VICTORIA UNIVERSITY OF TECHNOLOGY

DEPARTMENT OF HUMAN MOVEMENT, RECREATION,
AND PERFORMANCE

SELF-DETERMINATION AND PERCEIVED COMPETENCE AS ANTECEDENTS FOR PARTICIPANTS DROPPING OUT OF SPORT

A Thesis submitted in Partial Fulfilment of the Postgraduate Degree of

MASTER OF APPLIED SCIENCE

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April, 1998

Abstract

The main purpose of this study was to explore persistence and discontinuation choices made by participants involved in competitive sport activities using cognitive evaluation theory. Deci and Ryan (1985) argue that changes to self-determination and perceived competence generate comparative changes in motivation. This approach provided a theoretical framework for exploring why some people choose to continue whereas others dropout of sport. Self-determination was measured using the Sport Motivation Scale (Pelletier et al., 1995), and perceived competence was measured using the Intrinsic Motivation Inventory (McAuley, Duncan, & Tammen, 1989). Data were collected from junior Australian Rules footballers (n = 135) and netballers (n = 145). A one-way MANOVA (dropout/continue as the independent variables and self-determination and perceived competence subscales as the eight dependent variables) revealed that no significant differences existed between the groups F (8, 268) = .877, p < .537. Age was coded into three groups, group one was ages 11 &12, group two was ages 14 & 15, and group three was ages 17 & 18. MANOVA (age as the independent variable divided into 3 levels and self-determination and perceived competence subscales as the eight dependent variables) revealed significant main effects, F (16, 534) = 4.87, p < .0001. Univariate follow up analyses showed that the youngest age group was significantly different from the older age groups by scoring significantly higher on intrinsic motivation to know and intrinsic motivation to experience stimulation, and significantly lower on introjected regulation. MANOVA (gender as the independent variable divided into 2 levels and self-determination and perceived competence subscales as the eight dependent variables) for gender revealed significant main effects, F (8, 268) = 5.14, p < .001. Univariate follow up analyses showed males scored significantly higher on external regulation than females. Results are discussed in

relation to self-determination and perceived competence, and their implications for Australian sports.

Acknowledgements

I would like to sincerely thank my supervisor Dr. Vance Tammen, and assistant supervisor Dr. Mark Andersen for giving me the opportunity to study for the degree, and their guidance, feedback, and continued support during this study. Their continued good humour throughout the process was also greatly appreciated. I would also like to thank the staff of the Department of Human Movement, Recreation and Performance, and the Centre for Rehabilitation, Exercise and Sport Sciences for their support. I also wish to acknowledge the Principals and teachers who assisted me in this study. They are all hard working professionals who have little time for extra duties, so I was very appreciative of their support.

Special thanks to my friends for allowing me the time to work on this project, their interest in my progress, and their understanding. Vicky Lucas is to be commended for her long suffering support and constant encouragement. Finally I must thank my parents for listening to all the difficulties encountered, pushing me forward when I stumbled, and always remaining positive despite "Murphy's" constant interference.

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CHAPTER 1

Introduction

Motivation to participate in sport and physical activity has been extensively researched and discussed in both the descriptive and theoretical domains (Deci & Ryan, 1985, 1991; Frederick & Ryan, 1993, 1995; Vallerand & Bissonnette, 1992; Weiss & Chaumeton, 1992). Motivation in sport research has been aimed at determining why individuals initiate and continue participation, discontinue one sport in favour of another, or drop out of sport altogether, and why effort varies for different sporting activities. The descriptive studies have provided an abundance of information on participation patterns and reasons for continuing or dropping out of a particular activity. Many of the most common reasons cited by adolescents are based on internal motives for example, they participate for fun, curiosity, or personal mastery. External motives such as winning, receiving trophies, or gaining approval are rated as less important reasons for participation (Brodkin & Weiss, 1990; Gill, Gross, & Huddleston, 1983; Gould, Feltz, & Weiss, 1985; Klint & Weiss, 1986; Longhurst & Spink, 1987; Passer, 1982; Wankel & Kreisel, 1985; Weiss & Chaumeton, 1992; Weiss & Petlichkoff, 1989). The most common reasons for discontinuation from specific sports are "conflict of interest" and desire to try new sports in which participants felt they could play better (See above list of citations). The descriptive studies provide a solid base from which an understanding of participation and attrition can be understood. In order to advance scientific understanding, however, researchers need to focus on testing and modifying existing theories (Gould, 1982; Gould & Petlichkoff, 1988; Weiss & Chaumeton, 1992).

The internal and external motives put forward in descriptive studies can be re-classified as intrinsic and extrinsic motivation, respectively. One common theory used for testing intrinsic and extrinsic motivation orientations is cognitive evaluation theory (Deci and Ryan, 1985, 1991). The basic tenets of cognitive evaluation theory, that increases in either self-determination (degree of autonomy an individual has making choices, such as selection of which sport to play), and/or perceived competence (personal appraisal of skill level) generate similar increases in intrinsic motivation, have been widely reviewed in the sporting sphere (Deci & Ryan, 1985, 1991; Frederick & Ryan, 1995; Vallerand, Deci, & Ryan, 1987; Weiss & Chaumeton, 1992). Researchers testing cognitive evaluation theory have generally explored the impact of rewards, feedback, competition, and significant others (e.g., coaches) on an individual's motivation for a specific task, and their results provide strong support for Deci and Ryan's proposals. Studies to date have focused on the changes to either self-determination or perceived competence as a result of a specific intervention (e.g., positive feedback, [Vallerand & Reid, 1988]), and the impact on behavior.

This study involved measuring both constructs of cognitive evaluation theory, self-determination and perceived competence, concurrently, for an Australian population. In addition, the researcher sought to evaluate the different levels of perceived competence and self-determination for gender as well as across three age groups. The gender assessment was based on two traditional, gender specific, Australian sports. Australian rules football "footy," first played in Australia in 1858, is predominantly played by males. Netball, which was first played in Australia in 1908, is predominantly played by females. Both sports have very high participation rates in schools and local clubs (Australian Sports Commission,

1995). Club level involvement is available in both sports for participants into middle age at any skill level/standard. The results of this study on gender specific sports will be compared to previous sport/gender research that suggested females were more intrinsically motivated than males, and males were more extrinsically motivated than females (Briere et al., 1995; Fortier et al., 1995; Pelletier et al., 1995;Weiss & Chaumeton, 1992). Frederick and Ryan's (1993) study which contradicts the previous gender findings, will also be compared.

The age groups assessed were: 10-11 years, 13-15 years, and 17-18 years. Age group comparisons were included because most descriptive studies have found "conflict of interest" to be the most important reason for discontinued sport involvement (Weiss & Chaumeton, 1992). It was speculated that children at 10 and 11 years have fewer time constraints and less academic pressure than teenagers, so more free time can be allocated to sport. At 13-15 years social involvement and school pressures increase forcing many sport participants to make choices about the amount of time they can give to sport. The 17 and 18 year olds experience even more conflicts as social activities, part-time work, and increased demands of school work compete with time available for other activities such as sporting involvement.

The age levels were also selected according to expected changes in perceived competence. Nicholls proposed that before approximately 12 years of age children do not differentiate between the concepts of ability and effort, or between the concepts of ability and task difficulty (Nicholls, 1978; Nicholls & Miller, 1983). Before this age children tend to assess task difficulty according to whether they believe they can successfully perform the task, rather than using a social comparison. Thus, children perceive ability as high for

tasks that require a lot of effort for successful completion. Once ability and effort are differentiated (approximately 12 years of age), ability is conceived as a capacity, and task difficulty is determined by the number of people who can perform the skill. Social comparison becomes an important factor for the perception of competence.

The tenets of cognitive evaluation theory not only enable researchers to focus on theoretical aspects, but also, to investigate applied issues. An important applied issue in sport participation is dropout rates. Pelletier, Brière, Blais, and Vallerand (1988) have reported that links exist between self-determination and dropout. That is, less self-determined athletes are more likely to dropout than athletes who have higher self-determination. They also reported that among swimmers the self-determined style of motivation predicted persistence in the sport up to a year later. Integral to all applied research using cognitive evaluation theory is the assumption that intrinsic motivation and self-determination are advantageous in sports (Pelletier, Fortier, Vallerand, Tuson, Brière, & Blais, 1995). This study will assess the differences in self-determination and perceived competence for respondents indicating their intent to discontinue participation and compare these results with a group of respondents who intend to continue participation. The links between self-determination and perceived competence in athletes who continue/dropout may enhance the prediction of continuing sport participation.

CHAPTER 2

Literature Review

This chapter summarises the major findings of descriptive research related to motivation in youth sport. A summary of cognitive evaluation theory, the theoretical model used in this study, will also be included. Previous research testing cognitive evaluation theory with respect to the effects of rewards, feedback, and competition will also be presented. Applied research in the sport domain will be included throughout the review of cognitive evaluation theory. Finally, the rationale and hypotheses relevant to this study will be outlined.

Descriptive Research

Motivation in youth sport has been widely researched using descriptive methodologies (Brodkin & Weiss, 1990; Gill, et al., 1983; Gould, et al., 1982; Gould, Feltz, Weiss, & Petlichkoff, 1982; Klint & Weiss, 1986; Longhurst & Spink, 1987; Orlick, 1974; Passer, 1982; Sapp & Haubenstricker, 1978; Wankel & Kreisel, 1985). In early studies, the search for reasons to explain initiation, continuation, and selection of preferred sports, revolved around determining the rewards for sport behaviour (Frederick & Ryan, 1995). Researchers have found that there are many factors motivating youth participants to play sport. The exhilaration of speed, the successful negotiation of a difficult play, the enjoyment derived from playing with friends, winning prizes, or gaining peer approval are some of the many inducements to participate (See above list of citations). From the abundance of descriptive data a number of common factors influencing participation have emerged. These include a desire for competence, fitness, team affiliation, competition, and fun/enjoyment (Weiss & Chaumeton, 1992).

Descriptive studies also investigate why participants dropout of sport. An early study by Orlick (1974) reported findings on youth dropout rates, which stimulated further research into the motivation of people who leave sport. Orlick interviewed 60 former Canadian sport participants and reported that the majority of children dropping out of sport cited negative experiences such as reduced playing time and dislike of the coach as causes. A larger study (N = 1183), seeking to determine whether Orlick's findings were valid, was carried out by the Michigan Youth Sports Institute (Sapp & Haubenstricker, 1978). They discovered that although attrition rates were high, the negative reasons cited in the Orlick studies accounted for only a small percentage of those who dropped out. In further studies, Klint and Weiss (1986) and Gould, Feltz, Horn, and Weiss (1982) found that children participate in a number of sports at different levels of intensity (e.g., children focus more attention and try harder in some sports more than others). Klint and Weiss and Gould, et al., proposed that many participants who dropout of sports are actually sport transfers (i.e., they dropout of one sport in order to concentrate on another). The many descriptive studies have revealed that the most common reasons identified as contributing to the decision to discontinue involvement are positive, not negative, as found in the Orlick studies. The most common reasons cited are conflicts of interest, and the desire to pursue other activities, especially those in which the participant felt greater success could be attained (Burton & Martens, 1986; Gould, et al., 1982; Klint & Weiss, 1986; Robinson & Carron, 1982; Weiss & Chaumeton, 1992).

Collectively, these studies began to reveal that the most salient motives for participation (excluding professionals) were intrinsic, (e.g., interest, enjoyment, and challenge). The growing understanding of the importance of intrinsic motivation stimulated

further research into factors that could enhance or diminish a participant's intrinsic motivation, and the corresponding level of sport involvement (Frederick & Ryan, 1995). Researchers also sought to test and refine theoretical models in order to enhance their understanding of intrinsic motivation.

Theoretical Research

Harter (1978; 1981) developed a theoretical model called competence motivation theory to study youth sport participation motives. Harter proposed that participants are motivated to exhibit competence in an area of personal achievement through learning and demonstrating skills. She also stated that successful completion of skills enhances feelings of efficacy, which, in turn, enhances motivation. The constructs of perceived competence and perceived performance controls, as contributors to motivation, were the basic constructs used to make theory predictions. Competence motivation theory suggests that individuals high in perceived competence and internal control will exert more effort, persist at achievement tasks for longer periods and experience greater positive affect than individuals who are lower in these constructs. A number of researchers have tested Harter's theory and found concurring results (Feltz & Petlichkoff, 1983; Klint & Weiss, 1987; Roberts, Kleiber, & Duda, 1981).

Social exchange theory is another theory used to test the concepts of burnout, dropout and continued participation. Thibult and Kelley (1959) stated that social behavior is motivated by a desire to maximise positive and minimise negative experiences. As long as favourable results are achieved the individual will remain involved. Favorability was considered to be a function of both costs and benefits, and satisfaction with the activity engaged in or with alternative activities. Therefore, they stated that an individual will

weigh up the costs and benefits in a current activity against those of an alternative activity and decide whether to continue or take up the other activity.

Gould (1987), and later, Gould and Petlichkoff (1988), included elements of social exchange theory in their later models, designed to develop a more accurate model to predict persistence and withdrawal. Gould and Petlichkoff's (1988) theoretical framework described the reasons young athletes cited for sport participation and withdrawal, and explained the cognitive processes influencing these decisions. They integrated Gould's (1987) motivational model of youth sport withdrawal, which was designed to incorporate descriptive and theoretical literature into a conceptual framework, with a modified version of the original model designed to explain motives for youth sport participation. This third model was designed to provide practical guidelines for maintaining and enhancing motivation in young athletes. This model, was later expanded by Schmidt and Stein, (1991) to include Kelley's (1983) concept of commitment.

Schmidt and Stein (1991) stated that the previous models proposed by Gould (1987) and Gould and Petlichkoff (1988) which included elements from Thibaut and Kelley's (1959) social exchange theory, overlooked an important aspect of that theory; commitment. Schmidt and Stein stated without commitment included in the model it would be difficult to predict or differentiate between athletes who continue, those who drop out, and those who burn out. Schmidt and Stein's model of sport commitment integrated enjoyment, dropout, and burnout. They integrated Rusbult's (1983) investment model, which stated that commitment is based on satisfaction, alternatives and investments. Schmidt and Stein proposed that the inclusion of Rusbult's investment model could enable the identification of factors that distinguish between continued participation, dropout, and burnout. They

stated that the combination of alternatives and investments distinguished burnout from dropout. Individuals at risk of burnout perceive the alternatives as less attractive or non-existent, whereas individuals at risk of dropping out can see alternatives as equal to, or more attractive than the current activity. For example, the greater the investment of time in an activity, the less likely an athlete is to discontinue as they have invested too much effort to receive no benefits. However, in an activity where the investment is high but the costs outweigh the benefits, the individual who continues to participate in an effort to derive benefits is prone to burn out. Schmidt and Stein concluded that this model provides a clear, conceptual guide to distinguish various concepts (eg., between commitment and its antecedents) and to develop specific scales to measure these components.

Many of the reasons for participation proposed by participants, can also be framed in theoretical perspective's, for example, the motivational orientation. Frederick and Ryan (1993) investigated motivational differences between participants who primarily took part in an individual sport and those who participated in a fitness or exercise based activity. Participants in the study who ranged in age from 18-75 years were required to complete a 23 item questionnaire called the motivation for physical activities measure. The researchers measured three participation motivation factors: interest/enjoyment, competence, and body-related motives. They found that individual sport participants showed higher levels of interest/enjoyment and competence motivation than the fitness participants. The fitness participants scored higher on body-related motivation. Individual sport participants cited aspects of the task as reasons for participation, characteristic of intrinsic motives, whereas, fitness participants tended to cite motives related to attractiveness and fitness. A gender comparison revealed that body related concerns were a more satient reason for participation

among women than men. Gender of participants did not directly predict competence motivation or interest/enjoyment.

In another study investigating intrinsic motivation and exercise adherence, Ryan, R. M., Frederick, Lepes, Rubio, and Sheldon compared participants in two physical activities: Tae Kwan Do and aerobics. Participants were required to complete questions related to demographics, background, and participation motives at the beginning of their program. They were also required to fill in a log book entry to record attendance at each class. The researchers found that the Tae Kwan Do participants were higher in enjoyment and competence motives than the aerobics participants, and lower in body-related motives. The Tae Kwan Do participants also exhibited better adherence patterns. They also discovered that enjoyment motives mediated the differences in adherence between the two groups. In a second study, investigating adherence, 155 participants who joined a nautilus centre agreed to complete the motivation for physical activities measure-revised, before beginning their program. The researchers found, that adherence to exercise was related to enjoyment, competence, and social interaction. Motives related to fitness, or appearance, were not associated with adherence.

The relationship between motivational orientation and persistence/dropout decisions in sport will be explored in this paper. One theory based on motivational orientation, was proposed by Deci and Ryan (1985). They developed a broad-based theory of intrinsic motivation which included three mini-theories. Cognitive evaluation theory, which is the best articulated of the three mini-theories, is used extensively in motivation research.

Cognitive Evaluation Theory.

Cognitive evaluation theory was derived from earlier theories of competence and self-determination (deCharms, 1968; White, 1959). Frustrated with the simplicity and inadequacies of drive theories, especially those outlined by Hull (1943) and Freud (1962/1923), White (1959) proposed a new concept called "competence" to be applied to motivation theory. White's competence concept suggested that organisms were active rather than passive within their environment. He used the term competence to refer to any individual's ability to interact effectively with his/her environment. In order to explain how people learn to deal with their environment effectively, White suggested that the concept of competence must be interpreted motivationally. That is, competence is selected as a desirable attribute by the individual. He also proposed that competence could not be fully acquired through behaviour initiated simply as a result of drives. White proposed that activities such as play and exploration, which can be directed, selective, and require persistence in interacting with the environment, provide integral contributions to competence. White proposed that these activities are persisted with because they satisfy an intrinsic need to deal with the environment, not because they serve a primary drive. These activities could not satisfy a primary drive until they were perfected. White also proposed that dealing with one's environment in a capable manner generated feelings of efficacy (positive feelings of competence about ability). White suggested in his concept of effectance motivation that individuals explore, vary, and experiment with how the environment can be changed, and observe the consequences that result from the changes. The feeling of satisfaction experienced as a result of behaving competently, reinforces the behavior. He suggested that an organism will pursue behaviours that allow it to experience

the feelings of competency and/or efficacy in dealing with its environment, simply for the intrinsic reward (e.g., the reward inherent in doing the activity rather than gaining a prize). deCharms (1968) concurred with White's (1959) proposal of competence as an explanation of intrinsically motivated behaviour. He added, however, that intrinsically motivated behaviour was influenced by personal causation as well as competence. deCharms outlined the concept of personal causation as a person's desire to be the originator of their own behaviour. He explained that intrinsically motivated behaviour results from a person's desire to choose their own behaviour while dealing competently with the environment.

Deci (1971) combined the concepts of White and deCharms to propose that an individual's desire to feel competent and self-determining (some degree of choice over behavior selection) underlies intrinsically motivated behaviour. He suggested that individuals considered to be intrinsically motivated participate in activities for the pleasure derived from the activity itself, and not for any external rewards. He also explained that the desire to feel competent and self-determining can motivate two general types of behaviours: behaviours motivated by one's desire to be challenged and behaviors aimed at conquering challenging situations (Deci, 1975). Deci (1975) asserted that to feel competent and self-determining a person will not only try to deal effectively with their environment, but they will also actively seek out situations to test whether they can deal with them effectively. That some people actively seek out challenge in order to feel competent and self-determining, however, should not be presented as a universal condition. Many people seek challenge intermittently and selectively rather than on a daily basis, and in all areas of life. Activities of greater importance to the individual may stimulate the desire to seek out

and deal effectively with the environment but less important, everyday tasks, are unlikely to generate this desire.

Cognitive evaluation theory, first proposed by Deci (1975) to explain the effects of external events (e.g., rewards, or feedback) on intrinsic motivation, was later expanded by Ryan (1982) to include the effects of internal events (e.g., self-regulation). Deci and Ryan reformed cognitive evaluation theory in 1985, and within their updated theory they explained three motivation orientations: intrinsic motivation, extrinsic motivation, and amotivation. Intrinsically motivated activities were those engaged in for their inherent value, simply for the pleasure derived from taking part (Deci & Ryan, 1980, 1985). They include activities voluntarily undertaken such as play, curious exploration, and spontaneous interest in novelty (Deci & Ryan, 1985, 1987). These activities are especially prevalent in children. Intrinsically motivating activities provide the opportunity for challenge, exploration, and feedback (Deci & Ryan, 1985). Sport can provide the opportunity to develop intrinsic motivation because it provides challenge at a range of levels, the opportunity to explore different techniques, internal feedback facilitated by the kinesthetic sense, and external feedback from coaches. Therefore, sports can provide a satisfactory forum for intrinsically motivated individuals.

Contrary to intrinsic motivation, extrinsically motivated behaviours are those engaged in as a means to an end and not for its own sake (Deci, 1975). Those who participate for external rewards, such as prizes and winning, are considered extrinsically motivated. Sport, therefore, can also provide a forum for extrinsically motivated individuals. Many of the world's top athletes are motivated to participate for extrinsic reasons such as attaining a number 1 ranking, financial security, and status. Both intrinsic

and extrinsic reasons can be powerful motivators for initial and sustained sports participation. More research on the influence of extrinsic motivation on participation is required to understand its influence on sport motivation. Because sport provides the opportunity for intrinsic and extrinsic rewards, it is possible that participants (amateur or professional) are motivated by a combination of intrinsic and extrinsic factors. The interplay between the three motivation orientations in sport also warrants research in the future.

Amotivation is a third type of orientation. Deci and Ryan (1985) stated that amotivated behaviors are initiated and regulated by forces beyond the person's intentional control. These behaviors are neither intrinsically nor extrinsically motivated because they are not intentional. Amotivated individuals perceive that they are unable to regulate their actions in order to regularly generate desirable outcomes. In time, they no longer perceive a link between their actions and the resultant outcomes which is similar to learned helplessness (Abramson, Seligman, & Teasdale, 1978). Amotivated athletes cease to identify reasons for continuing to train, and may even stop practicing their sport altogether.

Deci and Ryan (1985) also outlined four propositions to explain changes in intrinsic motivation. They proposed that there are two overriding concommitant forces influencing motivational change: self determination and perceived competence. Self-determination, as outlined by Deci (1975), is the ability to make choices that determine one's actions. When outlining the propositions of cognitive evaluation theory, Deci and Ryan (1985) expressed self-determination in terms of perceived locus of causality. The first proposition states that

> External events relevant to the initiation or regulation of behavior will affect a person's intrinsic motivation to the extent that they influence the perceived locus of

> causality for that behavior. Events that promote a more external perceived locus of causality will undermine intrinsic motivation, whereas those that promote a more internal perceived locus of causality will enhance intrinsic motivation (p. 62).

They suggested that events that generate a perceived external locus of causality and undermine intrinsic motivation, deny self-determination and are perceived to control behavior. When this occurs a person can either comply with the control, rebel against it, or become amotivated. Deci and Ryan theorized that controlling events may also affect creativity and self-esteem relative to activities that support independence. Events generating a perceived internal locus of causality and enhanced intrinsic motivation facilitate self-determination and support independence. The atmosphere (control or support for independence) of the sporting environment can affect the locus of causality.

The second proposition 2 relates to the second concommitant force: perceived competence. Deci and Ryan stated

> External events will affect a person's intrinsic motivation for an optimally challenging activity to the extent that they influence the person's perceived competence, within the context of some self-determination. Events that promote greater perceived competence will enhance intrinsic motivation, whereas those that diminish perceived competence will decrease intrinsic motivation (p. 63).

Deci and Ryan proposed a link between self-determination and perceived competence in Proposition 2. They suggested that perceived competence will be increased as a result of success, or positive feedback, as long as the participant experiences some self-determination in the activity. Persistent negative feedback, or failure can generate perceived incompetence. This second proposition is limited by the inference that changes

in intrinsic motivation only occur when the participant is involved in optimally challenging activities. Firstly, optimal challenge is an extremely difficult concept to define. It may vary for each individual, or for the same individual on a daily basis. In addition to the difficulty of recognising an optimal challenge, many individuals may experience increases in perceived competence as a result of successfully completing less than optimal tasks (e.g., a champion tennis player may enhance their perceived competence when he/she wins through the early rounds against lesser ranked players). Another weakness of the first two propositions, is that the effect of self-determination and perceived competence on extrinsic motivation is not explored. It is highly plausible that increases in perceived competence may generate increases in extrinsic motivation as well as increases in intrinsic motivation (e.g., "I enjoy tennis and am good at it, maybe I can win lots of trophies, and even earn a living from tennis"). Increases in self-determination may also increase extrinsic motivation (e.g., "I'm going to practice really hard so that I can win trophies, and earn prize money.")

The third proposition outlines three different aspects relevant to initiating and regulating behavior: information, control, and amotivation aspects. Choice and positive feedback tend to provide an informational aspect, rewards and deadlines tend to provide a control aspect, and negative feedback promotes the amotivating aspect. They stated that

> Events relevant to the initiation and regulation of behavior have three potential aspects, each with a functional significance. The informational aspect facilitates an internal perceived locus of causality and perceived competence, thus enhancing intrinsic motivation. The controlling aspect facilitates an external locus of causality, thus undermining intrinsic motivation and promoting extrinsic compliance or defiance. The amotivating aspect facilitates perceived incompetence, thus

> undermining intrinsic motivation and promoting amotivation. The relative saliance of these three aspects to a person determines the functional significance of the event (p. 63).

Deci and Ryan suggested that each aspect may be salient to different people, and that at different times different aspects may be salient to the same individual. They also proposed that the salience of the three aspects to an individual can affect the changes in self-determination and perceived competence that ultimately influence intrinsic motivation. As in the first two propositions, Deci and Ryan do not discuss the impact of these aspects on extrinsic motivation. The informational aspect may increase extrinsic motivation as well as intrinsic motivation (e.g., "You can hit the ball powerfully, you have a lot of talent". "Maybe I can win the best player award this year."), as can the control aspect (e.g., rewards and player payments, which can be experienced as controlling behavior, can often generate a desire for more rewards). Deci and Ryan also do not discuss the possibility that more than one aspect may be saliant at any one time such as in an informational, yet controlled environment (e.g., "Serve precisely like this! No, that wasn't right, turn your foot this way. Now try it again. Yes, that was right).

The final proposition, added in 1985, addresses the impact of internal events on motivation orientation.

> Intrapersonal events differ in their qualitative aspects and, like external events, can have varied functional significances. Internally informational events facilitate self-determined functioning and maintain or enhance intrinsic motivation. Internally controlling events are experienced as pressure towards specific outcomes and undermine intrinsic motivation. Internally amotivating events make salient one's

incompetence and also undermine intrinsic motivation (p.107).

As in the first three propositions, the impact of internal events on extrinsic motivation is not discussed, nor is the possibility of more than one aspect being salient at the same time. Many studies using cognitive evaluation theory to understand changes in motivation, have concentrated primarily on the factors enhancing or diminishing intrinsic motivation (Frederick & Ryan, 1995). There is very little research, however, investigating the merits and influence of extrinsic motivation or amotivation. Another area of motivation orientation research that has been ignored is the interplay of intrinsic and extrinsic forces. For example, enjoyment and fun are cited as major (intrinsic) factors influencing participation, but these emotions are often shaped by extrinsic factors such as friends/team mates, coaching, and playing time. Both areas merit research in order to gain a greater understanding of the motivation orientation continuum proposed by Deci and Ryan (1987, 1991).

Originally, Deci and Ryan (1985) viewed extrinsic motivation as non self-determined behaviour that could only be activated by external contingencies such as rewards. More recently, Deci and Ryan (1987, 1991) in conjunction with colleagues (e.g., Ryan, Connell, & Grolnick, 1990), proposed that there are different types of extrinsically motivated behaviour and that not all forms of extrinsic motivation lack self-determination. They proposed that the different types of extrinsic motivation, intrinsic motivation, and amotivation appear at various points along an ordered self-determination continuum. A total of seven styles of motivation were proposed: three types of intrinsic motivation, three types of extrinsic motivation, and amotivation. Intrinsic motivations are considered to be at the most self-determined end of the scale; forms of extrinsic motivations vary from self-

determined to non self-determined, and amotivation is at the least self-determined end of the continuum.

Intrinsic motivation to know encompasses factors such as exploration, curiosity, desire to learn, understand, and generally know about the environment. Individuals who perform activities simply for the pleasure experienced while learning something new are intrinsically motivated to know (e.g., a baseball player who participates for the pleasure derived from learning new game strategies). The second style, described as intrinsic motivation to accomplish things, has been widely studied in developmental psychology and educational research in the guise of mastery motivation, efficacy motivation, and task orientation. This motivation style is epitomised by individuals who participate for the pleasure experienced when accomplishing a difficult task (e.g., a hockey striker who enjoys the challenge and satisfaction of developing a reverse stick undercut at goal). The third intrinsic motivation is intrinsic motivation to experience stimulation. This is typical of those who participate for the fun, excitement, and intense emotions experienced during the activity (e.g., excitement and exhilaration experienced while bungie jumping or playing in a grand final).

The extrinsic motivation style considered to be one of the more self-determined is identified regulation. An individual who learns to value a behaviour as important and therefore performs it through choice is considered to have identified regulation. They still participate for extrinsic reasons such as a desire to please significant others, however, the behaviour is internally regulated and self-determined. An athlete who jogs to maintain a fitness level required by the coach, but who has also come to value a high level of fitness as personally desirable, exhibits identified regulation traits. Introjected regulation, the second

style of extrinsic motivation, includes behaviours that result from internalisation of an external source of motivation so that the actual presence of the external source of motivation is no longer necessary. The individual applies their own internal pressure such as guilt or anxiety to reinforce behaviour. This is evident in athletes who participate in sport as a result of pressure to look good from parents, and internalise these desires so that they feel ashamed if they are not always in best form (e.g., gymnasts who train in order to feel good about themselves and experience guilt if they do not exercise regularly). The least self-determined extrinsic motivation is external regulation. These individuals participate for the material rewards or constraints imposed by significant others. Athletes who participate to receive trophies or to appease parental pressure are motivated by external regulation. Many professional athletes experience this form of motivation to some degree as they strive to be #1, win prize money, and trophies. It is important to note that while any athlete, either professional or amateur, may experience one motivation orientation more predominantly, it would be most unlikely that they do not experience any other forms of motivation. Most athletes would experience a combination of motivation orientations (e.g., a professional footballer may play because he loves the game, experiences intense emotions when playing, and earns his income). Amotivation is the least self-determined. As mentioned earlier the individual no longer perceives a link between their actions and the effect of their actions. They feel they are incompetent, and they lack control (Deci & Ryan, 1985). Amotivated athletes can no longer explain reasons for their involvement and could discontinue participation.

Research Testing Cognitive Evaluation Theory

When assessing the third and forth propositions of cognitive evaluation theory in relation to controlling or informational events, three clear categories of research have emerged: (a) the effects of rewards, (b) the quality and quantity of feedback, and (c) the effects of competition. Studies examining the effects of rewards have primarily focused on the controlling aspect of intrinsic motivation, and in relation to cognitive evaluation theory have addressed changes to self-determination or perceived locus of causality (Deci & Ryan, 1985; Greene, Sternberg & Lepper,1976; Ryan, Mims, & Koestner,1983; Thomas & Tennent, 1978). The primary research focus for feedback has been on the informational aspect of intrinsic motivation, and the changes in perceived competence outlined by Deci and Ryan (1985). Competition research has addressed the interpersonal and intrapersonal aspects outlined in cognitive evaluation theory (Epstein & Harackiewicz, 1992; Reeve, Olson, & Cole, 1985, 1987; Vallerand, Gauvin, & Halliwell,1986a, 1986b). The research findings in all three areas have generally supported the hypotheses of cognitive evaluation theory and have resulted in various practical applications in the sport setting.

Intrinsic motivation and rewards. Many early studies on the impact of rewards investigated activities that were genuinely interesting for the participants in which a reward was provided, and the effect on intrinsic motivation was recorded (Calder & Staw, 1975). Two popular methods of measuring intrinsic motivation are the three-session paradigm (Deci, 1971), and the one-session paradigm developed by Deci (1972). In the three session paradigm an initial pre-test session was used to record each participant's intrinsic motivation before they experienced the research conditions. This was usually measured by the amount of interest the participant showed in the activity. During the second session the

participants spent time on a set task (e.g., a puzzle, or drawing task) and received the reward conditions applicable to the group to which they had been assigned. In the final session the researcher left the room on some premise and the participants were told to amuse themselves using any of the equipment present until the researcher returned. The set task was included in the choices made available in the room. The researcher would surreptitiously observe the time the participant spent on the set task, and this became a measure of intrinsic interest in the activity. In some cases, participants also completed a survey as part of the final session as well. The amount of time spent on the activity during the third session was used as an indication of the level of intrinsic motivation. This method had three potential weaknesses. The first weakness was that the experimenter was present during testing, so may have influenced the participants unconsciously. The second weakness was that the same experimenter observed all three sessions, therefore, was aware of the conditions the subjects were in, which could have biased the recording time (Deci & Ryan, 1985). Lastly participants expressed difficulty attending three sessions. Deci (1972) replicated his earlier study on rewards, but adapted the methodology to create the one-session paradigm. In this research method the participants worked on a set task for a specified time. The experimenter sat in an adjacent room and instructed the participant through an intercom. The participant was aware that the experimenter was in the adjacent room. After the test period the experimenter informed the participant that he had to leave the room for some credible reason. While the experimenter was away a colleague observes the participant surreptitiously. The time spent on the set task during this period provided a measure of intrinsic motivation. Despite addressing the problems outlined, both methods seem flawed. The assumption is that the participants who spend less time on the set activity

during the free choice period after testing, experience diminished intrinsic motivation for that activity. It is possible, however, that instead of intrinsic motivation being diminished for the set task, intrinsic motivation to explore untouched activities in the room may be more salient. When given the opportunity to choose from a range of activities many people naturally explore the activities that they had not been previously engaged in. It would be anticipated that this desire to explore will decrease the time spent on the set activity automatically, as the participant had already spent considerable time on it. Some participants may spend much less time on the set task regardless of rewards, because of varying personal character traits such as curiosity. This could, therefore, bias some results more than others. Other researchers posited that the free-choice paradigm was flawed because at times free-choice persistence reflected other types of internal motivation than intrinsic motivation (Ryan, Koestner, & Deci, 1991; Ryan, et al., 1983). Ryan, et al., concluded that free-choice persistence should be viewed as a measure of the general construct of intrinsic motivation, rather than the specific construct of intrinsic motivation.

Deci's (1972) study using the one-session paradigm, investigated the effects of small monetary rewards on intrinsic motivation for an undergraduate university population. The task was to make as many specific puzzle configurations as possible in a set time period. Reward and no-reward conditions were established with participants in the reward group receiving $1 for each correct configuration. After the test conditions participants were given similar opportunities to spend time at a variety of tasks including the puzzle task. Deci reported that participants in the reward group did not spend as much time on the task when the reward was no longer available. He concluded that intrinsic motivation for the task had diminished when the reward was removed. In accordance with cognitive

evaluation theory, rewards can be viewed as controlling, which could account for this decrease in intrinsic motivation. As stated previously, however, researchers have speculated that the decrease in free-choice persistence on the specific choice could be the result of other internal motivation factors not just intrinsic motivation (Ryan, et al., 1991; Ryan, et al., 1983) . Other studies using varied activities as the set task, with money as the reward, supported Deci's findings and interpretation of results (Calder & Staw, 1975; Pinder, 1976; Pritchard, Campbell, & Campbell, 1977).

An early criticism of reward research was that only interesting tasks were selected for testing. In order to determine the validity of this criticism, Calder and Staw (1975) instructed participants to complete either an interesting or non-interesting puzzle task, after which some were given monetary rewards and some received no-rewards. They found that the reward decreased task enjoyment, time spent on the task during the free choice time, and intrinsic motivation for those completing the interesting puzzle. This also supported previous findings obtained by Deci (1971, 1972). Those completing the non-interesting puzzle found that the reward increased their enjoyment and intrinsic motivation for the task. The increase in interest in the reward group is contrary to previous findings. Calder and Staw concluded that rewards for interesting tasks undermined intrinsic motivation, however, rewards for uninteresting tasks increased intrinsic motivation. Deci, Cascio, and Krussell (1975) and Deci and Ryan (1985) disagree, however, that intrinsic motivation was increased in this study for the group completing uninteresting puzzles. They argue that the monetary reward actually increased their extrinsic motivation for the task. Regardless of whether intrinsic or extrinsic motivation for the uninteresting task was increased, motivation to continue on a dull task was increased. This suggests that for some activities,

such as jogging or lap swimming, which can initially be perceived by people as uninteresting, may become more attractive if rewards are provided initially, such as certificates or tee-shirts. This could be particularly successful in school sporting programs seeking to encourage regular physical activity.

Lepper, Greene, and Nisbett (1973), in the first study of intrinsic motivation in children, expanded Deci's two reward conditions (e.g., reward and no-reward) to three (e.g., reward, unexpected reward, and no reward), to investigate the impact of expected and unexpected rewards on intrinsic motivation. The task was to complete drawings using special magic markers. The reward was a "good player" award, which was in the form of a certificate with the childs name, a gold star, and a red ribbon. Certificates were to be pinned on the notice board. The first group were told they would receive an award for drawing pictures, and the other two groups were not initially told about the awards. The second group was given the award at the end of the test period unexpectedly, and the third group received no awards. During the free-choice period several days later, the children in the award group spent less time on the task than those in the unexpected and no-reward groups. The researchers concluded that expected rewards decreased intrinsic motivation which again supports earlier findings. Unexpected rewards, however, did not decrease intrinsic motivation. According to cognitive evaluation theory the expected rewards could have been viewed as controlling, so decreased intrinsic motivation, however, the unexpected reward group, did not experience the event as controlling as they were unaware that they would receive a reward. It would be interesting to explore the effect of repeated, unexpected rewards to assess whether these are eventually viewed as controlling, as expected rewards seem to be.

A later study, Greene and Lepper (1974), tested the impact of competitive rewards. The same magic markers were used by children to draw pictures, and the certificate was provided as the reward. The first group were told that all participants would receive rewards, and the third (control) group were not told of any rewards. The second group in this study were told that only the people who drew the best pictures would receive rewards. Participants in both reward groups spent less time on the activity during the free choice period, and the researchers concluded that intrinsic motivation for these two groups was diminished relative to the no-reward group. These combined studies provide solid support for the notion that rewards undermine intrinsic motivation, except when they are received unexpectedly.

The three-stage paradigm experimental design was later adapted for testing the impact of rewards in the physical domain by Orlick and Mosher (1978). The task was to balance on a stabilometer. Participants in one group were given trophies for taking part in the test, and participants in the control group were given no trophies. In this study, children were observed in a free-play period prior to being placed into the testing condition to assess interest in the activity. Children were instructed to try to balance on the stabilometer for as long as possible during the testing period. The children who had received rewards during the testing period spent less time on the activity during the free-choice period four days later. The children who did not receive rewards spent more time on the task in the later session. Orlick and Mosher concluded that intrinsic motivation for physical activities is undermined by rewards. This adds more support for the concept that rewards undermine intrinsic motivation. As stated earlier, the undermining of intrinsic motivation does not exclude the possibility of an increase in extrinsic motivation as a result of the reward. No

rewards were available to any participants in the free-choice period so any increase in extrinsic motivation as a result of the rewards is not able to be assessed. It would be of value to provide participants in the reward condition further rewards for participating in the set task during free-choice, then assess the time spent on the activity.

Another important area of reward research investigated the impact of rewards that were contingent on specific conditions. Research investigating contingent rewards can be divided into three conditions: task contingent rewards, performance contingent rewards, and task versus performance contingent rewards. Task contingent rewards are provided to participants who attempt, or complete the task, and performance contingent rewards are provided if the participant reaches a set standard (e.g., norm values supplied to participants). In the Deci (1972) study previously outlined, task-contingent monetary rewards, were found to decrease intrinsic motivation for the puzzle task relative to the no-reward group. In another study by Weiner and Mander (1978) participants were divided into three groups. One group was rewarded for completing the task, one group was rewarded for working on the task, and the third group received no reward. The intrinsic motivation of both reward groups was reported to be decreased. The decrease in the intrinsic motivation for the group having to complete the task to gain the reward was more marked than the other reward condition. These studies lend further support to the proposal that rewards, either task contingent or not, have been found to decrease intrinsic motivation relative to participants who receive no rewards.

Performance-contingent rewards increase the salience of the control/informational aspect of the reward. By instigating a performance standard, the reward is more controlling, but the informational value of the reward can be increased (Deci & Ryan, 1985). They

suggest that performance-contingent rewards will generally provide positive feedback about performance, however, they do not address the feedback associated with an inablity to secure the reward, which is an area that warrants further research. Harackiewicz (1979) investigated the relationship between performance-contingent rewards and no-rewards. This study consisted of a group receiving rewards contingent on whether the experimenter decreed that they had performed above an acceptable standard, a second group received rewards contingent on beating set norms, and the third group received no-rewards. The task was to find hidden figures in a picture, and the rewards were prizes. Intrinsic motivation was enhanced for the group receiving rewards contingent on beating set norms relative to the control group. The first group who received rewards, but were unsure of the standard required to receive the rewards, had a significantly lower level of intrinsic motivation relative to the no-reward group. The increase in intrinsic motivation for the norm-reward group provided inconsistent findings compared to other reward research. Ryan, et al. (1983) addressed this inconsistency in a later study. They proposed that the second group, experienced positive feedback about competence on receiving the reward. This group, therefore, received rewards in an event with an informational aspect. The increase in perceived competence overroad the negative impacts of the reward. The first group did not experience an increase in perceived competence as they were unaware of the standard required to gain the reward. As a result the reward was viewed as controlling, not informational, resulting in a decrement in intrinsic motivation.

Ryan, et al. (1983) study, in which undergraduate university students were instructed to work on puzzle-solving tasks, compared task and performance-contingent rewards with no reward groups. This study included two performance-contingent reward conditions:

informationally administered performance-contingent rewards (ie. administered in the absense of undue pressure), and controllingly administered performance-contingent rewards (ie. administered in an atmosphere of pressure to perform). They also included one group who received task-contingent rewards, and one group who received no-rewards. When compared to the task-contingent reward group, the intrinsic motivation of the informationally administered performance-contingent reward group, was enhanced. The intrinsic motivation of the controllingly administered performance-contingent reward group, was the same as recorded for the task-contingent reward group. Deci and Ryan (1985) suggested that the positive feedback in the performance-contingent reward group was offset by the controlling nature of the administration, however, in the informational environment the positive feedback surpassed the negative effect of the reward.

In addition to the reward research carried out on children, adolescents, and undergraduate students as previously reviewed, Ryan, E. D. (1977, 1980) carried out two studies on collegiate athletes to explore the effects of scholarships on intrinsic motivation. These studies were carried out using questionnaires not observation. The first study involved measuring intrinsic motivation of male football scholarship and non-scholarship athletes. The scholarship holders indicated lower levels of enjoyment and more extrinsic motives for participation than non-scholarship athletes. He concluded that these results indicated that the scholarships were viewed as controlling athletes' behaviour, and therefore, undermined intrinsic motivation. The second study investigated the effects of sport scholarships on the motivation of both males and females toward their sport. The findings showed that the intrinsic motivation of male football players for their sport, was diminished by scholarships, but the intrinsic motivation of the male wrestlers, and female

athletes was not undermined. E. D. Ryan summarised these equivocal findings using cognitive evaluation theory. He argued that football players were under greater pressure to perform because the sport had a high profile on campus, was allocated a large percentage of college sport funds, and expectations of success were high. Ryan speculated that the football scholarship was perceived by the recipients as a means of controlling participation on the team. Ryan argued, that in contrast to male footballers, female athletes and male wrestlers, who at the time of the study received far fewer scholarships than football players, interpreted the scholarship as an acknowledgment of their personal competence. Thus, their awards (scholarships) were viewed as informational, and enhanced rather than undermined their intrinsic motivation. In a more recent study of collegiate athletes, Wagner, Lounsbury, and Fitzgerald (1989) found that scholarship athletes were more likely to perceive their sport as "work" than non-scholarship athletes, and they were more extrinsically motivated. Thus, the participant's perception or interpretation of the reward, whether 5 years old or 25 years old, will ultimately affect the impact of the reward on intrinsic motivation. If the reward is perceived as controlling, intrinsic motivation will be reduced for the task, but if the reward is perceived as being informational, such as performance-contingent, it will enhance intrinsic motivation. In light of the greater amount of research available today, it appears that with careful administration of rewards intrinsic motivation can be enhanced. A greater understanding of how to create an informational rather than controlled environment would seem a more valid solution to maximise the effect of rewards. Finally, more research on extrinsic motivation, and its influence on perceived competence and self-determination is warranted to understand how differing motivation orientations may influence behavior.

Intrinsic Motivation and Feedback. Another area of research that has been used to test cognitive evaluation theory is the impact of feedback, and how it influences perceptions of competence. Deci (1971) was an early researcher in this area. He recruited undergraduate university students to complete a puzzle solving task. One group received positive feedback and the second group received no-feedback. He found that the participants who received positive feedback spent more time on the set activity during the later free-choice activity time relative to the no-reward group. He concluded that intrinsic motivation was enhanced for the group receiving positive feedback. This supports cognitive evaluation theory which proposes that events that have an informational aspect (positive feedback provides information about performance) increase perceived competence and ultimately intrinsic motivation. In a complementary study, Deci and Cascio (as cited in Deci & Ryan, 1985) tested undergraduate university students on the same puzzle task as Deci (1971). The two feedback conditions in this experiment were negative feedback and no-feedback. They found that the group receiving negative feedback spent less time on the task during the free-choice period. They concluded that negative feedback diminished intrinsic motivation. This can also be accounted for using cognitive evaluation theory. The negative feedback increased feelings of perceived incompetence, resulting in a decrement in intrinsic motivation. These early conclusions showed that positive feedback increased intrinsic motivation, and negative feedback decreased intrinsic motivation for a set task relative to no-feedback. Initially this may appear to contradict reward research as rewards carry intrinsic feedback about performance. Why does the receipt of rewards decrease intrinsic motivation, whereas the receipt of positive feedback increases intrinsic motivation? This anomaly can be explained using the propositions of

cognitive evaluation theory. The reward is perceived as controlling behavior, therefore, self-determination is reduced resulting in the decrease in intrinsic motivation. The feedback provides information to increase perceived competence, therefore, increasing intrinsic motivation.

Vallerand and Reid (1984) directly tested the mediating effects of perceived competence on intrinsic motivation for three feedback conditions. In the first of two sessions, male undergraduates participated in a balancing activity on the stabilometer. During the session each participant's intrinsic motivation and perceived competence for the task were assessed. Only participants who exhibited at least moderate levels of intrinsic motivation were required for the second session. In the second session, participants were subjected to one of the three feedback conditions: positive verbal feedback, negative verbal feedback, or no feedback, during their performance. Intrinsic motivation and perceived competence were again assessed at the completion of the activity. The results revealed that the group receiving positive verbal feedback increased their intrinsic motivation and perceived competence, when compared to the no feedback condition, while negative feedback decreased them both. They also discovered, via path analysis, that changes in intrinsic motivation instigated by verbal feedback were mediated by perceived competence. These findings provide support for the premises of cognitive evaluation theory, that positive feedback increases perceived competence, and negative feedback generates a perception of perceived incompetence.

In an earlier study, Vallerand (1983) examined the competence aspect of cognitive evaluation theory in a study that investigated the effects of the amount of feedback on perceived competence and intrinsic motivation. He instructed adolescent hockey players to

watch 24 simulated plays on a screen and indicate how they would respond to each scenario. Vallerand varied the amount of positive feedback comments (0, 6, 12, 18, 24) to each group. Participants who received positive feedback scored significantly higher in perceived competence and intrinsic motivation on questionnaires after the testing period, than those who received no feedback. No difference was found for the amount of feedback provided. This would suggest that as long as the feedback is positive, intrinsic motivation and perceived competence are increased regardless of how much positive feedback is received. Weiss and Chaumeton (1992) believe that Vallerand's comments on positive feedback need to be viewed with caution. They suggested that inappropriately high amounts of positive feedback can be as detrimental to motivation as high amounts of negative feedback. Horn (1985) provided evidence to support the concept that it is the quality of feedback, provided appropriately in respect to performance levels, that is most salient. In a study on youth softball players she found that greater amounts of positive reinforcement feedback resulted in lower perceived competence, while higher amounts of mistake-contingent feedback (feedback providing information on how to perform better) resulted in higher levels of perceived competence. She concluded that higher amounts of positive feedback made players feel that they could no longer improve, whereas the players who received the higher amounts of mistake-contingent criticism felt that they could attain higher levels of competency.

The Ryan, et al. (1983) study previously mentioned, recruited undergraduate psychology students as participants, to examine the effect of positive informational feedback ("You did very well on that one"), positive controlling feedback ("You did very well on that one, as you should"), and no feedback ("O.K., now let's go on to the next

one") to test proposition three of cognitive evaluation theory. An initial interest score in the puzzle task was determined in questionnaires during the first session, so that interest could be used as a covariate in the analysis. Their results supported the importance of self-determination as the group receiving controlling feedback experienced a decrease in intrinsic motivation relative to the group receiving informational feedback. They also found that informationally administered positive feedback enhanced intrinsic motivation relative to no feedback, whereas positive feedback administered in a controlling manner did not show a significant difference from the no feedback group. This supports the proposition in cognitive evaluation theory that when self-determination is compromised, positive feedback and no feedback conditions produce the same effect on intrinsic motivation This is possibly because in the controlled environment participants may "tune out" to all feedback because they do not wish to take part. Further research to test whether this concept has any merit would be valuable.

In a study designed to assess the effect of success and failure feedback, Weinberg and Jackson (1979) tested participants on a stabilometer task. They created a set of norms on which the success and failure feedback could be rated. Participants in the first group were told that they were better than the 82nd percentile (success feedback), and participants in the second group were told that they were better than the 18th percentile (failure feedback). They concluded that success feedback led to higher levels of intrinsic motivation than failure feedback, based on scores recorded after the test on task interest, enjoyment, and excitement. Success feedback, like positive feedback increases perceived competence and intrinsic motivation, whereas failure feedback increases perceived incompetence, similar to negative feedback, and decreases intrinsic motivation.

In another study carried out by Vallerand and Blais (1986) to understand the mediating effects of perceived competence on intrinsic motivation, male and female basketballers completed questionnaires immediately following the first game of a tournament. The questions were designed to assess intrinsic motivation, perceived competence, attributions, and performance assessments. Path analysis showed that the more negative the performance appraisal, the lower the competence, and in turn, the lower the intrinsic motivation. External negative attributions related to the coach, other players, and the court were also deemed to have had a negative impact on intrinsic motivation. Internal attributions had a positive effect on intrinsic motivation for those who rated their performance as a success. In both the success and failure conditions, competence effects were the main determinants of changes in intrinsic motivation. These studies therefore lend further support to cognitive evaluation theory.

McAuley and Tammen (1989) also found support for Deci and Ryan's proposition that changes in intrinsic motivation generated by feedback are mediated by subjective changes in perceived competence. Undergraduate university physical education students were instructed to complete a basketball shooting task. Participants were restricted to a jump shot 5 - 15M from the basket. The task was to shoot a basket then the opposing player would try to replicate the shot. Failure to shoot a basket three times constituted a loss. The participants who felt that they had performed well showed higher levels of intrinsic motivation than those who perceived their performance as less successful. The participants who performed well will experience increases in perceived competence as a result of internal positive feedback, whereas those who performed poorly experienced increases in

perceived incompetence. This study showed that success and failure perceptions are not solely contingent on winning and losing.

Vallerand and Reid (1988) carried out a study to assess positive/negative feedback effects for gender. Participants were asked to balance on a stabilometer using any preferred method. Each participant received either positive or negative feedback after every fourth trial for a total of twenty trials. These results confirmed earlier findings that positive feedback increased intrinsic motivation and perceived competence in both genders. The increases recorded for both genders were the same. Both genders in this study may have viewed the feedback as informational rather than controlling. Some studies, however, have found gender differences in response to feedback. Deci (1972), and Deci, et al. (1975) found that females showed a decrease in intrinsic motivation following positive feedback, whereas males experienced an increase. Deci and Ryan (1985) stated that females tend to view positive feedback as controlling, whereas males view positive feedback as informational. As females tend to view positive feedback as controlling, and therefore, view praise as an interpersonal control, the subsequent drop in intrinsic motivation is in line with the expected outcomes in a controlling environment.

Some researchers have investigated the influence of feedback in intrapersonal contexts. Ryan (1982) proposed that thoughts and feelings generated internally by the individual can provide pressure to achieve certain goals and create a decreased feeling of self-determination. That is, athletes who feel compelled to train in order to feel good about themselves experience a form of internal control that is psychologically similar to simply being told to train by an external source. Ryan used the Nina puzzle, which required participants to find the word "Nina" in a picture, to examine the effects of informational

and controlling feedback, which would be self-selected and administered for one group, and not the other. Two conditions were created: an informational orientation (task-involvement) and controlling orientation (ego-involvement). In the ego-involved group the pressure was assumed to come from the links forged between self-esteem and success. In other words the participants created their own pressure to find the word Nina in the puzzle so that they could feel good about themselves. The ego-involved subjects were found to be less intrinsically motivated for the activity than task-involved participants despite getting equal amounts of competence feedback. The results therefore support cognitive evaluation theory in that ego-involvement is an internally controlling, rather than an internally informational condition. Internal control when linked to self-esteem and self-worth can also contribute to decreased performance and specific scenarios such as choking (Baumeister, 1984). Plant and Ryan (1985) who studied the effects of self-consciousness, self-awareness, and ego-involvement by placing people in front of a mirror or video camera found that the participants became internally controlling of their behaviour, and subsequently their intrinsic motivation for the task was decreased. Research by Koestner, Zuckerman, and Koestner (1987) and Butler (1987), which closely replicated Ryan's (1982) experiments except that the ages and settings varied, supported the earlier results. As Vallerand, et al. (1987) concluded, whatever causes people to become demanding and controlling of themselves the result is the same: they restrict their self-determination, and decrease their intrinsic motivation for the task. In summary, research into intrapersonal relationships suggests support for self-determination over control, and the value of positive feedback in enhancing intrinsic motivation. This supports cognitive evaluation theory.

Intrinsic Motivation and Competition. Competition generates excitement, can be stimulating, and is often enjoyable. It is generally considered to be an effective motivating tool. Because competition can assume a controlling or informational aspect, it has the potential to influence the perceived locus of causality and/or perceived competence of the athlete. Due to the inherent competition in sporting activities, the impact of this situation on intrinsic motivation has been widely explored. According to cognitive evaluation theory, if the competitive situation is perceived as controlling, intrinsic motivation will be decreased, but when the individual perceives the competition as informational, and the feedback is viewed as an indication of competence, intrinsic motivation may be enhanced.

Competition can be classified as either indirect or direct. In indirect competition participants perform against an impersonal standard such as performance norms. In direct competition participants are pitted against one another. Direct competition, in particular, can be very ego-involving because an athlete may strive only to beat opponents rather than improve their skills. This can decrease intrinsic motivation. Research into the effects of indirect competition have generally supported cognitive evaluation theory. Vallerand, et al. (1986b) created two conditions in order to assess the effects of competition on fifth and sixth grade boys at a summer camp. In the first condition (interpersonal competition) boys were encouraged to try to do better than other participants performing the task, whereas boys in the second condition (intrinsic-mastery orientation) were encouraged to find new ways to approach an interesting and novel task. The task selected, the stabilometer motor task, was considered to be an interesting task for boys of this age. Boys in both conditional groups were instructed to do as well as they could, and maintain their balance any way they chose. Participants in the competition group spent significantly less time on the

stabilometer task than participants in the intrinsic-mastery orientation group, therefore, the researchers concluded that intrinsic motivation in the competition group had diminished. The mastery group spent more time on the task during free time so intrinsic motivation was enhanced in the mastery group. The researchers accounted for the drop in interest of the participants in the competition group by proposing that this group had experienced ego-involvement. Another possibility for the decrease in intrinsic motivation which was not explored by the researchers was that boys in the competition group who observed that they were less competent at the task, avoided it in the free-choice period later to avoid displaying their lack of competence for a longer period of time.

A number of studies have also been carried out to assess the impact of direct competition on intrinsic motivation. Deci, Betley, Kahle, Abrams, and Porac (1981) set up an experiment to examine their hypothesis that when the focus is on winning rather than skill, the competition has an extrinsic aspect, therefore, intrinsic motivation will be decreased. They placed undergraduate students in either a direct (face to face) competition condition or a no competition condition. Half the subjects were told to try to finish the puzzles faster than the other participant in the room, and the other half were told to finish as quickly as possible. In the direct competition group the participant was actually competing against a research assistant who was instructed to finish the puzzles just after the participant finished. In every case the participant was allowed to win. The results supported their hypothesis that competition decreases intrinsic motivation. They reported that the effect was particularly strong in females. This could be explained using cognitive evaluation theory proposals, in that the females may have found the competition to be controlling, causing a decrease in intrinsic motivation. The inherent positive feedback

associated with winning, can be diminished in cases where the standard achieved is unknown as in this case, therefore, although all competitors won, the negative impact of competition was a stronger influence than any positive feedback gained through winning.

One study investigating the impact of direct competition appeared to contradict the findings of Deci, et al. (1981). Weinberg and Ragan (1979) investigated the different responses of participants under varied competitive states. They initially assessed the interest the activity generated in the participants (92% of the undergraduate students in the pilot study found the task to be very interesting). The task chosen was a pursuit rotor, and each participant was instructed to keep their stylus on the moving target for as long as possible in a 30 second trial. The participants in the standard of excellence group were told that their efforts would be compared against norms previously gathered in other trials, whereas those in the face-to-face competition setting were told that whoever kept their stylus on the figure longest would be declared the winner after each trial. The control group were under no competitive conditions and were merely told to keep their stylus on the target for as long as possible during each trial. No significant difference in intrinsic motivation was recorded for the two competitive states. However, their results showed that participants in the competitive groups increased intrinsic motivation as compared to those in the no-competition group. To account for these results they suggested that winning promotes satisfaction, though primarily extrinsic satisfaction, and winning tends to motivate people to compete more as a result of success. Deci and Ryan (1985) accounted for the contradiction in terms of the difference in the dependent measure for each study. In the Deci et al. (1981) study the dependent measure for both the competition and no-competition groups was subsequent involvement in the activity in the absence of

competition. In the Weinberg and Ragan study the dependent measure for the competition group was subsequent involvement in the activity in the presence of competition, whereas the no-competition group was assessed on subsequent involvement in the absence of competition. Deci and Ryan (1985) concluded that the two studies assessed different things. The dependent measure in the Weinberg and Ragan study assessed the motivation to compete rather than the intrinsic motivation for the task.

Some direct competition studies were designed to determine the effects of winning versus losing. Reeve, et al. (1985) tested undergraduate students in a puzzle task. Participants were "pitted" against a confederate of the same gender in a room, and all participants were instructed that the object of the exercise was to complete the puzzle task faster than the other person in the room. The participants were classified into two groups prior to entering the room: winners or losers. The confederate did not complete the puzzles in the allotted time when pitted against the predetermined "winners" but when competing against the designated "losers" they completed the task in the first minute. They found that winning facilitated intrinsic motivation relative to losing, and that the performance of winners was superior to that of losers. They surmised that winners receive positive competency feedback, whereas losers receive incompetency feedback which accounts for their decrease in intrinsic motivation. Another study by Vallerand, et al. (1986a) assessing the effects of winning and losing supported the findings of Reeve, et al.

Another study designed to assess the objective outcomes of winning and losing, was carried out by McAuley, and Tammen (1989). They set up a one-on-one basketball shooting competition. Undergraduate physical education students were matched according to ability (determined in a pre-test) and gender, for the competition condition, to generate

conditions of optimal challenge for all participants. A questionnaire was used to measure interest/enjoyment, perceived competence, effort, and pressure/tension for the task. Participants who perceived their performance as more successful exhibited significantly higher scores on effort, perceived competence, and interest/enjoyment than those who perceived their performance as less successful. McAuley and Tammen posited that the subjective interpretation of competitive outcomes, rather than the outcomes themselves, influences intrinsic motivation. Weiss and Chaumeton (1992) underscored the importance of this study because the participants created their own definitions of success and failure.

The effect of competition on an individual's intrinsic motivation, whether athletes or non-athletes, can also be affected by individual orientations. A recent study (Epstein & Harackiewicz, 1992), in which college undergraduates were instructed to make words from a "boggle" game, tested five competitive conditions and found overwhelmingly that individual differences mediated the impacts of competition. The five conditions of competition were: no competition, inferior opponent, superior opponent, no information about the opponent, and similar opponent. Information about the opponent was given after the pre-test period, and after the two trials. Opponent feedback was provided if applicable between trial 1 and 2, and after trial two. All participants were told that their performance was in the top 25% of those tested so far, therefore, all participants received the same positive feedback. They found that individual differences in achievement-orientation had an influence on the effect of competition. High achievers preferred competitive tasks rather than the no-competition condition, whereas low achievers preferred the opposite. High achievers who were given an expectancy for success or failure enjoyed the task more than those not given any expected outcome information, but expectancy information

undermined the interest of low achievers. Interest in the activity was undermined in low achievers even after being informed that they had won. The researchers concluded that winning did not seem to counteract the negative effects of competition for low achievers. In addition the opponent information magnified the negative aspect of competition for low achievers as a result of the increased pressure experienced.

One study in the sport domain (Fortier, Vallerand, Brière, & Provencher, 1995), designed to measure the motivation orientation of competitive and recreational athletes using a questionnaire, found that competitive athletes demonstrated less intrinsic motivation than recreational athletes. These findings support those obtained in other sport settings (Chaumeton & Duda, 1981; Greendorfer & Blinde, 1990) that also found that competition undermines intrinsic motivation. Fortier, et al. (1995) concluded that the results corroborated cognitive evaluation theory's (Deci and Ryan, 1985, 1991) proposal that competition decreases intrinsic motivation. They suggested that the pressure to win in competitive athletes caused a shift from internal to external locus of causality, which in turn diminished their self-determination, ultimately decreasing their intrinsic motivation. A gender bias revealed that females demonstrated more intrinsic motivation to accomplish things, and more identified regulation than male athletes, while displaying less external regulation, and amotivation. These results reveal that females demonstrated greater self-determination than males, which is in line with past research in the sport domain (Briere et al., 1995). Although both these studies revealed significant statistical differences for gender, the effect sizes show that in reality the differences are quite small and do not appear to be meaningful. More research to determine whether meaningful differences occur for gender would be valuable.

Competition generates winners and losers and often one winner accounts for many losers. Winning is also often accompanied by rewards, whereas losing is not. Some studies have investigated winning and losing when tangible rewards are offered. Weinberg and Jackson (1979) tested undergraduates on a stabilometer task to assess the effect of monetary rewards and success/failure on intrinsic motivation. All participants were more intrinsically motivated after success, rather than as a result of failing, which supports the findings from previous studies in this review. No significant main effects were found for the reward variable. They concluded that the success/failure manipulation overshadowed the reward manipulation as it provided very powerful information concerning competence. Success provides positive information about performance, whereas failure suggests a poor level of skill. In both cases, the information will influence the person's perceived competence and create corresponding changes in intrinsic motivation. Males were found to have higher levels of intrinsic motivation than females as a result of success, and females were more intrinsically motivated than males after losing. Vallerand, et al. (1986a) also tested the impact of rewards for competitive success. The participants competed on a stabilometer task for a "best performance award". A $1 prize accompanied the title. Winners received the monetary reward and losers did not receive a reward. The researchers observed the time spent on the stabilometer during a free choice period and assessed perceived competence on the task. The results supported cognitive evaluation theory as perceived competence of the participants who did win awards was increased and perceived competence for participants who did not win awards was diminished as was intrinsic motivation for the task relative to winners of the award.

Competition does not inherently generate ego-involvement or undermine intrinsic motivation. When an individual is placed in a competitive situation that maximises the informational, rather than the controlling aspect, intrinsic motivation may be enhanced (Weinberg & Jackson, 1979). This is especially reflected when the participants also perceive the outcome, reward, or victory as informational. A study carried out by Reeve and Deci (1992) that examined the effects of conditions designed to maximise the informational rather than controlling aspects of competition on intrinsic motivation, provided support for this proposition. They showed that victory in a controlled environment, where participants experienced pressure to win, resulted in a decrease in intrinsic motivation, whereas in an informational environment, where participants were not pressured to win, victory enhanced intrinsic motivation. Reeve and Deci concluded that feelings of self-determination and competence mediated the effects of competition on intrinsic motivation. Vallerand, et al. (1987) suggested that by reducing the importance of performance outcomes, providing honest performance feedback rather than an emphasis on winning, and by diminishing the general pressure experienced by competitors, it is more likely that competition will be experienced informationally, and intrinsic motivation can be maintained.

In general, competition has been presented in a form that focuses attention on winning, which generates an extrinsic orientation, and greater ego-involvement, resulting in decreased intrinsic motivation. Competition does not inherently decrease intrinsic motivation, however, as research covered in this review has illustrated, in a highly informational context, intrinsic motivation can be enhanced. It is not competition itself that

inherently reduces intrinsic motivation, but rather the context in which it is presented to participants.

Summary of Cognitive Evaluation Research

Research into intrinsic motivation has focused on its determinants (Vallerand & Bissonnette, 1992). The influences of rewards, feedback, significant others, and competition have been widely tested in the laboratory and sporting arenas. Most studies have generally supported cognitive evaluation theory (e.g., Deci & Ryan, 1985, 1991) in that changes to feelings of self-determination and perceived competence result in changes to intrinsic motivation. The importance of the aspects outlined in cognitive evaluation theory have also been investigated and often used to explain contradictory findings. The controlling aspect, which influences the perceived locus of causality, and therefore self-determination, has been largely explored in relation to rewards. Researchers have concluded that rewards generally create an external locus of control as perceived by the individual, therefore, accounting for the decrease in intrinsic motivation. When the controlling aspect of rewards is reduced and a more informational aspect is evident, intrinsic motivation can be maintained and even enhanced. The informational aspect that provides information on perceived competence has been examined in research on feedback. Positive and negative feedback provide valuable information on the competence of the individual, and in turn, influences intrinsic motivation. When feedback is viewed by the performer as valuable performance information or will enable them to improve performance in future, the informational aspect is salient and intrinsic motivation is enhanced. If the feedback provided is viewed as controlling or inappropriate, intrinsic motivation will be diminished. All three aspects have been investigated in relation to

competitive settings. Competition provides the individual with the opportunity to test competence and self-determination. Competition generally creates an ego-involvement whereby the individual's self-esteem can be linked to the outcome (e.g., a tennis player who is ego involved needs to continue beating other players to feel successful, whereas a player who is task-involved will feel successful when playing to the best of his/her ability even if the match is lost). Researchers posit that a task-orientated environment is preferable to an ego-orientated environment because the informational aspect is salient, and as stated earlier, this generates an increase in intrinsic motivation. Ego-orientated individuals, experience a controlling environment, therefore, a corresponding decrease in intrinsic motivation.

Rationale for the Current Study

Self-determination has been linked to important outcomes in sport, such as dropping out (Pelletier et al., 1995). Measurement of the motivation orientation of participants may, therefore, provide a theoretical tool for determining dropouts. In an earlier study, Pelletier et al. (1988) used questionnaires to assess the motivation orientation of swimmers. They found that for events perceived as supporting autonomy, positive associations with more self-determined forms of motivation were recorded. Events perceived as controlling were positively associated with less self-determined forms of motivation. They also found that the level of motivation proved a reliable predictor of participation in the sport a year later. Pelletier et al. (1995) recommended further research in this area to gain a broader perspective of motivation orientations across sports and to understand the links with outcomes such as dropping out of sport.

Brière, Vallerand, Blais, and Pelletier (1995) constructed and validated a new measure of motivation in sports, based on self-determination, called the L'Échelle de Motivation dans les Sports (ÉMS). Pelletier et al. (1995) carried out a study to translate and validate the new measure from French into English. They called the English version the Sport Motivation Scale (SMS). Pelletier et al. concluded that the SMS was a reliable and valid scale that should be useful for research on sport motivation. The SMS was designed to measure the motivation orientation of participants and, therefore, measure their self-determination. The combination of a new reliable tool to measure motivation orientation, and the previous findings and recommendations (Pelletier et al., 1988; Frederick and Ryan, 1995), prompted this researcher to investigate motivation orientation and dropping out of the sports of Australian rules football and netball. Because researchers have not addressed both concommitant forces together in the one study, self-determination and perceived competence will both be assessed for participants in this study. The perceived competence will be assessed using the Intrinsic Motivation Inventory (IMI) because it has good internal construct reliability. The IMI is also discussed in greater detail in Chapter 3.

There are some important distinctions between Australian and American sport structure that need to be outlined in order to understand this study. Sport in Australia is played competitively at school. The school season is very short, comprising a maximum of 10 matches in a season. Different sports are offered each school term, and students can participate in more than one sport each term in some schools. There are four terms in a calender year. In addition to school sport, a very large club sport system exists. The benefit of the club system is that all standards and skill levels are catered for, all ages are catered for, and the competition season can extend throughout the year. Athletes in the club system

"feed into" national and international teams if they meet the required standard. Most talented athletes who are still at school play for a club as well. Unlike American collegiate sport, Australian universities do not nurture talent, nor do they provide more than minimal funding for university teams.

Australian rules football and netball were selected for this study because of their National importance in Australia, their single gender participation, their status in the school system, and their early introduction to students in the state and private schools in the state of Victoria. Australian rules football is a national sport that enjoys similar status in Australia to gridiron (football) in America or ice hockey in Canada. It is predominantly played by males; however, some females also participate. According to Australian Sports Commission figures (1995) football has the second largest number of registered participants. Professional players and role models at the elite level are male. Football is formally introduced to boys as early as six years of age. Within the school system football can be played competitively in the fifth year of school when participants are approximately 9-10 years old. It is possible for boys to be drafted into the professional league at 17 years of age while still at school. This partially accounts for the high status of football in the school environment. The saturation of football in print and electronic media and the financial rewards also enhance the high status of football in schools. Football is a fast moving, full contact sport requiring kicking, receiving, tackling, and running skills. Many supporters adopt the club of their parents from birth, and are very passionate about their teams.

Netball is played at an international and national level. Australia are the world champions and have held this title for over a decade. It is played mostly by females, and

only females can play at national and international level. Netball has the highest participation rates compared to all other sports played competitively by females in Australia (Australian Sports Commission, 1995). Netball is also played competitively at school when participants reach 9 - 10 years of age. It has a high profile in state and private schools. Unlike football it does not present the opportunity for financial reward. All netball in Australia is strictly amateur. Netball suffers a lack of media attention that most female sports endure in Australia, but a determined effort to increase the media profile has resulted in live telecasts of national and international events. Netball is played on a court slightly larger than a basketball court. It involves the skills of catching, throwing, and shooting for goal similar to basketball, but unlike basketball you are not permitted to run or dribble when in possession of the ball. It is an extremely fast game, requiring repeated bursts of explosive speed, power, and agility. It is a non-contact sport.

Australians attend kindergarten at 4 years, enter primary school at 5 years (prep - Grade 6), and secondary school at 12-13 years (Year 7 - Year 12). The ages were selected for this study to assess students at different school stages. Athletes in the youngest group were taken from grades 5 and 6, athletes in the middle group were selected from years 8 and 9, and the oldest group were selected from years 11 and 12. At each of these stages the athletes encompass greater or lesser involvement in homework, part-time work, social activities, and pressure to achieve academic results. This would enable a thorough examination of the impact of conflicts of interest, a common reason for dropping out of sport, on continued participation in sport. In addition, researchers have proposed that children under the age of approximately 12 years perceive that a positive relationship exists between the concepts of ability and effort (Nicholls, 1978; Nicholls & Miller, 1983). They

found that young children equate difficulty with tasks they are unsure of being able to perform adequately. Because difficult tasks usually require greater effort for success, young children tend to align greater effort with higher levels of ability. Therefore, if a child works hard at a task perceived as being difficult and achieves success, he/she will perceive that they have a high level of skill. Nicholls posits that around 12 years children determine that difficult tasks are those that only a few people can perform successfully. At this stage, the child is able to differentiate between ability and effort. Those who have to expend greater effort to achieve similar outcomes are considered to be less skilled. Once this differentiation is made and perceived competence is assessed using social comparison, participants of lower ability tend to avoid activities in which they will have to exhibit greater effort and ultimately less skill.

Hypotheses

One purpose of this investigation was to measure self-determination, perceived competence, and dropout rates in relation to age. It was speculated that younger children would be more intrinsically motivated because they have had less exposure to rewards and competition, which can decrease intrinsic motivation (Deci & Ryan, 1985) than older children. Another factor facilitating differences in motivation orientation across different ages is that younger children assess the concept of ability differently than older children (Nicholls, 1978; Nicholls & Miller, 1983). They found that older children use social comparison to determine competence whereas younger children assess competence according to the effort required to perform skills successfully. As athletes increase in age from 11 years and begin to use social comparison as a measure of competence, the pool of social comparison changes. Less skilled participants choose other activities in which to

participate, which creates a decreased level of overall participation and resultant increase in the base skill level of the group. With a more talented group making up the social comparison pool, perceived competence in older teenagers would be expected to be lower than in younger teenagers and children because when comparing personal ability with team mates there are fewer weaker players. As a result, players of great skill perceive their ability as average because they are average in terms of other player's skill levels. In light of these expectations, it was hypothesised that younger children will achieve higher scores in the more self-determined aspects of intrinsic motivation to know, intrinsic motivation to accomplish, and intrinsic motivation to experience stimulation, and lower scores in amotivation, external regulation, introjected regulation, and identified regulation than older athletes. Perceived competence is anticipated to be higher in younger athletes than older athletes.

Past research has revealed gender differences in motivational orientations in varied domains, including education (Vallerand & Bissonnette, 1992), interpersonal relationships (Blais, et al., 1992) and sports (Briere, et al., 1995). These studies revealed that females have a more self-determined motivational profile than males. Thus, it was hypothesised that female athletes would demonstrate higher scores on identified regulation, intrinsic motivation to know, intrinsic motivation to accomplish things, and intrinsic motivation to experience stimulation than males. Females were also expected to obtain lower scores in external regulation, introjected regulation, and amotivation than males. Sport research into perceived competence and gender has been limited. The studies carried out to date have found that males rate themselves higher in perceived competence than females (Brustad,

1993; Eccles & Harrold, 1991). The higher levels of perceived competence in males would also be expected in this study.

All research testing the tenets of cognitive evaluation theory in relation to determinants and outcomes have only tested the effects of either self-determination or perceived competence and the resultant changes in behavior. Another purpose of this study is to explore persistence and discontinuation choices made by participants involved in competitive sporting activities, according to the levels of both self-determination, and perceived competence, when measured concurrently. A valuable tool recently devised to study the different relationships between determinants, motivation, and consequences in the sporting sphere, is the Sport Motivation Scale (SMS) (Pelletier, et al., 1995). The SMS specifically measures different motivation styles (self-determination). The Intrinsic Motivation Inventory (IMI); (Ryan, 1982) measures perceived competence. Together these two scales measure self-determination and perceived competence, for each participant. According to Deci and Ryan's cognitive evaluation theory, those participants found to have a higher level of perceived competence and self-determination in their sport should be less likely to discontinue sport participation. Participants with lower levels of perceived competence and self-determination should be more likely to dropout of football or netball.

In addition to measuring the self-determination and perceived competence of each participant, I also wanted to identify those individuals at risk of dropping out. Based on cognitive evaluation theory, it was hypothesised that participants who score higher in the less self-determined motivation styles (external regulation, introjection, or amotivation) on the SMS (Pelletier et al., 1995) will be more likely to drop out during the season or choose not to participate in the next season, than those with lower scores. Participants who scored

higher on the more self-determined motivation styles (identified regulation, intrinsic motivation to know, intrinsic motivation to accomplish things, or intrinsic motivation to experience stimulation), will be more likely to complete the season and continue next season than those who received lower scores. The participants who score higher in perceived competence will also be more likely to continue participation throughout the present season and for future seasons than those with a lower level of perceived competence.

CHAPTER 3

Method

Participants

Participants consisted of junior male footballers (n = 135) and junior female netballers (n = 145) from 11 state and private, primary, and secondary schools in metropolitan Melbourne. The schools included in the study were randomly selected. The participants selected were from three age groups: 11 and 12 year olds (n = 87), 14 and 15 year olds (n = 93), and 17 and 18 year olds (n = 100). All participants represented either their school, their club, or both in competition. 93 % of all students solicited for participation in the study actually participated in the study.

Measures

All participants completed a survey consisting of questions related to demographics, the English version of the Sport Motivation Scale (SMS; Pelletier et al., 1995), and a modified version of the Intrinsic Motivation Inventory (IMI; McAuley, et al., 1989) (see Appendix E). Demographic questions established age, year level at school, years of competition, reasons for participation, intention to continue playing football/netball the following year and five years hence, and other sports currently participated in at school or club level.

Sport Motivation Scale. The SMS, which measures the motivation styles of sport participants, contains 28 items and consists of seven subscales (4 items per subscale). The seven subscales measure three types of intrinsic motivation, three types of extrinsic motivation, and amotivation. The three types of intrinsic motivation are: intrinsic motivation to know (e.g., "For the pleasure of discovering new training techniques"),

intrinsic motivation to accomplish things (e.g., "For the pleasure I feel while improving some of my weak points"), and intrinsic motivation to experience stimulation, (e.g., "For the intense emotions that I feel while I am doing a sport that I like"). The three types of extrinsic motivation are: identified regulation (e.g., "Because it is one of the best ways to maintain good relationships with my friends"), introjected regulation (e.g., "Because I must do sports regularly"), and external regulation (e.g., "To show others how good I am at my sport). Amotivation, similar to learned helplessness (Abramson, et al., 1978), is also assessed (e.g., "It is not clear to me anymore; I don't really think my place is in sport"). Participants rate the extent to which each item concurs with their reasons for participating on a 7-point Likert scale, ranging from 1 (not at all) to 7 (exactly). Pelletier et al. (1995) used Cronbach's alpha (1951) to assess the internal consistency of the seven subscales, and the values ranged from $\alpha = .74$ to $\alpha = .80$, except for identified regulation, which had an alpha score of $\alpha = .63$. The internal consistency of the seven subscales in the English version of the SMS are slightly lower than the original French version but are considered to be adequate (Pelletier et al., 1995). The internal consistencies for the current study ranged from $\alpha = .59$ to $\alpha = .82$. The internal consistency for the whole scale was $\alpha = .78$.

Intrinsic Motivation Inventory. The 16-item Intrinsic Motivation Inventory (McAuley, et al., 1989) was produced from the original 28 item Intrinsic Motivation Inventory developed by Ryan (1982). The perceived competence subscale of the IMI was adapted to reflect the two sports included in the study (e.g., "I think I am pretty good at football," "I think I am pretty good at netball"). It consisted of 4 items, and was scored on a 7-point Likert scale from 1 (strongly disagree), to 7 (strongly agree). McAuley et al. (1989) reported a Cronbach's alpha for the perceived competence subscale of $\alpha = .83$, with the

overall scale recording a coefficient alpha of $\alpha = .85$. Cronbach alpha for perceived competence in this study was $\alpha = .73$. Perceived competence was the only subscale of the IMI used in the current study.

Procedures

The Directorate of School Education granted the researcher's request to approach State School Principals in the South Eastern Region (see Appendix A). When contacted, the Principals in eleven private and state schools allowed their students to be included as participants in the study (see Appendix B). All participants received parental permission forms prior to the initiation of the study (see Appendix C). The participants returned the signed forms to the designated teacher in each school. After consultation with students and staff, the researcher set specific dates and times for testing at the end of the football and netball seasons.

The researcher provided a brief outline of the study at the meeting with students in each school prior to handing out the questionnaires. She stressed the issues of voluntary participation, confidentiality, and explained that the participants could withdraw at any time from the study. All students read and signed the consent form prior to completing the questionnaire (see Appendix D). Participants asked questions to clarify items as they filled out the questionnaire, and submitted the completed survey with the consent form before leaving the room.

CHAPTER 4

Results

Descriptive statistics for motivation styles and perceived competence collected from the sample at the end of the season are presented in Table 4.1. Each style of motivation and perceived competence accounted for 4 questions in the survey. The means for each were calculated by dividing the sum of the scores on the relevant questions by four (e.g. intrinsic motivation to know was calculated by the formula [SMS item 2+ SMS item 4 + SMS item 23 + SMS item 27] / 4). The maximum score on any question was 7 and the minimum 1. Perceived competence was measured using a different questionnaire, however, the scoring range and mean was calculated using the same method as the motivation styles.

Table 4.1

Descriptive Statistics for Motivation Styles and Perceived Competence for Sample

	M (n = 280)	SD	MIN – MAX
Motivation Styles			
IM-to know	4.37	1.28	1.25 - 7.00
IM-accomplishment	4.81	1.19	1.25 - 7.00
IM-stimulation	4.96	1.16	1.25 - 7.00
Identified regulation	4.62	1.15	1.25 - 7.00
Introjected regulation	4.12	1.39	1.00 - 7.00
External regulation	3.65	1.25	1.00 - 7.00
Amotivation	2.30	1.07	1.00 - 5.25
Perceived Competence	4.38	0.64	2.50 - 5.75

The three intrinsic motivation styles scored means ranging from 4.4-5.0, and the three extrinsic motivation styles scored means ranging from 3.7-4.6. The mean score for amotivation was 2.0, and the mean score for perceived competence was 4.4. A study carried out by Fortier et al. (1995) to measure motivation styles among 399 French-Canadian recreational and competitive athletes provides a comparison for this study, although the ages and number of participants vary. The Fortier et al. study measured motivation styles in 176 females and 223 males whose ages ranged from 17 to 25 years. The descriptive statistics for both studies are included in Table 4.2. The scores in the Fortier et al. study have been divided by 4 for the purpose of this comparison because the researchers in the current study calculated the means for each motivation style after dividing the total score by 4.

Table 4.2

A Comparison of Descriptive Statistics for Fortier et al. and the Current Study

	Current Study (n = 280)	Fortier et al. (n = 399)
Motivation Styles		
IM-to know	4.37 1.28	4.70 1.59
IM-accomplishment	4.81 1.19	5.44 1.24
IM-stimulation	4.96 1.16	5.73 1.03
Identified regulation	4.62 1.15	4.34 1.21
Introjected regulation	4.12 1.39	5.12 1.27
External regulation	3.65 1.25	3.17 1.47
Amotivation	2.30 1.07	1.47 1.30

Participants in the current study scored the three intrinsic motivation orientations and introjected regulation lower than participants in the Fortier et al. study. Participants in the Fortier et al. study scored lower in identified regulation, external regulation, and amotivation.

Descriptive statistics for all motivation styles and perceived competence by age at the end of the season are presented in Table 4.3.

Table 4.3

Descriptive Statistics for Motivation Styles and Perceived Competence for Age Groups

	11 - 12 years (n = 87)		14 - 15 years (n = 93)		17 - 18 years (n = 100)	
	M	SD	M	SD	M	SD
Motivation Styles						
IM-to know **	4.99	1.14	4.23	1.27	3.99	1.23
IM-accomplish	4.93	1.15	4.74	1.31	4.78	1.12
IM-stimulation *	5.19	1.14	4.72	1.19	4.99	1.11
Identified regulation	4.77	1.18	4.47	1.19	4.63	1.09
Introjected regulation *	3.79	1.37	4.15	1.49	4.36	1.26
External regulation	3.76	1.25	3.69	1.28	3.52	1.23
Amotivation	1.97	1.05	2.12	1.19	1.99	0.98
Perceived Competence	4.48	0.73	4.36	0.64	4.33	0.55

* $p < .05$
** $p < .001$

The three intrinsic motivation styles scored means ranging from 4.0-5.0 (17-18 year olds), 4.2-4.7 (14-15 year olds), and 5.0-5.2 (11-12 year olds). The three extrinsic motivation styles had means ranging from 3.5-4.6 (17-18 year olds), 3.7-4.5 (13-15 year olds), and 3.8-4.8 (11-12 year olds). The mean scores for amotivation for the three age groups were 2.0. Perceived competence from youngest to oldest groups scored: 4.5, 4.4, and 4.3. The one-way MANOVA for age illustrated a significant difference between the three groups at the end of the season $F(16, 534) = 4.87$, $p < .0001$. All effect sizes reported are eta squared. Univariate F tests revealed significant differences between the three groups for intrinsic motivation to know, $F(2, 276) = 16.56$, $p < .001$, ES = 0.11. A Tukey-HSD on this variable revealed that the youngest age group scored intrinsic motivation to know significantly higher than both the 14 and 15 year olds and the 17 and 18 year old groups. Intrinsic motivation to experience stimulation was also significantly different, $F(2, 275) = 3.81$, $p < .02$, ES = 0.03. A Tukey-HSD revealed that the youngest age group scored significantly higher than the 14 and 15 year old group for this variable. Significant differences also appeared for introjected regulation, $F(2, 277) = 3.98$, $p < .02$, ES = 0.03. The oldest age group scored significantly higher than the youngest age group. No significant differences were observed between the three age groups for perceived competence. On a few analyses the denominator changed due to missing data.

Table 4.4 illustrates the descriptive statistics for the eight variables according to gender. The three intrinsic motivation styles scored means ranging from 4.3-4.9 (females), and 4.4-5.0 (males). The three extrinsic motivation styles scored means ranging from 3.4-4.6 (females), and 4.0-4.6 (males). The mean scores for amotivation were 1.9 (females), and 2.1 (males). The mean scores for perceived competence were 4.4 for both genders. A

one-way MANOVA revealed a significant effect for gender $F(8, 268) = 5.14$, $p < .001$. Follow-up univariate F tests showed that the only significant difference in motivation style and perceived competence for gender was external regulation with males scoring higher than females, $F(1, 278) = 17.0$, $p < .001$, $ES = 0.06$.

Table 4.4

Descriptive Statistics for Motivation Styles and Perceived Competence for Gender

	Male		Female	
	M (n = 135)	SD	M (n = 145)	SD
Motivation Styles				
IM-to know	4.44	1.26	4.32	1.30
IM-accomplishment	4.93	1.18	4.70	1.20
IM-stimulation	5.03	1.14	4.89	1.18
Identified regulation	4.60	1.17	4.64	1.14
Introjected regulation	4.13	1.34	4.11	1.44
External regulation *	3.97	1.28	3.37	1.16
Amotivation	2.14	1.11	1.93	1.04
Perceived competence	4.37	0.66	4.40	0.62

* $p < .001$

The demographics revealed that the most common reasons cited as influencing participation in both sports were enjoyment and fun. Of the total sample, 96% indicated that they participated for one or both of those reasons.

Table 4.5

Reasons Influencing the Participant's Decision to Discontinue Football or Netball

	Gender	
	Male (n = 9)	Female (n = 21)
Age Groups		
11 – 12 years (n = 3)	Concentrate on another sport (n = 1)	Concentrate on another sport (n = 2)
14 – 15 years (n = 10)	Time conflicts (n = 2) No team available (n = 1)	Time conflicts (n = 2) Concentrate on another sport (n = 2) Dislike coach/teammates (n = 2) Transport difficulties (n = 1)
17 – 18 years (n = 17)	Time conflicts (n = 2) Concentrate on another sport (n = 2) Overseas (n = 1)	Time conflicts (n = 4) Concentrate on another sport (n = 3) Overseas (n = 2) Other Commitments (n = 1) Injuries (n = 2)

Of the 280 surveyed participants only 30 indicated that they would not continue playing next season 33% of participants intending to discontinue cited time conflicts as a major influence, and another 33% suggested that they would prefer to concentrate on another sport. The remaining 33% of athletes intending to discontinue proposed a variety of influences to account for their decision. More than twice as many females indicated that they would not continue netball compared to males not continuing with football at the end of the season: males ($n = 9$), females ($n = 21$).

The breakdown of the participants intending to dropout according to age was: 11 and 12 year olds ($n = 3$), 14 and 15 year olds ($n = 10$), and 17 and 18 year olds ($n = 17$). Descriptive statistics for motivation style and perceived competence for those intending dropping out and those intending to continue are included in Table 4.6.

A one-way MANOVA revealed that there were no significant differences between the two groups on any of the variables. Although no significant overall MANOVA resulted, exploratory univariate F tests were carried out. A significant difference was evident between the two groups for amotivation $F(1, 277) = 4.92$, $p < .03$. The group intending to discontinue participation scored higher in amotivation than the group intending to continue participation.

Table 4.6

Descriptive Statistics for Motivation Styles and Perceived Competence for Participants Dropping Out of Football or Netball and Participants Intending to Continue

	Continue (n = 150)		Dropout (n = 30)	
	M	SD	M	SD
Motivation Styles				
IM-to know	4.39	1.29	4.22	1.22
IM-accomplishment	4.81	1.20	4.78	1.17
IM-stimulation	4.97	1.34	4.88	1.35
Identified regulation	4.62	1.14	4.58	1.22
Introjected regulation	4.11	1.38	4.14	1.49
External regulation	3.65	1.26	3.65	1.20
Amotivation	1.98	1.05	2.44	1.89
Perceived Competence	4.39	0.64	4.26	0.57

CHAPTER 5

Discussion and Conclusions

This study was initiated to assess self-determination and perceived competence in a group of junior Australian footballers and netballers. Differences in self-determination and perceived competence were analysed according to age and gender. The youngest group (11-12 years) was expected to be more self-determined and be higher in perceived competence than the older groups (14 -15 years, and 17-18 years). Males were expected to be less self-determined, but be higher in perceived competence than females. Finally, the self-determination and perceived competence of the athletes who intended to continue, was compared to those intending to dropout. The group intending to dropout were expected to be less self-determined and lower in perceived competence than the group intending to continue.

One of the main purposes of this study was to measure the self-determination and perceived competence of junior Australian rules footballers and netballers so that differences occurring across age groups could be evaluated. The younger athletes demonstrated more intrinsic motivation to know and intrinsic motivation to experience stimulation, and less introjected regulation than the older athletes. The younger athletes, therefore, experienced more self-determination than the older athletes as expected. The effect size for intrinsic motivation to know is large according to Cohen's conventions for eta square, therefore, group membership accounts for a large proportion of the variance. This provides statistical and meaningful support for my hypothesis. The higher levels of intrinsic motivation in the younger group of participants supports findings of other sport-

related studies carried out in Canada (Brière et al., 1995; Fortier et al., 1995; Pelletier et al., 1995).

Intrinsic motivation to experience stimulation (e.g., exhilaration) recorded the highest mean score in all three age groups (except the 14-15 age group where it recorded the second highest mean score). The effect size was smaller than intrinsic motivation to know, but group membership still accounted for approximately 3% of the variance for intrinsic motivation to experience stimulation. The stimulation derived from playing netball and Australian rules football is obviously a strong motivating factor influencing participation. Both sports facilitate athlete stimulation as they provide many opportunities to score points, are played at a very fast pace, and require a great range of skills from players in every position. The greater stimulation experienced by the youngest group of athletes compared to both older groups could be a result of their recent introduction to organised sport. The youngest group has had the least exposure to organised sport, and competition, which may increase the stimulation they experience when playing sport, and could possibly account for the difference. Intrinsic motivation to know, which encompasses the joy of learning, was scored highest by the youngest athletes, as anticipated, because they generally have the least experience, therefore, the most to learn. It was speculated that the older athletes who have a greater understanding and knowledge of the skills would find other styles of motivation more important for participation.

The higher introjected regulation in older athletes also reflects findings in other North American studies (Brière, et al., 1995; Pelletier, et al., 1995). The effect size was the same as intrinsic motivation to experience stimulation, therefore, group membership accounted for approximately 3% of the variance. The introjected regulation occurs when the external

motivation is internalised and feelings of guilt or anxiety reinforce behaviours. It is possible that some athletes in this study may have experienced such pressures, and may play to please parents/coaches, win trophies, or simply feel embarrassed when they play below their expected standard. In addition it could be speculated that some of the participants in the sample, by age 17-18 years, have received support from a number of significant others who may also add to performance pressure, and anxiety levels. The lower introjected regulation in athletes 11-12 years of age may be a result of experiencing these pressures at a reduced intensity.

No difference was found between the age groups for perceived competence. This result was not anticipated. It was hypothesised that the younger athletes would exhibit higher levels of perceived competence than the two older groups because the 11-12 year olds assess perceived competence as a capacity. That is, the greater the effort applied to successfully perform required skills, the greater the perceived competence, whereas, older children have learned to differentiate effort and ability, and use social comparison to assess perceived competence (Nicholls, 1978; Nicholls & Miller, 1983). The researcher believed that the older groups would have reduced perceived competence as they compared their ability to a continually shrinking group of increasingly talented players as the less skilled dropped out. It is possible, however, that the reverse occurred. When the social comparison group reduces and the standard increases, the older athletes who continue to play have their perceived competence levels reinforced, rather than reduced as anticipated.

Another major purpose of this investigation was to assess gender differences for self-determination and perceived competence. The gender comparison was made across two gender specific sports: Australian rules football and netball. Males recorded higher levels

of external regulation as anticipated. A medium effect size was evident for external regulation which provides meaningful support for the original hypotheses. Contrary to expectation, the mirror effect of lower levels of intrinsic motivation was not evident. The higher levels of external regulation in males is in line with other results obtained in the sport domain (Brière et al., 1995; Fortier et al., 1995; Pelletier et al., 1995) and suggests that males enjoy the rewards that are associated with sporting competition such as trophies, peer recognition, and verbal praise, more than females. Greendorfer (1992) proposed that boys learn basic motor skills, engage in physical activity, highly value sport skills, and develop a large range of sport skills as a result of social learning practices since early infancy. In contrast, girls do not receive systematic or consistent encouragement in the development of motor skills. Those girls who do become involved in physical activity are more likely to choose activities that reflect feminine qualities such as grace and poise (Greendorfer, 1983). The greater quality and quantity of rewards as a factor of male socialisation practices may account for their greater enjoyment of the rewards offered.

Females in this study did not score significantly higher than males in any of the intrinsic motivation styles, or identified regulation which is contrary to the findings in other sport related studies (Brière et al., 1995; Fortier et al., 1995; Pelletier et al., 1995). As stated earlier these studies recorded significant differences for intrinsic motivation to know and to accomplish, however, the effect sizes were small. These studies found that the differences between males and females were statistically significant, however, calculation of effect sizes illustrates that although statistically significant the differences were not meaningful. The lack of statistical difference for gender in this study could have occurred because similar intrinsic value was experienced by males who played football, and females

who played netball. The lack of difference, contrary to the statistical evidence found in the Canadian studies, could also result from the fact that both sports selected in this study were gender specific, whereas, the Canadian studies investigated differences for both genders across the same sports. Because football is seen to require masculine characteristics such as strength and aggressiveness, and netball is seen to require feminine characteristics such as agility and grace (Eccles & Harrold, 1991), boys and girls can participate without threatening their gender roles and possibly their intrinsic motivation.

Both genders scored perceived competence higher than the mid point in the scale which provides further evidence to explain the high retention rates in both sports. The expected higher perceived competence scores for males found in other studies did not occur (Brière et al., 1995; Fortier et al., 1995; Pelletier et al., 1995). It is possible that as both sports are gender specific, the usual gender biases associated with skill, physical prowess, and ability were eliminated. It could be speculated that female netballers using social comparison to assess perceived competence would compare their skills against other females not males, unlike female participants playing a sport such as basketball, where social comparison can include both genders. In addition, elite role models in both sports are single gender, which may also contribute to more realistic comparisons. Female athletes competing in dual gender sports may compare their skills to males either deliberately or subconsciously, and have a lower perceived competence as found in the Canadian studies.

Finally, this study involved examining the differences in self-determination and perceived competence between the group continuing participation and the group indicating that they would leave the sport. Due to the uneven group sizes of 250 (continue) and 30 (dropouts), the differences in perceived competence and self-determination across the two

conditions were unable to be explored fully. Although there were no significant differences between the two groups, further research in this area is warranted as the exploratory statistical analysis revealed that the dropout group appeared to be more amotivated than the group who elected to continue the next season. This result was anticipated as athletes who are unable to determine a link between their efforts and the outcomes of those efforts would be expected to be more disillusioned, and ultimately more at risk of dropping out (Deci & Ryan, 1985; 1991; Pelletier et al., 1995).

Descriptive questions included in the survey, however, revealed more information about the consistency of the groups intending to dropout and continue. The most common reasons the athletes proposed for participating in both football and netball were the enjoyment and fun of playing. These results support the findings of many descriptive studies (Brodkin & Weiss, 1990; Gill, et al., 1983; Klint & Weiss, 1986; Longhurst & Spink, 1987; Passer, 1982; Wankel & Kreisel, 1985). There were a variety of reasons, however, proposed by the group intending to dropout. The two most common reasons for dropping out was "lack of time," and "desire to concentrate on another sport," which also concurs with findings from previous studies (Brodkin & Weiss, 1990; Gill, et al., 1983; Klint & Weiss, 1986; Longhurst & Spink, 1987; Passer, 1982; Wankel & Kreisel, 1985). It is interesting to note that the lack of time merely forced the athletes to choose between sports, or drop their involvement for a few years until after school when educational commitments are reduced, rather than forcing them to abandon sport altogether. Only three of the thirty athletes intending to discontinue were unsure if they would play any sport in five years time. These three athletes had either experienced trouble with the coach, had a greater interest in another activity, or did not have time. In the entire sample of 280

participants only three indicated that they would not be playing any sport in five years time. A number of factors could account for this high retention rate. In Australia, club sport caters to all levels and ages, so athletes who are less talented can continue to participate as long as they like. This is contrary to most sport in America, where athletes who do not continue to make the top team are cut and can no longer participate. Also, club sport is played in addition to, rather than instead of, school sport. School sport participation is finite, however, as stated earlier there is no finite time for participation in club sport. It could be speculated that because the majority of athletes in this study participated in club sport as well as school sport, they perceived that their involvement would continue, as normal, despite changes in schools or leaving school permanently.

The demographics of the group intending to dropout were as anticipated for age. The smallest number intending to dropout was in the youngest group, and the largest number of participants intending to dropout was in the oldest group. The most common reasons cited for dropping out in the 17-18 year old group was the lack of time (e.g., "too much homework") and the desire to concentrate on another sport ("I am better at tennis than football, so I want to continue with that instead"). The three 11-12 year olds who indicated they would drop out had decided to concentrate on other sports. The dropouts in the youngest group did not cite a lack of time as influencing their decision to quit, which supported the researcher's original speculation. The 14-15 year old group had the greatest variety of reasons for discontinuing sport. This group indicated that they wished to try another sport, lack of time with social commitments, fall out with team-mates, transportation difficulties, and no team at the next level. The reasons cited at each age level support findings in previous descriptive research (Brodkin & Weiss, 1990; Gill, et al.,

1983; Klint & Weiss, 1986; Longhurst & Spink, 1987; Passer, 1982; Wankel & Kreisel, 1985).

More than twice as many females dropped out of netball than males out of football. Females cited time conflicts, and the desire to try another sport as reasons for discontinuing. The male footballers enjoyed football more than any other sport that they played, and were keen to continue in each of the three age groups. This greater desire to play football could result from the huge media profile and money available to Australian Rules players in this country compared to that of netballers. Even country football clubs can afford to pay players in competitions such as the Victorian Football League and the Victorian Amateur Football Association, whereas netball is strictly amateur. The greater value males place on sport and physical activity as a result of their socialisation, may also encourage greater continued participation in sport compared to females who place greater value on academic and social achievements (Eccles & Harrold, 1991; Greendorfer, 1983; 1992; Lewko & Greendorfer, 1980). The fact, however, that 93% of males and 85.5% of females in the sample chose to continue participating, reflects a healthy retention rate, as does the 99% of participants intending to continue playing sport for the next five years at least.

The assessment of perceived competence and self-determination concurrently revealed that the participants experienced similar levels of perceived competence (above the mid-point, i.e., 4.0 on the scale) and low levels of amotivation and external regulation (below the mid-point). The group as a whole, therefore, felt both competent and self-determined which could account for the 89% of participants indicating that they would continue. In addition, only 3 of the 30 participants intending to dropout cited negative

experiences (e.g., "fall out with team-mates") to account for their decision. High perceived competence and self-determination have been found to correspond with higher levels of intrinsic motivation (Deci & Ryan, 1985) but to date we have only been able to speculate on whether higher intrinsic motivation results in greater retention rates (Pelletier et al., 1995). The higher self-determination and perceived competence of the participants in this study coupled with the high retention rates provide some support for Pelletier's proposals, however, more research is required.

Limitations and Future directions

Large differences in scores for motivation orientations recorded in this study and the Fortier et al. warrant further research. It is difficult to speculate on these differences because the research is so limited at this stage. More research in both countries and across varied socio-economic groups would provide more information, and allow for valid comparisons to be made. Another limitation of this study was the low dropout rate that prevented the prediction of trends in dropout rates. Only 30 participants indicated that they would discontinue playing football or netball in 1997, whereas 250 indicated they would continue. Future research designed to determine links between perceived competence, self-determination, and dropout rates should assess groups of equal size. Because a dropout rate of 10-15% can be anticipated, a larger sample size could overcome the inequity of group numbers (e.g., a sample of 1000 could include approximately 100 - 150 people who dropout). A random sample of equal size selected from the continuing participants would enable analysis of differences between the two groups.

Another limitation was that the gender analysis was carried out on different sports. Most studies assessing gender, have included sports played by both genders such as tennis.

Because of the different perceptions associated with males and females in the sports highlighted in this study, it would be valuable for future gender research to compare self-determination and perceived competence in gender specific sports, as well as combined gender sports as in the Canadian studies. This would build a better understanding of the gender effect on intrinsic motivation.

There was a geographical limitation on this study. All schools were located in the south eastern suburbs of one major city in Australia. Future research investigating dropout rates in lower socioeconomic groups may provide different results. In addition, research encompassing other states in Australia, and country versus city comparisons, may also generate different results. The timing of data collection may also have been a limitation. Data was collected towards the end of the season when some participants may have already dropped out. Data collected at different times in the season may provide greater insight into changing motivation styles as the season progresses. The collection of cross-sectional data presents another limitation to this study. Participants were instructed to record their intention to continue but as data was not collected at the start of the next season the true number of students dropping out was not measured. In the future, a longitudinal study would provide more accurate information about motivation in sport. Data collection on the changing sporting habits of one group of participants over a long period of time would enable accurate recording of timing and reasons for discontinuing specific sports.

This study was designed to investigate differences in self-determination and perceived competence for three age groups and both genders in an Australian population. In addition, differences in self-determination and perceived competence for athletes intending to continue participation, and athletes intending to dropout were to be evaluated.

Significant statistical differences were found for both age and gender. The athletes in the youngest group were found to be more self-determined than the older athletes as expected. The oldest athletes were less self-determined than the youngest athletes. The differences in perceived competence across the three age groups was not statistically significant, which was contrary to the hypotheses. Comparisons for gender also revealed no significant differences for perceived competence. Male and female athletes recorded similar levels of self-determination, however, males were significantly higher in external regulation than females. The most common descriptive reasons cited by the participants in this study to account for participation or discontinuation were the same as those found in previous descriptive studies (Brodkin & Weiss, 1990; Gill, et al., 1983; Gould, et al., 1985; Klint & Weiss, 1986; Longhurst & Spink, 1987; Passer, 1982; Wankel & Kreisel, 1985; Weiss & Chaumeton, 1992; Weiss & Petlichkoff, 1989). The comparison of self-determination and perceived competence for the group intending to dropout and those intending to continue was not possible due to uneven group size. Exploratory statistical analysis did reveal a possible significant difference for amotivation, but this requires further research. The final important outcome of this study involved the high retention rates discovered in both sports. 89% of the participants indicated that they intended to continue participation next season. The most common reasons cited by athletes intending to dropout were time conflicts and a desire to try another sport. Only three of the thirty athletes intending to dropout cited negative experiences such as a dislike for the coach.

These results provide partial support for the use of the SMS with an Australian population. These results also show that self-determination provides more salient motivational consequences than perceived competence. It is imperative that future research

continues to examine the perceived competence-self-determination linkage to further determine the efficacy of cognitive evaluation theory.

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APPENDIX A

Letter to School Directorate Seeking Permission to Approach Principals

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MMC
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Telephone
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Facsimile
(03) 248 1009

City Campus
Centre for Rehabilitation,
Exercise and Sport Science

Telephone
(03) 248 1122

Facsimile
(03) 248 1124

VICTORIA UNIVERSITY OF TECHNOLOGY

28 March 1996

Dear Mrs Haeusler,

As a Physical Education teacher I have become aware of the increasing drop out rate in sport. In order to gain a greater understanding of this problem I enrolled in a masters program at V.U.T. in 1995. My thesis will investigate why children choose to discontinue participation in club netball or football.

I would like to survey students from six schools in your region: Auburn South Primary, Camberwell South Primary, Mount View Primary, Balwyn High School, Doncaster Secondary College and Hawthorn Secondary College. The students would need to be in either year 5, 6, 8, 9, 11, or 12 in 1996.

The survey is a written questionnaire of approximately 50 questions. Each school would be surveyed in April/May and September/October 1996. I would appreciate your consent to approach the Principals at each of these schools in order to begin my research.

Yours Faithfully,

Carolyn Youren.

APPENDIX B

Letter to Principals Seeking Permission to Conduct the Study

Victoria University of Technology
PO Box 14428
MCMC
Melbourne
Victoria 8001
Australia

300 Flinders
Street Melbourne

Telephone
(03) 9248 1000

Facsimile
(03) 9248 1002

City Campus
Department of Human Movement
Recreation and Performance

Telephone
(03) 9248 1122

Facsimile
(03) 9248 1124

As a Physical Education teacher at Korowa A.G.S. I am aware of students dropping out of sport at both the elite and club levels due to disenchantment with their particular sport. Students have cited reasons such as increased workload, lack of enjoyment, and too much training as factors in their decision to discontinue. I am currently undertaking a masters thesis at Victoria University, under the guidance of Dr. Vance Tammen, to investigate the issue of sports dropouts. My thesis involves assessing the influence of self-determination (choice), and perceived competence on a junior athlete's decision to continue or dropout of sport.

I have decided to survey students who participate in football or netball at club level. In order to ensure random selection of club participants, I intend to draw the sample participants from various state primary and secondary schools throughout Metropolitan Melbourne rather than approaching individual clubs. The participants will be drawn from students completing Years 5,6,8,9,11 & 12 in 1996.

The research project will involve the initial identification of eligible subjects by the Physical Education staff within the school. The researchers will then meet with interested participants at the school to outline the project, distribute parental consent forms, and determine the most convenient times for testing. The survey is a questionnaire that will take approximately 15 - 20 minutes to complete. Student information will be confidential, and participation will be strictly voluntary. The questionnaire will be completed by participants at the end of the football and netball seasons.

Your consent is required in order to include students from your school in the survey. I would appreciate you assisting me with this study by completing the form attached to this letter and returning it in the envelope that is enclosed. If you have any queries please contact me on (03) 9509 0867 or Dr. Vance Tammen on (03) 9248 1131.

Yours Faithfully

Carolyn Youren

Dr. Vance V. Tammen

CONSENT FORM

I agree to let my students participate in the study conducted by Carolyn Youren and Dr. Vance Tammen of the Department of Physical Education and Recreation at Victoria University. I have also received the following information concerning the study.

1. The study has been explained to me. I understand the explanation that has been given and what my participation involves.

2. I understand that the student's participation is completely voluntary.

3. I understand that a student may discontinue participation at any time.

4. I understand that the results of the study will be treated in the strictest confidence, and that each student's identity will remain anonymous.

5. I understand that at my request, I can receive additional explanation of the study after my participation is complete.

My students may participate in the study conducted by Carolyn Youren and Dr. Vance Tammen of the Department of Physical Education and Recreation at Victoria University.

Circle one please Yes No

_____

School (please print)

_____ _____

Principal's Signature Date

_____

Principal's Name (please print)

APPENDIX C

Letter to Parents Seeking Permission to Include their Child in the Study

Victoria University of Technology
300 Flinders Street
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Victoria 3000
Australia

Telephone
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Facsimile
(03) 248 1009

City Campus
Centre for Rehabilitotion,
Exercise ond Sport Science

Telephone
(03) 248 1122

Facsimile
(03) 248 1124

Dear Parent/Guardian

VICTORIA UNIVERSITY OF TECHNOLOGY

As a Physical Education teacher I am aware of students dropping out of sport at both the elite and club levels due to disenchantment with their particular sport. Students cite reasons such as increased workload, lack of enjoyment, and too much training as factors in their decision to discontinue. As a result I am currently undertaking a masters thesis at Victoria University, under the guidance of Dr. Vance Tammen, to investigate the issue of sports dropouts. My thesis involves assessing the influence of self-determination (choice), and perceived competence on a junior athlete's decision to continue or dropout of sport.

I have decided to survey students who participate in football or netball at club and/ or school level for the study. In order to ensure random selection of club participants, I intend to draw the sample participants from various state primary and secondary schools throughout metropolitan Melbourne rather than approaching individual clubs. The participants will be drawn from students completing Years 5,6,8,9,11 & 12 in 1996.

The research project will involve the initial identification of eligible subjects by the Physical Education staff within the school. The researchers will then meet with interested participants at the school to outline the project, distribute parental consent forms, and determine the most convenient time for testing. The survey is a questionnaire that will take approximately 15 - 20 minutes to complete. Student information will be confidential, and participation will strictly voluntary. The questionnaire will be completed by participants at the end of the netball and football season (September / October, 1996).

Your consent is required in order to include your son / daughter in the survey. I would appreciate you assisting me with this study by completing the form attached to this letter and returning it in the envelope that is enclosed. If you have any queries please contact me on (03) 9509 0867 or Dr. Vance Tammen on (03) 9248 1131.

Yours Faithfully

Carolyn Youren

Dr. Vance V. Tammen

CONSENT FORM

I agree to let my child participate in the study conducted by Carolyn Youren and Dr. Vance Tammen of the Department of Physical Education and Recreation at Victoria University. I have also received the following information concerning the study.

1. The study has been explained to me. I understand the explanation that has been given and what my participation involves.

2. I understand that my child's participation is completely voluntary.

3. I understand that my child may discontinue participation at any time.

4. I understand that the results of the study will be treated in the strictest confidence, and that my child will remain anonymous.

5. I understand that at my request, I can receive additional explanation of the study after my participation is complete.

My child may participate in the study conducted by Carolyn Youren and Dr. Vance Tammen of the Department of Physical Education and Recreation at Victoria University.

Circle one please Yes No

_____

Child's Name (please print)

_____ _____

Parent or Guardian Signature Date

_____

Parent or Guardian Name (please print)

APPENDIX D

Letter to Participants Seeking their Inclusion in the Study

Victoria University of Technology
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(03) 248 1009

City Campus
Centre for Rehabilitation,
Exercise and Sport Science

Telephone
(03) 248 1122

Facsimile
(03) 248 1124

VICTORIA UNIVERSITY OF TECHNOLOGY

Dear participant,

As a Physical Education Teacher, I am aware of students dropping out of sport at both the elite and club levels due to dissatisfaction with their sport. Some students have suggested that their increasing homework load prevented them from continuing to participate while others felt that too much training and lack of enjoyment were major factors contributing to their decision to stop playing. I am currently completing a masters thesis at Victoria University, under the guidance of Dr. Vance Tammen, to study the influence of self-determination and perceived competence on an athlete's decision to stop playing. Self-determination is the amount of freedom a person has to make choices about what they do, and perceived competence is a person's idea of how well they perform skills.

Participants selected for this study come from six state primary and secondary schools in Metropolitan Melbourne. Because you presently participate in either club football or netball, and are in one of the following levels: Year 5,6,8,9,11, or 12, at one of the selected schools, you are invited to participate in this study. The study consists of a written questionnaire that will be completed at the beginning of the season and the end of the season. The questionnaire requires you to indicate how strongly you agree or disagree with each statement, and will take approximately 15-20 minutes to complete. Student information will remain secret and participation is voluntary.

In order to be included in the study you need to complete the consent form on the next page. This form will be removed from the questionnaire by the researchers so that your identity remains a secret. If you have any questions please ask one of the researchers present.

Yours Faithfully

Carolyn Youren

Vance V. Tammen

CONSENT FORM

I agree to participate in the study conducted by Vance Tammen and Carolyn Youren of the Department of Physical Education and Recreation at Victoria University. I have also received the following information concerning the study.

1. The study has been explained to me. I understand the explanation that has been given and what my participation involves.

2. I understand that my participation is completely voluntary.

3. I understand that I can discontinue participation at any time.

4. I understand that the results of the study will be treated in the strictest confidence, and that I will remain anonymous.

5. I understand that at my request, I can receive additional explanation of the study after my participation is completed.

I agree to participate in the study conducted by Vance Tammen and Carolyn Youren of the Department of Physical Education and Recreation at Victoria University.

Circle one please Yes No

_____ _____

Participant's Name (please print) Date

_____

Participant's Signature

APPENDIX E

Questionnaire used in this Study

MOTIVATION STYLES AND THEIR INFLUENCE ON PARTICIPATION

Information for participants.

Completion of this questionnaire is voluntary.
Do not put your name on the questionnaire or identify yourself in any way as the respondent.
All information is confidential and will only be released as group statistics within the report.
Please circle your response clearly for all questions.

MOTIVATION QUESTIONNAIRE

1. What year level are you ? **Yr** 5 6 8 9 11 12

2. What sex are you ? Male Female

3. How many seasons / years have you played your chosen sport at club level. (Include this season / year in your total).

   _____ seasons _____ year/s

4. Will you play your chosen sport at club level next season ? Yes No

5. Why / Why not ? _____

   _____

   _____

   _____

6. What other sports do you play at club level _____

   _____

7. Which club sport do you think you will be playing in 5 - 10 years time ? What will influence your choice? _____

   _____

   _____

Why do you participate in your sport ?

Using the scale below, please indicate to what extent (how much) each of the following items corresponds to one of the reasons for which you are presently participating in your sport.

1	2	3	4	5	6	7
Does not correspond at all.			Corresponds moderately			Corresponds exactly

8.	For the pleasure I feel in living exciting experiences.	1	2	3	4	5	6	7
9.	For the pleasure it gives me to know more about the sport that I practice.	1	2	3	4	5	6	7
10.	I used to have good reasons for doing sports, but now I am asking myself if I should continue doing it.	1	2	3	4	5	6	7
11.	For the pleasure of discovering new training techniques.	1	2	3	4	5	6	7
12.	I don't know any more; I have the impression that I am incapable of succeeding in sport.	1	2	3	4	5	6	7
13.	Because it allows me to be well reguarded by people that I know.	1	2	3	4	5	6	7
14.	Because, in my opinion, it is one of the best ways to meet people.	1	2	3	4	5	6	7
15.	Because I feel a lot of personal satisfaction while mastering certain difficult training techniques.	1	2	3	4	5	6	7
16.	Because it is absolutely necessary to do sports if one wants to be fit.	1	2	3	4	5	6	7
17.	For the prestige of being an athlete.	1	2	3	4	5	6	7
18.	Because it is one of the best ways I have chosen to develop other aspects of myself.	1	2	3	4	5	6	7
19.	For the pleasure I feel while improving some of my weak points.	1	2	3	4	5	6	7
20.	For the excitement I feel when I am really involved in the activity.	1	2	3	4	5	6	7

21. Because I must do sports to feel good about myself.	1	2	3	4	5	6	7
22. For the satisfaction I experience while I am perfecting my abilities.	1	2	3	4	5	6	7
23. Because people around me think it is important to be fit.	1	2	3	4	5	6	7
24. Because it is a good way to learn lots of things which could be useful to me in other areas of my life.	1	2	3	4	5	6	7
25. For the intense emotions that I feel while I am doing a sport that I like.	1	2	3	4	5	6	7
26. It is not clear to me any more; I don't really think that my place is in sport.	1	2	3	4	5	6	7
27. For the pleasure that I feel while executing certain difficult movements.	1	2	3	4	5	6	7
28. Because I would feel bad if I was not taking time to do it.	1	2	3	4	5	6	7
29. To show others how good I am at my sport.	1	2	3	4	5	6	7
30. For the pleasure that I feel while learning training techniques that I have never tried before.	1	2	3	4	5	6	7
31. Because it is one of the best ways to maintain good relationships with my friends.	1	2	3	4	5	6	7
32. Because I like the feeling of being totally immersed in the activity.	1	2	3	4	5	6	7
33. Because I must do sports regularly.	1	2	3	4	5	6	7
34. For the pleasure of discovering new performance strategies.	1	2	3	4	5	6	7
35. I often ask myself; I can't seem to achieve the goals that I set for myself.	1	2	3	4	5	6	7

COMPETENCE QUESTIONNAIRE

Using the scale below, please indicate to what extent each of the following items corresponds to how well you play football.

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree

1.	I enjoy football very much.	1	2	3	4	5	6	7
2.	I think I am pretty good at football.	1	2	3	4	5	6	7
3.	I put a lot of effort into football.	1	2	3	4	5	6	7
4.	It is important for me to do well at football.	1	2	3	4	5	6	7
5.	I feel tense while playing football.	1	2	3	4	5	6	7
6.	I try very hard while playing football.	1	2	3	4	5	6	7
7.	Playing football is fun.	1	2	3	4	5	6	7
8.	I would describe this game as very interesting.	1	2	3	4	5	6	7
9.	I feel pressure while playing football	1	2	3	4	5	6	7
10.	I am anxious while playing football.	1	2	3	4	5	6	7
11.	I don't try very hard at playing football.	1	2	3	4	5	6	7
12.	After playing football for a while I feel pretty competent.	1	2	3	4	5	6	7
13.	I am very relaxed while playingfootball.	1	2	3	4	5	6	7
14.	I am pretty skilled at football.	1	2	3	4	5	6	7
15.	This game does not hold my attention.	1	2	3	4	5	6	7
16.	I can't play football very well.	1	2	3	4	5	6	7

Thankyou for assisting me with my study.

COMPETENCE QUESTIONNAIRE

Using the scale below, please indicate to what extent each of the following items corresponds to how well you play netball.

1	2	3	4	5	6	7
strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree

1.	I enjoy netball very much.	1	2	3	4	5	6	7
2.	I think I am pretty good at netball.	1	2	3	4	5	6	7
3.	I put a lot of effort into netball.	1	2	3	4	5	6	7
4.	It is important for me to do well at netball.	1	2	3	4	5	6	7
5.	I feel tense while playing netball.	1	2	3	4	5	6	7
6.	I try very hard while playing netball.	1	2	3	4	5	6	7
7.	Playing netball is fun.	1	2	3	4	5	6	7
8.	I would describe this game as very interesting.	1	2	3	4	5	6	7
9.	I feel pressure while playing netball.	1	2	3	4	5	6	7
10.	I am anxious while playing netball.	1	2	3	4	5	6	7
11.	I don't try very hard at playing netball.	1	2	3	4	5	6	7
12.	After playing netball for a while I feel pretty competent.	1	2	3	4	5	6	7
13.	I am very relaxed while playing netball.	1	2	3	4	5	6	7
14.	I am pretty skilled at netball.	1	2	3	4	5	6	7
15.	This game does not hold my attention.	1	2	3	4	5	6	7
16.	I can't play netball very well.	1	2	3	4	5	6	7

Thankyou for assisting me with my study.