesis at Glasgow University. The results of this study will not, if published, name or identify any of the participants.

Thank you for participating in this study.

Elizabeth J B Adam
Departments of Psychology / Physical Education and Sports Science

PLEASE DO NOT "AGONISE" OVER THE QUESTIONS - JUST GIVE THE FIRST RESPONSE WHICH YOU THINK OF.

	Not at all true for me					Very true for me
	0	1	2	3	4	5
1. I feel amazing when I am taking part in my sport.						
2. I feel relaxed when I am taking part in my sport.	0	1	2	3	4	5
3. I enjoy forgetting about my work when I am taking part in my sport.	0	1	2	3	4	5
4. I feel as if I am in a complete world of my own when I am taking part in my sport.	0	1	2	3	4	5
5. I enjoy achieving goals which I have set myself in my sport.	0	1	2	3	4	5
6. I feel good knowing that I am pushing myself to my maximum.	0	1	2	3	4	5
7. I enjoy the feeling that I am winning.	0	1	2	3	4	5
8. I enjoy the camaraderie involved in sport participation.	0	1	2	3	4	5
9. I get a feeling of exhilaration out of competing.	0	1	2	3	4	5
10. I enjoy the feeling that I have used a particular technique well.	0	1	2	3	4	5
11. I enjoy sharing the experience of sport participation with others.	0	1	2	3	4	5
12. I enjoy being cheered on by my team-mates or club-mates.	0	1	2	3	4	5
13. I enjoy the feeling of solo responsibility which participation in my sport provides.	0	1	2	3	4	5
14. The environment in which I participate in my sport is generally pleasurable to me.	0	1	2	3	4	5
15. I enjoy the variety involved in participating in my sport.	0	1	2	3	4	5

16.	I get a thrill from danger from my sport.	0	1	2	3	4	5
17.	I enjoy the feeling that I am going through a pain barrier when I am taking part in my sport.	0	1	2	3	4	5
18.	I feel as if my personality is somehow magnified when I am taking part in my sport.	0	1	2	3	4	5
19.	I get a "high" when I am taking part in my sport.	0	1	2	3	4	5
20.	I feel invigorated when I am taking part in my sport.	0	1	2	3	4	5
21.	I enjoy letting off steam by participating in sport.	0	1	2	3	4	5
22.	When I am taking part in my sport it is as if I am in a dream, removed from the normal world.	0	1	2	3	4	5
23.	I like the feeling that I am improving when I am taking part in my sport.	0	1	2	3	4	5
24.	I enjoy the personal challenge which taking part in my sport provides.	0	1	2	3	4	5
25.	I enjoy the feeling that I am beating people who are normally better than me.	0	1	2	3	4	5
26.	I enjoy being in the company of like-minded people while taking part in my sport.	0	1	2	3	4	5
27.	I enjoy competing for its own sake.	0	1	2	3	4	5
28.	I enjoy feeling that I have mastered a particular skill when I am taking part in my sport.	0	1	2	3	4	5
29.	I like the feeling of being part of a team, club, or group.	0	1	2	3	4	5
30.	I enjoy doing well in my sport for other people (e.g., family, coach)	0	1	2	3	4	5
31.	I enjoy the feeling that no one is forcing me to take part in my sport.	0	1	2	3	4	5

32.	Pleasant surroundings contribute significantly to my enjoyment of my sport.	0	1	2	3	4	5
33.	I enjoy the tactical aspects of my sport.	0	1	2	3	4	5
34.	I enjoy the feeling of being in control of the risks in my sport.	0	1	2	3	4	5
35.	I enjoy overcoming pain in my sport.	0	1	2	3	4	5
36.	I feel as if I have a kind of mystique when I am taking part in my sport.	0	1	2	3	4	5
37.	I get a "big buzz" when I am taking part in my sport.	0	1	2	3	4	5
38.	I feel revived when I am taking part in my sport.	0	1	2	3	4	5
39.	I enjoy a feeling of escape when I am taking part in my sport.	0	1	2	3	4	5
40.	When I am taking part in my sport I get tuned into an intuitive feeling as to what I should do next.	0	1	2	3	4	5
41.	I like the feeling that I am making progress.	0	1	2	3	4	5
42.	I enjoy the feeling that I am performing to the best of my ability.	0	1	2	3	4	5
43.	I like feeling that I have a chance of winning.	0	1	2	3	4	5
44.	I enjoy identifying with people who get the same things out of sport.	0	1	2	3	4	5
45.	I enjoy competition - I'm just naturally competitive.	0	1	2	3	4	5
46.	I enjoy realising that I have mastered a difficult technique.	0	1	2	3	4	5
47.	I like the feeling that my team-mates or training companions and I are pulling each other along.	0	1	2	3	4	5

48.	I like to feel the pride of others when I am doing well in a sporting situation.	0	1	2	3	4	5
49.	I enjoy feeling that I am in control of my own destiny when I am taking part in my sport.	0	1	2	3	4	5
50.	The temperature in which I normally participate in my sport is an important part of my enjoyment.	0	1	2	3	4	5
51.	I enjoy the mental stimulation which my sport provides.	0	1	2	3	4	5
52.	I get a pleasurable surge of adrenalin when faced with danger in my sport.	0	1	2	3	4	5
53.	I enjoy using pain to spur me on in sporting situations.	0	1	2	3	4	5
54.	I enjoy the feeling that taking part in my sport is character-building.	0	1	2	3	4	5
55.	I feel happy when I am taking part in my sport.	0	1	2	3	4	5
56.	My sport is like a drug to me - it gives me a good feeling when I am taking part in it.	0	1	2	3	4	5
57.	I enjoy channelling aggression through participating in my sport.	0	1	2	3	4	5
58.	I feel as if time is standing still when I am taking part in my sport.	0	1	2	3	4	5
59.	I enjoy getting a sense of achievement from seeing myself getting better.	0	1	2	3	4	5
60.	I enjoy the challenge of trying to master something difficult when I am taking part in my sport.	0	1	2	3	4	5
61.	I like feeling that I am beating a "good" opponent.	0	1	2	3	4	5
62.	I enjoy a feeling of friendship with others who take part in my sport with me.	0	1	2	3	4	5
63.	I enjoy being in direct competition with an opponent.	0	1	2	3	4	5

64.	I enjoy the feeling that I have used the right tactic at the right moment.	0	1	2	3	4	5
65.	I enjoy working together with my sporting companions.	0	1	2	3	4	5
66.	I enjoy being a "hero" when I am doing well in sporting situation.	0	1	2	3	4	5
67.	I like the feeling that I alone am responsible for my successes or failures in my sport.	0	1	2	3	4	5
68.	I find that the environment in which I normally take part in my sport makes me feel good.	0	1	2	3	4	5
69.	I enjoy the intense level of concentration which my sport demands of me.	0	1	2	3	4	5
70.	I find the dangerous aspects of my sport thrilling.	0	1	2	3	4	5
71.	Being in control of pain is part of the pleasure of my sport.	0	1	2	3	4	5
72.	I enjoy the feeling that I am doing something that most of the population couldn't do when I am taking part in my sport.	0	1	2	3	4	5

Appendix 2 : Inventory of Intrinsic Motivation in Sport - 18 items**INVENTORY OF INTRINSIC MOTIVATION IN SPORT (IIMS)**

This questionnaire is concerned with the way that people feel while they are taking part in competitive sport.

On the following page are a number of statements concerning the ways that some people have said that they feel during competitive sport.

Please read each statement carefully and indicate, by circling the appropriate number, the extent to which each statement is true for you personally.

If you do not consider a statement to be true for you at all, please circle the '0'.

If you think a statement is very true for you, circle the '5'.

If you think a statement is partly true for you, then circle the '1', '2', '3', or '4', according to how strongly you feel that it represents the way that you feel while you are participating in your sport.

Do not "agonise" over the questions - just give the first response that you think of.

INVENTORY OF INTRINSIC MOTIVATION IN SPORT (IIMS)

1	I get a "big buzz" when I am taking part in my sport.	0	1	2	3	4	5
2	I enjoy the challenge of trying to master something difficult when I am taking part in my sport.	0	1	2	3	4	5
3	Being in control of pain is part of the pleasure of my sport.	0	1	2	3	4	5
4	I enjoy the feeling that I am beating a "good" opponent.	0	1	2	3	4	5
5	I like the feeling of being part of a team, club, or group.	0	1	2	3	4	5
6	I find that the environment in which I normally take part in my sport makes me feel good.	0	1	2	3	4	5
7	I feel as if time is standing still when I am taking part in my sport.	0	1	2	3	4	5
8	I like the feeling that I am improving when I am taking part in my sport.	0	1	2	3	4	5
9	I get a pleasurable surge of adrenalin when faced with danger in my sport.	0	1	2	3	4	5
10	I enjoy competition - I'm just naturally competitive.	0	1	2	3	4	5
11	I enjoy identifying with people who get the same things out of sport.	0	1	2	3	4	5
12	I enjoy the feeling of solo responsibility which participation in my sport provides.	0	1	2	3	4	5
13	I enjoy letting off steam by participating in my sport.	0	1	2	3	4	5
14	I enjoy the tactical aspects of my sport.	0	1	2	3	4	5
15	I feel as if I have a kind of mystique when I am taking part in my sport.	0	1	2	3	4	5
16	I enjoy being cheered on by my team-mates or club-mates.	0	1	2	3	4	5
17	I enjoy working together with my sporting companions.	0	1	2	3	4	5
18	I enjoy the feeling that no one is forcing me to take part in my sport.	0	1	2	3	4	5

Appendix 3 : Notes for Coaches***SOME IMPORTANT NOTES FOR COACHES ON THE INVENTORY OF INTRINSIC MOTIVATION IN SPORT (IIMS)*****1. WHAT IS THE PURPOSE OF THE IIMS?**

The purpose of this inventory is to enable you to discover how much your athletes enjoy their sport when they are actually taking part in it. This is important because sometimes when people say that they enjoy sport what they really mean is that they enjoy some of the benefits which they derive from it, such as prizes, rather than the actual experience of taking part.

It will also help you to find out which particular aspects of their sport your athletes specially enjoy, and, importantly, which aspects they find unpleasant or frustrating.

2. WHY DO WE NEED A PSYCHOMETRIC TEST TO TELL US THIS?

Experience teaches us that people do not always find it easy to put their innermost feelings into words. They may also omit to mention some important details, particularly if they do not think that they will be relevant, or if they feel under pressure.

The IIMS is a comprehensive inventory, based on research, which covers the 6 “top” ways of enjoying sport which have been identified by competitive athletes as important to them. These are termed “dimensions of intrinsic motivation”. Each of these dimensions is represented in the inventory by 3

separate items. This minimises the risk of the athlete's score being affected by failure to understand a particular item.

3. *HOW IS THE IIMS USED?*

You should give the athlete a copy of the inventory. The athlete then rates the extent to which each item is true for him or her on a scale of 0-5. The test is designed to be capable of being administered quickly. This is important because it should be completed as close as possible to the actual point of participation in the activity, e.g., in short breaks in competitive training sessions. The athlete should be given an opportunity to complete the test privately.

There are 3 items representing each of the 6 dimensions, as follows:

DIMENSION	ITEMS
Spiritual well-being	1, 7, 13
Self-efficacy	2, 8, 14
Toughness	3, 9, 15
Competition	4, 10, 16
Social bonding	5, 11, 17
Environmental mastery	6, 12, 18

By looking at the athlete's responses, you will be able to gain an impression of:

- (a) How high the athlete's level of intrinsic motivation, or "enjoyment" of the sport is in general.
- (b) Any specific aspects of the sporting experience that are particularly pleasant, or unpleasant, to the athlete.

It may also be useful for you to take note of whether any particular patterns of response emerge across all your athletes. This may have important implications for your coaching strategy overall.

4. *HOW CAN THIS INFORMATION BE PUT TO PRACTICAL USE?*

If an athlete scores particularly low across the whole inventory, this is an indication that his or her intrinsic motivation for the sport is low overall. This can be taken as an advance warning sign of impending "burnout". Burnout is a well-documented state of chronic fatigue and loss of interest which may lead to impaired performance or even to premature retiral from the sport.

Low scores on specific dimensions suggest that the athlete is finding particular aspects of the sporting experience unpleasant or frustrating. This may also lead to impaired performance, or even burnout, in cases where this is an aspect of the sporting experience which is especially important to the individual athlete.

Once you have identified what the problems are you will doubtless want to find ways to remedy them. Some advice as to possible solutions is provided at the end of these notes under the heading of "Suggestions for Enhancing Intrinsic Motivation".

SUGGESTIONS FOR ENHANCING INTRINSIC MOTIVATION

Problems may be revealed in any or all of the 6 key dimensions of intrinsic motivation in competitive sport. Some suggestions are presented here as to possible solutions, but please remember that these are not intended to be exhaustive, and may not work in every situation. If you are in any doubt as to your ability to deal with a particular difficulty, you are advised to consult a qualified sport psychologist for further advice. The inventory may provide him or her with a useful starting point in investigating the athlete's problems in more detail.

The inventory can also provide information about an athlete's particular motivational strengths.

1. SPIRITUAL WELL-BEING ("Buzz")

This is the hardest of the 6 dimensions to pin down or quantify. It is best explained in terms of the "buzz", "high", or "feel-good factor" of which athletes often speak. The easiest way to think of it is as a particularly good feeling which is in some way different from good feelings which are experienced by the athlete in other situations. If an athlete scores low in this dimension, it may be that he or she has personal difficulties of some kind, or is already experiencing burnout. You may need to spend some time talking with the person to get to the root of the problem. In the most severe cases, the person may be clinically depressed and will need specialist professional counselling.

Where an athlete scores high on this dimension, this is a good sign, but there is no room for complacency as this type of mood can fluctuate.

2. SELF-EFFICACY

An athlete who scores low in this dimension may see him or herself as making little or no improvement. As a result, self-esteem is likely to be low. Such an athlete may be aiming at unrealistic goals, such as winning every race. Ideally, goals should be “self-referenced”, such as improving one’s personal best by a particular amount by the end of the season. Use should also be made of shorter-term goals, such as clocking up a particular number of training miles by the end of the week, so that the athlete can experience success on a regular basis. The best goals will be hard, but within the athlete’s reach.

Where self-efficacy is high, it is possible to build on this by giving the athlete regular positive feedback on progress.

3. TOUGHNESS

The research behind this inventory showed that it is important to competitive athletes to have a self-image of “toughness”. It is ultimately self-destructive for this image of toughness to depend on winning, as no one can win all the time.

Athletes who score low on this dimension may be helped by the use of confidence-building strategies, such as visualisation techniques, or positive self-talk. The donning of particular types of sportsgear may also reinforce an athlete’s image of “toughness”

Where toughness scores are already high, the coach can capitalise on this by using similar strategies, but care should be taken to avoid encouraging the athlete to overtrain or set unrealistic goals.

4. COMPETITION

The experience of competing seems to be intrinsically motivating to the majority of competitive athletes. Where competition is viewed negatively, it is likely to be difficult for the athlete to perform to capacity. An athlete who scores low on this dimension may be being placed under excessive pressure to win. It is important that athletes are encouraged to define success in terms of personal progress rather than in terms of winning. It may also be helpful to arrange "fun" handicap competitions where everyone has an equal chance of winning on training nights to reinforce the idea that competition can be enjoyable. This type of strategy can also be used to enhance the motivation of athletes who already enjoy competition for its own sake.

5. SOCIAL BONDING

An athlete who scores low on this dimension may be experiencing some difficulty in relating to his or her sporting companions. Taking time to discuss this in private with the athlete may lead to a means of resolving this. In some cases, a change of training companions or even club may be necessary if the intrinsic motivation of the athlete is to be sustained. It may also help to organise occasional social evenings within the club to strengthen social bonds.

Where an athlete is already enjoying the social aspects of sport participation, it is possible to capitalise on this by providing opportunities to train with a partner or group, perhaps to work on specific skills. "Fun" club competitions can also be organised on a team basis.

6. ENVIRONMENTAL MASTERY

It appears to be important to many athletes that the environment in which they train and/or compete is pleasant. If an athlete scores low on this dimension, then a possible solution may be occasional changes of training venue. Attention should also be given to ensuring that the environment is as pleasing as possible.

There is some evidence that the pleasure which athletes derive from their environment is linked psychologically with a feeling of being in control of one's own destiny. This might be expressed by, say, a long-distance runner as "the freedom of the road".

The negative side of this might be if an athlete had to train in an uncomfortable environment, such as in excessively low temperatures. The discomfort involved might lead to the athlete feeling a lack of control over his or her own body. Where the environment cannot be changed, athletes should be encouraged to take active steps to adapt to it, for example, by being suitably clad and/or hydrated. This enables the athlete to retain a sense of control over environmental factors.

An unfamiliar environment can also be off-putting to an athlete in competition. It may help to visit a competition venue in advance, for a trial run if possible, so that the athlete feels in control of the situation.

The same strategies can also be adopted with athletes who are already comfortable with the environment, to enhance their feeling of well-being. It may also be helpful to discuss with them which training venues are most enjoyable to them.

Appendix 4 : Sample reports

Sample reports based on the diagnostic IIMS

NAME.....Subject A.....

SPORT.....Basketball.....

<i>CATEGORY</i>	<i>TOTAL SCORE (maximum 15)</i>
<i>Spiritual Well-Being ("buzz")</i>	<i>12</i>
<i>Self-Efficacy</i>	<i>11</i>
<i>Toughness</i>	<i>12</i>
<i>Competition</i>	<i>10</i>
<i>Social Bonding</i>	<i>9</i>
<i>Environmental Mastery</i>	<i>14</i>

GENERAL PROFILE

This player is likely to be fairly neutral about the social aspects of his sport. He enjoys the feeling of solo responsibility, and likes to feel that he is in control of a situation. He enjoys having an image of himself as a sporting hero. He is able to function as part of a team, but needs to feel that he has an individual identity within the team. He enjoys competition as long as he believes that he is playing well and is in control of the situation.

RECOMMENDATIONS

This player will enjoy having the opportunity to contribute to setting his own goals. His goals should be very specific, and broken down into short-term, medium-term, and long-term goals, so that he can "tick off" his achievements as they come. He will not respond well to an authoritarian coaching style - he needs to be given a say in his own training plan. It should always be made very clear to him what his role is within the team, and he should always have definite targets to work towards in a match. He will respond well to praise when he makes definite achievements, such as mastering a particular skill

NAME.....Subject B.....

SPORT.....Basketball.....

CATEGORY	TOTAL SCORE (maximum 15)
Spiritual Well-being ("buzz")	7
Self-Efficacy	11
Toughness	4
Competition	15
Social Bonding	13
Environmental Mastery	7

GENERAL PROFILE

This player is highly competitive. He enjoys competition both for its own sake and as a means of measuring his own achievements. Despite this, he does not feel a great need to be "in control" and would probably accept a fairly regimented coaching style. He is not greatly concerned with having a "tough" image" and is more concerned with skill-related achievements. He is likely to enjoy working as part of a team, and his ambitions will be as much for the team as for himself.

RECOMMENDATIONS

This player would enjoy a very structured training regime. However he should also be encouraged to take an active role in setting goals for himself. As he enjoys competition very much, this can be built into training by occasionally setting up situations where he can compete against team mates, perhaps in working to acquire a particular skill.

Although his team spirit should be encouraged, he should also be made aware of his individual role and aims within the team on a match-to-match basis.

Appendix 5 : In-Situ Questionnaires

The three versions of the In-situ questionnaires are attached on the pages that follow.

Pre-Situ

NAME

When requested, please read each statement and indicate, by circling the appropriate number, the extent to which the statement reflects **the way in which you expect to feel** during the event in which you are about to take part.

5 means that the statement is **very** true for you.
0 means that the statement is **not at all true** for you.
1,2,3, and 4 mean that the statement is partly true for you.

1	I am expecting to get a "big buzz" out of taking part in this event.	0 1 2 3 4 5
2	I am anticipating that I will enjoy the challenge of mastering something difficult in this event.	0 1 2 3 4 5
3	Being in control of pain is likely to be part of the pleasure that I will feel while I am taking part in this event.	0 1 2 3 4 5
4	I am expecting to enjoy competing against my opponent(s).	0 1 2 3 4 5
5	I am anticipating that I will enjoy the feeling of being part of a team, club, or group.	0 1 2 3 4 5
6	The environment in which I am about to take part in my sport is likely to make me feel good.	0 1 2 3 4 5

In-situ

NAME

When requested, please read each statement and indicate, by circling the appropriate number, the extent to which the statement reflects the way that you are feeling about participating in your sport **right at this moment**.

5 means that the statement is **very** true for you.
0 means that the statement is **not at all true** for you.
1,2,3, and 4 mean that the statement is partly true for you.

1	Right now I am getting a “big buzz” out of taking part in my sport.	0 1 2 3 4 5
2	At this moment I am enjoying the challenge of mastering something difficult.	0 1 2 3 4 5
3	Being in control of pain is part of the pleasure that I feel just now.	0 1 2 3 4 5
4	Right now I am enjoying competing against my opponent(s).	0 1 2 3 4 5
5	I am enjoying the feeling of being part of a team, club, or group just now.	0 1 2 3 4 5
6	At this moment the environment in which I am taking part in my sport is making me feel good.	0 1 2 3 4 5

Post-situ

NAME

When requested, please read each statement and indicate, by circling the appropriate number, the extent to which the statement reflects **the way in which you felt** during the event in which you have just taken part.

5 means that the statement is **very** true for you.
0 means that the statement is **not at all true** for you.
1,2,3, and 4 mean that the statement is partly true for you.

1	I got a “big buzz” out of taking part in this event.	0 1 2 3 4 5
2	I enjoyed the challenge of mastering something difficult during the event in which I have just taken part.	0 1 2 3 4 5
3	Being in control of pain was part of the pleasure which I felt during the event in which I have just taken part.	0 1 2 3 4 5
4	I have enjoyed competing against my opponent(s).	0 1 2 3 4 5
5	I have enjoyed the feeling of being part of a team, club, or group.	0 1 2 3 4 5
6	The environment in which I have just taken part in my sport has made me feel good.	0 1 2 3 4 5

Appendix 6 : Additional Tables

Sex	Time (BDA)	{1} 3.11	{2} 3.30	{3} 3.53	{4} 3.19	{5} 2.83	{6} 3.64	
M	B {1}		.94	.28	1.00	.77	.13	
M	D {2}	.94		.85	1.00	.26	.59	
M	A {3}	.28	.85		.64	.01*	.99	
F	B {4}	1.00	1.00	.64		.65	.38	
F	D {5}	.79	.26	.01*	.65		.01*	
F	A {6}	.13	.59	.99	.38	.01*		

Table 2-1: Post Hoc Tests (Scheffé): “buzz” by sex and time

Sex	Time (BDA)	{1} 3.30	{2} 3.44	{3} 3.38	{4} 3.40	{5} 2.83	{6} 3.42
M	B {1}		.97	1.00	1.00	.25	.99
M	D {2}	.97		1.00	1.00	.04*	1.00
M	A {3}	1.00	1.00		1.00	.10	1.00
F	B {4}	1.00	1.00	1.00		.13	1.00
F	D {5}	.25	.04*	.10	.13		.10
F	A {6}	1.00	1.00	1.00	1.00	.10	

Table 2-2: Post-hoc (Scheffé): Efficacy by sex and time

Sport Categ	{1}	{2}	{3}	{4}	{5}	{6}
	.86	2.90	1.33	2.42	1.60	2.85
1 {1}		.01*	.91	.01*	.63	.01*
2 {2}	.01*		.01*	.84	.06	1.00*
3 {3}	.91	.01*		.12	1.00	.051
4 {4}	.01*	.84	.12		.43	.95
5 {5}	.63	.06	1.00	.43		.19
6 {6}	.01*	1.00	.051	.95	.19	

Table 2-3: Post-hoc (Scheffé): Main effect: sport category and toughness ratings

Time (BDA)	{1}	{2}	{3}
	4.12	3.75	3.88
B {1}		.00*	.09
D {2}	.01*		.53
A {3}	.09	.53	

Table 2-4: Post-hoc (Scheffé): Main Effect: Competition and Time

Sex	Time (BDA)	{1} 4.05	{2} 3.84	{3} 3.95	{4} 4.19	{5} 3.40	{6} 3.67
M	B {1}		.83	.99	.98	.01*	.35
M	D {2}	.83		.99	.45	.22	.95
M	A {3}	.99	.99		.82	.49*	.69
F	B {4}	.98	.45	.82		.00*	.12
F	D {5}	.01	.22	.05*	.00*		.82
F	A {6}	.35	.95	.69	.12	.82	

Table 2-5: Post-hoc (Scheffé) Competition by Sex and Time (Scheffé)

Time (BDA)	{1} 4.13	{2} 3.71	{3} 3.85
B {1}		.01*	.02*
D {2}	.01*		.41
A {3}	.02*	.41	

Table 2-6: Post-hoc (Scheffé): Main Effects: Social Bonding by Time

Time (BDA)	{1} 3.71	{2} 3.06	{3} 3.40
B {1}		.01*	.08
D {2}	.01*		.04*
A {3}	.08	.04*	

Table 2-7: Post-hoc (Scheffé): Main Effects: Interaction between environmental mastery and time

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