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DISPOSITIONAL AND SITUATIONAL ASPECTS OF PARTICIPATION IN
SPORT BY ATHLETES WITH PHYSICAL DISABILITIES

By

Sarita R. Overton

A DISSERTATION

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ABSTRACT
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SITUATIONAL ASPECTS OF PARTICIPATION IN SPORT
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The purpose of this research was to determine the coping with disability status, locus of control, situational coping strategies, and persistence expectations of athletes with physical disabilities. An underlying assumption of this research is the importance of sport in acquiring cognitive psychological skills that lead to competent and satisfying involvement in other achievement domains. Limited systematic study has focused upon factors influencing coping of persons with disabilities in normalized environments. The theoretical base for this study includes previous research in the areas of development, sport, and rehabilitation psychology. Subjects for this study were 197 volunteer athletes participating in the 1985 Cerebral Palsy/Les Autres Games. Subjects were volunteers 18 years of age or older, including both men and women from all competition classifications. An ex-post facto research design was used to maximize external validity of results. Data were collected through the use

of questionnaires before and after a given event. Pre-event questions assessed demographic information, coping with disability status, and locus of control. Post-event questions assessed coping strategies used and expectations to persist in sport. The relationship among all variables of interest in the study is reported producing a cognitive psychological profile of the competent individual with a disability. The findings are discussed in terms of their implications for facilitating competence through the use of specific coping strategies to maximize persistence. Results indicated that athletes in the study were (a) high level copers with disability, (b) had moderately external locus of control beliefs, (c) used a combination of emotion and problem focused coping strategies, and (d) had high expectations to persist in sport. Problem-solving coping strategies were significantly predictive of expectations to persist in sport. Implications and conclusions are discussed for research and practice.

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CHAPTER I

The Problem

Statement of the Problem

There is little empirical research on the psychological characteristics of individuals with physical disabilities. . . . successfully participate in achievement domains. Blom (1980) laments the lack of attention paid to those disabled persons who cope well with disability and lead competent and satisfying lives. Rutter (1979) states; "it is quite exceptional for anyone to study the development of those important individuals who overcome adversity, who survive stress, and who rise above disadvantage (p. 49)". In an extensive review of the literature on rehabilitation and the achievement domain of sport, Makas (1981) did not discover any studies that attempted to empirically describe the psychological aspects of athletes with certain disabilities.

The focus of most research on the psychological aspects of disability has centered upon two hypotheses, according to Shontz (1977). The first hypothesis is that many forms of somatic disability are associated with a particular form of personality, and the second is that the extent of the effects of disability on personality is proportional to the severity of the disability. Both of these hypotheses derive from the assumption that disability effects are negative

(Shontz, 1977). A review of the literature reveals that neither hypothesis is tenable, whether viewing the hypothesis from a clinical perspective (Hamburg & Adams, 1967) or from an empirical perspective (Shontz, 1977).

The field of rehabilitation tends to equate successful rehabilitation with participation in achievement domains. Employment (White, 1960) and sport (Danish, 1983) are examples of achievement domains which are very well suited for the development of competence. Participation by an individual with a disability in an achievement domain is considered a sign of success in rehabilitation (Bowe, 1978). Thus, one dominant aspect of successful rehabilitation is the opportunity to develop competence through participation in an achievement domain.

Formal rehabilitation in the United States has only existed since the aftermath of World War I, when disabled veterans were assisted in making a transition from rehabilitation hospitals back into employment. Prior to World War I disabled veterans received government pensions, with no specific focus on vocational rehabilitation or the transition into any other achievement domain. Thus, participation in achievement domains was only beginning to be considered a right for American citizens with disabilities in the early 1900's (Bowe, 1978).

The focus of rehabilitation continued to be on participation within the achievement domains of work and school through the mid 1960's. In the mid 1960's and early

1970's a new and broader focus for rehabilitation emerged, fueled by consumer need. This new focus was the independent living movement which was an effort on the part of Americans with disabilities to gain equal access to all areas of life in the United States including school, work, transportation, housing, and recreation. These efforts produced the Rehabilitation Act of 1973 which was a broad statement on the civil rights and equal access rights of American citizens with disabilities.

The Rehabilitation Act of 1973 provided the basis for a shift in the focus of rehabilitation efforts. Title VII of the Rehabilitation Act of 1973 included recreational activities as an important aspect of independent living for disabled Americans. Along with continued federal support for participation in school and work, this new support for recreation and other aspects of social participation of disabled adults would lead to increased participation in the achievement domain of sport. Morisbak (undated) states that;

in recent years the reference to rehabilitation as vocational rehabilitation has decreased. The emphasis has changed to include measures that assist disabled persons to achieve the highest possible level of functioning and integration with society, regardless of their feasibility for future employment (p. 51).

The development of sport opportunities paralleled other rehabilitation efforts, although reasons for such development were sometimes different. For example, the goals of the former National Association of Sports for

Cerebral Palsy included a broader focus on the total development of the person; "The act of competition is essential to the total development of any person in that involvement in individual and team sporting events can teach a person humility and pride and instill a sense of self-worth and respect for others" (National Association for Sports for Cerebral Palsy, 1983, p. 5). This dissertation is focused on the relationship between participation in achievement domains and rehabilitation outcome; thus, the history of sport development for disabled persons and parallel developments within rehabilitation is useful to understand.

According to Huber (1984), prior to World War II, the only international sports organization was the International Committee of Sports for the Deaf. Sir Ludwig Guttman is credited as an impetus behind the growth of international sport for the disabled after World War II by including competitive sports as part of the rehabilitation programming for returning disabled veterans at Stoke Mandeville, England.

The 1960's were the years for the formation of many international sports organizations. Included in these organizations was the International Cerebral Palsy Society with its national branches. In 1976 both the first Pan American Games and the first Olympiad for the physically disabled was held in Toronto, Canada with more than 1,500 athletes from 38 countries represented (Huber, 1984).

Perhaps the lack of research on competent individuals with disabilities results from the fact that only very recently has disability been considered to be simply one characteristic of the person, much like gender, which should not necessarily preclude an individual from participation in achievement domains. This change in attitude can be seen in three recent trends; first, participation in achievement domains was only beginning to be considered a right in the 1930's, secondly, disabled persons as a group just began the independent living movement in the mid 1960's, and finally, participation in the achievement domain of sport was only available on an organized basis after the 1950's.

Some may still question the importance of participation in achievement domains for the disabled. A review of the literature on sport participation reveals that among the most important outcomes of sports participation as perceived by athletes with cerebral palsy are; socialization/friendships, fitness, self-concept/mental health, tension release/relaxation, interesting/exciting use of leisure time and development of motor skills (Sherrill, 1986). Further review of the literature reveals that another important aspect of continued participation in achievement domains is the opportunity to develop a perception of competence (Danish, 1983 ; White, 1960); which, in turn, is identified in many theories, as an important aspect of human development and functioning.

There is a great deal of literature which gives definition to the concept of competence and testifies as to

the importance of perceived competence in human development. It is also evident that achievement domains are a central arena for acquiring a perception of competence.

Rehabilitation has attempted to assist the transition of disabled people into achievement domains since the early 1920's as practitioners recognized such participation as essential. Despite recognition of the importance of perceived competence and the knowledge that individuals generally choose to participate in an achievement domain based on their perception of competence, research on individuals with disabilities who perceive themselves as competent and who choose to participate in achievement domains is rare. Core attributes of the perception of competence have been identified as including the psychological characteristics of locus of control beliefs and coping processes. There is very little empirical information on the psychological characteristics of individuals with disabilities who perceive themselves as having these characteristics and as being competent.

Significance of the Problem

The lack of research on the psychological characteristics of individuals with disabilities who successfully participate in achievement domains is highly significant for two reasons. First, individuals with disabilities are typically underrepresented in achievement domains despite efforts made to assist their transition into school, work, and sport (Harris, 1986). Thus, they are often disadvantaged in

terms of employment status, economic status, educational status, and social participation. This disadvantage is hypothesized to have a negative affect on the perception of competence and overall psychological characteristics of individuals with disabilities. The second is that achievement domains provide individuals with many potentially positive outcomes of which developing a perception of competence is only one (Danish, 1983).

Despite research regarding the importance of participation in achievement domains for the development of a perception of competence (Danish, 1983; White, 1960) and the rehabilitation efforts to move individuals into achievement domains (Bowe, 1978), individuals with disabilities remain underrepresented in work, school, and competitive sport. This is surprising given that the Federal government has funded a nationwide system of agencies with the goal of assisting individuals with disabilities in accessing achievement domains. In a recent national survey, Harris (1986) reported on the representation of Americans with disabilities in various achievement domains. He discovered that 62% of Americans with disabilities are outside of the labor force. Of the disabled Americans currently involved in the labor force, 50% earn \$15,000 or less compared with 29% of non-disabled Americans. Only 12% of Americans with disabilities make \$35,000 or more versus 27% of the non-disabled. In terms of representation in education, 40% of Americans with disabilities have less than a high school

education, compared to 15% of non-disabled Americans. Finally in regard to sport, 56% to 75% of those surveyed reported being denied access to varied aspects of community life ranging from cultural events to sport (Harris, 1986).

If individuals with disabilities are not fully participating in achievement domains, the evidence suggests that they are missing out on many positive outcomes associated with such participation. Participation in achievement domains has been recognized as an important ingredient in quality of life, acquiring social competence, and developing self esteem (Coopersmith, 1967; Danish, 1983; Flanagan, 1980). Some of the positive psychological outcomes associated with participation are feelings of well being, pleasure in success, and enhanced social interactions (Dickinson & Perkins, 1985).

These potentially positive outcomes are presumed to apply to future achievement situations and stressful encounters. The importance of each of these outcomes and their relationship to achievement domains have been clearly established in the literature and support the significance of participation in achievement situations for their development. Of all of the potentially positive outcomes mentioned, the opportunity to develop the perception of competence stands out as an interesting aspect of participation in achievement domains, and yet, it is the individual with a disability who has perceived competence whom we know very little about.

Purpose of the Study

The purpose of this study is to better understand the relationship between intrapersonal cognitive processes of disabled individuals who perceive themselves as competent and participation in achievement domains. Intrapersonal cognitive processes include cognitions an individual has about their achieved competence including cognitions regarding ability to cope with disability, sense of personal control over life events, and ability to call upon various situational coping strategies in stressful life encounters. An understanding of this relationship is necessary in order to understand the development of a perception of competence among disabled persons.. Such an understanding could lead to a theoretical foundation of programming aimed at increasing the participation of disabled persons in achievement domains.

The focus of this research will be on the cognitive psychological aspects forming the core attributes of the perception of a competent self who participates in the achievement domain of sport. Unlike some acquired social, cultural, demographic, and disability characteristics, cognitive psychological characteristics can be learned, and may be amenable to change and improvement (Beck, 1976). As the majority of the constructs used in this study are cognitive psychological in nature, it is assumed that they are amenable to change and thus information on each construct should be of interest to rehabilitation practitioners and

individuals with disabilities interested in understanding and facilitating the development of competence. The competence literature indicates that some of the core cognitive attributes of the perception of a competent self are an individual's belief in his/her control over the environment (locus of control beliefs; Rotter, 1966) and active coping strategies to master the environment (Lazarus & Folkman, 1985a). The rehabilitation literature indicates that a core attribute of the perception of a competent self is the ability to cope well with disability (Blom, 1980; Kulkarni, 1985). Therefore, the variables of interest in this study will be locus of control, coping status with disability, and coping strategies. Athletes who perceive themselves as competent are hypothesized to differ in their use of coping strategies and in their locus of control beliefs.

Assumptions of the Study

It was assumed that athletes with disabilities who are national level competitors represent competent and successful individuals who have overcome the barriers, both internal and external, to sports participation. It was further assumed that the cognitive processes of coping and locus of control beliefs were observable in the feelings and thoughts of athletes with disabilities. Athletes who entered National Cerebral Palsy/Les Autres Games held at Michigan State University in August, 1985 were the subjects of this study. It was assumed that these athletes had

already engaged in the process of coping with disability and thus had a coping with disability status which was measurable.

Definitions

Achievement domain. An achievement domain is an arena of life activity in which competence is learned and practiced. Typical achievement domains are sport, employment, and education. Achievement domains can be characterized by their sanctioning of competition according to a set of rules.

Competence. Competence occurs in interaction with the environment. An individual has a core of interrelated personal attributes which play a crucial role in the person's effectiveness in interaction with the environment which form the core of the perception of a competent self. These include; coping strategies for mastering the environment, locus of control, and motives related to the self (e.g., trust, confidence, initiative, hope) and ego strength. Competence in this study was viewed as an achieved feeling state. The core attributes associated with the perception of competent self were the focus of this study.

Coping with disability status. Coping is a level of adaptation in an active psychosocial process that an individual has achieved. This psychosocial process is characterized by a persistent effort to overcome, master, and solve problems, issues, and dilemmas within the person and in the outside world, connected or unconnected with the

disability. This process occurs in the context of individual environmental transactions, including belief systems and cultural practices. Coping facilitates the development of competence and quality of life, which are behavioral outcomes, but it does not guarantee their occurrence (Kulkarni & Blom, 1985, p. 17).

Defending. Defending is behavior characterized by persistent negation and distortion of intersubjective reality. It implies logic which allows covert, impulsive expression and embodies the expectancy that anxiety can be relieved without directly addressing the problem (Haan, 1977).

Disability. Disability is a loss of function due to an impairment of a part or a system of the body. Disability is distinguished from handicap in that disability is function-focused, whereas handicap results from social stigma that places role restrictions on an impaired individual.

Fragmenting. Fragmenting is behavior which is privatistically formulated, affectively directed, irrationally expressed, and clearly in violation of intersubjective reality. Fragmenting includes behavior, acts, or thoughts which are distinguished from defending and coping (Haan, 1977).

Locus of control. Locus of control is a belief about control over life experiences. When a reinforcement is perceived by the subject as following some action of his/her

own but not being entirely contingent upon her/his action, then in our culture, it is typically perceived as the result of luck, chance, fate . . . this is a belief in external control. If an event is contingent on one's own behavior or one's own relatively permanent characteristics, we have termed this a belief in internal control (Rotter, 1966, p. 1). Locus of control is not a trait notion as it is often reported in the literature, rather, it is a dispositional variable ranging on a continuum from internal to external.

Situational coping strategies. Coping strategies are cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person. These efforts can be thoughts, feelings, or actions designed to focus on the emotional aspect or the problem aspect of a given experience. Strategies are evoked according to the appraisal of a given situation as threatening, harmful, or challenging (Lazarus & Folkman, 1984).

Quality of life. Quality of life is related to positive adaptation which includes feeling states such as coping, competence, happiness, good morale, satisfaction, well being, and self actualization. Quality of life is evident in physical and material well being, social networking, personal development, and recreational activities.

Research Questions

The principal questions of this research focus on perceived competence as a function of locus of control

beliefs and coping processes of athletes with disabilities. In addition to the overall coping status with disability of this group, the specific coping strategies used by these athletes in a situation of challenge are investigated. The participation in achievement domains of athletes in this study was examined in comparison with other persons with disabilities. In addition, questions were set forth to determine the interrelationship among the cognitive processes of locus of control beliefs, coping with disability, coping strategies, and sport outcomes. These research questions were operationalized as follows:

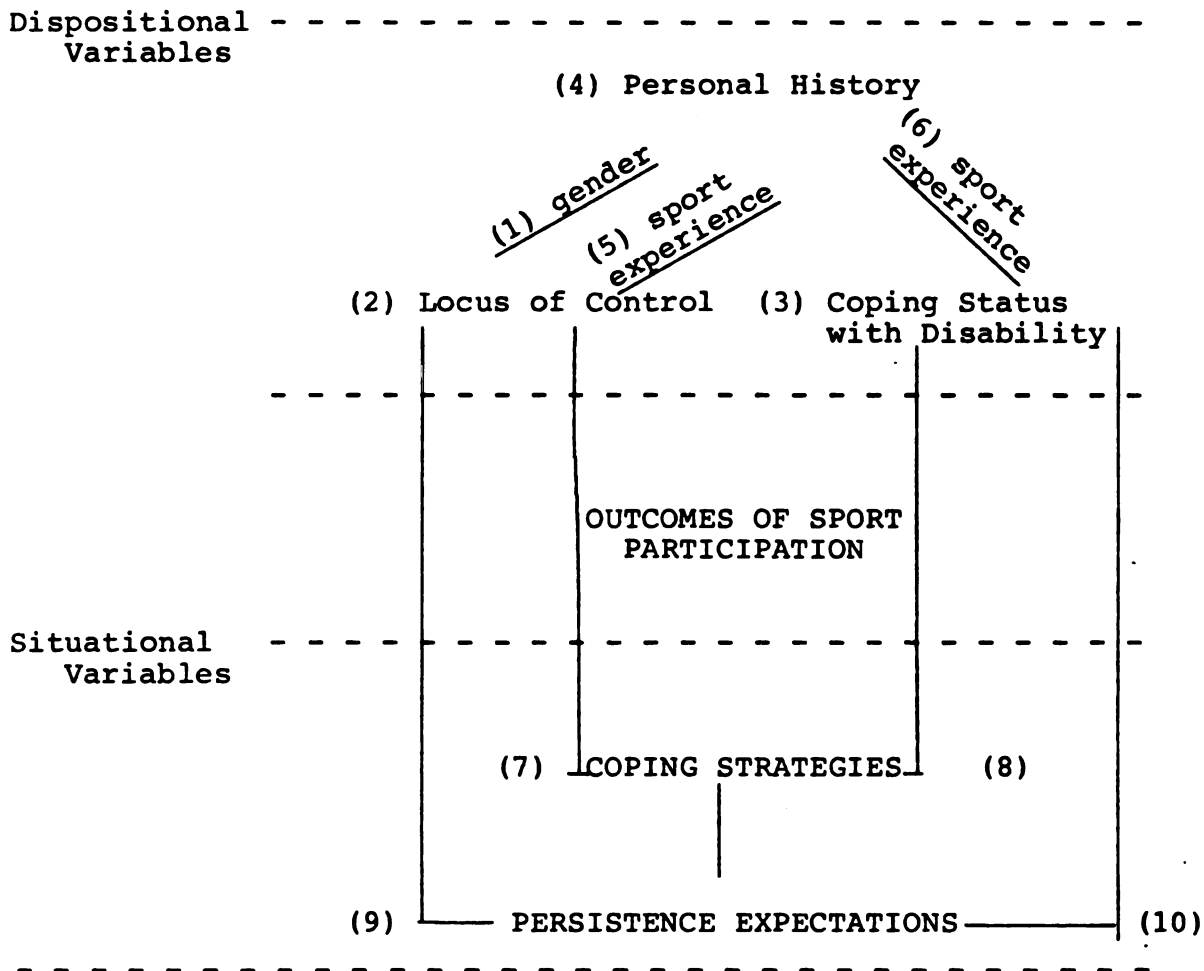
1. What are the locus of control beliefs of the subjects in this study and do these beliefs differ between males and females?
2. Are the subjects in this study different in their locus of control beliefs than individuals without disabilities?
3. Is there a relationship between coping status with disability and sport involvement such that individuals with more sport history have a higher coping status with disability?
4. Do the subjects in this study have a greater proportion of participation in sport, education, and work than individuals with disabilities not involved in sports?
5. Do subjects with more sport experience have different locus of control beliefs than those with less sport experience?
6. Do subjects with more sport experience have a higher coping status with disability as compared to athletes with less sport experience?
7. Do athletes with different locus of control beliefs use different situational coping strategies?

8. Do subjects with higher coping status with disability use different coping strategies as compared to those with a lower coping status with disability?
9. Are locus of control beliefs associated with higher expectations to persist in sport? If so, which beliefs are associated with which expectations to persist in sport?
10. Are levels of coping status with disability associated with expectations to persist in sport? If so, which levels of coping status with disability are associated with which expectations to persist in sport?

The literature review in Chapter II is used to speculate as to the interrelationship among the variables to be investigated in this study which are schematically conceptualized in Table 1. The hypotheses set forth in Chapter III are derived from this schematic presentation. The model depicts a single sport situation or event. The top section of the model is based on the hypothesis that personal history factors such as gender, disability, history of participation in sport, and history of participation in other achievement domains affect an individual's disposition. The dispositional (trans-situational) factors of interest in this study are locus of control and coping status with disability. The literature supports the link between locus of control and the situational variable of coping strategies used to cope with the outcomes of sport participation. It is further hypothesized that an

Table 1

Conceptual Model of Hypothesized Relationships Among
Dispositional and Situational Variables In A Sport
Situation



Aspects of Personal History measured include; gender, disability type, games classification level, employment status, education, sport history.

** Numbers in parentheses indicate comparisons of variable for this sample and data on published research outside of this study

*** Lines indicate hypothesized relationships between variables for this study

individuals achieved coping with disability status will also affect the coping strategies she/he chooses. Finally, it is hypothesized that both dispositional and situational variables will affect an individuals expectation to persist in sport. The literature supports the relationship among locus of control, coping and persistence expectations. Particular coping strategies used are also hypothesized to affect expectations to persist in sport. The numbers in the model correspond to the hypotheses of the study.

CHAPTER II

Theoretical Background

In order to better understand current theories about the relationship between intrapersonal cognitive processes of individuals with disabilities who perceive themselves as competent and their participation in sport, a review of relevant research to date is presented. First, literature on the value of sport is reviewed in an effort to discover positive outcomes associated with sport participation. Second, the opportunity to develop a perception of competence is set forth as an important outcome of participation in achievement domains and definitions of perceived competence are reviewed. Finally, the research literature on the intrapersonal cognitive processes of interest related to a perception of competence and the variables of interest in this study--locus of control and coping--is reviewed to provide support for directional hypotheses based on the research questions of interest set forth in Chapter I. Unless otherwise noted, the cognitive characteristics discussed in this review are those of adults.

Value of Sport

Personal competence. Danish (1983) states that sport has become a cultural phenomenon that permeates all of

society, a social institution comparable to other social institutions such as religion, law, government, politics, neighborhoods, medicine, and human service systems. "Because we rarely have an opportunity to see and study the degree of personal competence attained as clearly as we do in sport, sport becomes an important area of inquiry for those psychologists interested in studying optimal development (p. 222)." Danish asserts that sport provides the best training ground for the game of life. In his work with over 300 men and women participating in over 20 different sports, the following satisfactions or rewards were identified by able bodied athletes: making a commitment and sticking with it, learning to win/lose, working with people whom you do not necessarily like, learning patience, becoming disciplined, being in shape, a sense of belongingness to a special group, self control, communication skills, and pushing oneself to limits. Danish (1983) summarizes by saying that sport provides an environment which is more personal, concrete, time limited, and intense than the rest of society. Thus sport is an ideal environment for studying personal competence which is one of the positive outcomes that supports the value of sport for any individual. Another aspect of personal competence is one's sense of athletic competence.

Athletic competence. Ricks (1979) quotes Harter's research which indicates that one's own sense of athletic competence is likely to be overwhelmingly important,

particularly for young boys, although later on in adolescence intellectual and social competence are likely to play larger roles. Ricks also states that competence in one area of life can make up for incompetence in others, so promotion of academic or athletic competence can help compensate for social deficits and vice versa.

Although most literature on the positive outcomes of sport relates to able bodied competitors, it can be argued that individuals with disabilities are socialized to associate sport with the same positive outcomes relevant for able-bodied athletes. The National Association of Sports for Cerebral Palsy, which was the association organizing sports for its members at the time of this study, designs sport activities to "assist people to enter a positive process of improving functional abilities, accepting challenge, learning to win and lose, contributing to a team effort, developing positive self-esteem, extending social experiences, and preparing for competitive activities and independent living (NASCP, p. 2, no date)." These outcomes are similar to outcomes listed by Danish (1983) for able-bodied athletes.

In summary, another positive outcome supporting the value of sport is the opportunity to develop athletic competence. The literature supports the notion that learning competence in one area can correct for incompetence in other areas. Thus sport provides both able bodied and disabled athletes with an opportunity to interact effectively with their environments.

Personal Development. Although the variables of interest in this study focus on one's psychological orientation to the sport environment, the value of sport has been discovered in many other areas of life. It appears that sport is an arena for total personal development. The value of sport extends to strengthening development in the following areas : perceptual-motor skills which would include visual perception, auditory perception, haptic perception, and tactile perception; an opportunity to learn relaxation and reducing hypertension and ; learning fundamental movement patterns (Sherrill, 1986).

In a recent comprehensive study of physical activity and well-being, Seefeldt (1986) discussed the value of physical activity for personal development in the following areas: physical growth and maturation, acquisition of motor skills during childhood, biological growth in some areas, social development and moral development. Specifically, physical activity is an important factor in the regulation and maintenance of body weight and a significant factor in influencing the growth and integrity of bone and muscle tissue (Malina,1986). In addition, Haubenstricker & Seefeldt (1986) state " The environments of infants and children have a profound affect on their development of movement skills. Genetic endowment determines the boundaries or potential for competence, but numerous environmental variables, including stimulation and

opportunities to practice movement skills, determine to what degree the potential is realized." (p. 93).

Given these comprehensive effects of sport on personal development, one might assume that the consequences of handicap may be mitigated by the contribution of sport to development of the total person. The consequences of handicap often are most notable in slowed physical growth and an altered capacity to acquire important motor skills. In recent research specific to individuals with cerebral palsy, no significant differences in skinfold measurements were obtained between individuals with cerebral palsy and able-bodied individuals (Short & Winnick,1986). Individuals measured were athletes and these results were different than previous research indicating that handicapped and able-bodied athletes do differ in skinfold measurements. (Rarick, Dobbins, & Broadhead, 1976). Research indicating significant differences in skinfold measurements typically shows individuals with disabilities as having higher measurements. These differences are attributed to lower levels of physical activity of the handicapped group resulting in more body fat and a lower level of physical fitness. The authors speculate that sport training is an important aspect of development of total physical fitness.

In the areas of social development, sport participants have been found to be less delinquent than nonsport participants and more achievement-oriented in academic

settings (Sage, 1986). Research has also indicated that athletes involved in organized competitive sport may acquire a professionalization of attitude, meaning that greater emphasis is given to performance outcomes and less concern is given to playing fairly (Sage,1986). Finally, there is a great deal of literature on the functions of play in childhood and play is often considered the main mode of social development leading to social mastery (Sage, 1986).

In the area of moral development, Weiss (1986) suggested that moral development can be fostered through physical education programs. As sports often require negotiation about appropriate behavior and fairness, it facilitates the basic aspects of moral development (Weiss, 1986).

It should not be assumed that sport is an environment in which all are winners in the area of personal development. An individual who consistently fails at sporting events may well choose to withdraw from sport and may also decide that achievement domains are threatening to his/her self-esteem. This individual may continue to judge him/herself unable to participate in challenging achievement domains altogether. The perception of competence set forth by Danish(1983) enables an individual to choose to get involved in sport based on their evaluation and judgement regarding what they can and cannot do. An individual who consistently fails in sport, may decide that his/her perceived capacity or ability is not equal to the difficulty of the task.

This decision is likely to generalize to similar situations as sport is an analog for the cognitive preparation which occurs for other achievement domains.

Sport is an environment in which individuals can test their orientation to the world. This orientation includes one's psychological and physical methods of interacting with the environment. The sport environment provides a challenge for individuals which they can choose to appraise as a challenge, a threat, or as potentially harmful. The effectiveness of one's orientation to the environment underlies the pattern of appraising that environment. An individual with a disability may decide that they are ineffective in dealing with their environment based on the physical and psychological effects of disability. If the physical and psychological effects of disability can be mitigated by participation in sport, an individual athlete has more of a choice when confronted with a win or a loss. That choice centers on accepting that one's orientation to the world is not completely affected by disability and thus one can modify or retain aspects of that orientation.

The focus of this research is upon the psychological aspects of participation in sport which are hypothesized to generalize to other achievement domains. It is important to note that there are many other areas of inquiry into the value of sport as noted above in the brief review of the literature on the value of sport in personal development.

Self-concept. Research on outcomes of sport participation for athletes with disabilities is beginning to emerge. Patrick (1984), in a study designed to empirically describe the novice wheelchair athlete with regard to acceptance of disability and self concept, found that athletes with continued experience in athletics had better accepted their disabilities than novice athletes. Novice athletes, on the other hand, had lower self-concepts and significantly lower adjustment to disability. In a recent review of recreation studies spanning the period of 1966 thru 1975, several instances in which the leisure involvement of handicapped and non-handicapped children and adults resulted in improved ability of persons with handicaps in several areas; taking part in competitive and non-competitive games, learning competencies resulting in the opportunity to return to the community, and participating in age-appropriate sports (Wehman & Reynolds, 1981). Wehman and Reynolds (1981) indicated that participation in sport provides individuals with disabilities with the opportunity to learn about social interaction, concentration, and setting goals for self improvement.

Similarities between able-bodied and disabled athletes.

The similarities between able-bodied and disabled athletes are even more evident in the research of Henschen, Horvat and French (1984). The purpose of this study was to visually compare psychological profiles of male wheelchair athletes competing in track and field with results from past

investigations on able bodied athletes. They found that all groups (three groups of world class athletes and a group of male wheelchair athletes) manifested the same "iceberg profile." Henschen et al. (1984) quote Morgan who states that the iceberg profile includes below average scores on tension, depression, anger, fatigue, and confusion and a very high score on vigor. This profile indicates above average moods and below average anxieties. The wheelchair athletes were the closest to the ideal iceberg profile in this study with low trait anxiety and average state anxiety. The wheelchair athletes were also the lowest in tension, depression, anger, and fatigue measures. It appears that disability does not create much difference in the psychological characteristics of athletes.

In addition to the opportunity to develop personal and athletic competence, sport is a valuable environment where individuals can enhance their self concept. These positive outcomes seem to apply for both the able-bodied and individuals with disabilities in much the same manner.

The outcomes of participation in an achievement domain such as sport are cited in the literature as higher quality of life, improved self esteem, and the opportunity to develop a perception of competence. Of all of the outcomes mentioned, the opportunity to develop a perception of competence stands out as an aspect of participation in achievement domains that is most inclusive of all other positive outcomes of participation (Brewster-Smith, 1968).

It is likely that there are many individuals with disabilities have perceived competence.

Quality of life. There was much interest in the study of quality of life in the 1960's and the 1970's (Flanagan, 1980). To define the objective dimensions of quality of life, Flanagan (1980) collected 6,000 critical incidents from more than 2,800 Americans based on standard response formats. The incidents were then categorized, and 15 components emerged within these categories. Another sample of 1,000 thirty year olds, 800 fifty year olds, and 800 seventy year olds reported on the importance of each of the fifteen quality of life components. Both work and active recreation were found to be substantial predictors of quality of life based on ranked correlations for each group. Thus, self-reported quality of life seems to depend in part, on participation in achievement domains. Because individuals with disabilities are underrepresented in achievement domains, they may be missing out on opportunities to enhance their quality of life.

Self esteem. In a study of the antecedents of self-esteem, Coopersmith (1967) defined self-esteem as a personal judgment of worthiness that is expressed in the attitudes an individual holds toward self. He cites four major factors that contribute to the development of self-esteem; (a) the amount of respectful, accepting, and concerned treatment an individual receives from significant others in his/her life, (b) the history of successes and the status and position one holds in the world, (c) personal values and

aspirations, and (d) manner of responding to devaluation. High self-esteem, according to Coopersmith (1967), is related to power, significance, virtue, and competence. "Persons high in self-esteem will approach tasks with the expectation that they will be well received and successful" (p. 72). In American culture the purpose of power, significance, virtue, and competence is primarily played out in achievement domains. Key figures in American culture such as corporate chief executives and famous athletes are associated with images of power, significance, virtue, and competence. It would appear that an outcome of participation in an achievement domain is the opportunity to develop positive self-esteem.

The positive outcomes of a sense of personal and athletic competence, enhanced self-concept, higher quality of life, and higher self-esteem are all a part of participation in achievement domains. As sport is one of the primary achievement domains in this culture, it is presumed to provide a valuable environment for researching all of the positive outcomes mentioned, the opportunity to develop a perception of competence is of particular interest in this study and is further examined below.

Development of Perceived Competence

Competence and theories of development. One important outcome of participation in achievement domains is the opportunity to develop competence, a significant personal characteristic. Sullivan (1953) considered the chief

problems of development from ages 6 to 12 as competition and compromise, a pair of concepts emphasizing social competence. Erikson (1963) believes competence to be central in working through the stages of development, especially in the stage involving industry (ages 6-12). White (1960) states that competence is rooted "in a view of the organism-person as an active participant in interaction with the environment." White also adheres to a motivational view of competence when he states that "the concept of competence subsumes the whole realm of learned behavior whereby the child comes to deal effectively with his environment." Competence development includes manipulation, locomotion, language, the building of cognitive maps, skilled actions, and the growth of effective behavior in relation to other people (White, 1960, p. 138). Competence then, has been identified as an important ingredient of human development, human interaction with the environment, and motivation to master the environment.

Social competence. Brewster-Smith (1968) quotes Inkeles definition of competence which stresses the social importance of competence, "the ability to attain and perform in three sets of statuses including (a) those which one's society will normally assign one, (b) those in the repertoire of one's social system that one may reasonably aspire to, and (c) those which one might reasonably invent or elaborate on oneself " (p. 274).

Gladwin (as cited in Brewster-Smith, 1968) offers three components of competence as goals for programs of social

intervention: (a) ability to use social systems, (b) achieving one's goals, and (c) to perform effectively for self and society in one's social roles. Foote and Cottrell (1955) define interpersonal competence as skill or ability in controlling the outcomes of episodes of interaction. They posit six components to interpersonal competence; health, intelligence, empathy, autonomy, judgment, and creativity.

Definitions of competence. In an attempt to organize definitions of competence that are prevalent in the literature, Ford (1985) states that there are five interrelated but partly distinct sets of referents for the concept of competence; directive, regulatory, control, transactional, and organizational. White (1960) represents the directive approach with his conceptualization of competence as a biological predisposition of humans to transact with the environment to produce effects on it and themselves. Thus to White, competence is motivation. Ford (1985) notes that the regulatory approach is evidenced by the work of Rotter (1966) and Bandura (1977) who define competence as the individual's subjective evaluation of whether she/he is capable of producing some set of desired environmental effects. Thus competence is self evaluative. The control referent refers to competence as the person's behavioral repertoire or skills (Ford, 1985). The transactional referent defines competence as the effectiveness of one's behavior in relevant contexts so that

competence is the accomplishment of an objective. Finally the organizational referent defines competence as a personality trait. Competence is an organized pattern of cognitive, affective, and behavioral functioning in the trait perspective. All approaches to defining competence have in common the view that competence is an outcome which can usually only be explained or predicted with other variables (Ford, 1985). Thus it is the perception of competence which emerges as the important and measurable variable.

According to Ford (1985) "the concept of competence has desirable connotations of optimism, hope, human possibilities, and human worth that result from its emphasis on skills and accomplishments rather than defects or inadequacies (p. 3)." In discussing the development of a competence model, Brewster-Smith (1968) stated that;

. . . it is also congruent with the emerging public interest in finding ways in which all citizens may become equipped for effective participation in modern society, with the public distress that a submerged minority have been training in incompetence that leaves them unable to benefit from most opportunity open to them (p. 274).

The competence syndrome. Brewster-Smith (1968) developed a concept which he named the competence syndrome. His contention was that an individual who was launched on the right trajectory would accumulate success that would in turn strengthen the effectiveness of his/her orientation toward the world, while at the same time allowing him/her to acquire the knowledge and skill that make further success

more probable. The same individual's environmental involvement would be gratifying, and this would lead to increased competence and favorable development. He then painted the opposite scenario of an individual who would encounter failure which would leave him/her hesitant to try. This individual would then appraise challenges as threats and would become preoccupied with defenses rather than investing in constructive coping. This study investigated those individuals who, as a result of participation in achievement domains, are presumed to have been launched on the right trajectory and thus, would continue to appraise stressful situations as challenging.

Participation in achievement domains and perceived competence. The importance of participation in achievement domains for the development of a perception of competence has been recognized in the literature (Brewster-Smith, 1968; Danish, 1983; Gladwin, 1967). Brewster-Smith (1968) contends that there is a core of interrelated personal attributes which play a crucial role in the person's effectiveness in interaction with the environment. Among the attributes which he named as forming the core of the competent self are coping strategies for mastering the environment, locus of control, motives related to self (e.g., trust, confidence, initiative, hope), and ego strength. Brewster-Smith believed that to form a competent self an individual needs to have three things; (a) distinctive self and world attitudes which include accepting

responsibility, self-esteem, self efficacy, and hope for good outcomes, (b) characteristic behavior in the face of challenge, which includes an attraction to challenge, realistic goal setting, and an active coping orientation, and (c) an array of knowledge, habits, skills, and abilities required to translate hopeful expectations and active orientations into effective behavior.

Competence and mental health. In a report on the proceedings of a 1965 National Institute on Mental Health conference, Gladwin (1967) stated that there was agreement upon four premises related to competence as an outcome of mental health interventions. The first was that learning competence was important in order to become psychologically effective , relieve anxieties, correct maladaptive behaviors and learn alternative success oriented ways of behaving in society. The second was that when a person grows in achievement and social competence, that person also grows in general psychological strength so that she/he can then cope on their own with formerly serious emotional problems. The third premise was that social competence is most effectively achieved when intervention is aimed toward an ecological unit, consisting of a person and his/her immediate environment, rather than a person alone. Finally, the fourth premise agreed upon by the conferees was that ecological units can range from the immediate context of treatment to the total society (Gladwin, 1967). Thus, intervention in an ecological unit such as an achievement

domain provides an environmental context that may enhance overall mental health.

In summary, the value of participation in sport lies primarily in the positive outcomes available to participants. These outcomes include improved quality of life, enhanced self esteem, and the opportunity to develop a perception of competence. Competence, in this review, was found to be an achieved feeling state. A core of interrelated personal attributes playing a crucial role in the person's effectiveness in interaction with the environment were set forth as important components of perceived competence. These attributes include coping strategies for mastering the environment, locus of control, and motives related to the self. Core attributes of competence that were of interest in this study were further reviewed in order to develop hypotheses for the study population.

Locus of Control

In reviewing the literature on the psychological attributes of competent individuals who participate in achievement domains, the concept of locus of control beliefs is commonly encountered. Brewster-Smith (1968) included locus of control beliefs as a core attribute of the competent individual in interaction with the environment. The locus of control construct is defined both as a personality characteristic (dispositional variable) and as a situational construct. Locus of control can be conceptualized as a dispositional variable which refers to

a broad range of situations in which an individual perceives him or herself as having power over what happens to him or her (Lefcourt, 1966). More relevant to this research is the consideration of locus of control as a situational variable in general. According to Lefcourt (1966) investigators concerned with learning and achievement variables can use the locus of control construct for some prediction of future behavior.

In the original definition posited by Rotter (1966), locus of control was defined in the following manner;

when a reinforcement is perceived by the subject as following some action of his own but not being entirely contingent upon his action, then in our culture, it is typically perceived as the result of luck, chance, fate . . . this is a belief in external control. If an event is contingent on one's own behavior or one's own relatively permanent characteristics, we have termed this a belief in internal control (p. 1).

Strull and Karabenick (1975) stated that as a personality variable, locus of control refers to an individual's generalized belief that event outcomes are contingent upon one's ability or effort (internal control) versus forces beyond control such as fate or chance (external control). Strull and Karabenick (1975) went on to state that as a situational variable locus of control differs according to the characteristics of a situation, that is, in the percent of skill or effort (internal) versus luck or chance (external) involved in determining behavior-contingent outcomes. Brice and Sassenrath (1978) stated that a major determinant of an individual's behavior in certain situations

is their expectancy of success. Rotter presented two types of expectancy; generalized and specific. Generalized expectancy is a hypothesized personality construct on which individuals may vary on a continuum from the belief that one does not control the events in one's life (-external locus of control) to the belief that one does control such events (internal locus of control). Specific expectancy according to Brice and Sassenrath (1976) depends upon the situation and differs from a skill task to a chance task where one has little or no control over the situation.

Alternative conceptualizations of locus of control have emerged in the 1970's. Bandura's (1977) self-efficacy theory seems to be a re-working of the original conceptualization of locus of control. Bandura defined efficacy expectations as the conviction that one can successfully execute the behavior required to produce a given outcome. Bandura believed that perceived self-efficacy could have directive influence on the choice of activities and settings as well as affects on coping efforts once they are initiated. He also stated that efficacy expectations determined how much effort people would be expending and how long an individual would persist in the face of obstacles and aversive experiences. Bandura's self-efficacy expectations are typically measured within a given situation and as such do not operate as dispositional determinants independently of contextual factors. It is an assumption of this study that locus of control is a dispositional variable in that it

is not considered an all or none characteristic. As this study is more focused upon locus of control as a dispositional determinant of perceived competence, Rotter's (1966) conceptualization of locus of control will be used in examining the subjects in this study.

Locus of control relates to concepts such as competence, helplessness, hopelessness, mastery, and alienation in that all of these concepts have been used in one way or another to describe the degree to which an individual is able to control the important events occurring in their life space (Lefcourt, 1966). Research on the locus of control beliefs of various individuals within various situations has yielded very interesting results. The following review of literature examines the relationship between locus of control beliefs, personal characteristics, and achievement domains.

The relationship between locus of control beliefs and the personal characteristics of gender and disability have been empirically investigated. When the relationship between gender and locus of control beliefs for able-bodied individuals has been tested, the results are typically not significant (Sandler & Lakey, 1982). No literature was found regarding the relationship between locus of control and gender for individuals with disabilities. Research on gender and locus of control has typically been focused on the college student populations often studied for dispositional locus of control beliefs. Despite the lack of a reported relationship between gender and locus of control beliefs

it is unknown whether these findings apply to individuals with disabilities. As there were more males than females participating in the NASCP Games, it is possible that this difference in participation is due to some cognitive self-selection process, whereby females determine that sport is not an appropriate arena for competence development. Participation in sport may affect cognitions including locus of control differently for males and females. Given this equivocal information on the possibility of gender differences in the cognitive aspects of participation in sport, it is important to test for the possibility of gender differences in this study. As the majority of the literature does not support significant differences in locus of control beliefs, it is most likely that there will be no difference for the subjects in this study. Disability type has been shown to have an effect on locus of control belief (Strickland, 1978) and this literature is reviewed later in this chapter.

There is evidence to support the significance of the relationship between disability as a personal characteristic and locus of control beliefs. Lefcourt (1966), in a review of the locus of control literature, noted that groups whose social position is one of minimal power either by class or race tend to score in the external control direction on most locus of control measures. Individuals with minimal power are similar in realizing little contingency between quality of effort and quality of reward.

In an interesting study investigating the relationship among locus of control, condition of physical handicap, and achievement motivation, Moreau (1983) compared deaf, blind, and orthopedically impaired community college students to able-bodied students. Results indicated that physically handicapped students were significantly more externally oriented in their locus of control beliefs than the control group of able-bodied students. Handicapped and able-bodied students showed no significant differences in achievement motivation. Moreau's findings provide support for the perspective that locus of control is a multidimensional construct. Handicapped students expressed the belief that external forces controlled their lives on the one hand, yet maintained a belief in self-control on the other hand. Her findings also refute the belief that external locus of control orientation suggests low need for achievement at least when considering the physically handicapped.

Given the above data on the locus of control beliefs of various groups of individuals with disabilities, it is interesting to speculate about the locus of control beliefs of the sample of athletes with disabilities to be used in this study. It is apparent in the bulk of the literature that both members of minority groups and certain individuals with disabilities (cerebral palsied) may exhibit a more external locus of control, at least during certain periods of adaptation to disability, and thus they would be presumed to believe that forces external to themselves do exert an

influence on their lives. On the other hand, some individuals with disabilities have a more internal locus of control, especially after long term disability. Given this conflicting information, it is important to test for differences between the subjects in this study and able bodied individuals on the locus of control construct. It is hypothesized that there will be a significant difference on locus of control beliefs for the subjects in this study as compared to able bodied individuals. The subjects in this study are expected to be moderately external in their locus of control beliefs as compared to able-bodied populations, as they will have had a) cerebral palsy as a personal characteristic since birth and b) they will have participated in achievement domains. These factors are expected to have modulated the more external orientation found for disabled persons in general through opportunities to enhance the development of a more internal locus of control belief.

It is further hypothesized that the subjects in this sample will tend to be more external in locus of control beliefs than able-bodied samples, yet they are expected to be more internal than other disabled groups due to the impact of participation in sport. The hypothesis is consistent with the literature on the relationship between locus of control beliefs and the disabled as a minority group.

Although these findings are typically reported for racial minorities they also tend to extend to individuals with disabilities (Strickland, 1978).

Strickland (1978) did an extensive review of the literature regarding the relationship between locus of control and disability. It was noted in this review that both blind children and children with cerebral palsy have been assessed as having a more external locus of control than able bodied children. Jones (1974) found no difference in locus of control beliefs for orthopedically-disabled children who have varying degrees of mobility. Wendland (1973) tested 80 males, aged 18-35 with muscular-skeletal impairment. Subjects disabled less than one and one half years were significantly more external in their locus of control beliefs than subjects disabled more than three years. Wendland suggested that disabled individuals have a tendency to expect greater direction from external forces during initial periods following disability onset. Bruhn, Hampton, and Chandler (1971) compared 36 male hemophiliacs aged twelve or greater with normal controls. Overall, individuals with hemophilia were more external than normals. An interesting finding in the Bruhn et al. study was that hemophiliacs in the marginally severe group were significantly more external than either the mild or severe groups. Bruhn et al. suggested that the marginally severe individual views his/her clinical state as unpredictable and is more dependent on external cues to determine well-being.

The relationship between locus of control beliefs and participation in achievement domains is multifaceted. Lefcourt (1982) reviewed the literature on this relationship and concluded that there is no simple one to one relationship between the two. That is, persons who have an internal locus of control are not necessarily found to have participated in achievement domains more often than those with external locus of control beliefs. The available literature presents a confusing pattern of empirical evidence . Researchers such as Srull et al. (1975) suggest that further research on personality and situationally varied locus of control are required before any generalizations can be advanced regarding locus of control and achievement behavior. Much of this research varies with the nature (skill determined or chance determined) of the achievement task and then examines the differential performance of internals versus externals. A review of this research is presented below.

Brice and Sassenrath (1978) conducted a study to test the interaction of generalized and specific locus of control expectancies. Based on their review of the literature, they posited that subjects perform better in situations in which the type of task (skill or chance) is congruent. For individuals with an internal locus of control belief congruence occurred when they were in control of the situation (a skill task), for those with an external locus of control belief, congruence occurred when they did not

control the situation (a chance task). They hypothesized that there would be a significant interaction between locus of control and task instructions favoring external-chance and internal-skill groups on expectancy of success. They further hypothesized that the interaction between locus of control and task instructions on expectation of success would be based primarily on subject's perceptions of the task versus experimenter instructions. Internals would disbelieve task instructions more readily than externals.

Subjects were 425 undergraduates with a mean score of 12.26 and a standard deviation of 4.30 on the Rotter Internal-External (I-E) scale (Brice & Sassenrath (1978) . Fifty-six subjects were evenly divided into two groups of 28 internals and 28 externals. These two groups were further divided into groups consisting of skill and chance groups. Results indicated that only the external-skill group differed significantly on expectancies of success with lowered expectancies. Subjects' perceptions of the task at hand affected the interaction between locus of control and task instructions more than actual experimenter instructions. Internals disbelieved task instructions more readily than externals, and congruent situations (externals-chance, internals-skill) resulted in more subjects retaining their belief in the task instructions for a longer period of time.

Srull et. al. (1975) designed a study to measure the effects of personality and situational locus of control

variation in an achievement setting. Persons classified as internal or external performed tasks in which outcomes were skill or chance determined. The response measure was the tendency to violate normative prohibitions against cheating with repeated failure. Instances of cheating were viewed as a valid index of reward value, as individuals tend to cheat more with high reward value and motivation to achieve. The subjects were 36 male and 44 female undergraduate psychology students. The subjects were given the Rotter Internal-External Locus of control scale and assigned to internal or external categories based on a median split. Subjects with scores at the median were not used, resulting in dropping 10% of the sample. The remaining subjects were randomly assigned to skill or chance experimental groups within locus of control subgroups. An attempt to equalize numbers of males and females within each subgroup was made.

The results indicated that there was a strong interaction between locus of control and experimental conditions. As hypothesized, cheating was highest for internals under skill conditions and highest for externals under chance conditions. The researchers posited that the reward value would be higher for internals than for externals in skill determined conditions as both personality and situational locus of control would be congruent. The chance conditions, on the other hand, presented the congruent condition for externals and as hypothesized externals evidenced the highest amount of cheating in chance conditions.

Cheating was lowest for internals under chance and externals under skill conditions (incongruent condition). As sport is often thought of as a skill condition, internals and externals should behave differently. Further review of research on locus of control and situational variation should elucidate the nature of these differences.

In addition to empirically demonstrating the relationship between locus of control and situational variation, Srull & Karabenick (1975) showed that the internal locus of control group persisted much longer despite the condition (skill or chance) that they were in. Thus, they stated that in contrast to the cheating behavior, where personality-situational interactive effects were predominant, persistence behavior was largely governed by personality differences and much less so by the situation and interaction, which combined accounted for much less (8%) of the total variance. In fact, general locus of control beliefs accounted for 60% of the total variance in predicting persistence behavior of the subjects in this study. That is, persons with internal locus of control beliefs persisted longer than persons with external locus of control beliefs.

Weiss and Sherman (1973) attempted to incorporate the concept of locus of control with expectancy value theory and predict behavior subsequent to failure. They hypothesized that task satisfaction is related to the percent of need fulfillment the task provides. As such, externals who are more likely to attribute failure causality to the task

should be more task dissatisfied than internals. They also hypothesized that internality or externality is not related to original expectancies of task success, so there should be no differences between internals and externals on original efforts. Any differences after failure can be attributed to the failure experience itself. The final hypothesis held that given a chance to repeat a task on which they have failed, internals will work harder, whereas externals will simply lower their expectancies. The subjects in this study were 41 male undergraduates. The subjects were informed that they would participate in a study of intelligence and related psychological variables. They were told that they should perform well as they were in college. The intended message to subjects was that performance depends on effort. The subjects were then given 24 maze tests to solve in a four minute period.

Subjects were informed that they had scored well above average on these original mazes to reinforce their expectancies of effort leading to success. They were then assessed for their success expectancies on the next maze. Subjects were then given 4 minutes to work on unsolvable mazes and assessed after this failure experience on satisfaction with the maze task. One final maze was given (Maze B) and subjects were told that as they did not do well on the preceding mazes, they could take an unlimited time to perform on this maze. They were measured for

persistence, debriefed, and given the Rotter I-E scale. Results indicated that internals persisted longer on Maze B.

There was no relationship found between internal-external locus of control and scores on the first set of mazes, thus it was concluded that the persistence of the internals seen on Maze B was due to the failure experience alone. There was no difference in the expectancies for success between internals and externals, and there was no significant correlation between task satisfaction and locus of control.

Taken together, these studies offer empirical bases for speculating what the specific relationships between locus of control and achievement behaviors will be for the sample of athletes with disabilities in this study. The literature supports the notion that individuals with a more internal locus of control belief will persist longer in achievement settings, thus subjects in this study with a more internal locus of control should have more sport experience due to their increased persistence in achievement situations regardless of outcome. As achievement settings provide predominantly skill tasks, it is hypothesized that the athletes who are external in their locus of control beliefs will have lower persistence expectations than will the internals.

The Coping Concept and Disability

The research literature on coping has grown tremendously in the 1970's and the 1980's, and the topic of coping is fast becoming a major research issue. Definitions of coping range from animal models which focus on the responses that maintain homeostasis (Miller, 1980) to ego-psychology models which place coping on the top of a hierarchy of defense mechanisms which maintain the healthy ego (Haan, 1977), to cognitive models which focus on situationally evoked coping strategies which are typically based on a cognitive appraisal of threat, challenge or harm (Lazarus & Folkman, 1985a). Each model differs in explaining coping. In the animal model, coping is almost a reflexive act which is designed to reduce pressure on the organism. In the ego psychology model, coping is really viewed as a characteristic style which evolves over time but is evidenced across situations, which assumes that individuals react in a predictable manner to a given situation. The cognitive model views coping as a process which changes intra-individually from situation to situation according to the demands of the situation. The conceptualization of coping set forth in the cognitive model is perceived as similar to the theoretical assumptions on which the study and its instrumentation are primarily based, and suitable to the purposes of the study.

The animal mode of coping is very difficult to measure in human beings who must cope with very diverse and

uncontrollable stressors in real life. Animal research can control the stressful stimulus in a manner which is not possible in real life. The "coping" response is thus typically a physiological change within the animal which has interesting implications for health psychology, but presents a multitude of measurement problems in field research with human beings (Miller, 1980).

Ego psychology derives a definition of coping from the psychiatric literature describing intrapsychic defense mechanisms. Hamburg and Adams (1967) describe the early psychiatric literature as focusing on defense mechanisms called into use to cope with stress. The classic defense mechanisms of repression, denial, isolation, reaction formation, and rationalization are centrally concerned with minimizing recognition of potentially distressing aspects of personal experience. They rely heavily upon avoidance and reduction of information (Hamburg & Adams, 1967). These classic defense mechanisms are considered hierarchical in that some are more effective than others.

In the newer ego psychology tradition, Haan (1977) proposed a taxonomy of ego processes which included coping, defending, and fragmenting. This taxonomy was an attempt to join the rational strivings of Piaget with the irrational process of self-organization proposed by Freud. Haan (1977) viewed coping as a process and believed that all "processes are central to the ideal of personality" (p. 1). She states that ego processes basically follow attained cognitive

development. There appears to be a cognitive base in Haan's model which emerges when she defines and differentiates coping, defending, and fragmenting which she believes are strategically evoked.

Haan (1977) states; coping is purposive choice, flexible shift, adheres to intersubjective reality and logic, and enhances proportionate affective expression. Defending is rigid, compelled, negating, distorting of intersubjective reality and logic, allows covert impulsive expression, and embodies the expectancy that anxiety can be relieved without directly addressing the problem. Fragmentation is automated, ritualistic, privatistically formulated, affectively directed, irrationally expressed and clearly violates intersubjective reality. Haan believes that the person will "cope if they can, defend if they must, and fragment if they are forced to, but whichever mode is used, it is still in the service of an attempt to maintain organization" (p. 42).

The importance of this model of coping is in its insistence that an ego function exists (coping) which is not a method designed to negate reality. Also the beginnings of a cognitive appraisal process are emerging in this model of coping. The ego psychology model described above was the foundation for a number of models of coping. One such model of coping (Blom, Ek, & Kulkarni 1983) was developed to explain the process of adjusting to disability. This model is discussed later.

Cognitive models of coping seem to provide the best option for research designed to measure coping responses in humans, as the focus is on the coping act, which has both characteristics of stability and change depending on a given situation (Kahn, 1964). "The concept of coping is defined by the behaviors subsumed under it, not by the success of those behaviors. Another benefit of the cognitive approach to coping is the attention paid to the distinction between process and outcome." (Kahn 1964, p. 68).

Additional literature focuses on coping as a process which includes, among other elements, efforts at problem solving and adaptive behavior (Hamburg & Adams, 1967). When viewed in this way coping refers to things that people do to avoid being harmed by life-strains (Pearlin & Schooler, 1978). Coping with naturally occurring stressors, however, usually involves persistent effort and using a variety of strategies over a period of time according to Lazarus (1980).

The cognitive theory of stress and coping formulated by Lazarus and Folkman (1985a) is relational and process oriented. According to Folkman (1984) the relational characteristic is evident in the definition of stress as a relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and as endangering his or her well-being. Process oriented refers to the assumption that the person and the environment are in a dynamic relationship that is constantly

changing and, that this relationship is bi-directional, with the person and the environment each acting on the other (Folkman, 1984). Coping is the person's changing cognitive and behavioral efforts to manage external and/or internal demands that are perceived to exceed one's resources (Lazarus & Folkman, 1985a). Coping involves evoking strategies to meet the demands of a stressful encounter, based on an individual's appraisal of the threat, harm, or challenge (primary appraisal) and also based on an individual's secondary appraisal of the resources available to manage the situation (Lazarus & Folkman, 1985a). Lazarus and Folkman describe coping strategies as either emotion-focused or problem-focused. Emotion-focused coping strategies are evoked to deal with the affect (positive or negative) associated with a situation, whereas problem-focused strategies are evoked to deal with the problematic of a situation. Examples of emotion-focused coping strategies are escape-avoidance or distancing. An example of a problem-focused coping strategy includes problem solving.

Somewhere on the continuum between the ego psychology perspective of coping as an all-or-none personality trait and the cognitive psychological conceptualization of coping as a situational effort lies the concept of coping with disability status. The term status indicates a level of adjustment that has been achieved. Since it is changeable, it is not viewed as a trait. Yet this level of adjustment

is likely to be evident across most situations. Most research on coping behaviors of persons with physical handicaps concerns coping with disability rather than coping with challenges of tasks associated with normalized activities. This assumes that the disability is the focus of all coping efforts, rather than the specific stressors inherent in a given situation.

Coping with disability may involve psychological adjustment to one's physical appearance, to limitations of ability, or to the attitudes held by others toward persons with disabilities (Wright, 1960). According to Wright (1960) signs of coping with disability include (a) enlarging one's scope of values given the limitations of disability; (b) containing disability effects by learning new skills and approaches, acceptance, and disability; (c) subordinating the physique by shifting undue value on physical competence and normality to personality traits such as kindness; (d) counteracting spread by recognizing that not all of life is affected by disability; and (e) adopting comparative versus asset values by moving away from comparisons to external standards to looking at personal assets to meet situational demands. Coping according to Wright is very similar to both Haan and Lazarus and Folkmans conceptualizations of coping. Wright advocates a transcendence of disability through acceptance as would Lazarus and Folkman in a problem and emotion-focused coping scheme. Such an acceptance of disability would require

coping and would not be possible with fragmenting or defending behavior.

Coping is also viewed as an evolving process which is situation-specific (Blom, Miller, & Palombi, 1983), thus coping status with disability can be viewed as an assessment of level of adjustment to disability at some given point in the individual's coping process. The importance of temporal factors, environmental context, and functional outcomes are important in evaluating coping strategies and coping status with disability. Each situation involves an internal, cognitive appraisal of the degree of perceived stress, assumptions regarding personal control, and the repertoire for coping strategies available for use in a given situation. In situations appraised as constituting a challenge, such as sport competition, positive outlook and enthusiasm are associated with evocation of effective coping strategies (Lazarus & Folkman, 1985a).

Blom, Ek, and Kulkarni (1983) developed a model for coping with disability that focused on separating the process of coping from the outcomes of coping. The outcomes of coping with disability were posited to be increased quality of life and increased competence, whereas the process of coping included coping behaviors similar to the coping strategies posited by Lazarus and Folkman (1985a) but more specific to coping with disability. This model will be further discussed under the section titled, "Coping as a Dispositional Variable."

A combined perspective that utilizes a combination of the cognitive approach to conceptualizing coping in a situational framework and the ego psychology approach of conceptualizing coping in a dispositional framework was developed for this study. Coping is a concept often referred to when measuring perceived competence. In fact coping and mastery are terms that are often used to describe the same construct (Folkman, 1984). Coping efficacy is defined both as a dispositional and a situational psychological attribute of competent individuals. Thus, athletes with disabilities must cope with disability (dispositional variable) and they must cope with the stressful situations that life presents them. Both levels of coping are important in researching the psychological aspects of individuals who perceive themselves as competent.

Brewster-Smith (1968) included coping strategies (situational variable) as core attributes of the competent individual in interaction with the environment. Therefore, coping was identified as a relevant construct in the current study given that it is operational in a dispositional form (coping with disability) and in a situational form (coping strategies) in achievement domains. Coping is also a recognized aspect of competence which is measurable.

One might assume that people with disabilities who participate in sport competition have already achieved competence, not only in meeting the demands of disability and handicap, but also in demonstrating a level of skill in

a particular sport domain. It is expected that these experiences of achievement and competence would be associated with an overall perception of competence which would include greater coping status (or more effective coping) and would result in greater quality of life, confidence, and personal satisfaction. It is useful at this point to examine the research on coping strategies and coping status with disability. Questions to be addressed will be, what are the coping strategies used by various samples of individuals in various situations, and what is the coping status with disability of different samples of individuals with disabilities. Finally, how do the coping strategies used by the subjects in this sample compare with the coping strategies identified for non-disabled copers.

The situational formulation of coping used in this study is that of Folkman and Lazarus (1980) because of their conceptualization of strategies used. They have shown that both emotion-focused and problem-focused coping are used in most stressful encounters and that the relative proportions of each form vary according to how the encounter is appraised (e.g. as having the potential for control or as not amenable to control). In a study by Folkman and Lazarus (1980), 100 men and women aged 45-64 years of age indicated on a 68 item checklist how they coped with a variety of real life events over the course of 7 months. The checklist contained problem-focused and emotion-focused strategies (accepting responsibility, planful problem solving,

positive reappraisal, seeking social support, confronting, distancing, self-controlling, and escape-avoidance). Their examples of problem-focused strategies included "got the person responsible to change his or her mind," "made a plan of action and followed it," and "stood your ground and fought for what you wanted." The emotion-focused items included "looked for the silver lining," "tried to look on the bright side of things," and, "tried to ignore the whole thing." Reliability and validity for all eight coping strategies was tested and results are presented in the instrumentation section.

The events people reported ranged from minor problems, such as car trouble to major problems, such as life-threatening illness. Over 1,300 episodes were analyzed, and the findings showed that both problem and emotion-focused coping were used in over 98% of the episodes. In addition to this finding, it was discovered that problem-focused forms of coping increased in situations that were appraised as changeable, thereby holding the potential for control, and emotion-focused forms of coping increased in situations appraised as not amenable to change (Folkman, 1984). Thus, it appears that an internal locus of control belief should be associated with problem-focused coping strategies and this will be a hypothesis of this study.

In explaining the presence of both forms of coping, Folkman (1984) posits that the effectiveness of problem-focused efforts depends largely on the success of the

emotion-focused effort. She states that without emotion-focused efforts, heightened emotions will interfere with the cognitive activity necessary for problem-focused coping. This seems to suggest a hierarchy of coping strategies with emotion-focused coping at the foundation.

Coping strategies in research conducted by Lazarus and his colleagues were assessed with an instrument initially entitled the Ways of Coping Checklist. This 68 item checklist was first used to assess coping thoughts and actions of middle-aged women and men used in stressful encounters requiring coping responses (Folkman & Lazarus, 1980). Subsequent factor analysis of results supported the existence of two primary dimensions within the checklist; (a) problem-focused coping and (b) emotion-focused coping. The checklist was later modified by adding items, rewording items and deleting items to obtain the current version of the inventory with 66 items assessing self-perception of coping responses on a 4-point Likert scale (Lazarus & Folkman, 1985a). Additional factor analyses indicated that problem-focused and emotion-focused coping were represented by eight dimensions which were turned into subscales in the revised Ways of Coping Inventory. The Inventory was again factor analyzed using data from a study of coping responses of 85 married couples (described in more detail below) that were collected on five separate occasions at six month intervals (Folkman, Lazarus, Dunkel-Schetter, DeLongis & Gruen, 1986). The results indicated that the Ways of Coping

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Inventory included eight dimensions including (a) confrontive coping, (b) distancing, (c) self-control, (e) seeking social support, (f) accepting responsibility, (g) escape-avoidance, (h) planful problem solving, and (i) positive reappraisal.

In additional research regarding the use of coping strategies, Folkman et al. (1986) measured the coping responses of 85 married couples to appraisals of various life stressors including work goals, financial strains, concerns for physical well being, self-esteem, losing respect for another person, and concern for the well being of a loved one. These appraisals were considered primary. The secondary appraisals measured included appraisals that the situation could change, needed to be accepted, was one in which one needed to stifle what one wanted to do, and was one in which more information needed to be acquired before action would be taken.

Results indicated that individuals used confrontive coping, self-controlling, accepting responsibility, and escape avoidance when self-esteem was threatened, whereas, they were less likely to seek social support. Individuals used confronting or escape-avoidance most when a loved one's well-being was threatened, and they were less likely to use planful problem-solving and distancing. When an individual encountered stress regarding a goal at work, they were more likely to use self-control and planful problem-solving. If the loss of respect for someone else was at stake, confrontive

coping and self-controlling were the strategies of choice. Social support and escape-avoidance were the coping responses of choice when one's own physical health was threatened, while confrontive coping and seeking social support were the coping strategies of choice in response to a strain on financial resources.

If individuals appraised an encounter as having to be accepted, they typically used distancing and escape-avoidance as coping strategies. Individuals judging a situation as requiring more information before action could be taken, sought more social support, and used planful problem-solving and self-control. Accepting responsibility, confronting, planful problem-solving, and positive reappraisal were used if individuals appraised the situation as changeable. Finally if a situation was appraised as requiring that an individual stifle what they wanted to do, they used confrontive coping, self-control, and escape-avoidance.

As the above research indicates, situational context affects the choice of coping strategies. Previous research by Lazarus and Folkman (1985b) also supports the notion that situational context directs the focus of coping from emotion-focused to problem-focused. In general, individuals use problem-focused coping encounters appraised as changeable, and emotion-focused coping in encounters appraised as unchangeable (Folkman & Lazarus, 1980). In a study on students coping with the stress of course examinations, it was discovered that students used more

problem-focused coping during periods of anticipation and preparation (which is when persistence is required), than during the period after examinations while waiting to learn about exam results (Lazarus & Folkman, 1985b). In another study of coping, it was discovered that when faced with health problems, individuals with more internal locus of control beliefs, engaged in more adaptive forms of coping as compared to individuals with more external locus of control beliefs (Lazarus & Folkman, 1985b).

Hamburg and Adams (1967) looked at a coping study of youth in transition from high school to college, from the viewpoint of the use of information under stressful conditions. Their results indicated that characteristics of the highly competent group included many forms of problem-focused coping including; seeking advance information about the new situation, seeking information about new roles, seeking information about future difficulties, and utility of friendship in seeking information.

In a study designed to evaluate the utility of a stress and coping paradigm for explaining individual differences in psychological adjustment to chronic illness, Felton, Revenson, & Gregory (1984a) focused on 170 middle-aged and elderly adults. These individuals were faced with one of four chronic illnesses; hypertension, diabetes mellitus, cancer, and rheumatoid arthritis. The relationship between the stressor of the illness and coping were examined. Results showed

that coping strategy use did not differ significantly by medical diagnosis. Cognitive strategies included information seeking which was related to positive affect, while avoidance, blame, and emotional ventilation, were related to negative affect, lowered self-esteem, and poorer adjustment to illness. This seems to be supportive of Folkman's (1984) contention that emotion-focused coping strategies may be required first to manage heightened affect before problem-focused coping strategies can be evoked.

In a slightly different study, Felton, Revenson & Tracey (1984b) used a middle-aged sample (n=151) faced with the same four chronic illnesses to evaluate the role of coping in the explanation of psychological adjustment. The emotional consequences of two coping strategies, information seeking and wish-fulfilling fantasy, were evaluated. Results showed that information seeking had positive effects on adjustment and that wish-fulfilling fantasy had deleterious consequences. Neither of the effects of the two strategies were modified by illness controllability. Analyses of the direction of causation between coping and adjustment suggested that wish-fulfilling fantasy is linked to poor adjustment in a mutually reinforcing causal cycle. These results are supportive of the use of more problem-focused coping to adjustment.

In summary, the research evidence indicates that there may be a relationship between coping strategies, adjustment, and perceived competence. That is, those individuals who

a use primarily problem-focused coping strategies are also likely to achieve positive adjustment and competence. These studies suggest several coping strategies that may be used by the athletes in this study. These athletes are likely to be at a higher level of adjustment as a result of their participation in achievement domains and thus, they are likely to use more problem-focused coping strategies. It is hypothesized that they will use both emotion and problem-focused strategies to deal with the stresses of competition. It is also hypothesized that those who cope with disability more effectively will use problem-focused coping more often and will use emotion-focused coping strategies less often than those who cope with disability less effectively. If effective copers with disability are primarily internal in their locus of control beliefs, and if problem-focused coping strategies are used by individuals with internal locus of control, then effective copers would be expected to use problem focused coping strategies more frequently.

Several studies suggest that locus of control beliefs are related to the type of coping activity. Strickland (1978) noted studies that indicated that people with an internal locus of control were more likely than people with an external locus of control to engage in an information search about disease and health maintenance when it was relevant to their well-being and in preventive behaviors, such as wearing seat belts and going to the dentist for checkups. These are problem-focused coping behaviors.

Anderson (1977) found that, in comparison with individuals having an external locus of control belief, those with internal locus of control beliefs were likely to employ more task-centered (problem-focused) coping behaviors and fewer emotion-centered coping behaviors. Data about the relationship between locus of control and coping from the field study of men and women ages 45-64 done by (Folkman, Aldwin, & Lazarus, 1981) yielded mixed findings.

Generalized control expectancies in this sample were not related to coping. Contrary to what might be expected, the fifteen most internal subjects did not use more problem-focused coping behaviors than did the 15 most external subjects. Based on Rotter's (1966) conjecture that extreme "internals" and/or extreme "externals" may be the more maladjusted members of a sample, this latter finding may not be surprising.

Anderson (1977) investigated businessmen who were restoring their businesses after flood damage. He found that at the outset of the ordeal, externals were more stressed than internals. Externals also used more of what Anderson calls "emotion-directed" coping than did internals, and less task oriented or problem-focused coping in dealing with consequences of a flood. In a follow-up study two and one half years later, Anderson (1977) found that those who had been less stressed at the time of the first assessment were more successful in restoring their businesses than were those who had been more stressed. It seems that the person

who feels challenged generates fewer negative emotions that require attention and is therefore in a position to engage in problem-focused coping efficiently. If the outcome is perceived as positive, it reinforces the appraisal of challenge. The threatened person, on the other hand, experiences much negative emotion which requires emotion-focused coping strategies and may preclude the use of problem-focused coping strategies (Folkman, 1984).

Shontz (1975) described disability as a stress condition that requires coping responses. Individuals described as effectively coping with disability reported a positive quality of life, social competence, and acceptance of disability (Blom, Ek, & Kulkarni, 1983). Kulkarni and Blom (1985) conceived of coping as an ongoing process which changes according to individual development and situational context. In 1980 a pilot project initiated by the University Center for International Rehabilitation (UCIR) (Blom, Ek, & Kulkarni, 1983) was initiated to study the coping process in adult, disabled persons.

The UCIR study group developed a theoretical model of the process of coping in adult, disabled persons based on the work of White (1960) and Haan (1977). Like the conceptualizations of White (1960), the UCIR model viewed coping as one of the adaptational strategies used by humans. Like Haan (1977), the UCIR coping model made a clear distinction between coping, defending, and fragmenting, with coping representing a higher or superior level of

adaptation, defending representing a somewhat inferior or immature level of adaptation, and fragmenting representing maladaptation.

According to the coping model developed by the UCIR group, competence and quality of life are achieved states. These are behavioral outcomes of an evolving coping process over a period of time. Competence develops in an individual as a result of a series of successful adaptive encounters with his or her social environment. The UCIR model of coping with disability postulated that disability and its related social and psychological consequences act as a series of stressors that challenge adaptive responses to be learned or taught (Blom, 1980). Psychosocial reactions to disability imply normative responses from psychologically normal people to various interacting abnormal stimuli. These abnormal stimuli impede the adaptational process in disabled persons (Kulkarni, 1985 ; Vash, 1981). An individual with a disability may respond to disability by succumbing, defending, or coping (Kerr, 1977; Wright, 1960). Succumbing is similar to fragmentation and may be maladaptive in nature as it focuses on what the person cannot do. A defensive reaction to disability includes denial of the effects of disability, concealing, rationalizing, projecting, despair, and anxiety. Coping represents the constructive response to life with a disability. Persons with disabilities who cope are active participants in their own lives and in the life of their community. Coping responses to disability include positive

striving, seeking solutions, discovering satisfactions, self-understanding, reduced negative expectancies, relinquishing the need for whole body intactness, and having a special philosophy of life (Blom, 1980; Kerr, 1977; Vash, 1981; Wright, 1960). The UCIR group adopted a definition of coping that they felt best fit the adaptational process to disability. According to Kulkarni (1985), coping was defined as

an active psychosocial process characterized by a persistent effort to overcome, master, and solve problems, issues, and dilemmas within the person and in the outside world, connected or unconnected with the disability. This process occurs in the context of individual-environmental transactions, such as belief systems and cultural practices. Coping facilitates the development of competence and quality of life, which are behavioral outcomes, but it does not guarantee their occurrence (p. 17).

The theoretical model developed to explain coping (which reflects both dimensions of coping as developed by Haan, 1977 and Lazarus & Folkman, 1985a) was then tested in an in-depth study of nine persons with physical disabilities. The persons studied were identified by disabled peers as adapting well to their disability. They had a range of physical impairments including spina bifida, spinal cord injury, dwarfism, disfigurement from burns, blindness, and musculoskeletal disorders. Written interviews on each research subject were discussed by the UCIR group from the standpoint of coping, competence, and life satisfactions. Two inventories were constructed in the Likert type format to

reflect interview findings one containing behavior process items (coping) ,and the other, behavior outcome items (representing social competence and quality of life).

Based on data from the structured interview of successful copers and the extensive literature review of coping the UCIR group developed the Coping with Disability Inventory (CDI), an 80-item, 4-point rating scale questionnaire, based on their theoretical model, to assess the current disability coping status of an individual, including currently used coping processes and achieved quality of life outcomes. Specific validity and reliability information on this inventory is discussed in the instrumentation section. The outcome subscale of the CDI represents the above aspects of coping in a disabled person (competence and quality of life). Competence behaviors listed in this subscale included; information seeking, interpersonal skills, accepting body differences, self-esteem, and involvement in personal and environmental change. Behaviors included under the quality of life dimension of the outcome subscale included; physical and material well-being, personal development and fulfillment, leisure, and having a special philosophy of life. The process subscale items of the CDI represent behaviors indicative of these ongoing coping processes which, based on the UCIR coping model, never end. Process behaviors listed under this dimension included striving, problem-solving, emotional

tolerance, qualified judgment, locus of control, and relationships that take feelings of others into account.

The process and outcome subscales of the CDI are similar to Haan's (1977) controlled coping and expressive coping scales derived by factor analyzing the sum total coping scale scores of the California Personality Inventory. Controlled coping had high loadings on substitution, suppression, and concentration, and expressive coping had high loadings on regression in the service of ego, empathy, and tolerance of ambiguity. Controlled coping indicated an ability to concentrate on the task at hand, socially acceptable behavior, and controlling of inappropriate impulses (Haan, 1963, 1965). These behaviors were also reflected in the outcome subscale of the CDI. Similarly, expressive coping signified situationally adaptive and responsive behavior, a capacity for qualified judgments and relationships that take the feelings of others into account. Expressive coping behaviors are reflected in the process subscale of the CDI.

Using this instrument, Kulkarni (1985) assessed the coping with disability status for a sample of disabled adults involved in community centers for independent living. His results indicated that the mean coping status with disability for his sample was 283.5 on a scale with 400 possible points. This was characterized as average coping status with disability.

In considering coping status with disability it is hypothesized that these athletes will obtain higher coping scores than the Kulkarni (1985) sample as they are likely to have achieved a higher level of competence based on their participation in competitive sport. Coping with disability status should be related to sport experience in that, as discussed earlier, more sport experience would theoretically provide an individual with a chance to develop a higher level of competence. One major dimension of coping with disability status is competence. Individuals in this study who have more sport experience are expected to have a higher coping with disability status as compared with individuals having less sport experience. As striving is also an important aspect of the measurement of coping with disability status, it is speculated that subjects in this study who have a higher coping with disability status will also have higher persistence expectations as compared to athletes with lower coping with disability status who will have lower persistence expectations.

Summary

Lefcourt (1982) concludes a review of the research on coping and locus of control, that an individual's perception of control has much to do with ways in which that person will encounter life stresses. In general an internal locus of control has been positively correlated with overall adjustment and with problem focused ways of coping with situational stress. In his original monograph, Rotter (1966)

theorized that one would expect some relationship between internality and good adjustment in our culture, but he cautioned that such a relationship might not hold for extreme internal scores. He also stated that externality may act as an adequate defense against failure, but very high scores toward the external end may suggest a defensiveness related to significant maladjustment. Thus, seriously maladjusted groups would probably have more variability on the Rotter Internal-External Locus of Control Scale (I-E scale scores) and would probably have more frequent scores in the direction of an external locus of control.

CHAPTER III

Method

Subjects

Subjects for this study were 197 athletes with cerebral palsy or other (Les Autres) specified physical disabilities (see Table 3) who qualified for one of the seventeen events offered in the 1985 National Cerebral Palsy/Les Autres Games. The athletes in this study ranged from 18 to 66 years (see Table 2). There were more males (63%) than females (37%)

Table 2

Age distribution of athletes with physical disabilities participating in a study of the 1985 National Cerebral Palsy/Les Autres Games.

Ages	Frequency (n=185)	Percent of Total
18-24	63	34%
25-31	60	32%
32-28	34	19%
39-45	14	7%
46-59	13	7%
60-66	1	1%

and more athletes with cerebral palsy (82%) than les autres (18%) athletes (see Table 3). Most athletes characterized their disabilities as non-progressive (93%) and stable (62%). Most (78%) had acquired their disabilities congenitally.

Table 3

Distribution of type of physical disability among athletes participating in a study of the 1985 National Cerebral Palsy/ Les Autres Games.

Disability Type	Frequency (n=186)	Percent of Total
Cerebral Palsy	147	79.0%
Short Stature	2	1.1%
Osteogenesis Imperfecta	1	.5%
Multiple Sclerosis	3	1.6%
Ehlers Danos Syndrome	2	1.1%
Arthrogryposis	5	2.7%
Muscular Dystrophy	4	2.2%
Friedrich's Ataxia	2	1.1%
Other	20	10.7%

Athletes with cerebral palsy were classified to compete based on their functional abilities for competition (see Appendix B). Classification of the athletes in this study ranged from Level 1 to Level 8 (see Figure 1). For example, Class 1 includes athletes with almost no functional use of upper

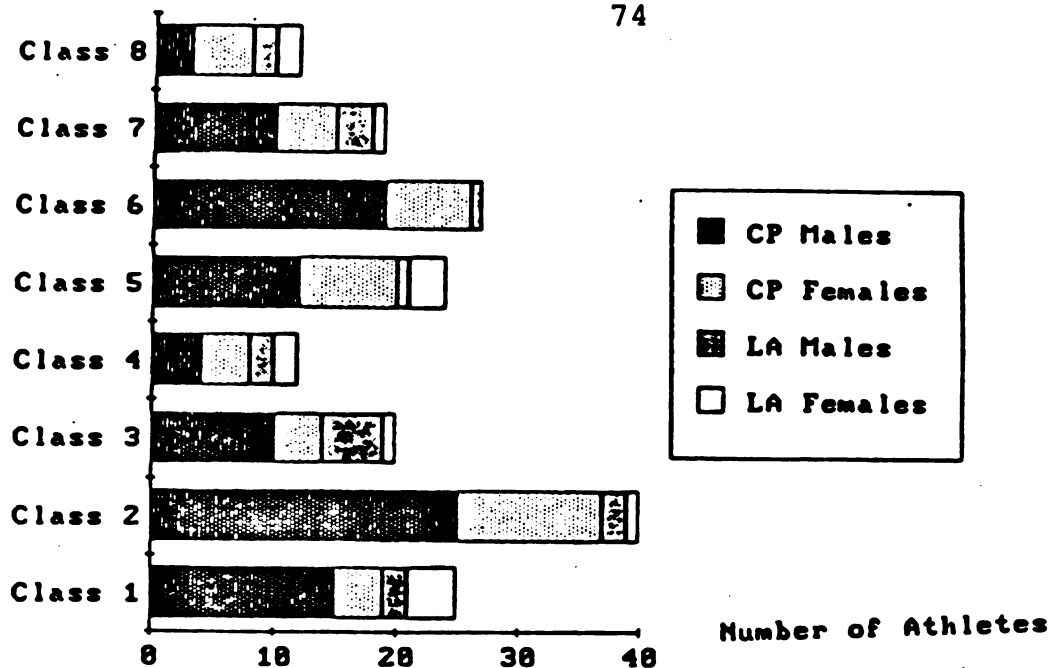


Figure 1. Distribution of cerebral palsy and les autres athletes by classification and gender.

extremities, severe involvement in all four limbs, limited trunk control, and 25% range of motion. Class 4 includes involvement of lower limbs only, with good strength in trunk without noticeable limp and demonstrate good balance and symmetric form in performance but have obvious coordination problems with normal range of motion.

Most athletes were single (85%), few athletes were married (9%) or divorced/widowed (6%) (see Figure 2). The relative youth of this sample may have affected the marital status distribution.

In terms of education and employment, this sample was typically underrepresented in both achievement domains (see Table 4). Only 29% of these athletes were high school graduates and only 23% had full time jobs.

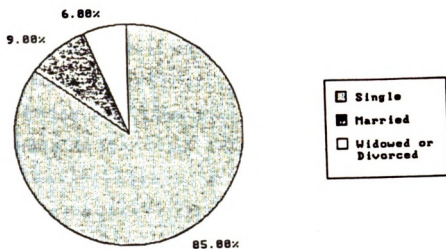


Figure 2. Marital status of athletes involved in a study of the 1985 National Cerebral Palsy/Les Autres Games.

Table 4

Education and employment status

Education (Highest level attained)	(n=185)	Employment	
Elementary school	6%	Full-time employment	23%
Junior high school	6%	Part-time employment	15%
Some high school	10%	Full-time student	16%
High school graduate	29%	Part-time student	11%
Some vocational school	2%	No school or work	32%
Some college	26%		
College graduate	14%		
Graduate school	7%		

In terms of sports background, most athletes (81%) followed an organized training schedule, while a minority (19%) trained whenever they could. Only 17% practiced on a daily basis, with 75% practicing about once a week, and 8% practicing less often than weekly. The majority (79%) of athletes in this study (79%) were assisted by a coach during training sessions, whereas 11% received some help from family members or friends, and 10% practiced without coaching.

Most respondents (83%) competed only in competitions for disabled athletes rather than in competitions which included able-bodied athletes. Many of the athletes were relatively inexperienced in sport competition, with only 44% reporting that they had competed five or more times prior to the Games (see Table 5).

Sampling Procedures

Approximately six weeks prior to the Cerebral Palsy/ Les Autres Games, an introductory letter of invitation describing this study and a statement of informed consent were sent to each of the 713 athletes registered to compete in the Games. A stamped postcard was included which athletes used to indicate their voluntary consent to participate in this study (see Appendix A).

Originally, a volunteer sample of 264 athletes (37% response rate) was obtained, however, 67 individuals were rejected due to age (less than 18) or failure to return

Table 5

Sport history of athletes with physical disabilities
participating in a study of the 1985 National Cerebral
Palsy/Les Autres Games.

Number of Competitions			Months in Competition		
n=178			n=100		
Frequency	% of Total		Frequency	% of Total	
once	27	13.7%	1-12	13	13%
2-5 times	73	37.1%	13-24	12	12%
more than 5	78	39.6%	25-36	19	19%
			37-48	10	10%
			49-60	11	11%
			61-72	14	14%
			73-84	8	8%
			85-96	9	9%
			97-108	1	1%
			109-120	3	3%

mailed packets with pre-Game data instruments leaving a final sample of 197 athletes or 28% of the total group. Totals for specific analyses vary, due to subjects dropping out or data collection assistant error at various points of data collection.

Design

This dissertation was part of a larger project conducted by a multi-disciplinary team which consisted of; Rochelle Habeck Ph.d., Marti Ewing Ph.D., Gail Dummer Ph.D., and the author of this dissertation. The design and instrumentation was set forth for this larger study with specific hypotheses developed for this research.

An ex post facto design was chosen for the study. According to Bolton (1979), the ex post facto (or retrospective) design is fairly common in field studies. He states that it is not a true experimental design because the independent variables are not manipulated by the investigator. Rather, subjects are selected because they have or have not been exposed to the experimental variable. The ex post facto design is appropriate when random assignment of subjects to groups is difficult or impossible. The results of an ex post facto study can never be statements of cause and effect, similar to the results of true experiments and as such generalizations from this study will be quite limited. The ex post facto investigation does serve as a useful hypotheses-generating procedure and the conclusions of this study will be suggestive of causal relationships which can be further evaluated in controlled experimental studies. (See Appendix M for list of events)

Instrumentation

Personal History Questionnaire. A multidisciplinary team-developed Personal History Questionnaire was designed to assess demographic characteristics, history of

training, competition in sport, disability type, severity of disability, and disability onset. This questionnaire was developed by the research team after reviewing several other personal history questionnaires used for sporting events and in studies of persons with disabilities. The questionnaire was then pilot tested with two individuals with disabilities. These two individuals were both athletes who had been involved in the Games in the past. Their suggestions and revisions were incorporated in the final version of this questionnaire (see Appendix C).

Locus of Control. The Rotter (1966) Internal-External Locus of Control scale was selected as the most suitable measure for this variable given its wide acceptance in the literature as an accurate measure of locus of control beliefs (see Appendix D). The scale is a continuous measure consisting of twenty-nine forced choice (between two options) items. Six of the items are filler items intended to mask the purpose of the test. Possible scores range from 0 to 26, with all items scored being an indicator of an external locus of control. Each item deals exclusively with the subject's belief about the nature of the world. That is, items assess the subject's expectations about how reinforcement is controlled. Consequently the test is considered to be a measure of a generalized expectancy. Normative data are reported by Rotter (1966). Using the means reported for a variety of samples, and those from samples not reported by Rotter

(for a total N of 4,433), Owens (1969) computed the overall means for all groups combined, mean = 8.3 (SD = 3.9). Rotter (1966) reported that two factor analyses had been completed; one by himself and the other by Franklin (1963). The results were much the same. Each revealed one general factor which accounted for much of the total scale variance. An internal consistency coefficient (Kuder-Richardson) of .70 was obtained from a sample of 400 college students by Rotter (1966). For two subgroups of Rotter's (1966) sample, test-retest reliability coefficients were computed, with a value of .72 for 60 college students, after one month. In terms of validity, the I-E scale has established convergent and discriminant validity. Over 50 percent of the internal-external locus of control investigations have employed the Rotter scale. Rotter reports that correlations with the Marlowe-Crowne Social Desirability Scale range from $-.07$ to $-.35$. The subjects tested with the scale have been primarily college students, although there has been at least one attempt to test a nationally representative sample.

Coping With Disability Inventory. The Coping With Disability Inventory (Kulkarni & Blom, 1985) was designed to assess coping status, defined as an individual's current status with the use of coping behaviors and the level of achievement of coping outcomes (quality of life and social competence) (see Appendix E). The instrument assesses

behavior on a 5-point rating scale ranging from (1) never/rarely to (5) almost always. The 80 item scale contains questions concerning the individual's coping process, independent living skills, and quality of life. This instrument has been subject to tests of construct validity on a sample of 46 American adults who were physically disabled, resulting in a correlation of .53, $p < .01$, with the Harrison Gough California Personality Inventory coping subscales. Other Pearson Correlations reported were the .40 between controlled coping (CPI) and the Outcome subscale (CDI), and .41 between the expressive coping (CPI) scale and the Process Coping subscale (CDI). Cronbach's alpha coefficients were .79 for the process subscale, and .84 for the outcome subscale and .89 for the total coping score with a sample of 46 adult American individuals with disabilities involved in centers for independent living (Kulkarni & Blom, 1985).

This original research on the Coping with Disability Inventory substantiates that the Inventory is in fact measuring the construct of coping. In addition to measuring the construct of coping, the Inventory appears to be a reliable measure, at least for one small sample of individuals with disabilities. The original research on the Coping with Disability Inventory also appears to support the validity of the rationally proposed CDI subscales.

Coping strategies. The Ways of Coping-Revised Questionnaire developed by Lazarus & Folkman (1985a) was chosen as the most suitable instrument to assess coping

strategies in a situation-specific context (see Appendix G). Respondents are asked to answer 67 questions, scaled on a 4-point rating scale ranging from (0) not used to (3) used a great deal. Responses are scored on eight factor-analyzed subscales (confronting, distancing, self-controlling, seeking social support, accepting responsibility, escape-avoidance, planful problem-solving, and positive reappraisal) reported by Folkman et al. (1986). Internal reliability values reported on the measure subscales range from .59 to .88. Factor loadings and intercorrelations of the eight coping scales are included in Appendix H.

Persistence expectations. This variable was assessed using a multidisciplinary team-developed post-competition inventory (see Appendix I). This inventory was designed to assess expectations about continuing in competitive sport. Respondents were asked to state their likelihood of persistence on a 4-point rating scale ranging from (1) very likely to (4) not at all.

Data Collection Procedures

Approximately four weeks prior to the Games, a packet of questionnaire instruments was mailed to each athlete who consented to participate in this study. The Personal History Questionnaire, Locus of Control Scale and Coping With Disability Inventory were included in this packet.

Approximately three weeks prior to the Games nine data collection assistants were selected, hired and trained to administer the remaining instrument at the Games and to communicate to

individuals having cerebral palsy. Individuals having previous experience both in research projects and with the disabled were given positions with this research project. Training was completed by project staff and officials from the National Association of Sports for Cerebral Palsy. Because of the athletes experienced deficits in fine motor control or communication skills, data collection assistants were trained to assist athletes by offering to (a) communicate with the assistance of large print forms created for each questionnaire (see Appendix K) , (b) record responses given orally by the athlete, (c) answering athletes' questions during questionnaire administration. Other aspects of training for the data collection assistants included (a) an orientation to communicating with individuals having cerebral palsy (b) an in depth training on standardized administration of research instruments (c) an orientation to the history of the National Cerebral Palsy/ Les Autres Games (d) a presentation by the multi-disciplinary research team on the research project , (e) an orientation to the events the Games, the project and the data collection instruments, (f) training on the principles of standardized administration, (g) practice administering each instrument, (h) pilot administration with an individual having cerebral palsy, and (i) logistical training as to how to collect data within the scheduling and parameters of the Games, which were specifically set in advance.

During the Games, consenting participants were asked to complete post-competition questionnaires as well as the Ways of Coping-Revised pertaining to their competitive

event. The post-competition instruments were completed at the Games within two days of event competition in most (82%) of the cases. Others who were missed at their departure or required to mail it back, were requested to mail these back within 14 days of their return home.

Although data collection assistants were trained to standardize their queries for assistance, the possibility of bias does exist due to the method of data collection used. It was the decision of the project staff that the risk of such bias was warranted given the obvious difficulties that athletes would have with filling out their own instruments without assistance.

Data were collected pre and post event. Information regarding events in which each athlete planned to compete was collected from the files compiled by Games officials. Each athlete's schedule and place of residence was noted. Location of events also was noted. All of this data was placed on one logistical sheet which also included spaces for checking off data collected by instrument (see Appendix L for a copy of a logistics sheet). The project coordinator held the master logistics sheets and was responsible for directing the data collection assistants to their needed locations for the day. When athletes were entered in more than one event, project staff randomly selected the event that would allow maximum coverage by the data collection assistants. Data were collected during 9 of the 17 events held at the Games. The frequency of subjects responding

at the Games varied as a result of athletes dropping out of the study or data collection assistants inability to locate athletes at a given event ($n=5$ and $n=32$ respectively).

Preliminary Data Analyses

A series of preliminary analyses on the Coping With Disability Inventory were conducted to determine the best method of scoring this instrument. The Coping with Disability Inventory was originally developed to yield three scores, a Total score derived from adding all answers, a Process subscale score derived by adding the last 43 items of the inventory and an Outcome subscale score derived by adding the first 37 items of the inventory. An empirical decision as to which method of scoring would be best to use in further analyses proposed in this study was required. First, reliability of these scores was measured by obtaining internal consistency of each sub-scale and of the test as a whole. Second, item-total correlations were computed to test the internal consistency of test items. Reliability to a large extent reflects the adequacy of the items in a test in measuring a specific underlying construct. According to Ebel (1979), items with an item-total correlation of .30 can be considered adequate. Negative item-total correlations indicate items that do not contribute to the reliability of the test and such items should be eliminated as not useful, or rewritten (Mehrens & Lehmann, 1975).

If both the reliability and intercorrelations of the subscales are above .60, then the Total score would be

considered meaningful, as the subscales would contribute little unique information. If the intercorrelations for the Process and Outcome sub-scales are low (i.e. below .60), then the subscales were meaningful and thus would be used in further analyses involving coping with disability.

The third analysis consisted of a preliminary factor analysis of the Inventory as a whole in an effort to determine if the rationally proposed total scale process subscale and outcome subscale had empirical significance. Principle axis with iterations using Oblique rotation was used as the analysis of choice because the process and outcome subscales were presumed to be correlated (Bolton, 1979). A Skree test was conducted to find the minimum number of factors necessary to explain the scale. Factor analysis results were limited by the small subject to item ratio in this studies sample, however, given the population of interest and the difficulty of collecting data on a sufficiently large sample, this represents a significant step beyond the work of Kulkarni (1985) on the CDI. Based on the results of all of the above analyses, the single best method of scoring this inventory was derived and used in further analyses.

In addition to reliability and factor analyses on the Coping With Disability Inventory, a test of validity was also conducted. The content validity of the instrument has already been established through a systematic examination of disabled persons (Kulkarni, 1985). The intent of the

Inventory is to classify disabled individuals as copers and noncopers or as high and low copers. Concurrent validity was also established with Haan's California Personality Inventory coping scores with a correlation coefficient of .54 (p . less than .001). The Process subscale had a correlation of .55 (p . less than .001) with Haan's total coping scores and the Outcome subscale had a correlation of .436 (p . less than .001) with Haan's California Personality Inventory based total coping score. Thus, there is some evidence for the construct validity of the CDI. In this study construct validity was further tested by conducting a test of relationship between coping with disability and locus of control. This was determined to be an appropriate assessment based on the review of literature. It was expected that a significant negative correlation would be found, indicating that subjects who are more internal have higher coping with disability status.

After examining the results of the above analyses, a decision was made on the best method of scoring the CDI. The resulting score was used in further analyses focused on coping with disability status. Analyses are proposed after the hypotheses of the study as listed below.

Hypotheses of the Study

Hypothesis #1. There will be no significant relationship between gender of subject and mean score on locus of control. No literature was found regarding the relationship of gender and locus of control for individuals with disabilities. It may be that findings regarding gender

and locus of control for nondisabled populations apply to this population as well. That is, no relationship between gender and locus of control will be found. However, as a means to substantiate this premise, hypothesis #1 was formulated and will be tested.

Hypothesis #2. The subjects in this study will have a significantly higher external locus of control (a higher mean score on the locus of control scale) than will a national sample of able bodied individuals studied by Rotter (1966). As disability does require some reliance on the outside world, a moderately external locus of control was considered the most adaptive for the athletes in this study. Able-bodied individuals, on the other hand may be more internal in their locus of control beliefs as they have not yet had the experience of disability.

Hypothesis #3. The mean score on the Coping With Disability Inventory for this group of athletes, will be significantly greater than the mean scores for two samples of persons with disabilities not involved in sport. It is assumed that participation in the achievement domain of sport will result in a higher coping with disability status. Achievement domains provide an environment which is excellent for competence development as well as testing ones orientation toward the world. Coping status with disability is one aspect of perceived competence. As national level athletes are assumed to have achieved a higher

level of perceived competence, they are also assumed to have a higher coping with disability status as compared to individuals not involved in the achievement domain of sport.

Hypothesis #4. The athletes in this sample will have a significantly greater proportion of participation in sport, education, and work than will the recent national sample of individuals (Harris, 1986) with disabilities who are not necessarily involved in sport. Individuals who participate in one achievement domain, are probably also participating in other achievement domains as they have learned to appraise the stress of such participation as a challenge. Participation in education, and work for this sample of athletes was assessed on the Personal History Questionnaire (see Appendix C). Employment experience was assessed with question #27; Are you currently employed, with answers being counted as yes; full time, or yes; part time.

Education experience was assessed with question #28; Education completed, answers being counted as ranging from elementary education to graduate education. Participation of individuals with disabilities not involved in sport will be assessed using data made available by Harris (1986) for a national sample of individuals with disabilities. As the data available is reported in percentages of individuals participating in employment and education, the percentages will be converted to proportions.

Hypothesis #5. Athletes in this sample who have an internal locus of control will have more sport experience

as compared to athletes who have an external locus of control. An internal locus of control has been connected in the literature with persistence in achievement domains, and this is hypothesized to be true for this sample as well. Sport experience as assessed in this study is a continuous variable. Question #22 on the Personal Background Questionnaire (Appendix C) asked; "How long have you been involved in competitive sport?" Answers were converted to months of sport experience.

Hypothesis #6. Athletes in this sample who have a higher coping status with disability will also have more sport experience as compared to athletes with a lower coping status with disability who will have less sport experience.

Participation in sport was hypothesized to enable an individual to raise their coping status with disability. Again sport experience in months were correlated with coping status with disability as both variables were on a continuous measurement scale.

Hypothesis #7. There will be a significant relationship between locus of control and coping strategies. Athletes with a lower score on the locus of control inventory (a more internal locus of control) will use more problem-focused coping strategies as compared to athletes with a higher score on the locus of control inventory (a more external locus of control) who will use more emotion-focused coping strategies.

Based on the review of literature, it appeared that an internal locus of control is related to the use of problem-focused coping strategies for able bodied individuals, whereas an external locus of control is related to the use of emotion-focused coping strategies. It was hypothesized that this was also true for the athletes in this study. Coping strategies were also assessed using the Ways of Coping-Revised which has been factor analyzed to reveal eight empirically constructed coping scales (confronting, distancing, self controlling, seeking social support, accepting responsibility, escape/avoidance, planful problem-solving, and positive reappraisal). Each strategy is assessed via several statements in the 66 item Ways of Coping-Revised scale which are added together to create the scale. Negative correlations will be expected between locus of control and problem-focused coping strategies (planful problem-solving).

Hypothesis #8. Athletes having a higher score on the CDI (indicating a higher coping status with disability) will use more problem-focused coping strategies as compared to athletes having a lower score on the CDI (indicating a lower coping status with disability), who will use more emotion-focused coping strategies. Coping with disability status is similar to locus of control in that they are both dispositional variables which an individual brought to the Games, It was also an assumption that there would be a significant relationship

between coping with disability status and use of coping strategies. A positive correlation between the Coping With Disability Inventory and scores on problem-focused coping strategies was also expected, whereas a negative correlation between coping with disability and emotion-focused was expected.

Hypothesis #9. Athletes with higher sport persistence expectations will have a lower score on the locus of control inventory (a more internal locus of control) as compared to athletes with lower sport persistence expectations who will have a higher score on the locus of control inventory (a more external locus of control).

This relationship is consistent with the literature on locus of control and persistence and it is assumed that this relationship will hold for the athletes in this study.

Persistence expectations were assessed on a continuous scale on the Outcome Questionnaire (Appendix F). Question #2 on the Outcome Questionnaire asked, "Based on your experience here at the Games, how likely are you to continue in competitive sport?"

Hypothesis #10. Athletes having a higher score on the CDI (indicating a higher coping with disability status) will have higher sport persistence expectations at the conclusion of the Games as compared to athletes with a lower score on the CDI (indicating a lower coping with disability status) who will have lower sport persistence expectations. It is assumed that there was a relationship

between coping with disability status and expectations to persist. One would assume that disability must be dealt with in order for an individual to enter an achievement domain and expect to persist.

A corollary question is which variables mentioned above (locus of control, coping status with disability, and coping strategies) will be most predictive of sport persistence expectations, i.e. which variables will account for the most variance in sport persistence expectations. This information will be especially useful to assist rehabilitation professionals and individuals with disabilities in understanding how to maximize persistence expectations.

Data Analyses

Frequency data on all variables included in this study is reported to provide a profile of athletes with disability involved in sport. Each variable was broken down by classification level, gender, and disability type for a more indepth understanding of any existing relationships. Each hypothesis was tested using a different analysis as described below. Results for all hypotheses are considered significant if $p < .05$.

To test ypothesis #1, an ANOVA was conducted which allowed for the control of alpha at a predetermined level when testing the simultaneous equality of the means involved. The dependent variable in the analysis was locus of control and the independent variable was gender

(male, female). This analysis provided the most powerful analysis of the differences in the means of males and females on the locus of control scale which is a continuous scale.

A t-test for independent samples was conducted to test Hypothesis #2. The two samples tested were independent and it was assumed that locus of control was normally distributed with approximately equal variances between the two populations being examined.

Another t-test for independent samples was conducted to test Hypothesis #3. The mean coping with disability status for both the Overton (1985) and Kulkarni (1985) samples were tested for significance first. If there was no significant difference between these samples on coping status with disability, then the sample means and standard deviations would be pooled for a t-test with this studies sample of athletes. If there was a significant difference between the two samples than testing all possible pairs of means with the studentized range statistic (q) would be the method of choice. The LSD or least significant differences method (also known as the multiple t-test method) will be used to determine if there is a significant difference amongst any of the three means.

To test Hypothesis #4, a series of 2 X 2 contingency tables will be constructed following the format and explanations given in Table 6. The formula procedures for

Table 6

Sample contingency table to analyze the relationship between demographic characteristics of athletes in the 1985 National Cerebral Palsy/Les Autres Games and individuals with disabilities in a national sample.

GROUP				
This study		Harris (1986)	Row Totals	
Employed	n11=	n12=	nr.=	$\hat{\pi}_r$
Full-time	p11=	p12=	nr.=	π_r
Labor				
Force Status				
Unemployed	n21=	n22=	nr.=	$\hat{\pi}_r$
	p21=	p22=	nr.=	π_r
Column Totals	n.1=	n.2=	n...=	
$\chi^2 = \sum_{r=1}^2 \sum_{c=1}^2 \frac{(n_{rc} - \frac{n_{r.} n_{.c}}{n})^2}{\frac{n_{r.} n_{.c}}{n}}$				

Calculating a chi-square based on the above 2 by 2 contingency table is outlined in Glass and Hopkins (1984, p. 286). After constructing these tables for each of the variables of interest (employment and education) a chi-square test of association will be conducted for each contingency

tables data set. The chi-square test for association will determine if the education and employment experience differ significantly for the samples included.

Hypothesis #5 will be tested with a Pearson Product Moment Correlation between the two continuous variables locus of control and sport experience. A Pearson Product Moment Correlation will also be used to test Hypotheses #6 through #10. A significant positive correlation was expected between sport experience and coping status with disability for Hypothesis #6. Positive correlations were expected between locus of control and emotion-focused coping strategies and negative correlations were expected between locus of control and problem-focused coping strategies for Hypothesis #7. A positive correlation between the coping with disability status and all eight coping strategies was expected for Hypothesis #8. Persistence expectations and locus of control was expected to have a negative correlation in Hypothesis #9 and persistence expectations and coping with disability status was expected to have a positive correlation in Hypothesis #10.

The corollary question was analyzed using a stepwise multiple regression with the independent variables being locus of control, coping status and all eight coping strategies and the dependent variable being persistence groups.

CHAPTER IV

Results and Discussion

Preliminary Instrument Analyses on the Coping With Disability Inventory

The scoring method for the Coping With Disability Inventory has not been empirically tested, and consequently the methods of scoring the inventory developed by Kulkarni (1985) has never been validated. The only published information on the Inventory focused on the rational process of developing the methods of scoring the inventory with its proposed component subscales. The Inventory has only been tested for reliability and validity on a very limited sample of individuals with disabilities. One of the goals of this study, therefore, was to examine the CDI closely to; (a) further establish the reliability of the instrument on a larger sample of individuals with disabilities, (b) improve the parsimony of the instrument by examining the contribution of each item to the total score, (c) empirically verify the unique contribution of each subscale to the Inventory by examining the relationship of the Process and Outcome subscales to each other and to the total score, and (d) to investigate the empirical validity of the rationally proposed subscales

and the inventory as a whole. The outcome of this examination was hypothesized to yield the single, best, and empirically validated method of scoring the CDI.

Reliability of the Inventory. The Coping With Disability Inventory has been tested for reliability with a limited sample of individuals with disabilities who are residing now within independent living centers and who were viewed by peers as having coped well with their disabilities. The question remained as to whether this inventory would also be reliable with a sample of individuals having a broader range of disability and a varied living situation.

In this study, the reliability of the CDI instrument was measured by obtaining an internal consistency estimate using Cronbach's coefficient alpha. Cronbach's coefficient alpha is used to estimate reliability based on the consistency of responses to all items in the test. Inter-item consistency is influenced by two sources of error variance: (1) content sampling and, (2) heterogeneity of the behavior domain sampled. The more homogeneous the domain, the higher the inter-item consistency. Cronbach's coefficient alpha is based on finding the variance of all individual's scores for each item and then adding these variances across all items. It is the test statistic of choice for Likert format scales where there is no right or wrong answer (Anastasi, 1982). The complete formula for coefficient alpha is:

$$r = \frac{(n)}{(n-1)} \frac{SD_+^2 - (SD_i^2)}{SD_+^2}$$

According to Anastasi (1982) any reliability coefficient may be interpreted directly in terms of the percentage of score variance attributable to different sources. Thus, a reliability coefficient of .85 signifies that 85% of the variance in test scores depends on true variance in the construct measured, and 15% depends on error variance.

A Total scale alpha of .89 was obtained for the sample of athletes in this study, which indicates a high degree of internal consistency for the Total score on the CDI. The Outcome Subscale had an alpha of .84 and the Process Subscale had an alpha of .78. The alphas for the Total Scale and for the Outcome subscale are in the acceptable range (.80's or .90's) for reliability coefficients according to Anastasi (1982). The Process Subscale, however, is slightly below this acceptable range.

It can be concluded from the above results of reliability tests on the CDI, that the Inventory as a whole had a reasonable level of consistency for this sample of athletes. It is unclear at this point, however, exactly what the subscale is measuring as the rationally proposed Process subscale appears to be less reliable than would be expected. This raises questions as to the empirical reliability of this subscale and the contribution of items within the Process subscale to the Total score. There are several ways to address these questions, one being an examination of the test items and their contribution to the total score.

Item-Total Correlations. Based on the results of the reliability tests, it appears that the CDI may have some items that are less consistently endorsed than others. In an effort to determine the best method of scoring the Inventory, it is important to understand the contribution of each item to the Total score. The adequacy of test items is partially determined by correlating each item with the total score. Test items with item-total correlation of .30 can be considered adequate, whereas, items having item-total correlations of .20 to .29 should be rewritten (Ebel, 1979). Items with a negative item-total correlation should be eliminated as they are not contributing to the reliability of the test (Mehrens & Lehmann, 1975). Item-total correlations were computed for the CDI as an additional method of estimating the internal consistency of this test and to offer empirical guidance in improving the internal consistency of the test, if needed.

Correlations ranged from $-.002$ to $.680$. Ten items had negative item-total correlations (see Table 7), and 35 items were below the acceptable limit of $.40$ (see Table 8), which was adopted as a more rigorous criterion for inclusion than the $.30$ level proposed by Ebel (1979) (see Table 9).

It appears that there may be a significant number of items in the CDI which are not contributing to the reliability of the test. These items are located in both Process and Outcome subscales. This would suggest that the Inventory could be shortened considerably while still

Table 7

Negative item-total correlations for items on the Coping With Disability Inventory

Item		Item-Total Correlation	Alpha If Item Deleted
1. +	OCOP 12 Experience emotional stress	-.002	.891
2. +	OCOP 13 ++ Hold on to my opinions	-.197	.893
3. +	OCOP 15 Have guarded interaction with others	-.117	.893
4. +	OCOP 27 ++ Pay close attention to body	-.457	.895
5. +	PCOP 50 Life opportunities are limited	-.043	.892
6. +	PCOP 58 Comply to others expectations	-.177	.893
7. +	PCOP 59 Back away from difficult situations	-.228	.894
8. +	PCOP 65 ++ Attribute disability to fate	-.216	.896
9. +	PCOP 66 ++ Display emotions during stress	-.054	.892
10. +	PCOP 79 Look forward to the future	-.237	.894

+ = Also a negative item-total correlation in Kulkarni square

++ = Item scored in reverse of CDI POOP= a Process subscale item OCOP= an Outcome subscale item

Scale = (1) never, rarely, (2) seldom, (3) sometimes, (4) often, frequently, (5) almost always

Table 8

Items on the Coping With Disability Inventory with item-total correlations below .40

	Item	Item-Total Correlation	Alpha If Item Deleted
OCOP 1	I obtain information about my body	.148	.870
OCOP 2	Involved in non-work activities	.317	.888
OCOP 5	I think about my disability	.094	.891
OCOP 7	Able to express anger	.140	.890
OCOP 8	Let go goals cannot achieve due to disab.	.008	.892
OCOP 9	Can tolerate anger at me	.324	.888
OCOP 10	Feel like victim of fate	.379	.888
OCOP 11	Have close love relationships	.397	.887
OCOP 14	My disability is an inconvenience	.245	.889
OCOP 17	Use fantasy and imagination	.261	.889
OCOP 23	Able to obtain material goods	.343	.888
OCOP 25	Accept different looking/functioning body	.269	.889
OCOP 28	Cannot stand ambiguity	.063	.891
OCOP 30	Disability worse thing happened	.271	.889
OCOP 31	Not disabled in daydreams	.084	.891
OCOP 32	My disability has advantages	.310	.888
OCOP 36	Comfortable if others not accept beliefs	.258	.890
OCOP 37	Satisfied with self though unemployed	.216	.899
PCOP 46	Am comfortable asking for assistance	.374	.888
PCOP 47	Have problems communicating	.145	.890
PCOP 48	Willing to take calculated risks	.319	.888
PCOP 49	I initiate interactions	.359	.888
PCOP 51	Use professional assistance when needed	.275	.889

Table 8 (cont'd.).

	Item	Item-Total Correlation	Alpha If Item Deleted
PCOP 54	Positive influence by other than family	.370	.888
PCOP 56	Cautious behavior	.245	.889
PCOP 57	Seek advice from other disabled	.338	.888
PCOP 60	Like compliments and recognition	.330	.888
PCOP 61	Understand nonverbal messages	.360	.888
PCOP 63	Feel helpless dealing with disability	.289	.886
PCOP 67	Try to influence events	.274	.889
PCOP 68	Mentally rehearse responses to events	.260	.889
PCOP 73	Experience sadness	.025	.891
PCOP 74	Experience fear	.071	.891
PCOP 77	Take responsibility for a problem	.345	.888
PCOP 78	Experience grief due to disability	.370	.888

Table 9

Items on the Coping With Disability Inventory with item-total correlations above .40

	Item	Item-Total Correlation	Alpha If Item Deleted
OCOP 3	Aware of my needs and concerns	.479	.887
OCOP 4	Due to disability, life has meaning	.522	.886
OCOP 5	Do different things during free time	.428	.887
OCOP 16	I help and encourage others	.587	.886
OCOP 18	I am optimistic and hopeful about life	.680	.885
OCOP 19	I participate in social organizations	.548	.886
OCOP 20	Involved in Barrier Removal	.447	.887
OCOP 21	I enjoy life	.493	.887
OCOP 22	Able to handle frustration	.425	.887
OCOP 24	Positive opinion of myself	.491	.887
OCOP 26	Design intimate trusting relationship	.452	.887
OCOP 29	Can point to life achievements	.516	.887
OCOP 33	Comfortable looking in mirror	.425	.887
OCOP 34	Care for people and things in my life	.465	.888
OCOP 35	Aware difference loving and needing love	.427	.888
OCOP 38	I live in here and now	.482	.887
OCOP 39	Can accept compliments and recognition	.472	.887
OCOP 40	My life is challenging and exciting	.598	.886
OCOP 41	Perceive problems as growth opportunities	.594	.886
OCOP 42	I am responsible for others' happiness	.481	.886
OCOP 43	I like myself and accept failings	.595	.886
OCOP 44	Seek info to solve problems	.568	.886
PCOP 45	Base decisions on future goals	.533	.886
PCOP 52	Reflect before and after actions	.440	.887
PCOP 53	Make efforts to solve problems	.575	.886
PCOP 55	Can laugh at myself with others about disability	.506	.887

Table 9 (cont'd.).

Item	Item-Total Correlations	Alpha If Item Deleted
PCOP 62 Examine alternative solutions	.583	.886
PCOP 64 Use self control expressing feelings	.453	.887
PCOP 69 I am source of control over events	.432	.887
PCOP 70 Experiment with ways dealing with disability	.527	.886
PCOP 71 Evaluate behavior by internal standards	.530	.886
PCOP 72 Focus on rewarding life areas when troubled	.470	.887
PCOP 75 Alert to bodily changes	.460	.887
PCOP 80 Problems are growth opportunities	.535	.887

maintaining and likely improving its internal consistency. The results of the tests of internal consistency lead one to question the contribution of the subscales to the Total score, and in fact one could at this point begin to question the value of the subscales. One way of beginning to test the contribution of the subscales to the Total score is to examine their relationship to each other.

Correlations of Total, Process and Outcome Scores.

The original work on the CDI indicated that two rationally proposed subscales existed which, when combined, would explain the construct of coping with disability. Thus far, tests of internal consistency and item-total correlations have raised questions as to the value of some of the original items. It became necessary to address the question as to exactly what the relationship of the subscales to the Total score was.

Results of a Pearson product-moment correlation of the Total CDI scores with the Process subscale scores indicated a positive correlation of .903, $p < .001$. Results of a Pearson product-moment correlation of the Total CDI scores with the Outcome subscale scores revealed a positive correlation of .940, $p < .001$. Results of a Pearson product-moment correlation of the Process and Outcome subscale scores indicated a positive correlation of .702, $p < .001$.

Because the intercorrelations of the subscales were above .60 they may be providing little unique information

(Ebel, 1979). These results would indicate a relatively high level of intercorrelation and suggest that the subscales are not independent and may not be providing unique information. Thus far, it seemed appropriate to conclude that the Total CDI score was the more meaningful measure of the interrelated components of the coping construct and consequently it was adopted for subsequent analyses. Nevertheless, the results of further analyses of the CDI are described below in an effort to further elucidate possible empirically validated dimensions of the CDI which may be other than the rationally proposed subscales.

Preliminary Factor Analysis. Thus far results of analyses on the CDI indicate that (a) data reduction may be necessary to pare the CDI down to a parsimonious measure of the construct of coping with disability and (b) there may be undefined dimensions within this construct of coping which were not captured by the rationally proposed Process and Outcome subscales. Factor analysis is essentially a data reduction technique that assists researchers in defining the dimensions contained within an instrument. Factor analysis was conducted with the CDI in an effort to understand what the components of coping with disability are and to obtain direction on possible data reduction for further research using the CDI.

Results of a preliminary factor analysis of the CDI, using oblique rotation with iterations are reported in Table 10. This type of factor analysis is also called

Table 10

First factor analysis of the Coping With Disability Inventory with all items included
using a principle components analysis with iterations, and oblique rotation

Variables	(Positive Attitude)		(Internal Loc)	
	Factor 1	Factor 2	Factor 3	Factor 4
I enjoy life (O)	.44			
My life is challenging (O)	.59			
Problems are growth opportunities (P)	.66			
Feel helpless dealing with disability (P)		.59		
Look forward to the future (P)		.74		
Base decisions on future goals (P)			-.44	
Try to influence events (P)			-.70	
I am source of control over events (P)			-.43	
Take responsibility for a problem (P)			-.44	
Satisfied with self though unemployed (O)				-.58
Use professional assistance when needed (P)				-.43
				108

Variables	(Affective Connection)			
	Factor 5	Factor 6	Factor 7	Factor 8
Experience sadness (P)	.74			
Experience fear (P)	.74			
Cannot stand ambiguity (O)		-.67		
I initiate interactions (P)		-.65		
Hold on to my opinions (O)			.57	

Table 10 (cont'd.).

Variables	(Affective Connection)			
	Factor 5	Factor 6	Factor 7	Factor 8
Guarded interaction with others (O)				.45
Seek information to solve problems (P)				-.52
Have problems communicating (P)				-.53

Variables	(Positive Self Image)			
	Factor 9	Factor 10	Factor 11	Factor 12
Experience grief due to disability (P)	.68			
Desire intimate trust relationships (O)	-.76			
Not disabled in daydreams (O)		.67		
My disability has advantages (O)		.46		
Aware difference loving & needing love (O)				.51
Use self control expressing feelings (P)				-.45

Variables	(Acceptance of disab.)				(Extra-curric. involvement)
	Factor 13	Factor 14	Factor 15	Factor 16	
I obtain info about my body (O)	-.79				
My disability is an inconvenience (O)		.50			
Disability worst thing happened (O)		.45			
Reflect before and after actions (P)		.58			
Pay close attention to body (O)			.53		

Table 10 (cont'd.).

Variables	Factor 13	(Acceptance of disab.) Factor 14	(Extra-Curric. involvement) Factor 15 Factor 16
Involved in non-work activities (O)			.49
Do different things during free time (O)			.49
Participate in social organizations (O)			.65

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Classifical-factor analysis and it is based fundamentally on the faith that the observed correlations are mainly the results of some underlying regularity in the data as well as on the assumption that the observed variable is influenced by determinants shared by other variables (common variance) and not shared by any other variable (unique variance). Thus, communalities are inserted in the correlation matrix before performing the factor analysis. It was assumed that the data would better fit an oblique axis format as the underlying dimensions of the CDI were hypothesized to be correlated and not orthogonal (Anastasi, 1982). Results yielded 23 factors with the first 15 factors explaining approximately 87% of the variance (see Table 11). Factors were composed of a variety of process and outcome coping items, with no clear delineation between these items as was suggested by Kulkarni (1985). The multiplicity and content of the various factors discovered suggests that the CDI may be measuring a construct that is quite complex. These results should be viewed with caution as the item to subject ratio was lower than the acceptable 1:4 as suggested by Mehrens and Lehman, (1975). Most factors with loadings above .40, contained fewer than three items and at least three items are typically required to form a construct. Those factors that were interpretable suggest that the coping construct as measured by the CDI is made up of at least the following components: positive attitude, internal locus of control, positive self image, acceptance

Table 11

Factor loadings for the first exploratory factor analysis
on the Coping With Disability Inventory

Factor	Eigenvalue	Pct. of Variance	Cum. Percent
		Explained	Variance Expl.
1	13.97	28.7	28.7
2	5.52	11.4	40.1
3	2.82	5.8	45.9
4	2.59	5.3	51.2
5	2.38	4.9	56.1
6	2.02	3.8	60.3
7	1.84	3.7	64.1
8	1.82	3.3	67.8
9	1.60	3.1	71.1
10	1.52	3.0	74.2
11	1.43	2.6	77.2
12	1.29	2.5	79.8
13	1.21	2.3	82.3
14	1.13	2.2	84.7
15	1.06		86.8

of disability and extra-curricular involvement. None of these aspects of coping would be clearly differentiated as process or outcome factors as defined by Kulkarni (1985).

In the above analysis, 62 cases were not included due to listwise deletion of missing data. This means that if an individual was missing any data at all, their case would be excluded from the analysis. Given the importance of sample size as a critical aspect in factor analysis, an additional factor analysis was conducted, including these cases by substituting mean scores as replacement values for each item previously counted as a missing value. This approximation

technique increased the overall sample size available for the factor analysis in an effort to clarify the resulting factors. Condescriptive results revealed that no more than six items were missing for any subject, thus using mean scores as replacement values for missing items seemed reasonable.

Results of this second factor analysis with iterations using oblique rotation revealed 24 factors which were again a mixture of process and coping items (see Table 12). The structure of each factor was somewhat different than the factors resulting from the first factor analysis. There were 39 items loading above .40 on the first factor, which explained 17.5% of the variance (see Table 13). The items loading on the first factor seemed to be a mixture of concepts from high self esteem and positive attitude about life. The only other factor with more than three items loading at the .40 or above level was Factor 2 which had items relating to a realistic acceptance of disability. Factor 2 explained 6.4% of the variance in the CDI. The remaining 22 factors were not interpretable as they contained less than three items or were below the acceptable loading of .40.

Neither of the above factor analyses produced the desired validation of the process and outcome subscales, thus a third factor analysis was conducted with the ten items having negative item-total correlations removed from the analysis. Again results were mixed, with only three factors having at least three items above .40. Factor 1, which explained 18.8% of the variance differed

Table 12

Second factor analysis of the Coping With Disability Inventory including all subjects, using estimates for missing data, using a principle components analysis with iterations, and oblique rotation

(factors 6-9 and 11-24 no items above .40)

Variable Factor 1

Aware of my needs and concerns (O)	.55
Due to disability, life has meaning/purpose (O)	.55
Do different things during free time (O)	.45
Feel like victim of fate (O)	.41
I help and encourage others (O)	.56
I am optimistic and hopeful about life (O)	.76
Participate in social organizations (O)	.52
Involved in barrier removal (O)	.44
I enjoy life (O)	.56
Able to handle frustration (O)	.52
Able to obtain material goods (O)	.47
Positive opinion of myself (O)	.63
Accept different looking/functioning body (O)	.41
Desire intimate trusting relationships (O)	.48
Pay close attention to body (O)	-.43
Can point to life achievements (O)	.58
Comfortable looking in the mirror (O)	.45
Care for people and things in my life (O)	.59
Aware difference loving and needing love (O)	.45
I live in here and now (O)	.53
Can accept compliments and recognition (O)	.54
My life is challenging and exciting (O)	.63

Table 12 (cont'd.).

Variable	Factor 1
Perceive problems as growth opportunities (O)	.61
I am responsible for others happiness (O)	.44
I like myself-accept failings (O)	.62
Seek info to solve problems (P)	.59
Base decisions on future goals (P)	.48
I initiate interactions (P)	.45
Make efforts to solve problems (P)	.65
Can laugh at myself with others re: disab. (P)	.52
Examine alternative solutions (P)	.58
Use self control expressing feelings (P)	.48
I am source of control over events (P)	.47
Experiment with ways of dealing with disab. (P)	.52
Evaluate behavior by internal standards (P)	.53
Focus on rewarding life areas when troubled (P)	.46
Alert to body changes (P)	.48
Look forward to future (P)	.66
Problems are growth opportunities (P)	.50
Variable	Factor 2
= also loaded on Factor 1	
I think about my disability (O)	.54
Let go goals cannot achieve due to disab. (O)	.42
Feel like victim of fate (O)	-.42

Table 12 (cont'd.).

Variable	Factor 2
= also loaded on Factor 1	
Experience emotional stress (O)	.52
Guarded interaction with others (O)	.47
Have problems communicating (P)	-.46
Life opportunities are limited (P)	.44
Comply to others expectations (P)	-.49
Feel helpless dealing with disability (P)	-.58
Experience sadness (P)	.40
Experience grief due to disability (P)	.53
Variable	Factor 3
Involved in non-work activities (O)	.41
Like compliments and recognition (P)	-.45
Variable	Factor 4
Able to obtain material goods (O)	-.44
Variable	Factor 5
Display emotions during stress (P)	.43

Table 12 (cont'd.).

Variable	Factor 10
Aware of difference loving and needing love (0)	.40

Table 13

Summary results for the second exploratory factor analysis on the Coping WithDisability Inventory

(n = 181)			
Factor	Eigenvalue	Pct. of Variance Explained	Cum. Percent Variance Explained
1	14.01	17.5	17.5
2	5.09	6.4	23.9
3	2.46	3.1	26.9
4	2.15	2.7	29.6
5	2.03	2.5	32.2
6	1.68	2.1	34.3
7	1.57	2.0	36.2
8	1.53	1.9	38.2
9	1.38	1.7	39.9
10	1.38	1.7	41.6
11	1.25	1.6	43.2
12	1.21	1.5	44.7
13	1.14	1.4	46.1
14	1.07	1.3	47.5
15	1.03	1.3	48.8

from Factor 1 in the second analysis by two items ("pay close attention to body"; "look forward to future") which were deleted from Factor 1 in the third analysis, (see Table 14). Factor 2 which explained 5.4% of the variance differed from Factor 2 of the second factor analysis by three items ("my disability is an inconvenience"; "disability is the worse thing that has happened"; "I experience fear"), (see Table 15). A third factor emerged with three items relating to socializing capabilities and it explained 3.3% of the variance.

The results of the factor analyses on the CDI suggest three things: (a) that the Process and Outcome subscales proposed by Kulkarni (1985) do not appear to have empirical validity, (b) that the underlying dimensions of the CDI are probably more complex than originally proposed, and (c) that more work would be needed to be done with the Inventory to determine exactly which components of one coping construct it measures. However caution is required in interpreting these results and conclusions as they are based on an inadequate item to subject ratio, resulting in an unstable factor solution evidenced by the marked changes in the make-up of the factors from one analysis to another.

The results of above tests on the CDI for this sample have consistently challenged the hypotheses regarding reliability of the subscales within the CDI as set forth

Table 14

Third factor analysis of the Coping With Disability Inventory, withnegative item to total correlated items removed

(n = 181)

Variable

Factor 1

Aware of my needs and concerns (O)	.55
Due to disability, life has meaning/purpose (O)	.55
Do different things during free time (O)	.45
Feel like victim of fate (O)	.41
I help and encourage others (O)	.56
I am optimistic and hopeful about life (O)	.76
Participate in social organizations (O)	.52
Involved in barrier removal (O)	.44
I enjoy life (O)	.56
Able to handle frustration (O)	.52
Able to obtain material goods (O)	.47
Positive opinion of myself (O)	.63
Accept different looking/functioning body (O)	.41
Desire intimate trusting relationships (O)	.48
Can point to life achievements (O)	.58
Comfortable looking in the mirror (O)	.45
Care for people and things in my life (O)	.59
Aware difference loving and needing love (O)	.45
I live in here and now (O)	.53
Can accept compliments and recognition (O)	.54
My life is challenging and exciting (O)	.63

Table 14 (cont'd.).

Variable	Factor 1
Perceive problems as growth opportunities (O)	.61
I am responsible for others happiness (O)	.44
I like myself-accept feelings (O)	.62
Seek info to solve problems (P)	.59
Base decisions on future goals (P)	.48
I initiate interactions (P)	.45
Make efforts to solve problems (P)	.65
Can laugh at myself with others re: disab. (P)	.52
Examine alternative solutions (P)	.58
Use self control expressing feelings (P)	.48
I am source of control over events (P)	.47
Experiment with ways of dealing with disab. (P)	.52
Evaluate behavior by internal standards (P)	.53
Focus on rewarding life areas when troubled (P)	.46
Alert to body changes (P)	.48
Problems are growth opportunities (P)	.50
Variable	Factor 2
I think about my disability (O)	.52
Let go goals cannot achieve due to disab. (O)	.45
Feel like victim of fate (O)	-.45
My disability is an inconvenience (O)	-.42
Disability worse thing happened (O)	-.43
Have problems communicating (P)	-.42

Table 14 (cont'd.).

Variable	Factor 2
Feel helpless dealing with disability (P)	-.59
Experience sadness (P)	.43
Experience fear (P)	.41
Experience grief due to disability (P)	.56
Variable	Factor 3
Involved in non-work activities (O)	.42
I initiate interactions (P)	.40
Like compliments and recognition (P)	.44
Variable	Factor 4
Able to obtain material goods (O)	.41
Variable	Factor 5
Use self control expressing feelings (P)	.42
Factors 6-22 no items above .40	

Table 15

Summary results for the third exploratory factor analysis on the Coping With

Disability Inventory (n=181)

Factor	Eigenvalue	Pct. of Variance Explained	Cum. Pct. of Variance Explained
1	13.13	18.8	18.8
2	3.79	5.4	24.2
3	2.34	3.3	27.5
4	1.99	2.8	30.4
5	1.73	2.5	32.8
6	1.52	2.2	35.0
7	1.43	2.0	37.0
8	1.37	2.0	39.0
9	1.29	1.8	40.9
10	1.19	1.7	42.6
11	1.17	1.7	44.2
12	1.01	1.4	45.7

by Kulkarni (1985). (This raises the question of validity of the CDI for this sample of athletes.) Kulkarni (1985) did obtain significant results for tests of content and construct validity. Given the differences obtained thus far between Kulkarni's (1985) conceptualization of the CDI and empirical results generated by this study, it was important to ascertain the validity of the CDI for this sample to see if similar results would be obtained.

Construct Validity. According to Anastasi (1982) correlations between a new test and similar earlier tests are sometimes cited as evidence that the new test (in this case the CDI) measures approximately the same general area of behavior or evidences construct validity. She goes on to state that unlike the correlations found in criterion-related validity, these construct validity correlations should be moderately high, but not too high. If the new test correlates too highly with an already available test, without added advantages like ease of administration, then the new test represents needless duplication. Kulkarni (1985) conducted just such tests of construct validity using the California Personality Inventory in comparison to the CDI with favorable results.

In this study, the Locus of Control scale was used to further the establishment of construct validity with a similarly related construct. The Locus of Control scale is a measure of one's belief that one can control events in life. An internal locus of control has been correlated

with higher level coping in the literature (Anderson, 1977; Folkman, 1984) and thus it is assumed that the construct of coping should be related to locus of control beliefs. Specifically, an internal locus of control belief should be related to a higher coping status with disability, whereas an external locus of control belief should be related to a lower coping status with disability. A result supporting this relationship would be indicative of the construct validity of the CDI for this sample.

Results of a Pearson product-moment correlation for scores indicating coping with disability status (Total score) and scores on the locus of control scale were significant, $r = -.195$, $p < .02$. This correlation was in the expected direction indicating that subjects who are more internal (lower score on the locus of control scale) also have a higher coping with disability status. Based on prior validation of the Locus of Control Scale and the presumed relationship between internal locus of control and coping ability, the result of this analysis provided support for the construct validity of the Coping With Disability Inventory.

Summary of Results on the CDI. The results of the reliability analyses on the CDI were supportive of the Total Scale score as a consistent measure of the complex construct of coping. These results included a coefficient alpha of .89 and a preponderance of item-total correlations in the .40 and above range. The results of the reliability

analyses for the Process and Outcome subscales yielded mixed results. The Outcome Subscale had an acceptable coefficient alpha of .84 indicating a high level of internal consistency; however, the Process Subscale had an unacceptable coefficient alpha of .78, indicating that perhaps this subscale was not as reliable as originally proposed. Additional results of analyses on the subscales yielded a Pearson inter-scale correlation of .70 between the Process and Outcome subscale. This is considered a high, positive correlation and the suggestion was that although each subscale was reliably measuring the construct of coping, the evidence that each subscale was providing any unique information on the construct remained weak.

The test of construct validity between the locus of control scale and the CDI provided additional support for the Total scale score as a meaningful measure of coping as the results were in the direction supported by the preponderance of the literature.

The empirical validity of the Process and Outcome subscales proposed by Kulkarni (1985) was not supported by the factor analyses conducted. Rather, the construct of coping seems to be much more complex with various aspects of the construct being composed of both process and outcome items. Given that the subscales do not appear to have substantial empirical validity and the evidence that each subscale is providing little unique information on the underlying construct of coping, The Total scale

score was used in further analyses focusing on coping with disability.status.

Sample Characteristics on the Variables
of Interest in the Study

One goal of this study was to provide a profile of the core cognitive psychological aspects related to competence of participators in achievement domains. It was hoped that such a profile would assist practitioners in understanding the development of competence in individuals with disabilities. The cognitive psychological attributes chosen for this study were hypothesized to play an important role in an individual's choice to persist in achievement domains and in the final cognitive appraisal of the experience one has in a given achievement domain. The attributes of interest were coping with disability status, locus of control, situational coping strategies, and persistence expectations. Frequency data will be provided for each of these attributes.

Coping with disability status. It was hypothesized that one would have to have attained a high level of coping with disability as a prerequisite to entering an achievement domain. The mean CDI score for these athletes was 291 points (SD = 27.2), out of a possible 400 points. This score meant that these athletes were classified as moderately high in coping with their disability. The range of individual mean scores for this sample of athletes was 182 to 353, indicating considerable variability among

athletes in coping with disability status. Athletes with cerebral palsy had a mean coping status with disability of 293.44, $SD=26.45$, whereas Les Autres athletes had a mean coping status with disability of 283.93, $SD=29.31$. Athletes in Classes 1, 2, 3, 4 and 8 differed in reporting coping status as compared to athletes in Classes 3, 5, 6, and 7 (see Table 16). Finally male and female athletes reported similar coping status with disability (see Table 17).

In conclusion, although there was some variability in coping status with disability within disability types, classification levels and gender for this sample, it appears that on average, these athletes cope well with their disabilities. This would suggest that a high level of coping with disability status is a core attribute of the competent athlete with a disability.

Locus of Control. Locus of control beliefs have been found to significantly affect persistence behavior in achievement domains (Srull & Karabenick, 1975). Locus of control beliefs have been asserted to be core attributes of competence by Brewster-Smith (1981). Results for athletes in this sample indicated that the mean score on the Locus of Control Scale was 9.8 ($SD=3.2$). This group mean score is in the external direction and is slightly higher than the group mean reported as moderately external by Owens (1969) for able-bodied individuals not involved in sport. There was individual variability among athletes in locus of control,

Table 16

Distribution of athletes with disabilities by functional impairment
classification and disability coping status

NASCP Class	Functional Impairment Characteristics	(n)	Proportion (%) of Disability Coping Status Group				Coping Score (M and SD)
			Low Copers (n=30)	Fair Copers (n=38)	Good Copers (n=59)	High Copers (n=27)	
1	Uses motorized wheelchair. Severe involvement in four limbs.	(20)	0	40	50	10	293.1 (15.1)
2	Propels wheelchair with feet or very slowly with arms. Severe/moderate involvement in four limbs.	(30)	20	13	37	30	296.7 (26.7)
3	Propels wheelchair with short, chopping arm pushes. Moderate involvement in three or four limbs.	(19)	21	32	26	21	284.6 (32.7)
4	Propels wheelchair with forceful, continuous arm pushes. Involvement of lower limbs only.	(12)	8	42	25	25	293.8 (27.8)

Table 16 (cont'd).

NASCP Class	Functional Impairment Characteristics	(n)	Proportion (%) of Disability Coping Status Group				Coping Score (M and SD)
			Low Copers (n=30)	Fair Copers (n=38)	Good Copers (n=59)	High Copers (n=27)	
5	Ambulates without wheelchair but typically uses assistive devices (crutches, canes, walkers). Moderate/severe spastic hemiplegia or paraplegia.	(24)	25	21	46	8	283.8 (32.1)
6	Ambulates without assistive devices, but has obvious balance and coordination difficulties. Moderate/severe involvement of three or four limbs.	(23)	30	22	39	9	281.7 (30.4)
7	Ambulates well but with slight limp. Moderate/mild spastic hemiplegia or paraplegia.	(15)	27	20	33	20	288.5 (30.8)
8	Runs and jumps freely without noticeable limp. Exhibits obvious, although minimal, coordination problems	(11)	18	18	46	18	292.5 (32.5)
Mean classification Level			(4.8)	(3.8)	(4.1)	(3.8)	

Table 17

Distribution of subjects by coping status
with disability and gender

(n=135)		
Sex	Mean CDI	S.D.
Female	290	26.6
Male	292	27.7
Total	291	27.2

with the scores ranging from 2 (highly internal) to 17 (moderately external) of a total possible score of 26. All athletes in this sample fell at or below (more external) the moderately external mark.

Male athletes reported a mean of 10.04 (SD=3.02) on the locus of control scale while female athletes reported a mean of 9.46 (SD=3.45) and the scale. Athletes in Classes 1, 2, 3, 5, and 6 reported mean scores on the locus of control scale in the external direction, whereas, athletes in classes 4, 7, and 8 reported means more in the internal direction (see Table 18). Athletes of short stature had locus of control beliefs in the internal direction as compared to athletes with Friedrichs Ataxia who had locus of control beliefs in external direction. Athletes with cerebral palsy are between the former groups and could be classified as having moderately external locus of control beliefs based on Owen's (1969) results (see Table 19).

Table 18

Means and standard deviations for athletes with physical disabilities
for locus of control beliefs by functional classification level

(n=135)			
Locus of Control			
Class 1	Uses motorized chair	$\bar{x} = 9.35$	SD = 2.67
Class 2	Propels chair with feet	$\bar{x} = 10.00$	SD = 2.97
Class 3	Propels chair with arms	$\bar{x} = 9.59$	SD = 3.06
Class 4	Propels chair with force	$\bar{x} = 8.64$	SD = 2.94
Class 5	Ambulates without chair	$\bar{x} = 9.33$	SD = 3.54
Class 6	Ambulates without assistance	$\bar{x} = 10.65$	SD = 3.20
Class 7	Ambulates well with limp	$\bar{x} = 8.75$	SD = 2.14
Class 8	Runs and jumps freely	$\bar{x} = 7.89$	SD = 3.66

Table 19

Means and standard deviations for athletes with physical disabilities on locus of control beliefs by disability type

(n=158)			
Locus of Control			
Cerebral Palsy	(n=124)	$\bar{x} = 9.30$	SD = 3.22
Short Stature	(n=1)	$\bar{x} = 6.00$	SD = 0
Multiple Sclerosis	(n=3)	$\bar{x} = 8.67$	SD = 4.50
Ehlers Danos Syndrome	(n=2)	$\bar{x} = 8.50$	SD = 3.54
Arthrogryposis	(n=4)	$\bar{x} = 9.75$	SD = 1.26
Muscular Dystrophy	(n=4)	$\bar{x} = 8.71$	SD = 3.59
Friedrichs Ataxia	(n=2)	$\bar{x} = 11.00$	SD = 0
Other	(n=18)	$\bar{x} = 10.72$	SD = 3.18

It appears from these results, that the athletes in this sample are in the external locus of control direction as compared to able-bodied individuals not involved in sport. Although locus of control beliefs varied, as a group athletes in this sample had locus of control beliefs in the external direction despite classification, disability type and gender. This would indicate that the athletes in this sample believe that external events (such as luck, chance or fate) do exert some control over their lives. The profile that is emerging so far, is one of athletes with disabilities who have coped well with their disabilities and have locus of control beliefs that tend toward the external direction.

Situational Coping Strategies. In addition to coping with disability, in general, an individual has to develop some strategy of coping with the stresses of specific situations. Several strategies for coping with stressful events have been proposed by Lazarus and Folkman (1985a). These strategies include distancing, seeking social support, positive reappraisal, problem solving, controlling, escape/avoidance, accepting responsibility, and confronting (see Table 20 for additional information characterizing coping strategies). These strategies are conceptualized to be evoked based on whether an individual is focusing on the emotion associated with a stressful event or the problem arising from a stressful event. In past research on a group of married couples experiencing various life

Table 20

The eight situational coping strategies of
Lazarus & Folkman, 1980 with example items

Coping Strategies

CONFRONTIVE COPING (6 items): e.g., "Stood my ground and fought for what I wanted;" "I expressed my anger to the person(s) who caused the problem."

DISTANCING (6 items): e.g., "Made light of the situation, refused to get too serious about it;" "Went along with fate, sometimes I just have bad luck."

SELF-CONTROLLING (7 items): e.g., "Tried to keep my feelings to myself;" "I went over in my mind what I would say or do."

SEEKING SOCIAL SUPPORT (6 items): e.g., "Talked to someone to find out more about the situation;" "Accepted sympathy and understanding from someone."

ACCEPTING RESPONSIBILITY (4 items): e.g., "Criticized or lectured myself;" "I made a promise to myself that things would be different next time."

ESCAPE-AVOIDANCE (8 items): e.g., "Wished that the situation would go away or somehow be over;" "Tried to make myself feel better by eating, drinking, smoking, using drugs or medication."

PLANFUL PROBLEM SOLVING (6 items): "I made a plan of action and followed it;" "Drew on my past experiences;" "Just concentrated on what I had to do next--the next step."

POSITIVE REAPPRAISAL (7 items): "I came out of the situation better than I went in;" "Found new faith;" "I changed something about myself."

stressors, it was determined that all types of strategies were used in any given situation (Lazarus & Folkman, 1985). There also is the suggestion in the literature that coping strategies may be hierarchical, with emotion focused strategies being on the lower end and problem focused strategies being on the higher end of the hierarchy (Folkman, 1984). It appears that emotion-focused coping is necessary first before problem-focused efforts will be evoked. The coping strategies one uses are indicative of the way in which the world is viewed and can be taken as an indicator of perceived competence in dealing with the environment. The coping strategies used by the athletes in this study are presented below.

Coping strategies were rated on a 4-point Likert scale which ranged from 0 (does not apply) to 3 (used a great deal). Means and standard deviations for coping strategy scores for all athletes are presented in Table 21. Based on the means and standard deviations reported in Table 21, all the athletes in this sample on average employed each of the coping strategies somewhat with the exception of confrontive coping which was used a little and escape-avoidance which was used either a little or not at all. It is interesting to look at the use of coping strategy use of athletes with differing disability type, gender, and classification in order to determine if these personal characteristics are related to in the selection of coping strategies.

Table 21

Means and standard deviations for coping strategies used by athletes with disabilities

Coping Strategies	M	SD
Planful problem solving	1.82	.60
Positive reappraisal	1.66	.68
Self-controlling	1.49	.56
Seeking social support	1.46	.67
Accepting responsibility	1.41	.68
Distancing	1.36	.55
Confrontive coping	1.08	.59
Escape-avoidance	0.88	.59

Means and standard deviations for coping strategies broken down by disability type are presented in Table 22. Again, both Les Autres and athletes with Cerebral Palsy used all coping strategies, however, Les Autres athletes used all strategies "somewhat" to "quite a bit," whereas athletes with cerebral palsy used all strategies "quite a bit" to "a great deal."

Both male and female athletes used all strategies. Both male and female athletes tended to use positive reappraisal the most and accepting responsibility the

Table 22

Means and standard deviations for coping strategies used by athletes with disabilities by disability type

Strategy	<u>Group</u>			
	<u>Cerebral Palsy</u>		<u>Les Autres</u>	
	n = 147	n = 39		
	M	SD	M	SD
Confronting	2.07	.70	1.91	.80
Distancing	2.32	.63	2.07	.76
Self controlling	2.40	.87	2.04	.67
Seeking social support	2.38	.87	2.23	.70
Accepting responsibility	2.32	.63	1.41	.51
Escape avoid	2.87	.81	1.77	.87
Planful problem solving	2.67	.49	2.81	.46
Positive reappraisal	2.58	.57	2.45	.67

least (see Table 23). Athletes at all levels of classification used all coping strategies at least "somewhat" (see Table 24).

One can conclude that similar to their able-bodied counterparts not involved in sport, these athletes used a combination of emotion-focused and problem-focused coping strategies to deal with the stress of the Games. They appear to be able to evoke coping strategies flexibly according to the demands of the situation. All athletes despite disability type, classification level, or gender used a combination of coping strategies to deal with the stress of the Games. This would indicate that athletes were concerned both with the emotion evoked as a result of the Games and with the problems they had to face resulting from participation in the Games. It appears that the most frequently used strategy was problem solving which is of a problem-focused coping strategy, while the least frequently used strategy was escape/avoidance, which is an emotion-focused coping strategy. It appears that these athletes are less focused on their affect and more focused on solving the problems inherent in participation in the Games. This may be an indicator that these athletes having had practice in situational coping, have climbed the coping hierarchy from using primarily emotion-focused strategies to using primary problem-focused strategies. This adds an interesting aspect to the emerging profile of athletes with disabilities. Not only

Table 23

Means and standard deviations for coping strategies
used of athletes with physical disabilities by gender

(n = 186)			
Coping Strategy	Sex	Mean	SD
1. Confronting	M	12.6	16.5
	F	10.8	15.2
2. Distancing	M	14.2	16.1
	F	11.8	14.8
3. Controlling	M	17.0	18.6
	F	15.0	16.9
4. Accepting Responsibility	M	9.5	10.7
	F	8.0	9.9
5. Escape Avoidance	M	15.2	23.0
	F	12.8	20.6
6. Problem Solving	M	16.3	15.2
	F	15.2	13.7
7. Positive Reappraisal	M	18.0	18.5
	F	16.6	16.6
8. Accepting Social Support	M	14.4	16.0
	F	12.9	14.6

Table 24

Means and standard deviations for coping strategies of athletes with physical disabilities by Games classification level

<u>Class</u>	<u>Coping Strategies</u>							<u>Positive Reappraisal</u>
	<u>Seeking Social Support</u>	<u>Confronting</u>	<u>Distancing</u>	<u>Self Control</u>	<u>Accept Respon.</u>	<u>Escape Avoid</u>	<u>Planful Prob. Solving</u>	
1	x = 12.00 SD = 14.68	x = 11.60 SD = 15.00	x = 12.80 SD = 14.56	x = 15.75 SD = 16.73	x = 8.75 SD = 9.96	x = 14.00 SD = 20.31	x = 15.50 SD = 13.46	x = 16.80 SD = 16.54
2	x = 14.70 SD = 16.16	x = 12.97 SD = 16.70	x = 14.67 SD = 16.10	x = 16.73 SD = 18.89	x = 10.07 SD = 10.63	x = 15.33 SD = 23.08	x = 17.10 SD = 15.03	x = 17.87 SD = 18.74
3	x = 9.26 SD = 4.80	x = 6.47 SD = 4.15	x = 6.84 SD = 3.13	x = 9.42 SD = 4.60	x = 5.26 SD = 3.05	x = 6.26 SD = 5.13	x = 11.10 SD = 3.50	x = 11.37 SD = 4.84
4	x = 12.08 SD = 13.70	x = 10.25 SD = 14.06	x = 11.33 SD = 14.18	x = 14.58 SD = 15.58	x = 7.83 SD = 9.06	x = 10.67 SD = 19.72	x = 14.67 SD = 12.90	x = 16.50 SD = 15.34
5	x = 15.67 SD = 17.76	x = 13.71 SD = 18.58	x = 14.67 SD = 18.23	x = 19.37 SD = 20.25	x = 10.54 SD = 11.92	x = 16.42 SD = 25.60	x = 17.71 SD = 17.00	x = 18.79 SD = 20.60
6	x = 13.00 SD = 13.42	x = 11.08 SD = 13.88	x = 11.46 SD = 13.35	x = 14.75 SD = 15.27	x = 7.86 SD = 9.04	x = 13.47 SD = 18.84	x = 13.80 SD = 12.84	x = 15.87 SD = 15.31

(n = 156)

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Table 24 (cont'd.).

<u>Class</u>	<u>Seeking</u>	<u>Confronting</u>	<u>Distancing</u>	<u>Self Control</u>	<u>Accept Respon.</u>	<u>Escape Avoid</u>	<u>Planful Prob. Solving</u>	<u>Positive Reappraisal</u>
7	x = 17.19 SD = 18.60	x = 14.94 SD = 19.56	x = 16.62 SD = 18.80	x = 20.19 SD = 21.58	x = 10.75 SD = 12.68	x = 16.69 SD = 27.66	x = 19.31 SD = 17.67	x = 21.75 SD = 20.91
8	x = 19.64 SD = 22.29	x = 17.36 SD = 23.61	x = 18.64 SD = 22.94	x = 22.36 SD = 26.32	x = 12.27 SD = 15.58	x = 22.45 SD = 32.00	x = 22.00 SD = 20.81	x = 24.45 SD = 25.12

do they cope well with disability and believe in the power of external factors in their lives, but they tend to be flexible and problem focused in their use of coping strategies.

Persistence Expectations. Another measure of perceived competence is an individuals expectation to persist in a stressful domain such as sport. An indication of high expectations to persist could be indicative of an individual appraising the stress of sport as challenging, (versus harmful or threatening). This kind of appraisal is a key factor in developing competence reported in the literature (Brewster-Smith, 1968).

The mean score for expectations to persist in sport was 1.3, (SD=.721). Persistence expectations were measured on a 4-point rating scale ranging from (1) very likely to (4) not at all. Thus, the athletes in this sample are characterized by high expectations to continue in sport as their answers were in the very likely to persist range. Descriptive data revealed that 76% of 121 athletes indicated that they were "very likely" to continue in sport. Twenty one athletes (13%) indicated that they had "average" expectations to continue in sport, and 13 (8%) indicated that they "somewhat" expected to continue in sport. Finally 4 (3%) of the athletes in this sample indicated that they did "not at all" expect to continue in sport. Additional frequency data examining the pattern

of persistence expectations within disability types, classification levels and gender categories is described below.

Means and standard deviations for persistence broken down by gender indicate that both males ($X=1.43$, $SD=.79$) and females ($X=1.25$, $SD=.58$) have high expectations to persist in sport. Although there were more males than females participating in the Games, it appears that both sexes have similar expectations to continue in the achievement domain of sport.

High expectations to persist also were evident across all disability types (see Table 25). It appears that members of each disability type were "very likely" to persist in sport. This is interesting in that members of many different physical disability types were represented at the Games. Disability types ranged from quite functionally disabling (cerebral palsy) to not as functionally disabling (short stature). This range of disabilities did not seem to make a difference in reported expectations to persist in sport (see Table 25).

Means and standard deviations for persistence expectations by classification level are given in Table 26. Again persistence expectations seem to be high for all classification levels. This gives further support to the lack of a direct, linear relationship between functional limitations and decisions to persist in sport as classification levels are based on functional limitations.

Table 25

Means and standard deviations for persistence expectations broken down by disability type for athletes with physical disabilities

	Persistence	
Cerebral Palsy (n=126)	1.36	.73
Short Stature (n=1)	1.0	0
Osteogenesis Imperfecta (n=1)	1.0	0
Multiple Sclerosis (n=2)	1.5	.71
Ehlers Danos Syndrome (n=1)	1.0	0
Arthrogryposis (n=4)	1.25	.5
Muscular Dystrophy (n=3)	1.67	1.15
Friedrichs Ataxia (n=2)	1.0	0
Other (n=15)	1.4	.74

Table 26

Means and standard deviations for persistence broken down by Games classification level for athletes with physical disabilities

Persistence (n=129)		M	SD
Class 1	Uses motorized chair (n = 17)	1.53	.87
Class 2	Propels chair with feet (n = 26)	1.50	.76
Class 3	Propels chair with arms (n = 18)	1.4	.92
Class 4	Propels chair with force (n = 9)	1.4	.73
Class 5	Ambulates without chair (n = 19)	1.5	.90
Class 6	Ambulates without assist (n = 22)	1.18	.39
Class 7	Ambulates well with limp (n = 12)	1.17	.39
Class 8	Runs and jumps freely (n = 6)	1.00	.00

In conclusion, the athletes in this study, despite disability type, gender, and classification level tend to report that they are "very likely" to persist in sport. This suggests that they are appraising the sport situation and its inherent stressors as challenging rather than as threatening, giving evidence of a positive appraisal process presumed to relate to the perception of competence.

Summary Profile of Dispositional and Situational Characteristics of Athletes

The profile of disabled athletes which has emerged from this study would suggest that they are competent individuals who are at the least; (a) coping well with their disabilities, (b) expressing locus of control beliefs that tend to include the influence of external factors as having some control over their lives; (c) expressing high likelihood to persist in competitive sport; and (d) using primarily problem focused coping strategies in response to stressful situations, with the ability to flexibly evoke a range of strategies.

It appears that athletes are appraising the stressful situation of sport as challenging. This may be related to the fact that they have coped well with stress imposed by disability. They appear to be realistic in their locus of control beliefs, in that they acknowledge the influence of outside forces such as chance, luck and fate on their lives. Finally, they are able to

call forth a range of emotion-focused and problem-focused coping strategies to manage the demands of a given situation.

Tests of the Major Hypotheses of the Study

After obtaining a profile of the core attributes related to perceived competence of the athletes with disabilities participating in this study, the next step was to examine the relationship among these core attributes. In addition, determining the relationship of these attributes to persistence expectations would assist in understanding the development of a perception of competence and the development of a positive appraisal process that allows one to appraise stressful situations as challenging rather than threatening. Results of hypothesis tests are presented below.

The first hypothesis stated that there would be no significant relationship between gender of subject and mean score on locus of control. Based on a review of the literature, gender should not make a difference in one's belief about internal or external controlling influences in one's life (Lefcourt, 1966). Results of a one-way ANOVA for gender and locus of control were not significant, $F(1,156) = 1.23, p > .05$. This indicates that male and female subjects did not differ on their locus of control beliefs as was expected.

The second hypothesis stated that the subjects in this study would be significantly more external (a higher

score on the locus of control scale) than will a national sample of able-bodied individuals studied by Owens (1969).

The opportunities or goal of life of individuals with disabilities are probably much an interactive result of the characteristics of their disability and their environmental circumstance. They may be required to be more reliant on outside forces for continued survival or to be handicapped by social and architectural barriers than the average able bodied individual, it was expected that this reality would be reflected in their locus of control beliefs. The above hypothesis was directional, and thus a one-tailed t-test was the test of choice. Results of a one tailed t-test for independent samples using the formula set forth by Ebel (1979) was definitely significant $t = 16.13$, ($df=4,589$) $p < .05$. As the mean score for the athletes in this sample was higher (mean = 9.8, SD = 3.2, $n = 158$) than the mean score reported by Owens (1969) of 8.3 (SD = 3.9, $n = 4,433$) this hypothesis was supported. This would indicate that individuals with disabilities in this study do acknowledge the influence of external factors significantly more than do individuals without disabilities.

The third hypothesis stated that the mean of this group of athletes on the Coping With Disability Inventory would be significantly greater then the mean for two other available samples of athletes with disabilities who are notinvolved in sport. It was an assumption of the

study that an individual with a disability who had participated in sport would have had an opportunity to test their method of coping with disability in interaction with a normalized environment. Due to this experience in coping, they should have reached a higher level of coping status with disability as compared to their disabled counterparts not involved in sport. In preparation for this analysis a one tailed t-test for independent samples was conducted with the means and standard deviations for both a sample of spinal cord injured individuals ($M=279.3$, $SD = 25.43$) and Kulkarni's (1985) sample ($M= 283.46$, $SD = 27.3$). The results of this comparison were not significant, $t = .884$, ($df = 138$) $p. > .05$. Thus, the means and standard deviations for these two samples were pooled ($M = 281.38$, $SD = 26.36$) for a one tailed t-test with the study's sample of disabled athletes ($M= 291.37$, $SD = 27.2$). Results of this t-test were significant, $t = 3.20$, ($df = 288$) $p. < .05$. This indicated support for the hypothesis that one would derive the benefits of active participation in sport which would include an opportunity to test coping skills in a normalized achievement domain.

The fourth hypothesis stated that the athletes in this sample would have a significantly greater proportion of participation in education and work than would a national sample of individuals (Harris, 1986) with disabilities not involved in sport. Individuals with disabilities are

typically reported as underrepresented in achievement domains such as work and education. It was assumed that such reports did not focus on competent individuals with disabilities who had coped well with their disabilities, developed a perception of competence, and as a result probably did choose to participate in achievement domains on a regular basis. As the athletes in this study were presumed to have done all of the above, they should then be participating in achievement domains to a greater extent than individuals with disabilities in the public at large. As Harris (1986) had just completed a comprehensive survey of disabled individuals in the public at large, information regarding employment status and educational status from his survey was compared to the data collected in this study.

Results of a two by two chi-square analysis comparing this study's sample and the national sample derived by Harris' (1986) sample by employed full time vs. unemployed. This was the exact definition for employed versus unemployed status used by Harris (1986). This result was significant, $\chi^2(1) = 51.07, p < .001$, indicating that individuals in this sample are participating in the labor force at some level in significantly larger numbers than the national average reported by Harris (1986).

The educational status of this study's sample was compared to the Harris (1986) sample by comparing the proportions of less than high school education versus

those with high school education or above. Results of a two by two chi-square analysis were significant, $\chi^2(1) = 14.19$, $p. < .001$. This indicates that this sample of athletes has been involved in and achieved higher education in significantly greater numbers than the reported national average of persons with disabilities.

In conclusion, the athletes in this study appear to have developed a perception of competence, a coping status with disability and an overall positive appraisal process in the face of stress that is allowing them to choose participation in achievement domains more than the average individual with a disability. This supports the notion that participation in achievement domains provides positive outcomes leading to the development of perceived competence.

The fifth hypothesis of the study stated that athletes in this sample having a lower score on the locus of control inventory (a more internal locus of control) would have more sport experience as compared to athletes having a higher score on the locus of control inventory (a more external locus of control). An internal locus of control has been associated in the literature with higher levels of coping (Anderson, 1977) and with overall mental health (Lefcourt, 1966). It was assumed that individuals who had participated more in the achievement domain of sport would have developed a more internal locus of control belief, as the ability to persist in sport would require that an

individual believe in his/her power to influence the environment. The above hypothesis tests this assumption with this study's sample.

Results of a Pearson product-moment correlation for locus of control and sport experience, with sport experience measured as the number of times competed was not significant $r = -.082, p > .05$. A second Pearson correlation for locus of control and sport experience, with sport experience measured as the number of months in competitive sport as also not significant $r = .01, p > .05$. Both correlations were not significant, indicating no support for the hypothesis as stated. The correlations, though not significant, were both negative and thus provide nonstatistical support for the notion that the more sport experience one had, the more internal would be one's locus of control beliefs. Perhaps this hypothesis was not useful for this group and this would indicate a need for a normative understanding of locus of control relative to disability.

The sixth hypothesis of the study stated that Athletes in this sample having a higher score on the Coping With Disability Inventory would also have more sport experience as compared to athletes with a lower score on the coping with disability inventory who would have less sport experience. In addition to a relationship between locus of control beliefs and sport experience, a relationship between coping with disability status and sport experience

was posited for this study's sample of athletes. It was assumed that participation in sport would enhance one's ability to cope with disability as it would provide a normalized environment in which to test one's method of coping with disability. The relationship between coping with disability and sport experience was tested and the results are reported below.

Results of a Pearson product-moment correlation for coping status with disability and sport experience, which was defined as number of months in competitive sport, were not significant $r = .04$, $p > .05$. Results of a second Pearson product-moment correlation for coping with disability and sport experience, which was defined as number of times competed in sport, was also not significant, $r = .08$, $p > .05$. These results indicate that coping with disability may not be related to sport experience and this suggests that perhaps individuals have dealt with disability in some way prior to becoming involved in sport.

The seventh hypothesis of the study stated that there would be a significant relationship between locus of control and coping strategies. Athletes with a lower score on the locus of control scale (a more internal locus of control) will use more problem-focused coping strategies as compared to athletes with a higher score on the locus of control scale (a more external locus of control) who will use more emotion - focused coping strategies. It has been suggested in the literature that there exists a hierarchy of coping

strategies, with problem-focused strategies at the higher end and emotion-focused strategies at the lower end (Folkman, 1984). It has also been suggested in the literature, that an internal locus of control belief is associated with overall mental health (Lefcourt, 1966). Locus of control beliefs and coping methods have been directly related in the literature, with an internal locus of control being associated with problem-focused coping strategies and an external locus of control belief being associated with emotion-focused coping. Perhaps locus of control and use of coping strategies were related for this study's sample of athletes. This hypothesis was tested and results are presented below.

Results of Pearson product-moment correlations for locus of control and all eight coping strategies are listed in Table 27. None of the coping strategies were significantly related to locus of control beliefs. Only one correlation approached significance and this was the positive correlation between escape/avoidance and locus of control, suggesting that individuals using this emotion-focused coping strategy may be more external in their locus of control.

These results suggest that the relationship between locus of control and coping strategies may be more complex than originally hypothesized. There may be more situational determinants that affect the use of certain coping strategies over others. Locus of control is more of a

Table 27

Correlations between eight coping strategies and
locus of control beliefs for athletes with physical
disabilities

Pearson Correlation Coefficients	
	<u>Locus of Control</u>
Confronting	.06 , p. > .05
Distancing	.07 , p. > .05
Seeking Social Support	-.10 , p. > .05
Escape/Avoidance	.10 , p. < .05
Controlling	.08 , p. > .05
Accepting Responsibility	.06 , p. > .05
Problem Solving	.05 , p. > .05
Positive Reappraisal	.05 , p. > .05

dispositional variable and perhaps it does not play a significant role in any one situation, but is rather influential across many situations. This provides more support for the idea mentioned earlier suggesting the need to rethink locus of control for persons with disabilities. They appear to cope in a problem solving way irrespective of locus of control beliefs.

The eighth hypothesis stated that athletes having a higher score on the CDI (a higher coping status with disability) will use more problem-focused coping strategies as compared to athletes having a lower score on the CDI (a lower coping status with disability) who will use more emotion-focused coping strategies.

Again, a hierarchy of coping strategies has been suggested in the literature (Folkman, 1984) and it would appear that given this hierarchy, problem-focused strategies should be related to a higher level of coping with disability as affect is already managed and the attention of the athletes turns to the problem at hand. In turn, emotion-focused strategies should be related to a lower level of coping with disability as negative affect is not being managed thus requiring coping energy. Negative affect may be associated with managing the stress of disability as well as the stress of the Games. This hypothesis was tested and results are presented below.

Results of Pearson correlations are listed in Table 28. Although all of the correlations were relatively low, some

Table 28

Correlations between coping strategies and coping status with disability for athletes with physical disabilities

Coping Strategies		
	r value	p value
Confronting	.12	< .05
Distancing	.13	< .05
Self Controlling	.12	< .05
Seeking Social Support	.13	< .05
Accepting Responsibility	.14	< .05
Escape/Avoid	.11	> .05
Problem Solving	.15	< .05
Positive Reappraisal	.14	< .05

of the correlations approached significance and two were significant. The coping strategies positive reappraisal and problem solving were significantly positively correlated with coping status with disability ($r = .1444$, $p < .05$ and $r = .1472$, $p < .05$ respectively). These results partially support the hypothesis in that they indicate that individuals having a higher coping status with disability tend to use more problem-focused coping strategies to deal with stress, yet they also use emotion-focused coping (positive reappraisal). These results are not conclusive and are rather weak. The notion that emotion focused coping strategies are associated with lower level coping with disability status was not supported.

The ninth hypothesis of the study stated that athletes with higher persistence expectations would have a lower score on the locus of control scale (a more internal locus of control) as compared to athletes with lower persistence expectations who would have a higher score on the locus of control scale (a more external locus of control). Persistence behavior has been directly related to locus of control in the literature (Snull & Karabenick, 1975). Individuals with a more internal locus of control have been proven to persist longer on competitive tasks. The sample used by Snull (1975) was an able bodied sample, but given the similarity of able-bodied and disabled individuals noted in the literature, the same relationship between

locus of control and persistence should be noted with this study's example.

Results of a Pearson product-moment correlation for persistence expectations and locus of control were significant, $r = .149$, $p < .05$, but in a positive rather than the expected negative direction. Thus, the hypothesis as stated is rejected. This indicates a slightly positive relationship between locus of control and persistence expectations; that is, the higher the persistence expectation, the more external the locus of control beliefs. Given that this sample was characterized as more typically moderately external, perhaps the relationship is better stated as, the higher the persistence expectation, the more moderately external the locus of control belief.

The tenth hypothesis stated that athletes having a higher score on the CDI (a higher coping with disability status) would also have higher persistence expectations as compared to athletes with a lower score on the CDI (a lower coping with disability status) who would have lower persistence expectations. Higher coping status with disability was assumed to relate to higher persistence expectations because an individual having coped well with disability would be more likely to persist in an achievement domain. The effects of disability would have been managed and thus they would not be a significant factor in participation in sport. The results of the test of this hypothesis are reported below.

Results of a Pearson product-moment correlation for coping with disability and persistence expectations were not significant, $r = -.0255$, $p. > .05$. The hypothesis that a significant positive relationship would be discovered between these two variables was not supported. Again the dispositional variable (coping status) seems to be unrelated to the situational variable (persistence expectations). This result may be further support that dispositional variables do not have their major affect on situations, but, rather they exert their affect across many situations.

Corrollary question: Which of the three variables (locus of control, coping status with disability, and coping strategies) will be most predictive of persistence expectations? The most useful information from the standpoint of the practitioner wanting to know how to assist an individual in developing persistence in the face of challenge is a prediction regarding what cognitive aspects of participation in sport play the biggest part in determining persistence expectations. Results of a stepwise multiple regression using locus of control, coping status with disability and the eight coping strategies as predictors and persistence expectations as the criterion variable are presented in Table 29. The variables entering the regression equation were two coping strategies, escape avoidance and problem solving. The emotion-focused coping strategy "escape-avoidance" had a regression coefficient

Table 29

Summary table of a stepwise multiple regression analysis with persistence expectations as criterion variable and locus of control, coping strategies, and coping with disability as predictor variables

Variable	F to enter or remove	Signif.	Multiple R	R ²	R ² Change	Simple R	Overall F	Signif.
Escape Avoid	5.088	.026	.2067	.0427	.0427	.2067	5.088	.026
Problem Solve	740.919	.000	.9639	.9291	.8864	-.2315	1413.701	.000

of .2067 and explained about 3% of the variance in persistence expectations. The problem-focused coping strategy, "problem solving" had a regression coefficient of .9639 and explained almost all (93%) of the variance in persistence expectations for this sample. These results indicate that a problem solving coping strategy may be the single most important factor in predicting an expectation to persist in sport for these athletes. In addition, perhaps some denial (escape/avoidance) is adaptive in facilitating persistence.

A summary of hypotheses tested, statistical procedures used, and acceptance/rejection of each hypothesis is presented in Table 30. This table is followed by a discussion of results.

Discussion

The purpose of this study was to better understand the relationship between intrapersonal cognitive processes of disabled individuals who perceive themselves as competent and their participation in achievement domains.

Intrapersonal cognitive processes of interest in this study, included self-reported perceptions regarding, ability to cope with disability, sense of personal control over life events, and ability to call upon various situational strategies in stressful life encounters. It was assumed that an understanding of this relationship would lead to an understanding of the development of perceived competence among disabled persons. Such an

Table 30

Summary table of results of statistical analyses of hypotheses of the study

Hyp No.	Hypothesis Tested	Statistical Procedure	Significant	Level	Accepted/Rejected
H1	No difference gender and locus of control	ANOVA	No	$p < .270$	Accepted
H2	*HAP subjects more external locus of control than Owens (1968) aggregate sample	t-test independent samples	Yes	$p < .05$	Accepted
H3	Mean CDI score for HAP sample higher than Kulkarni in sample and Overton in sample combined	t-tests independent samples	Yes	$p < .05$	Accepted
H4	HAP subjects greater proportion of participation in work and school than Harris (1986) national sample	chi-square analysis	Full-time Employed No Full and part-time employment Yes Education Yes	$p > 7.05$ $p < .001$ $p < .001$	Rejected Accepted Accepted

* HAP = Handicapper Athlete Project, the project under which the data for this research was collected

Table 30 (cont'd.).

Hyp No.	Hypothesis Tested	Statistical Procedure	Significant	Level	Accepted/Rejected
H5	HAP subjects with more internal locus of control will have more sport experience versus "externals" who will have less sport experience	Pearson Correlation	No	$p < .155$ # of times competed $p < .475$ # of months in sport	Rejected
H6	HAP subjects with higher CDI also will have more sport experience vs. lower CDI with less sport experience	Pearson Correlation	No	$p < .038$ # of months in sport $p < .083$ # of times competed	Rejected
H7	Significant relationship LOC and coping strategies internal — problem focused external — emotion focused	Pearson Correlations	No	p ranged from $< .267$ to $< .096$	Rejected
H8	Significant relationship CDI and Coping strategies Higher CDI — problem focused Lower CDI — emotion focused	Pearson Correlations	Yes	Problem Solving $p < .044$ Positive Reappraisal $p < .047$	Accepted For Prob. Focused Rejected For Emotion Focused

Table 30 (cont'd.).

Hyp. No.	Hypothesis Tested	Statistical Procedure	Significant	Level	Accepted/Rejected
H9	Significant relationship persistence expectations and LOC. Internal — higher expectations External — lower expectations	Pearson Correlation	Yes	$p < .043$	Accepted
H10	Significant relationship CDI and persistence expectations Higher CDI — higher persistence Lower CDI — lower persistence	Pearson Correlation	No	$p < .393$	Rejected

understanding could lead to a theoretical foundation for programming aimed at increasing participation of disabled persons in achievement domains which are presumed to contribute to the development of perceived competence. The discussion of results will be guided with this purpose in mind.

The Coping With Disability Inventory. Before discussing the profile of intrapersonal cognitive psychological characteristics of the athletes in this study and the results of the hypothesis tests, a discussion of the results of the analyses on the Coping With Disability Inventory is necessary. Results of analyses on this instrument supported the validity and reliability of the Total score of the CDI, however the validity of the subscales of this instrument, as rationally proposed by Kulkarni (1985) was not supported. According to the model of coping development by the University Center for International Rehabilitation's (UCIR) study group (Blom, Ek & Kulkarni, 1983), competence and quality of life are achieved feeling states. Competence was posited to develop in an individual as a result of a series of successful adaptive encounters with his or her social environment. The outcome subscale of the CDI was theorized to represent the achieved states of competence and quality of life. The UCIR coping model also viewed coping as an ongoing, evolving process within an individual which never ends and the process subscale of the CDI was theorized to

represent behaviors indicative of these ongoing coping processes. Thus the Total scale score was, a representation of the complete concept of coping with disability which included its component process and outcome aspects.

The overall construct of coping seems to be validly measured by the CDI, however, results of tests of reliability, validity, and the exploratory factor analyses indicated that the concept of coping may be more complex than originally proposed by Kulkarni (1985). From these analyses, the overall construct as assessed by the CDI Total score appears to be the most reliable and valid indicator. The component, underlying parts of the construct, which were assumed to exist, may be more varied than the two scales of process and outcome measures can capture. There was empirical support to substantiate the assumption that several components do contribute to the CDI scores, as established by factor analyses. The constructs which appeared across factor analyses include; positive attitude toward life with disability, internal locus of control, affective connection, positive self image, acceptance of disability, and extra curricular involvement. However, each of these components included both process and outcome statements. Therefore, none of the factor solutions clearly replicated the rationally proposed subscales as unique dimensions of the overall measure of coping.

Before rejecting the proposed dimensions of the CDI, factor analysis should be repeated with a much larger sample. The ratio of subjects to items in this analysis (approximately 2.4:1), violates even the most lenient of parameters for producing stable factor solutions (Bolton, 1979). Rather, this analysis should be repeated with at least 320 subjects.

The results of the analyses conducted in this study are to be viewed with caution for three reasons. First, results are based on a sample of high level copers. This is a rather homogenous sample and it includes little variance which threatens the validity of these results for other individuals with disabilities. Second, there is further work needing to be done with the CDI to produce an instrument that validly measures coping with disability. At this point the instrument appears to have consistently good reliability and early indications of construct and content validity, but further exploration and refinement of the instrument to determine the best scoring methods is warranted. Third, the CDI as used in this research may not be the most parsimonious measure of coping with disability as there were many items (35 items) on the inventory which seem to be contributing very little to its reliability (item-total correlation below .40). Dropping these items and retesting the shorter inventory would be helpful in further supportive tests of

reliability and validity of the total score in the search for conceptually useful underlying dimensions within the instrument.

A profile of intrapersonal cognitive processes of athletes with disabilities. The next phase of the results depicted a profile of the intrapersonal cognitive characteristics of the subjects in this study. The processes of interest in this section of the discussion are coping with disability status, locus of control, coping strategies and persistence expectations.

The coping with disability status of the athletes in this study was in the moderately high range as compared, which indicates that this group of athletes is coping well with disability. According to Kulkarni's (1985) definition of coping, this means that these athletes are engaging in an active psychosocial process characterized by persistent efforts to overcome, master, and solve problems, issues, and dilemmas within themselves and in the outside world. Not only are they engaging in this process, they are successful in their efforts. The influence of disability type, classification level, and gender seem to be negligible based on a review of mean scores.

The athletes in this study have locus of control beliefs that are in the moderately external direction as compared to a large sample of individuals without disabilities discussed by Owen (1969). This is interpreted

to mean that they believe that reinforcement follows a combination of some action of theirs with outside factors such as luck, fate, and chance. Based on the fact that due to the nature of cerebral palsy, many of these individuals have very little fine motor control and are thus somewhat reliant on others for assistance in daily living tasks, a tendency toward external locus of control beliefs seems quite consistent with their need to accept some reinforcements as contingent upon outside factors. In his original formulation of the locus of control variable, Rotter (1966) hinted that individuals at either extreme of the locus of control scale would be the least likely to be characterized as stable, mentally healthy individuals. This means that a moderate external or internal locus of control belief is actually indicative of healthier adjustment levels. In addition to research supportive of the connection between external locus of control and mental health, Moreau (1983) is supportive of the connection between external locus of control beliefs and high need for achievement. He concluded that handicapped students express the belief that external forces control their lives on the one hand, yet maintain a belief of self-control on the other hand. These results are also consistent with literature reporting a more external locus of control belief for individuals with cerebral palsy (Strickland, 1978). It was an assumption of this study that

participation in achievement domains would lead to the development of perceived competence. Locus of control has been identified as a core attribute of competence (Brewster-Smith, 1968) and as such it appears that for athletes with disabilities who are presumed to have achieved competence, a moderately external locus of control is worth facilitating. It appears that this moderate locus of control belief is present in individuals with disabilities who have developed a high level of perceived competence.

In terms of the relationship between locus of control and demographic characteristics, locus of control beliefs did not vary significantly in this sample as a result of gender. This result is consistent with the literature on locus of control and gender interactions, which states that the bulk of research has found no significant difference on locus of control as a result of gender (Sandler & Lakey, 1982).

Another intrapersonal cognitive process associated with perceived competence development is the evocation of coping strategies to deal with stress. In this study the eight coping strategies previously identified in studies of middle aged men and women coping with life stressors by Folkman and Lazarus (1980) were measured including distancing, positive reappraisal, planful problem solving, escape-avoidance, self controlling, confronting, seeking social support, and accepting responsibility. The norm

group used by Lazarus and Folkman was somewhat different than the athletes in this study by virtue of their age and the global nature of the stressors that they were dealing with. The athletes in this study were primarily young men and women who were dealing with the specific stress of the Games. The relative difference in sample characteristics requires caution in interpreting the results obtained on use of coping strategies.

All coping strategies were used by the athletes in this study. In contrast to previous research, these athletes used both emotion and problem-focused coping strategies more frequently (Lazarus & Folkman, 1985b). Given that athletes in this study were primarily higher level copers with disability, their use of both emotion and problem-focused coping strategies may support a relationship between mental health and ability to flexibly evoke a variety of coping strategies as needed to deal with stressful situations. These athletes used planful problem solving and positive reappraisal (problem focused strategies) most often, and they use escape-avoidance and confrontive coping (emotion focused coping strategies) least often.

One explanation could be that individuals with disabilities who have participated in achievement domains such as sport have had an opportunity to test their methods of coping. Thus these athletes are experienced at evoking coping strategies to deal with stress. In addition to

being experienced at coping with stress, they have moved up the hierarchy of coping strategies suggested by Folkman (1984) and are past dealing with negative affect associated with the Games, thus they are primarily focused on the problems at hand. This would be supportive of Folkman's (1984) contention that emotion-focused coping strategies may be required first to manage heightened affect before problem-focused coping strategies can be evoked. Both planful problem-solving and positive reappraisal require that an individual face a stressful situation and cognitively reframe it in a manner that enables them to persist in future competitive situations. Emotion focused strategies, on the other hand, require a focus on negative affect (anger, sadness, etc.) and behavior aimed at making one feel better as compared to facing the problem at hand. One would expect higher level copers with disability who are in a national level competition to have developed the ability to flexibly evoke various coping strategies with an emphasis on problem-focused strategies which would be required for persistence in achievement domains and development of competence.

The relationship between coping strategies and classification level was interesting. Based on a review of the mean scores athletes in all classification levels used positive reappraisal more often, with the exception of Class 5 athletes who most often used self controlling. Caution is needed in interpreting these results or in

or in attributing the findings to differences in functional impairment level. It is possible that classification methods used at the Games may have contributed to the findings either by (a) lack of highly standardized evaluation procedures, or (b) lack of specific standards for specific events.

Another explanation is that the design of the study may have had a significant impact on the direction of the results. For example, data was collected at different points during the Games and it is possible that the results are really reflecting time limited cognitions. Coping strategies were sampled from within one day of completion of Games events, to within one month. It is possible that athletes who answered the coping strategies questionnaire within one day of the Games event may have used more emotion-focused strategies to deal with the affect still fresh in their minds. On the other hand, perhaps athletes answering the questionnaire on coping strategies within one month of the Games, were finished dealing with affect and were thus problem-focused in their coping efforts. Due to the limitations of the design of this study, these differences would not have been detected and perhaps in light of this, further research needs to be conducted to discover this type of time effect on coping strategies.

In summary, a profile of intrapersonal cognitive processes operating in the athletes in this study has emerged from the results. Taken as a group, these athletes were viewed to be high level persisters and expectations

to persist did not appear to differ by gender, disability type, or classification. The athletes are moderately high in coping status with disability and persistence expectations. They tend to have a moderately external locus of control belief and they use more problem-focused coping strategies than emotion-focused coping strategies to deal with stress. These characteristics appear to hold despite gender, classification level in the Games and disability type. This profile of the intrapersonal cognitive processes of athletes in this study is assumed to be the profile of an individual with disability who perceives herself/himself as competent.

These individuals, based on their characteristics, are assumed to be on the right trajectory of the competence syndrome as defined by Brewster-Smith (1968). The right trajectory of the competence syndrome leads an individual to accumulate success that in turn strengthens the effectiveness of his/her orientation toward the world, while at the same time allowing him/her to acquire the knowledge and skill that make further success more probable. Thus, it is not surprising that they expect to persist in the continuation of their sport endeavor. It is most probable that these athletes have accumulated success in the domain of sport, which has strengthened their coping orientation toward the world and at the same time enabled them to gain more knowledge about themselves. Those on the positive trajectory are likely to expect to persist in the

achievement domain of sport. Brewster (1968) contended that there are a core of interrelated personal attributes which play a crucial role in competence development and the cognitive processes mentioned above are among these attributes. These core attributes create the foundation for an individual's characteristic behavior in the face of challenge, which includes an attraction to challenge, realistic goal setting and an active coping orientation.

These athletes are presumed to have acquired coping status with disability, locus of control beliefs and use of coping strategies that are all assets in managing interactions with their environments. Thus persistence despite the objective outcome of participation is a likely occurrence for this sample of athletes as the great majority of athletes report themselves as likely to persist and the great majority of athletes did not necessarily place at the Games. It may be that the skills and attitudes associated with the cognitive psychological profile of the competent athlete described above are the goals for which rehabilitation provides and individuals with disabilities may want to strive. Further discussion of the relationship amongst these cognitive processes and participation in a sport event will help elucidate the benefits of such a profile in supporting persistence expectations.

Relationship among intrapersonal cognitive processes and participation in the Games. The first major hypothesis

of the study, that there would be no significant relationship between gender and locus of control was supported. This is consistent with much of the literature on locus of control beliefs (Sandler & Lakey, 1982) which state that locus of control beliefs do not differ based on gender. Thus males and females do not differ in their perception of factors (internal or external) that influence their lives. This result indicates that both males and females reported similar cognitive processes to determine how much they control the events in their lives.

The second of the major hypotheses of the study, that the subjects in this study were expected to be more external in their locus of control beliefs than a national sample of able bodied individuals was supported. One may infer from this finding that disability does have an affect on one's locus of control beliefs. As already mentioned, disability does require a certain amount of reliance on outside forces, the shift in locus of control beliefs toward the external direction is consistent with the psychological necessity of accepting more assistance to live independently. In the case of the athlete with cerebral palsy for example, an aid is often required to assist an athlete in various tasks of daily living. This reliance on external forces would require a shift to a more external locus of control belief as an internal locus of control would be out of touch with the realities of living with a disability. Rotter (1966) indicates that a moderate external locus of control belief

is actually healthier than either an extreme internal or an extreme external locus of control belief. So the fact that these athletes have a moderate external locus of control belief may be interpreted as reflecting a relatively healthy and realistic outlook on life with a disabling characteristic.

The third hypothesis, that these athletes would have a significantly greater coping with disability status than individuals with disabilities who were not participants in the achievement domain of sport, also was supported. These results suggest that participants in achievement domains who also have disabilities have been launched on the right trajectory of the competence syndrome as defined by Brewster-Smith (1968). It was his contention that an individual who was launched on the right trajectory would accumulate success that would in turn strengthen the effectiveness of his/her orientation toward the world, while at the same time allowing him/her to acquire the knowledge and skill that make further success more probable. This would lead to increased competence and favorable development. The literature review also revealed that an important outcome of participation in achievement domains is the opportunity to test one's orientation toward the world (e.g. coping with disability status, locus of control beliefs, and coping strategies), and acquire the knowledge that makes further success more probable. If one's sense of competence is enhanced by

participation, the likelihood that an individual will choose to continue participating in all achievement domains is strengthened.

This contention, that an individual launched on the right trajectory would accumulate success which would strengthen the effectiveness of his/her orientation toward the world and allow for future success is further supported by results indicating that these athletes are in fact involved in education and employment in significant greater proportions than the reported national average for individuals with disabilities. These results also further support the notion of the competence syndrome discussed above in that these athletes are apparently choosing to participate in more than one achievement domain. Gladwin (1967) contends that learning competence is important in order to become effective psychologically, relieve anxieties, correct maladaptive behaviors, and learn alternative success oriented ways of behaving in society. The individuals in this study have a higher coping status with disability, and the evidence suggests that they have achieved a high level of perceived competence. It is concluded from the findings of the study that these outcomes are attributable, at least in part, to the result of increased participation in achievement domains. Further support for this is inherent in Gladwin's (1967) contention that when a person grows in achievement and social competence, that person also grows in general psychological strength so that

she/he can cope on their own with formerly serious emotional problems.

The fourth hypothesis, that athletes in this sample would have a significantly greater proportion of participation in education and work than would an available sample of individuals with disabilities not involved in sport was also supported when part time employment status was included. This would indicate that partial or modified participation in the labor force needs to be considered as an important productive activity. When using the same measures but using only full-time employment as indicative of productivity, the relationship stated in the hypothesis was not supported.

This result seems to support the notion that the individuals in this sample represent competent individuals with disabilities and that their level of competence development has been enhanced by participation in achievement domains as the individuals they were compared to had disabilities, but were not involved in sport. The positive relationship between competence development and participation in achievement domains has been repeatedly supported in the literature (Danish, 1983; Gladwin, 1967). The fact that these athletes are involved in many achievement domains, would indicate that they have developed a successful orientation to challenge.

The fifth hypothesis, that athletes in this sample with a more internal locus of control would have more sport

experience as compared to athletes having a more external locus of control, was not supported. It is possible that a significant was not obtained due to problems in measuring and defining sport experience or as a result of the small sample size. This result may indicate that locus of control beliefs are more of a dispositional characteristic of an individual and as such one is not likely to see a change in these beliefs as a result of experience in one achievement domain. Rotter (1966) conceived of the locus of control belief as more of a dispositional variable, which means that it is relatively stable across situations. Perhaps locus of control beliefs remain the same in like situations and as such the above result is understandable.

The sixth hypothesis, that athletes with a higher coping status with disability also would have more sport experience as compared to athletes with a lower coping status with disability who would have less sport experience, was also not supported. It is important to keep in mind that there was not much variance in this sample of copers with disability in that most of the sample were characterized as high copers. This lack of variance may be significant in the resulting lack of effect found when testing this hypothesis.

The result obtained may indicate that coping status with disability is also a dispositional variable and as such, is not likely to change as a result of participation in one type of situation (sport). Kulkarni (1985) defined

coping with disability as occurring within the context of individual-environmental transactions, such as belief systems and cultural practices. If one has developed a successful manner of negotiating the environment, it would appear that this status would be relatively stable across situations such as achievement domains. Thus measurement of the relationship between coping status with disability and one achievement domain may not be capturing enough of an individual's experiences to demonstrate the relationship between coping status and achievement domains.

The seventh hypothesis, that there would be a significant relationship between locus of control and coping strategies, with internal locus of control beliefs being associated with problem-focused strategies and external locus of control beliefs being associated with emotion-focused strategies, was not supported. As locus of control is also a dispositional variable, it is possible that its effect will not be found in relation to situational variables (coping strategies) used in one situation. The trend noted in the results was toward a positive relationship indicating that the more external an individual's locus of control belief, the more they used all coping strategies to cope with the stress of the Games. This is an interesting direction and it warrants further study to test the relationship between coping strategies and locus of control.

The eighth hypothesis, that athletes with a higher coping status with disability would use more problem-focused coping strategies as compared to athletes having a lower coping status with disability who would use more emotion-focused coping strategies, was partially supported. The relationship between coping with disability status and the coping strategies problem solving and positive reappraisal was significant. The relationship between coping with disability status and the use of coping strategies approached significance in regards to the strategies, confronting, distancing, self-controlling, seeking social support, accepting responsibility, and escape-avoidance. Thus, it appears that the higher an individual's coping status, the more they use all of the eight coping strategies. This may indicate that higher level copers are characterized by acceptance of disability, and the ability to evoke various coping strategies as the situation demands. The fact that higher level copers with disability use more problem-focused coping strategies may be supportive of Folkman's (1984) contention that higher level cognitive activity is required to use problem-focused strategies, and that heightened emotions interfere with this higher level cognitive activity. Thus, individuals using primarily problem-focused coping strategies have probably transcended disability as well as mastered the negative affect associated with the stress of competition.

The ninth hypothesis, that athletes with higher persistence expectations would also have a more internal

locus of control belief as compared to athletes with lower persistence expectations who would have a more external locus of control belief, was not supported. This would indicate that athletes believing in their own control of events in life are not necessarily the athletes that expect to persist in sport. However, a significant relationship was discovered between locus of control and persistence expectations. The more external an individual's locus of control beliefs, the higher the persistence expectations. This indicates that athletes who believe that external factors (such as chance, luck or fate) have a moderate influence on the events in their lives are also the athletes who expect to persist more. As moderate external locus of control beliefs are associated with the profile of competent athletes in this study, it is not surprising that this moderately external locus of control belief is associated with persistence expectations for these athletes. This is consistent with the literature on individuals with disabilities who express the belief that external forces control their lives on the one hand, yet maintain a belief in self-control on the other hand (Moreau, 1983).

These results need to be interpreted in light of the fact that all athletes in this study fell at or below (more external) the moderately external locus of control belief level which may not have adequately tested the relationship in this hypothesis. The relationship between

locus of control and persistence expectations found in this study is not supported by the literature on locus of control and situational interactions with able bodied college students where internal locus of control beliefs were the most predictive of the persistence behavior (Srull & Karabenick, 1975). On the other hand, in light of the differences between able-bodied and disabled individuals on locus of control, this finding may not be all that surprising. Another difficulty in comparing the results obtained in this research with the results obtained by Srull & Karabenick is that they measured persistence behavior, whereas this study measured persistence expectations. The two are not comparable. It may be that the relationship between persistence expectations found in this study and locus of control is supportive of the relative usefulness of a moderately external locus of control belief for persistence in the case of persons with similar disabilities.

The tenth and final hypothesis, that athletes having a higher coping with disability status will also have higher persistence expectations as compared to athletes with a lower coping with disability status who will have lower persistence expectations, was not supported. Higher coping with disability status was not significantly related to expectations to persist in sport and this is a possible indicator that these athletes have positively reappraised disabilities while participating in a sport event. In

other words, these athletes are focused upon coping with the stressors of the moment versus dealing with their disabilities which they have already successfully negotiated in many other situations. This is consistent with Kulkarni's (1985) definition of coping with disability which posits that although it is an ongoing process, it is probably relatively stable from situation to situation. It may be that the dispositional variable coping status with disability is less predictive of situational persistence expectations than are situational coping strategies evoked to deal with the stress of the situation (disability not being a part of this stress).

Another potential explanation for the results is the lack of variance in both variables. Athletes in this sample were characterized as both high level persisters and as moderately high level copers with disability. The lack of variance in both variables could contribute to the lack of significance of the effect. Given this, the relationship between coping status and persistence warrants further study.

The corollary question, which of the three mean variables mentioned above (locus of control, coping status with disability, coping strategies) will be most predictive of persistence expectations, provided some additional insight regarding the relationship among dispositional and situational variables in predicting persistence. Results indicated that situational coping strategies are

the most predictive of expectations to persist. Both emotion-focused coping (escape-avoidance) and problem-focused coping (problem solving) helped to explain the variance in persistence expectations. The fact that problem solving was the most predictive of persistence expectations was extremely interesting. This indicates that athletes are more focused on the cognitions and affect surrounding their competition than they are focused on their disabilities. This is also further support that dispositional characteristics (coping with disability) are poor predictors of behavior in situational contexts as opposed to situational characteristics (coping strategies). This may be helpful to professionals in rehabilitation who are trying to foster participation in achievement domains in that situational coping strategies such as problem solving may be teachable strategies.

Summary of relationships among intrapersonal cognitive processes. In summary, it appears that in general, situational variables (coping strategies) are more associated with persistence expectations as opposed to dispositional variables (coping with disability and locus of control). Gender and sport experience do not seem to be related to the dispositional variables of coping with disability and locus of control. The athletes in this study appeared to have accepted and transcended their disabilities while participating in sport events. This is very instructive in that rehabilitation and sport

psychologists may be remiss if they focus too much attention on coping with disability versus trying to build competencies by focusing more on situational aspects of achievement situations such as fostering a problem solving coping orientation and skills. Individuals with disabilities may become frustrated with a professional who focuses on disability while assisting the transition into achievement domains, when individuals are instead anticipating the need to cope with particular stresses of a given situation. As the individual becomes adept in coping with a given situation they have better chances to reinforce competence and thus they are likely to continue choosing to participate in other achievement domains (Brewster-Smith, 1968). Results indicating that this sample of athletes have a higher coping status with disability and more experience in other achievement domains is supportive of this idea.

In general, the athletes in this study are comparable to their able-bodied counterparts in the use of coping strategies. They differ in a predictable external direction in their locus of control beliefs and these beliefs are associated with high persistence expectations. They are high level copers with disability as compared to other individuals with disabilities who have not participated in sport. They use a combination of emotion and problem focused strategies and it appears that problem focused strategies are most associated with expectations to continue participating in sport.

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CHAPTER V

Summary and Conclusions

Review of the Problem Statement

There is a lack of attention in the literature to those disabled persons who cope well with disability and lead competent and satisfying lives. This void is cited by Blom (1980) in his research and by Rutter (1979) who states; "it is quite exceptional for anyone to study the development of those important individuals who overcome adversity, who survive stress, and who rise above disadvantage (p. 49)."

Given this lack of attention to competent individuals with disabilities, it is no surprise that there is a corresponding lack of empirical research on the psychological characteristics of individuals with disabilities who successfully participate in achievement domains. The focus of most research on the psychological aspects of disability has centered upon the hypothesis that the extent of the effects of disability on personality is proportional to the severity of the disability (Shontz, 1977).

The field of rehabilitation tends to equate successful rehabilitation with participation in achievement domains

(Bowe, 1978). As one main aspect of participation in achievement domains is the opportunity to develop competence, it is assumed that one dominant aspect of successful rehabilitation is also the opportunity to develop competence. The history of rehabilitation efforts shows an ever increasing movement on the part of individuals with disabilities to strive for equal access to all areas of life in the United States, including school, work, transportation, housing, and recreation. One outgrowth of this expansion is the proliferation of sport opportunities for individuals with disabilities.

A review of the literature on sport participation reveals that among the most important outcomes of sports participation as perceived by athletes with cerebral palsy are, socialization/friendships, fitness, self-concept/mental health, tension release/relaxation, interesting/exciting use of leisure time and development of motor skills (Sherrill, 1986). The goals of the former National Association of Sports for Cerebral Palsy included a broader focus on the total development of the person. The leaders of the Association stated; "The act of competition is essential to the total development of any person and that involvement in individual and team sporting events can teach a person humility and pride and instill a sense of self-worth and respect for others" (National Association of Sports for Cerebral Palsy, 1983, p.5).

Despite recognition of the importance of perceived competence and the knowledge that individuals generally choose to participate in an achievement domain based on their perception of competence (Danish, 1983), research on individuals with disabilities who perceive themselves as competent and who choose to participate in achievement domains is rare. Core attributes of the perception of competence have been identified as including the psychological characteristics of locus of control beliefs and coping processes (Brewster-Smith, 1968). There is very little empirical information on the psychological characteristics of individuals with disabilities who perceive themselves as having these characteristics and as being competent.

The purpose of this study was to better understand the relationship between intrapersonal cognitive processes associated with the perception of competence and participation in achievement domains. Intrapersonal cognitive processes include cognitions an individual has about his/her achieved competence including cognitions regarding, ability to cope with disability, sense of personal control over life events, and ability to call upon various situational coping strategies in stressful life encounters. An understanding of this relationship is presumed to be useful in better understanding the development of a perception of competence among disabled persons.

Synopsis of the Literature Review

In order to understand current theories about the relationship between intrapersonal cognitive processes of individuals with disabilities who perceive themselves as competent, and their participation in sport, literature in the following three areas was reviewed: (a) value of sport and the positive outcomes associated with sport participation, (b) competence development and definitions of competence; and (c) intrapersonal cognitive processes related to the perception of competence, including locus of control and coping.

The positive outcomes found to be associated with participation in sport were a sense of personal competence (Danish, 1983), athletic competence (Ricks, 1979), enhanced self concept (Patrick, 1984), increased quality of life (Flanagan, 1980) and enhanced self-esteem (Coopersmith, 1967). These positive outcomes were found to be similar for both able-bodied and disabled athletes. In research designed to specifically study the similarities between able-bodied and disabled athletes, Henschen, Horvat and French (1984) discovered that three groups of world class athletes and a group of male wheelchair athletes manifested the same "Iceberg profile." The wheelchair athletes were the closest to the ideal iceberg profile in that they had low trait anxiety and average state anxiety with low tension, depression, anger and fatigue measures. It appears that disability does not

create much difference in either the positive outcomes associated with sport, or in the psychological characteristics of athletes.

Another important outcome of participation in achievement domains is the opportunity to develop competence, a significant personal characteristic. Major theories of development consider competence to be a central concept in understanding an individual's interaction with the environment (Sullivan, 1953; Erickson, 1963). Competence has been defined as a biological predisposition of humans to transact with their environment (White, 1960), as an individual's subjective evaluation of capability of producing desired environmental effects (Rotter, 1966; Bandura, 1977) and as a personality trait (Ford, 1985). All definitions of competence have in common the view that competence is an outcome which can only be explained or predicted with other variables.

The other variables used to define perceived competence have been described by Brewster-Smith (1968) as a core of interrelated personal attributes which play a crucial role in the person's effectiveness in interaction with the environment. Among the attributes which he names are coping strategies for mastering the environment, locus of control, motives related to the self (e.g., trust, confidence, initiative, hope) and ego strength. The literature on the core attributes of locus of control, and coping processes is summarized further below.

The locus of control construct has been defined both as a personality construct (dispositional variable) and as a situational construct. Locus of control can be conceptualized as a dispositional variable which refers to a broad range of situations in which an individual perceives him or herself as having power over what happens to him or her (Lefcourt, 1966). More relevant to this research is the consideration of locus of control as a situational variable in general. Srull and Karabenick (1975) stated that as a personality variable, locus of control refers to an individual's generalized belief that event outcomes are contingent upon one's ability or effort (internal control) versus forces beyond control such as fate or chance (external control). They went on to state that as a situational variable locus of control beliefs differ according to the characteristics of a situation, that is, in the percent of skill or effort (internal) versus luck or chance (external) involved in determining behavior-contingent outcomes.

In terms of the research on locus of control, it is apparent in most of the literature that both members of minority groups (Lefcourt, 1966) and certain individuals with disabilities (Strickland, 1978) may exhibit a more external locus of control at least during certain periods of adaptation. Thus they would be presumed to believe that forces external to themselves do exert an influence on their lives. On the other hand, some individuals with

disabilities have a more internal locus of control (e.g. hemophiliacs), especially after long term disability (Strickland, 1978).

Research on the relationship between locus of control beliefs and participation in achievement domains is multifaceted. Lefcourt (1982) reviewed the literature on this relationship and he concluded that there is no simple one to one relationship between the two. That is, persons who have an internal locus of control are not necessarily found to have participated in achievement domains more often than those with external locus of control beliefs. Srull & Karabenick (1975) suggest that further research on personality and situationally varied locus of control are required before any generalizations can be advanced regarding locus of control and achievement behavior.

Literature on coping has grown tremendously in the 1970s and the 1980s and the topic of coping is fast becoming a major research issue. Definitions of coping range from animal models which focus on the responses that maintain homeostasis (Miller, 1980), to ego psychology models which place coping on the top of a hierarchy of defense mechanisms maintaining a healthy ego (Haan, 1977), to cognitive models which focus on situationally evoked coping strategies which are typically based on a cognitive appraisal of threat, challenge, or harm (Lazarus and Folkman, 1985a) Somewhere on the continuum between the

ego psychology perspective of coping as an all or none personality trait, and the cognitive psychological conceptualization of coping as a situational effort, lies the concept of coping with disability status. The term status indicates a level of adjustment that has been achieved; since it is changeable, it is not viewed as a trait. Yet this level of adjustment is likely to be evident across most situations. A combined perspective that utilized both the cognitive approach to conceptualizing coping in a situational framework (coping strategies per Lazarus & Folkman, 1985a) and ego psychology's approach to conceptualizing coping in a dispositional framework (Blom, Ek, & Kulkarni, 1983) was developed for this study. Coping is a concept often referred to when measuring perceived competence. In fact coping and mastery are terms that are often used to describe the same construct (Folkman, 1984). Coping efficacy is defined both as a dispositional and a situational psychological attribute of competent individuals. Thus, athletes with disabilities must cope with disability (dispositional variable) and they must cope with the stressful situations that life presents them, sometimes to situational handicaps that result from the interaction of the disability and the environment. Thus, both levels of coping are important in researching the psychological aspects of individuals who perceive themselves as competent.

Situational coping strategies have been conceptualized by Lazarus and his colleagues in 1980 and refined in later studies. In research on the assessment of coping thoughts and actions used in stressful encounters requiring coping responses (Folkman & Lazarus, 1980) results revealed the existence of two primary forms of coping, problem-focused and emotion-focused. Problem-focused coping tends to be focused on seeking information to assist in managing a problem, whereas emotion-focused coping is focused on managing the affect associated with a stressful encounter. Further analyses revealed eight coping strategies typically used in stressful life encounters by men and women aged 45-64 (Folkman, Lazarus, Dunkel-Schetter, DeLongis & Gruen, 1986). These strategies included; confronting, distancing, self-controlling, seeking social support, planful problem solving, positive reappraisal, escape avoidance and accepting responsibility. The results of these studies also revealed that most people use a combination of emotion and problem focused coping strategies, although the predominance of one type of coping strategy over another seemed to be situationally determined. Further research in support of this was done by Lazarus and Folkman (1985) while studying subjects experiencing the stress of exams. Results of this research revealed that students use more problem-focused coping during periods of anticipation before the exam than during the period following the exam while they are waiting to learn about the outcome.

Several studies suggest that locus of control beliefs are related to the type of coping activity. Strickland (1978) noted studies that indicated that people with an internal locus of control were more likely than people with an external locus of control to engage in an information search about disease and health maintenance when it was relevant to their well-being and in preventive behaviors, such as wearing seat belts and going to the dentist for checkups. These are problem focused coping behaviors. Anderson (1977) found that, in comparison with individuals having an external locus of control belief, those with internal locus of control beliefs were likely to employ more task-centered (problem-focused) coping behaviors and fewer emotion-centered coping behaviors.

The dispositional view of coping in this study focuses upon coping with disability. Shontz (1975) described disability as a stress condition that requires coping responses. Individuals described as effectively coping with disability reported a positive quality of life, social competence, and acceptance of disability (Blom, Ek, & Kulkarni, 1983). Kulkarni and Blom (1985) conceived of coping as an ongoing process which changes according to individual development and situational context. In a 1980 pilot project initiated by the University Center for International Rehabilitation (UCIR, Blom, Ek, & Kulkarni, 1983) a theoretical model of the process of coping in adult disabled persons was developed.

According to the coping model developed by the UCIR group, competence and quality of life are achieved states. These are behavioral outcomes of an evolving coping process over a period of time. Based on data from the structured interview of successful copers and the extensive literature review of coping the UCIR group developed an Inventory to assess the current disability coping status of an individual, including currently used coping processes and achieved quality of life outcomes.

The findings of this literature review were used in the study to speculate as to the existence of and the interrelationship among intrapersonal cognitive attributes hypothesized to form the core of the competent self of an individual with a disability who participates in a sport situation. Personal history factors such as gender, disability, history of participation in sport and history of participation in other achievement domains are assumed to affect the dispositional variables of locus of control and coping status with disability. The dispositional variables in turn are hypothesized to affect the situational variables of coping strategies. Finally both dispositional and situational variables are hypothesized to affect expectations to persist in sport.

Review of Methodology

The subjects for this study were 197 athletes were cerebral palsy or other (Les Autres) specified physical disabilities (e.g., short stature, muscular dystrophy) who

competed in the 1985 National Cerebral Palsy/Les Autres Games. These subjects were a volunteer sample constituting 28% of the population of 713 athletes competing at the Games. An ex post facto design was chosen for the study as this is the most appropriate design when random assignment of subjects to groups is difficult or impossible.

A multi-disciplinary research team consisting of a sport psychologist, a rehabilitation psychologist, a adapted physical education specialist, and a graduate student in counseling psychology united to develop much of the conceptual framework for the study. A combination of team developed and other standardized instruments were used to collect descriptive data on the core attributes identified as related to competence as well as to test the relationship between these core attributes and participation in the achievement domain of sport. Instruments included: (a) the experimenter-developed personal history questionnaire to collect demographic data; (b) the Rotter (1966) Internal-External Locus of Control scale to assess locus of control beliefs; (c) the Coping With Disability Inventory (Kulkarni, 1985) to assess the coping status with disability of the subjects; (d) two experimenter-developed instruments to assess performance outcome, which was conceptualized to include objective outcome (place finish) and subjective outcome (satisfaction); (e) the Ways of Coping-Revised Questionnaire developed by Lazarus and Folkman (1985a) to assess coping strategies used in a

situation-specific context, and (f) an experimenter-developed outcome questionnaire to measure athletes' expectations to persist in sport.

Data collection procedures began approximately four weeks prior to the Games when a packet of questionnaire instruments measuring the dispositional variables (personal history, locus of control and coping with disability status) were mailed to each athlete. Approximately three weeks prior to the Games, nine data collection assistants were selected, hired, and trained to administer instruments and to communicate with individuals having cerebral palsy. During the Games, consenting participants were asked to complete post-competition questionnaires as well as the Ways of Coping-Revised pertaining to their competitive event. The post-competition instruments were completed at the Games within two days of event competition in most (82%) of the cases. Others who were missed at their departure or requested to mail it back, were requested to mail the instruments back within 14 days of their return home.

The responses to each instrument were analyzed using qualitative and quantitative approach. In addition to reporting descriptive data on each core attribute of interest, the following hypotheses were tested:

- H1: There will be no significant relationship between gender of subject and mean score on locus of control.

- H2: The subjects in this study will be significantly more external (a higher score on the locus of control scale) than will a national sample of able bodied individual's studied by Owens (1969).
- H3: The mean of this group of athletes on the Coping With Disability Inventory will be significantly greater than the mean for two other available samples of athletes with disabilities not involved in sport.
- H4: The athletes in this sample will have a significantly greater proportion of participation in education and work than will an available sample of individuals (Harris, 1986) with disabilities not involved in sport.
- H5: Athletes in this sample who have an internal locus of control will have more sport experience as compared to athletes who have an external locus of control.
- H6: Athletes in this sample who have a higher coping status with disability will also have more sport experience as compared to athletes with a lower coping status with disability who will have less sport experience.
- H7: There will be a significant relationship between locus of control and coping strategies. Athletes with a lower score on the locus of control inventory (a more internal locus of control) will use more problem-focused coping strategies as compared to athletes with a higher score on the locus of control inventory (a more external locus of control) who will use more emotion-focused coping strategies.
- H8: Athletes having a higher score on the CDI (indicating a higher coping status with disability) will use more problem-focused coping strategies as compared to athletes having a lower score on the CDI (indicating a lower coping status with disability) who will use more emotion-focused coping strategies.
- H9: Athletes with higher sport persistence expectations will have a lower score on the locus of control inventory (a more internal locus of control) as compared to athletes with lower sport persistence expectations who will have a higher score on the locus of control inventory (a more external locus of control).

H10: Athletes having a higher score on the CDI (indicating a higher coping status with disability) will have higher sport persistence expectations at the conclusion of the Games as compared to athletes with a lower score on the CDI who will have lower persistence expectations.

In addition to the above hypotheses, a corollary question was set forth as follows; which variable of interest (locus of control, coping status with disability or coping strategies) will be most predictive of sport persistence expectations?

Summary of the Results

The athletes in this study ranged from 18-66 years of age. There were more males (63%) than females (37%) and more athletes with cerebral palsy (82%) than les autres (18%) athletes. Most athletes characterized their disabilities as non-progressive (93%) and stable (62%). Most (78%) had acquired their disabilities congenitally. Athletes in this study were classified for the Games at all levels of functional ability, from Class 1 athletes with severe involvement in all four limbs, to Classification 8 athletes who run and jump freely, but have noticeable coordination problems.

Most athletes were single (85%), few athletes were married (9%) or divorced/widowed (6%). In terms of education and employment, this sample was typically underrepresented in both achievement domains. Only 29% of these athletes were high school graduates and only 23% had full time jobs. In terms of sports background, most

athletes (81%) followed an organized training schedule, while a minority (19%) trained whenever they could. Only 17% practiced on a daily basis, with 75% practicing about once a week, and 8% practicing less often than weekly. The majority 79% of athletes in this study (79%) were assisted by a coach during training sessions, whereas 11% received some help from family members or friends, and 10% practiced without coaching.

Most respondents (83%) competed only in competitions for disabled athletes rather than in competitions which included able-bodied athletes. Many of the athletes were relatively inexperienced in sport competition, with only 44% reporting that they had competed five or more times prior to the Games.

In terms of a profile of intrapersonal cognitive processes related to competence possessed by these athletes, the athletes in this study are coping with their disabilities at a moderately high level and they tend to have moderately external locus of control beliefs. Male athletes tended to have a slightly higher coping status with disability and they tended toward more external locus of control beliefs than did female athletes. All athletes used a combination of emotion focused and problem-focused coping strategies, with higher level copers with disability using all eight strategies more often than lower level copers with disability. Overall positive reappraisal and planful problem solving (problem-focused strategies) were used

the most by all athletes and escape-avoidance (emotion-focused strategy) was used the least. Again, male athletes used all coping strategies slightly more often than did female athletes. Finally, the athletes in this sample are characterized as persisters in that they have high expectations to persist in sport.

The ten hypotheses listed above were based on a thorough review of the literature on the core attributes found to be related to competence. There was no support for Hypotheses 1, 5, 6, 7, 8 and 10. Finally, support for Hypotheses 2, 3, 4, and 9 was obtained. Results of analyses on the corollary question revealed that situational coping strategies are the most predictive of persistence expectations.

Summary of Discussion

The purpose of this study was to better understand the relationship between intrapersonal cognitive processes of competent disabled individuals and participation in achievement domains. It was assumed that an understanding of this relationship would lead to an understanding of the development of perceived competence among disabled persons. Such an understanding could lead to a theoretical foundation for programming aimed at increasing participation of disabled persons in achievement domains.

A profile of intrapersonal cognitive processes operating in the athletes in this study has emerged from the results. The athletes are moderately high in coping status with

disability and persistence expectations. They tend to have a moderately external locus of control belief and they use more problem-focused coping strategies than emotion-focused coping strategies to deal with stress. These characteristics tend to hold despite gender, classification level in the Games or disability type. This profile of the intrapersonal cognitive processes of athletes in this study is assumed to be the profile of an individual with disability who perceives herself/himself as competent. Brewster-Smith's (1968) contended that there are a core of interrelated personal attributes which play a crucial role in competence development and the cognitive processes mentioned above are among these attributes. These core attributes create the foundation for an individual's characteristic behavior in the face of challenge, which includes an attraction to challenge, realistic goal setting and an active coping orientation. It may be that it is the cognitive psychological profile of the competent athlete described above that rehabilitation and individuals with disabilities may want to strive. Further summary of the discussion of the relationship among these cognitive processes and participation in a sport event may help elucidate the benefits of such a profile in supporting persistence expectations.

In general, it appears that situational variables (coping strategies) are more associated with persistence

expectations as opposed to dispositional variables (locus of control and coping with disability status). Gender and sport experience do not seem to be related to the dispositional variables of coping with disability and locus of control. The athletes in this study appeared to have accepted and transcended their disabilities while participating in sport events. This is very instructive in that perhaps rehabilitation and sport psychologists who focus too much attention on coping with disability may not focus enough attention on social competencies. It appears that more assistance could be given an individual with a disability by focusing more on situational aspects of achievement situations such as fostering a problem solving coping orientation. Individuals with disabilities may become frustrated with a professional who tends to focus on disability while trying to assist these individuals into achievement domains, when they are instead anticipating coping with a given situation. As the individual becomes adept in coping with a given situation they are more likely to be launched on the positive trajectory mentioned by Brewster-Smith (1968), which will promote their continued participation in other achievement domains. Results indicating that this sample of athletes have a higher coping status with disability and more experience in other achievement domains is supportive of the positive effect of participation in achievement domains on persistence.

In general, the athletes in this study are comparable to able-bodied athletes in their use of coping strategies. They differ in a unanticipated, yet explainable external direction in their locus of control beliefs and these beliefs are associated with high persistence expectations. They are high level copers with disability as compared to other individuals with disabilities who have not participated in achievement domains as much. They use a combination of emotion and problem-focused coping strategies, although the higher level copers use more problem focused strategies and it appears that problem-focused strategies are most associated with expectations to continue in sport.

Limitations of the Study

Although the ex post factor investigation does serve as a useful hypothesis-generating procedure, the results of such a study can never be statements of cause and effect similar to the results of true experiments and as such generalizations from this study are limited to similar groups and situations. The findings of the study are further limited by the truncated distribution of scores on most variables of interest. All athletes were characterized as high level persisters and as such, little is know about the core attributes related to competence of athletes with low level persistence expectations.

The small sample of 197 subjects not randomly obtained for this study is not likely to be representative of the total population of athletes with disabilities.

The profile of intrapersonal cognitive attributes found for this sample of athletes cannot, therefore, be generalized to all athletes with disabilities. The large number of instruments required of each subject and the accuracy with which these instruments were completed required a great deal of time and effort. In fact, the manner of data collection required persistence in an of itself as athletes had to comply with several different sets of instructions.

Finally, the instrumentation used in this study had limitations. The Coping With Disability Inventory requires further study to discover what it is measuring in more detail. Sport experience and persistence expectations in this study were measured with one question respectively from team-developed questionnaires and this may not have provided an accurate or reliable measure of these variables. In addition, the Personal History questionnaire had never been used before and it is possible that the wording or construction of this instrument biased responses from subjects on important demographic data.

Conclusions

It is evident that these athletes are among the individuals with disabilities who successfully participate in achievement domains and who cope well with disability. They have risen above disadvantage and overcome adversity. It is typical of the competent individuals in this sample to transcend disability and focus on the situational stress

at hand. The results of this study further negate the refuted hypothesis that effects of disability on personality are directly proportional to the severity of the disability (Shontz,1977). It is also apparent as a result of this research, that certain forms of physical disability are not associated with a particular form of personality as these athletes were distributed throughout a healthy range of cognitive psychological attributes.

Finally, it is important to return to the conceptual model developed for this study. Based on the results of this study, it appears that all of the variables included for study are important aspects of participation in sport. Specifically, on the basis of these findings there is strong empirical evidence to consider situational coping strategies to be particularly relevant for participation in an outcomes of sport. Links in the conceptual model hypothesized to exist between coping with disability and locus of control (dispositional variables) and coping strategies were not empirically demonstrated in this study. This does not indicate that these variables are not important to consider in future research as not all links hypothesized in the conceptual model were adequately tested. Coping with disability was measured with an inventory found to have different properties than originally proposed in the research literature. The experimental nature of the CDI instrument warrants caution in interpreting any results

regarding coping with disability status. In addition to difficulties associated with measuring coping with disability, the distribution of athletes in this study on the coping variable was quite narrow and this may have biased the results.

Locus of control is not ~~very well~~ understood for individuals with disabilities and it was difficult to compare results of this research to any set standards as there are none available. Hypothesized links in the model connected to locus of control were thus not adequately tested. A comparison group of athletes with disabilities not involved in sport would have been useful in fully understanding the results of hypothesis tests involving the locus of control variable and its connections to other variables of interest in the study.

Persistence expectations were uniformly high for this sample of athletes and this may have been the result of the one question measure used to assess these expectations. Again, hypothesized links in the model involving persistence expectations may have existed, but were not adequately tested due to the lack of a low "persister" comparison group.

Given the above concerns with adequate testing of the conceptual model, a need for further exploration of all variables in the conceptual model is apparent. It also appears that other variables should be considered in future research. These variables might include: achievement orientations, self-efficacy expectations, and performance outcome.

Implications

Practice. A cognitive psychological profile of the individual with a disability who has a perception of competence was tentatively set forth in the results of this study. This individual copes well with disability and may in fact transcend disability when participating in achievement domains. The locus of control belief for this individual is in the external direction, indicating a belief in the influence of external factors on life events. This individual uses both emotion and problem-focused coping strategies, with problem-focused coping being the most predictive of an expectation to persist in sport.

The literature supports the notion that competence in one arena of life can compensate for incompetence in other arenas of life (Ricks, 1979). Perhaps the above profile is the beginning of defining the components of competence for individuals with disabilities and as such, it is of interest to rehabilitation practitioners in the business of facilitating competence by encouraging participation in achievement domains. Learning competence has been defined as important in order for one to become effective psychologically, relieve anxieties, correct maladaptive behaviors and learn alternative, success oriented ways of behaving in society (Gladwin, 1967). Thus perceived competence can be an outcome of a well designed mental health intervention.

As rehabilitation practitioners are continually grappling with designing mental health interventions, cognitive psychological profiles of individuals with perceived competence are an important outcome of this study. Based on the results of this study, it appears that sport should be seriously considered by rehabilitation policy makers as an aspect of the total rehabilitation process. Perhaps sport should be introduced early in the rehabilitation process as a means of teaching motor skills and reducing social isolation of individuals with disabilities. Sport environments would also allow an arena to test one's abilities and competence.

The cognitive psychological profile set forth in this study, together with a recent recommendation from a National Institute on Mental Health Conference urging interventions aimed at the person and their environment supports continued involvement in achievement domains such as sport for rehabilitation practitioners designing mental health interventions. The results of this study are in agreement with this recommendation.

The focus of this study was on cognitive psychological aspects of participation in sport, because research has supported the modifiable nature of cognitions. Thus, practitioners can assist individuals in developing cognitions that are most like the profile obtained for perceived competence. Athletes have the ability to choose their cognitions and it is wise to enhance the use of positive cognitions to assure persistence.

One final outcome of this study that is important for practitioners is the finding that it is the situational factors (coping strategies) that appear to be of the utmost importance in affecting expectations to persist. Although

more research is needed, it appears that dispositional factors (coping with disability and locus of control) do not exert great influence within one situation. This would indicate that practitioners may best facilitate perceived competence by focusing on one situation at a time. This focus would allow accumulation of success experiences, which may in turn affect dispositional characteristics by producing an overall cognitive psychological profile of perceived competence.

Research. This research was only the beginning in the development of a body of research confirming the existence of a cognitive psychological profile of the competent individual with a disability. Before the existence of such a profile can be confirmed, the following research questions need to be answered;

- What is the coping with disability inventory measuring exactly? Further exploratory analyses on this instrument are needed to confirm validity, reliability, and potential existence of underlying dimensions.
- What would normative data on the locus of control beliefs look like for individuals with disabilities?
- What do lower level copers with disability use as coping strategies as this study was only sampling higher level copers with disability.

- Does the same cognitive psychological profile found in this study hold (a) across situations, (b) with low level copers with disability included, (c) with internal locus of control individuals included and, (d) with low level persisters included?
- How does this cognitive psychological profile fit in other achievement domains?
- Do the relationships among the cognitive psychological characteristics in the profile remain the same (a) across situations and (b) with a normally distributed sample of copers, persisters, "internals" and "externals."

The above questions represent some of the important questions raised by this research. Answering these questions with carefully designed research could lead to an increased body of knowledge regarding the link between intrapersonal cognitive processes and participation in achievement domains for individuals with disabilities. The more that is known about this link, the more practitioners can facilitate participation in achievement domains which provides the individual with a disability the opportunity to develop self-esteem, high quality of life and perceived competence.

Another implication of this research is the need for further empirical investigation of the Coping with Disability Inventory. Specifically, further developments of interest would be omitting items with negative item to total correlations and items with item to total correlations below .40. This would result in a shorter version of the inventory which could be further tested with other samples of individuals with disabilities. The next step would be to compare results obtained on validity and reliability tests for both forms of the Inventory to see if they are similarly reliable and valid. If reliability remains high for the reduced inventory,

further factor analysis would be conducted to identify whether or not specific dimensions exist within the revised version of the CDI.

APPENDICES

APPENDIX A
CORRESPONDENCE WITH ATHLETES

APPENDIX A

CORRESPONDENCE WITH ATHLETES

HANDICAPPER ATHLETE STUDY INFORMED CONSENT CARD

Dear Athlete,

Thank you for agreeing to volunteer for the Handicapper Athlete Study. By signing this card you are agreeing to participate in this study and you are stating that you have read the letter sent to you explaining this research in full. Please fill out the card completely and mail it, so that we may send you the first set of questionnaires.

NAME			
LAST	FIRST	MIDDLE	
AGE		BIRTHDATE	
		mo./day/year	
TELEPHONE		(area)	
		number	
ADDRESS		City	
Street and Number			
State		Zip Code	
EVENT(S)			
SIGNATURE			

MICHIGAN STATE UNIVERSITY

COLLEGE OF EDUCATION · DEPARTMENT OF COUNSELING,
EDUCATIONAL PSYCHOLOGY AND SPECIAL EDUCATION

EAST LANSING · MICHIGAN · 48824-1014

June 26, 1985

Dear Athlete:

I am writing to ask for your assistance in a research project to be conducted at the 1985 Cerebral Palsy/Les Autres Games. A team of researchers at Michigan State University is interested in you as an athlete. As a result of your involvement in the research project, you will receive information about your performance as well as information about the performance of the total group of athletes. The information you will receive will answer some of the following questions: How do athletes cope with or manage disability in order to participate in sports? What motivates athletes with disabilities to participate in sport activities? How do athletes explain success and failure and how do these explanations affect future involvement in sports? In other words, what makes you an athlete and how can this information be used to help other handicapped individuals like yourself to become involved in sports? Your participation in this research project is separate from your participation in the Games.

Participation in this research requires your help in filling out questionnaires. Total time to fill out these questionnaires will vary from individual to individual. The following description should give you an idea of the time commitment and work involved.

1. The first of three questionnaires will be mailed to you at your home as soon as we receive your permission (or as soon as you mail in your consent card). Time to fill out these questionnaires is estimated to be two hours. These three questionnaires will ask you questions about your personal history, your reasons for involvement in the Games and how you cope with your disability.
2. The second set of three questionnaires will be given to you shortly before and shortly after you compete in the Games. Project staff will meet you at the Games to assist you with these questionnaires which will study your expectations about your performance and the ways you cope with your performance.

We are seeking your participation as a volunteer for this important project. By volunteering to answer the questionnaires, you will help us learn about the involvement of handicapped athletes in sport and to share this information with others who can promote such participation. We assure you that all answers to questionnaires and results of this research will be treated with strict confidentiality. Questionnaires will be coded by number and you will never be identified individually.

June 26, 1985
Page 2

We do understand the demands on your time and attention during the Games and we have minimized the amount of time that you will have to devote to this project. Your decision to participate in the research project is completely voluntary. If you choose to participate, you may withdraw from participation at any point. We assure you that your decision to volunteer or not volunteer for this project will in no way affect your participation in the Games.

Thank you very much for your time. We hope that you will agree to participate with us in this important research. Your participation is extremely important to us. We look forward to meeting you at the Games, where our project staff will be available to assist you with completing questionnaires at your request.

Sincerely,

Sarita Overton

Sarita Overton
Research Coordinator

SO:mjs
Enclosure

MICHIGAN STATE UNIVERSITY

COLLEGE OF EDUCATION · DEPARTMENT OF COUNSELING,
EDUCATIONAL PSYCHOLOGY AND SPECIAL EDUCATION

EAST LANSING MICHIGAN 48824-1044

25 July 1985

Dear Athlete,

Thank you for your interest in our Handicapper Athlete Project (HAP). You are among 200 athletes who have agreed to participate in this research project. To those of you who have already returned the first set of questionnaires to us, thank you for your quick response. If you haven't yet completed and returned the first set of questionnaires, please complete them and bring them with you to the Games.

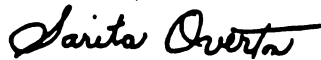
We plan to meet with athletes on August 6 and 7 when you check in for classification. Please look for our table in Munn Arena when you check in. We will be located at the end of the Games tables, and our staff will be wearing bright ORANGE T-Shirts with the letters HAP printed on the back. Most athletes who have agreed to participate in this research are competing in several events during the Games. We plan to administer our pre-competition and post-competition surveys for only one of your events. When you check in with us, we will inform you of which event we have selected, and we will confirm the time and location of that event with you so that you will know when to expect us.

To give you an idea of the time it will take you to complete the questionnaires at the Games, I would first like to indicate that the questionnaires mailed to you in advance of the Games are the lengthiest of the questionnaires you will complete. The pre-competition questionnaire will take about 3-5 minutes for most athletes to complete. This questionnaire will be administered to you about 10-15 minutes prior to your event, after you have warmed up. Please start looking for someone in a HAP T-Shirt about 10-15 minutes before your event. It will be our responsibility to find you, and this will be facilitated by a bright sticker which we will attach to your Games badge when you check in with us.

The post-competition questionnaires will be administered immediately following your event. It is very important that we learn about your immediate reactions to your performance, so please do not talk to anyone (coaches, friends, other athletes, etc.) until you have completed the post-competition questionnaire. This instrument takes about 10 minutes to complete for most athletes. After completing the post-competition questionnaire, we will give you one more questionnaire to complete at your convenience before leaving the Games. HAP project staff will arrange to collect this questionnaire from you before you leave East Lansing.

We want you to know that this project has attracted considerable funding, both from Michigan State University and from the Kenny Michigan Rehabilitation Foundation. Their support demonstrates their interest in handicapper athletes and in the 1985 National Cerebral Palsy Games. Thank you for making this project possible.

Sincerely,



Sarita Overton
Handicapper Athlete Project

HANDICAPPER ATHLETE PROJECT

NAME: _____ Subject Number _____

ROOM: _____

THANK YOU SO MUCH FOR YOUR PARTICIPATION IN THE HANDICAPPER ATHLETE STUDY!! WE APPRECIATE YOUR HELP.

We plan to ask several questions before one of your events and a few more questions after that event. The pre-event questionnaire requires about _____ minutes. The post-event questionnaire requires about _____ minutes.

The event we have selected is (number) _____ (name) _____
 We understand that this event is scheduled for (day) _____
 at (time) _____ at (location) _____
 A member of our project staff will meet you about one-half hour before your event or heat at _____ to conduct the pre-event questionnaire. He/she will be wearing a bright orange T-shirt. He/she will watch your event, will meet you IMMEDIATELY after your event and will administer the post-event questionnaire at that time.

Members of the project staff have been instructed NOT to speak to you about your event or about the Games in general. This is part of our data collection procedure and is NOT meant in any way to be rude.

The member of the project staff, who administers the pre and post-event questionnaires to you, will also arrange an appointment to complete a third (and final) questionnaire.

You will receive a summary of the results of this study within the next year. Thank you in advance for your continued participation and.....

GOOD LUCK TO YOU IN YOUR COMPETITION AT THE GAMES!!!!!!!!!!!!!!

Support for this project has come from:

Kenny Michigan Rehabilitation Foundation
 Michigan State University
 U.S. Department of Education

MICHIGAN STATE UNIVERSITY

COLLEGE OF EDUCATION • SCHOOL OF HEALTH EDUCATION
COUNSELING PSYCHOLOGY AND HUMAN PERFORMANCE •
515 ERICKSON HALL
Handicapper Athlete Project

EAST LANSING • MICHIGAN • 48824-1054

August 26, 1985

Dear Athlete:

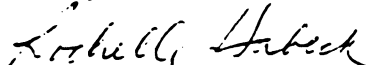
We are writing this letter to thank you for your cooperation and time in answering our questionnaires. If you had not been so cooperative our job would have been much more difficult. We truly enjoyed meeting you and working with such a positive group. The spirit and philosophy of The Games is something we will remember for some time.

Many of you indicated to us your willingness to receive and complete any missing information through the mail. We tried to reach all of you before you left, but we missed some of you. In order to complete the information we have from you, we are sending the last of the questionnaires for completion. Please fill this questionnaire out and mail it to us in the envelope provided.

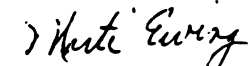
We expect to be finished analyzing the results of your work by spring. You will hear from us again as we report our findings to you.

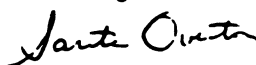
Good luck to you in your continued involvement in competitive sport. If you have any questions, do not hesitate to write.

Sincerely,


Rochelle Habeck


Gail Dummer


Marti Ewing


Sarita Overton

Attachment

APPENDIX B

DEFINITION OF ATHLETE CLASSIFICATION LEVELS

APPENDIX B

DEFINITION OF ATHLETE CLASSIFICATION LEVELS

APPENDIX A

1985 NATIONAL CEREBRAL PALSY/LAS AUTRES GAMES

Approximately 800-900 athletes are expected to compete in the 1985 National Cerebral Palsy/Las Autres Games at Michigan State University on August 7-14, 1985. These athletes fall into two broad classes, those with cerebral palsy and "les autres". Les autres athletes include persons with multiple sclerosis, muscular dystrophy, osteogenesis imperfecta, and arthrogryposis, as well as little people.

Athletes with cerebral palsy are classified according to their functional abilities for competition:

- Class 1. Uses motorized wheelchair because almost no functional use of upper extremities. Severe involvement in all four limbs, limited trunk control, has only 25% range of motion. Unable to grasp softball.
- Class 2. Propels chair with feet and/or very slowly with arms. Severe to moderate involvement in all four limbs. Uneven functional profile necessitating subclassification as 2-Upper (2U) or 2-Lower (2L), with adjective denoting limbs having greater functional ability. Has approximately 40% range of motion. Severe control problems in accuracy tasks, generally more athetosis than spasticity.
- Class 3. Propels chair with short, choppy arm pushes but generates fairly good speed. Moderate involvement in three or four limbs and trunk. Has approximately 60% range of motion. Can take a few steps with assistive devices but not functionally ambulatory.
- Class 4. Propels chair with forceful, continuous arm pushes, demonstrating excellent functional ability for wheelchair sports. Involvement of lower limbs only. Good strength in trunk and upper extremities. Has approximately

70% range of motion. Minimal control problems.

- Class 5. Ambulates without wheelchair but typically uses assistive devices (crutches, canes, walkers). Moderate to severe spasticity of either (a) arm and leg on same side (hemiplegia) or (b) both lower limbs (paraplegia). Has approximately 80% range of motion.
- Class 6. Ambulates without assistive devices, but has obvious balance and coordination difficulties. Has more control problems and less range of motion in upper extremities than Classes 4 and 5. Moderate to severe involvement of three or four limbs, with approximately 70% range of motion in dominant arm.
- Class 7. Ambulates well but with slight limp. Moderate to mild spasticity in (a) arm and leg on same side or (b) all four limbs with 90% of normal range of motion for quadriplegia and 90-100% of normal range of motion for dominant arm for hemiplegia.
- Class 8. Runs and jumps freely without noticeable limp. Demonstrates good balance and symmetric form in performance but has obvious (although minimal) coordination problems. Has normal range of motion.

Events offered at the Cerebral Palsy/Les Autres Games include, but are not limited to, archery, horseback riding, weightlifting, table tennis, wheelchair and ambulant soccer, boccia, bowling, rifle shooting, swimming, and track and field events. These games are governed by the National Association of Sports for Cerebral Palsy (NASCP).

(Information on cerebral palsy classification system is from Sherrill, Adams-Mushett, and Jones (In Press).)

APPENDIX C
PERSONAL HISTORY QUESTIONNAIRE

APPENDIX C

PERSONAL HISTORY QUESTIONNAIRE

ID# _____ (1-3)

HANDICAPPER ATHLETE STUDY PERSONAL BACKGROUND QUESTIONNAIRE

Please provide your answer to each question. There are 30 questions, most of which require you to fill in the blank or place a check in a box. You may ask for assistance in filling this out if you like as long as the answers are yours. Thank you for your time and assistance.

1. Name _____

Last
Middle
First
2. Address _____

No. and Street
City
State
Zip
3. Phone No: _____/_____. 4. Sex: Female ☐ (4) 5. Age _____ (5)

Male ☐
6. What event(s) will you enter in the Games _____

DISABILITY HISTORY

7. How old were you when you acquired your disability? _____ (6)

Years
8. Please check the box in front of any disability that you have:

☐ Cerebral Palsy
☐ Short Stature
☐ Osteogenesis Imperfecta
☐ Organic Brain Syndrome

☐ Multiple Sclerosis
☐ Ehlers-Danlos Syndrome
☐ Other _____

☐ Arthrogyposis (7-8)
☐ Muscular Dystrophy
☐ Friedreich's Ataxia
9. What is your functional classification level in the Games? _____ (9)
10. Please check the boxes which describe the amount of impairment you have in each of the following: (IMPMT = Impairment)

	NO IMPMT	MINOR IMPMT	MAJOR IMPMT	COMPLETE IMPMT	
☐ Endurance	☐	☐	☐	☐	(10)
☐ Coordination	☐	☐	☐	☐	(11)
☐ Vision	☐	☐	☐	☐	(12)
☐ Hearing	☐	☐	☐	☐	(13)
☐ Mobility	☐	☐	☐	☐	(14)

2

	NO IMPMT	MINOR IMPMT	MAJOR IMPMT	COMPLETE IMPMT	
☐ Self Care	☐	☐	☐	☐	(15)
☐ Speech	☐	☐	☐	☐	(16)

11. Please check the number which best describes your disability:

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	(17)
Stable or stays the same		Moderately Stable		Unstable or changes often	

12. Please check off the number that best describes the physical consequences of your disability:

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	(18)
Progressive				Non-progressive	

SPORT HISTORY

13. What type of training (practice schedule) did you have in training for your event?
- ☐ No training ☐ Whenever I could, but no formal schedule (19)
- ☐ Organized training schedule
14. What type of assistance did you have in training for your event? (20)
- ☐ No assistance. I trained on my own
- ☐ Some assistance (friend, relative), but no formal coach
- ☐ Had a coach
15. How often did you train for your event? (Check the box best describing your schedule.)
- ☐ Daily; number of times per day _____ (21-22)
- ☐ Weekly; number of times per week _____ (23-24)
- ☐ Monthly; number of times per month _____ (25-26)
- ☐ Less than once per month

3

16. When you train, how long does an average session usually last? (Check the best estimate.)

☐ Less than 15 minutes
☐ 15 to 30 minutes
☐ 30 minutes to 1 hour
☐ More than 1 hour (27)

17. Have you competed before in a sports event? ☐ NO ☐ YES (28)

If Yes:

a. At what levels have you competed? ☐ Local ☐ State
☐ Regional ☐ National (29)

b. How many times have you competed in sports levels checked above?
☐ Once ☐ 1 to 5 times ☐ More than 5 times (30)

c. Has this competition ever been against able-bodied athletes or always in specialty meets?
☐ Always in specialty meets ☐ Against able bodied athletes (31)

18. Do you have an opportunity to train with able bodied athletes?
☐ YES ☐ NO (32)

19. How often are accessible training and competitive facilities available for your participation in sport? (33)
☐ Never ☐ Occasionally ☐ Regularly

20. Does accessibility of a facility affect your choice of event? (34)
☐ YES ☐ NO

21. What was the main reason you got involved in competitive sport? _____

22. How long have you been involved in competitive sport? (35-36)
☐ Number of Years ☐ Number of months

23. How long have you been involved in the event in which you will compete at the Games? (37-38)
- ☐ Number of years ☐ Number of months
24. How important would you say this involvement in sport is to you? (39)
- ☐ Not important ☐ Somewhat important ☐ Very important ☐ Most important
25. How would you rate your ability in sport? (40)
- ☐ 1 ☐ 2 ☐ 3 ☐ 4
The Best Very Good Average Poor
26. How would you rate your ability in your chosen event? (41)
- ☐ 1 ☐ 2 ☐ 3 ☐ 4
The Best Very Good Average Poor
27. Are you currently employed? (42)
- Yes I am employed - - - - ☐ Full Time ☐ Part Time
I am in school - - - - ☐ Full Time ☐ Part Time
I am not employed or in school ☐
28. Education Completed: (Check One) ☐ Elementary ☐ Junior High (43)
- ☐ Some (1-3) High School ☐ Some (1-3) Vocational School
☐ High School Graduate ☐ Some (1-3) College ☐ College Graduate
☐ Graduate Education
29. Current Marital Status: (Check One) (44)
- ☐ Married ☐ Never Married ☐ Single / Widowed
☐ Single: Never Married ☐ Divorced
30. Current Living Status: (45)
- ☐ Alone
☐ With one or more adults (related or significant other)
☐ with child(ren) and no adults
☐ With assistance from hired attendant or other personal care provider

APPENDIX D
LOCUS OF CONTROL SCALE

APPENDIX D

LOCUS OF CONTROL SCALE

16

ID # _____ (1-3)

OPINION QUESTIONNAIRE

Directions: For each number below there are two statements of opinion, a and b. Select the one which is closest to your opinion, and check the box either a or b. Even though you may not agree totally with either opinion, do not skip any items.

1. a. ☐ Children get into trouble because their parents punish them too much.
b. ☐ The trouble with most children nowadays is that their parents are too easy with them. (4)
2. a. ☐ Many of the unhappy things in people's lives are partly due to bad luck.
b. ☐ People's misfortunes result from the mistakes they make. (5)
3. a. ☐ One of the major reasons why we have wars is because people don't take enough interest in politics.
b. ☐ There will always be wars, no matter how hard people try to prevent them. (6)
4. a. ☐ In the long run, people get the respect they deserve in this world.
b. ☐ Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries. (7)
5. a. ☐ The idea that teachers are unfair to students is nonsense.
b. ☐ Most students don't realize the extent to which their grades are influenced by accidental happenings. (8)
6. a. ☐ Without the right breaks, one cannot be an effective leader.
b. ☐ Capable people who fail to become leaders have not taken advantage of their opportunities. (9)
7. a. ☐ No matter how hard you try, some people just don't like you.
b. ☐ People who can't get others to like them don't understand how to get along with others. (10)
8. a. ☐ Heredity plays the major role in determining one's personality.
b. ☐ It is one's experiences in life which determine what one is like. (11)
9. a. ☐ I have often found that what is going to happen will happen.
b. ☐ Trusting to fate has never turned out as well for me as making a decision to take a definite course of action. (12)
10. a. ☐ In the case of the well prepared student, there is rarely, if ever, such a thing as an unfair test.
b. ☐ Many times exam questions tend to be so unrelated to course work that studying is really useless. (13)

17

11. a. ☐ Many times exam questions tend to be so unrelated to course work that studying is really useless.
 b. ☐ Getting a good job depends mainly on being in the right place at the right time. (14)
12. a. ☐ The average citizen can have an influence in government decisions.
 b. ☐ This world is run by the few people in power, and there is not much the little guy can do about it. (15)
13. a. ☐ When I make plans, I am almost certain that I can make them work.
 b. ☐ It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow. (16)
14. a. ☐ There are certain people who are just no good.
 b. ☐ There is some good in everybody. (17)
15. a. ☐ In my case, getting what I want has little or nothing to do with luck.
 b. ☐ Many times we might just as well decide what to do by flipping a coin. (18)
16. a. ☐ Who gets to be the boss often depends on who was lucky enough to be in the right place first.
 b. ☐ Getting people to do the right thing depends upon ability, luck has little or nothing to do with it. (19)
17. a. ☐ As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.
 b. ☐ By taking an active part in political and social affairs, the people can control world events. (20)
18. a. ☐ Most people don't realize the extent to which their lives are controlled by accidental happenings.
 b. ☐ There really is no such thing as "luck." (21)
19. a. ☐ One should always be willing to admit mistakes.
 b. ☐ It is usually best to cover up one's mistakes. (22)
20. a. ☐ It is hard to know whether or not a person really likes you.
 b. ☐ How many friends you have depends on how nice a person you are. (23)
21. a. ☐ In the long run, the bad things that happen to us are balanced by the good ones.
 b. ☐ Most misfortunes are the result of lack of ability, ignorance, laziness, or all three. (24)

18

22. a. ☐ With enough effort we can wipe out political corruption.
 b. ☐ It is difficult for people to have much control over the things politicians do in office. (25)
23. a. ☐ Sometimes I can't understand how teachers arrive at the grades they give.
 b. ☐ There is a direct connection between how hard I study and the grades I get. (26)
24. a. ☐ A good leader expects people to decide for themselves what they should do.
 b. ☐ A good leader makes it clear to everybody what their jobs are. (27)
25. a. ☐ Many times I feel that I have little influence over the things that happen to me.
 b. ☐ It is impossible for me to believe that chance or luck plays an important role in my life. (28)
26. a. ☐ People are lonely because they don't try to be friendly.
 b. ☐ There's not much use in trying too hard to please people, if they like you, they like you. (29)
27. a. ☐ There is too much emphasis on athletics in high school.
 b. ☐ Team sports are an excellent way to build character. (30)
28. a. ☐ What happens to me is my own doing.
 b. ☐ Sometimes I feel that I don't have enough control over the direction my life is taking. (31)
29. a. ☐ Most of the time I can't understand why politicians behave the way they do.
 b. ☐ In the long run, the people are responsible for bad government on a national as well as on a local level. (32)

APPENDIX E
COPING WITH DISABILITY INVENTORY

APPENDIX E

COPING WITH DISABILITY INVENTORY

8

ID # _____ (1-3)

COPING WITH DISABILITY INVENTORY

Directions: Rate each of the following statements in one of the column on the right side of the page that best describes your preference or leanings. Answer according to your present situation (current feelings).

	Never/ Rarely 1	Seldom 2	Some- times 3	Often/ Frequent 4	Almost Always 5	
I obtain information about my body in relation to my disability.	☐	☐	☐	☐	☐	(4)
I am involved in social, political and/or non-work activities.	☐	☐	☐	☐	☐	(5)
I am aware of my personal needs and concerns.	☐	☐	☐	☐	☐	(6)
As a result of my disability, I tend to view life as having both meaning and purpose.	☐	☐	☐	☐	☐	(7)
I think about my disability.	☐	☐	☐	☐	☐	(8)
I find different things to do during my free time.	☐	☐	☐	☐	☐	(9)
I am able to express anger.	☐	☐	☐	☐	☐	(10)
I let go of activities and personal goals that are not realizable due to my disability.	☐	☐	☐	☐	☐	(11)
I can tolerate anger directed towards me.	☐	☐	☐	☐	☐	(12)
I feel like a victim of fate or misfortune because of my disability.	☐	☐	☐	☐	☐	(13)
I have close love relationships.	☐	☐	☐	☐	☐	(14)
I experience emotional stress.	☐	☐	☐	☐	☐	(15)
I hold on to my opinions even though others may not agree.	☐	☐	☐	☐	☐	(16)

2

	Never/ Rarely 1	Seldom 2	Some- times 3	Often/ Frequent 4	Almost Always 5	
I consider my disability an inconvenience.	☐	☐	☐	☐	☐	(17)
I feel that I have to be on my guard in interaction with others.	☐	☐	☐	☐	☐	(18)
I help and encourage others.	☐	☐	☐	☐	☐	(19)
I use fantasy and imagination to develop options and opportunities in my life.	☐	☐	☐	☐	☐	(20)
I am optimistic and hopeful about my life.	☐	☐	☐	☐	☐	(21)
I participate in social organizations.	☐	☐	☐	☐	☐	(22)
I am involved in removing disability barriers & prejudice.	☐	☐	☐	☐	☐	(23)
I enjoy life.	☐	☐	☐	☐	☐	(24)
I am able to handle frustrating experiences.	☐	☐	☐	☐	☐	(25)
I am able to obtain material comforts.	☐	☐	☐	☐	☐	(26)
I have a positive opinion of myself.	☐	☐	☐	☐	☐	(27)
I accept that my body looks and functions differently from others.	☐	☐	☐	☐	☐	(28)
I desire relationships that include intimacy and trust.	☐	☐	☐	☐	☐	(29)
I pay close attention to my body.	☐	☐	☐	☐	☐	(30)
I cannot stand ambiguity or uncertainty.	☐	☐	☐	☐	☐	(31)
I can point to real achievements in my life.	☐	☐	☐	☐	☐	(32)

10

	Never/ Rarely	Seldom	Some- times	Often/ Frequent	Almost Always	
	1	2	3	4	5	
I think of my disabilities as the worst thing that has happened to me.	☐	☐	☐	☐	☐	(33)
I see myself as no longer disabled in my day dreams.	☐	☐	☐	☐	☐	(34)
I think that my disability has advantages.	☐	☐	☐	☐	☐	(35)
I feel comfortable with looking at myself in the mirror.	☐	☐	☐	☐	☐	(36)
I care for the people and things in my life.	☐	☐	☐	☐	☐	(37)
I am aware of the difference between loving someone and needing someone's love.	☐	☐	☐	☐	☐	(38)
I am comfortable when others do not accept my beliefs.	☐	☐	☐	☐	☐	(39)
I am satisfied with myself even though I may be unemployed.	☐	☐	☐	☐	☐	(40)
I live in the "here and now" rather than in the past.	☐	☐	☐	☐	☐	(41)
I can accept compliments and recognition from other people.	☐	☐	☐	☐	☐	(42)
I think my life is challenging and exciting.	☐	☐	☐	☐	☐	(43)
I perceive problems as opportunities for growth.	☐	☐	☐	☐	☐	(44)
I am responsible for making other people happy.	☐	☐	☐	☐	☐	(45)
I like myself and can accept my "failings."	☐	☐	☐	☐	☐	(46)
I seek and obtain specific information to solve problems.	☐	☐	☐	☐	☐	(47)
I base my decision on my future goals.	☐	☐	☐	☐	☐	(48)

11

	Never/ Rarely	Seldom	Some- times	Often/ Frequent	Almost Always	
	1	2	3	4	5	
I feel comfortable about asking others for support and assistance.	☐	☐	☐	☐	☐	(49)
I have problems in communicating with others.	☐	☐	☐	☐	☐	(50)
I am willing to take calculated risks.	☐	☐	☐	☐	☐	(51)
I initiate interactions with others.	☐	☐	☐	☐	☐	(52)
I see opportunities in my life as limited.	☐	☐	☐	☐	☐	(53)
I use professional assistance when needed.	☐	☐	☐	☐	☐	(54)
I reflect before and after my actions.	☐	☐	☐	☐	☐	(55)
I make efforts to overcome and solve my problems.	☐	☐	☐	☐	☐	(56)
I am positively influenced by persons apart from my family.	☐	☐	☐	☐	☐	(57)
I can laugh at myself and with others about life happenings that are connected with my disability	☐	☐	☐	☐	☐	(58)
I am cautious in my behavior	☐	☐	☐	☐	☐	(59)
I seek advice from other disabled persons.	☐	☐	☐	☐	☐	(60)
I find myself complying to the expectations of others.	☐	☐	☐	☐	☐	(61)
I back away from difficult situations.	☐	☐	☐	☐	☐	(62)
I like receiving compliments and recognition from other people.	☐	☐	☐	☐	☐	(63)
I understand the nonverbal messages of others towards me.	☐	☐	☐	☐	☐	(64)

12

	Never/ Rarely	Seldom	Some- times	Often/ Frequent	Almost Always	
	1	2	3	4	5	
I examine alternative solutions to problems.	☐	☐	☐	☐	☐	(65)
I feel helpless in dealing with my disability.	☐	☐	☐	☐	☐	(66)
I use self-control in expressing my feelings.	☐	☐	☐	☐	☐	(67)
I attribute my disability to fate.	☐	☐	☐	☐	☐	(68)
I display my emotional reactions to stressful situations.	☐	☐	☐	☐	☐	(69)
I try to influence the direction of events toward personally determined goals.	☐	☐	☐	☐	☐	(70)
I mentally rehearse responses to events that will or might happen.	☐	☐	☐	☐	☐	(71)
I consider myself to be the source of control over events in my life.	☐	☐	☐	☐	☐	(72)
I experiment with different ways of dealing with disability-related problems.	☐	☐	☐	☐	☐	(73)
I evaluate my behavior by my own internal standards.	☐	☐	☐	☐	☐	(74)
I try to focus on other areas of my life that are more rewarding when I am troubled by my life.	☐	☐	☐	☐	☐	(75)
I experience sadness.	☐	☐	☐	☐	☐	(76)
I experience fear.	☐	☐	☐	☐	☐	(77)
I am alert to changes in my body that may affect my health.	☐	☐	☐	☐	☐	(78)
I give myself presents, treats or nurture myself in other ways.	☐	☐	☐	☐	☐	(79)

13

	Never/ Rarely	Seldom	Some- times	Often/ Frequent	Almost Always	
	1	2	3	4	5	
I take responsibility for a problem rather than blaming myself for it.	☐	☐	☐	☐	☐	(80)
I experience grief in relation to my disability.	☐	☐	☐	☐	☐	(81)
I look forward to the future as an opportunity for further growth.	☐	☐	☐	☐	☐	(82)
I perceive problems as opportunities for growth.	☐	☐	☐	☐	☐	(83)

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Michigan State University

APPENDIX F
PERFORMANCE OUTCOME QUESTIONNAIRE

PERFORMANCE OUTCOME QUESTIONNAIRE

33

DATA COLLECTION ASSISTANT _____ (28-29)

AFTER PERFORMANCE QUESTIONNAIRE I

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 (23)

Not At All Total Concentrate

☐ 9	☐ 8	☐ 7	☐ 6	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1 (24)
Reach My	Way Above	Above Average	A Little Above Average	A Little Below Average	Below Average	Way Below Average	Worst Game	Played

$$\begin{array}{cccccccccccc} \square & 1 & \square & 2 & \square & 3 & \square & 4 & \square & 5 & \square & 6 & \square & 7 & \square & 8 & \square & 9 & \square & 10 \\ 10\% & & 20\% & & 30\% & & 40\% & & 50\% & & 60\% & & 70\% & & 80\% & & 90\% & & 100\% \end{array} \quad (25)$$

245

10. _____ (1-3)

DATA COLLECTION ASSISTANCE _____ (4-6)

AFTER PERFORMANCE QUESTIONNAIRE II

PLACEMENT (1st, 2nd, etc.) _____ (7)

EVENT _____ (8)

PERFORMANCE SCORE _____ (9)

DIRECTIONS I would like you to think about your performance and why you were successful or unsuccessful. Please check the box in front of a response for each of the reasons listed below. Remember there are no right or wrong answers. Each of the reasons may or may not be a reason for your performance today. Please rate each reason on the 9-point scale.

A. PERSONAL PERFORMANCE

1. How satisfied were you with your performance?

☐ 9 ☐ 8 ☐ 7 ☐ 6 ☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 (10)
Extremely
SatisfiedSomewhat
SatisfiedNot At All
Satisfied

2. How would you rate your performance tonight?

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 (11)
 Worst Way Below A Little Average A Little Above Way Reached
 Game Below Average Below Average Above Average Above My
 Average Average Average Average Average Potential

Each of the factors listed below may be an explanation for your performance tonight. Please rate each reason on the 9-point scale.

Not At
All A
ReasonSomewhat
A ReasonVery Much
A Reason

I was physically ready. ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 (12)

I was mentally ready. ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 (13)

I used the right strategy. ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 (14)

23

	Not At All A Reason				Somewhat A Reason				Very Much A Reason				
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
I was lucky.	☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐		(15)	
I tried hard.	☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐		(16)	
I performed well because of my ability.	☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐		(17)	
I perform well in these situations.	☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	8 ☐		(18)	
I was able to meet the challenge.	☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐		(19)	
I spent a lot of time working on my skills.	☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐		(20)	
I enjoy competition.	☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐		(21)	
I have special skills for this task.	☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐		(22)	

APPENDIX G
WAYS OF COPING-REVISED

APPENDIX G WAYS OF COPING-REVISED

25

ID # _____ (1-3)

DATA COLLECTION ASSISTANT # _____ (4-6)

COPING STRATEGY QUESTIONNAIRE

Performance in a competitive sport event is sometimes a stressful experience. We want to understand how athletes cope with their performance after it is over. Below is a list of strategies people might use to cope with stressful events.

Please read each item below and indicate, by checking the appropriate box, to what extent you used it in dealing with your performance.

	Not <u>Used</u>	Used <u>Somewhat</u>	Used <u>Quite A Bit</u>	Used <u>A Great Deal</u>	
1. Just concentrated on what I had to do next - the next step.	☐ 0	☐ 1	☐ 2	☐ 3	(7)
2. I tried to analyze the problem in order to understand it better.	☐ 0	☐ 1	☐ 2	☐ 3	(8)
3. Turned to work or substitute activity to take my mind off things.	☐ 0	☐ 1	☐ 2	☐ 3	(9)
4. I felt that time would make a difference - the only thing to do was to wait.	☐ 0	☐ 1	☐ 2	☐ 3	(10)
5. Bargained or compromised to get something positive from the situation.	☐ 0	☐ 1	☐ 2	☐ 3	(11)
6. I did something which I didn't think would work, but at least I was doing something.	☐ 0	☐ 1	☐ 2	☐ 3	(12)
7. Tried to get the person responsible to change his or her mind.	☐ 0	☐ 1	☐ 2	☐ 3	(13)
8. Talked to someone to find out more about the situation.	☐ 0	☐ 1	☐ 2	☐ 3	(14)
9. Criticized or lectured myself.	☐ 0	☐ 1	☐ 2	☐ 3	(15)
10. Tried not to burn my bridges but leave things open somewhat.	☐ 0	☐ 1	☐ 2	☐ 3	(16)

	Not Used	Used Somewhat	Used Quite A Bit	Used A Great Deal	
11. Hoped a miracle would happen.	☐ 0	☐ 1	☐ 2	☐ 3	(17)
12. Went along with fate; sometimes I just have bad luck.	☐ 0	☐ 1	☐ 2	☐ 3	(18)
13. Went on as if nothing had happened.	☐ 0	☐ 1	☐ 2	☐ 3	(19)
14. I tried to keep my feelings to myself.	☐ 0	☐ 1	☐ 2	☐ 3	(20)
15. Looked for the silver lining, so to speak; tried to look on the bright side of things.	☐ 0	☐ 1	☐ 2	☐ 3	(21)
16. Slept more than usual.	☐ 0	☐ 1	☐ 2	☐ 3	(22)
17. I expressed anger to the person(s) who caused the problem.	☐ 0	☐ 1	☐ 2	☐ 3	(23)
18. Accepted sympathy and understanding from someone.	☐ 0	☐ 1	☐ 2	☐ 3	(24)
19. I told myself things that helped me to feel better.	☐ 0	☐ 1	☐ 2	☐ 3	(25)
20. I was inspired to do something creative.	☐ 0	☐ 1	☐ 2	☐ 3	(26)
21. Tried to forget the whole thing.	☐ 0	☐ 1	☐ 2	☐ 3	(27)
22. I got professional help.	☐ 0	☐ 1	☐ 2	☐ 3	(28)
23. Changed or grew as a person in a good way.	☐ 0	☐ 1	☐ 2	☐ 3	(29)
24. I waited to see what would happen before doing anything.	☐ 0	☐ 1	☐ 2	☐ 3	(30)
25. I apologized or did something to make up.	☐ 0	☐ 1	☐ 2	☐ 3	(31)

27

	Not Used	Used Somewhat	Used Quite A Bit	Used A Great Deal	
26. I made a plan of action and followed it.	☐ 0	☐ 1	☐ 2	☐ 3	(32)
27. I accepted the next best thing to what I wanted.	☐ 0	☐ 1	☐ 2	☐ 3	(33)
28. I let my feelings out somehow.	☐ 0	☐ 1	☐ 2	☐ 3	(34)
29. Realized I brought the problem on myself.	☐ 0	☐ 1	☐ 2	☐ 3	(35)
30. I came out of the experience better than when I went in.	☐ 0	☐ 1	☐ 2	☐ 4	(36)
31. Talked to someone who could do something concrete about the problem.	☐ 0	☐ 1	☐ 2	☐ 3	(37)
32. Got away from it for a while; tried to rest or take a vacation.	☐ 0	☐ 1	☐ 2	☐ 3	(38)
33. Tried to make myself feel better by eating, drinking, smoking, using drugs or medication, etc.	☐ 0	☐ 1	☐ 2	☐ 3	(39)
34. Took a big chance or did something very risky.	☐ 0	☐ 1	☐ 2	☐ 3	(40)
35. I tried not to act too hastily or follow my first hunch.	☐ 0	☐ 1	☐ 2	☐ 3	(41)
36. Found a new faith.	☐ 0	☐ 1	☐ 2	☐ 3	(42)
37. Maintained my pride and kept a stiff upper lip.	☐ 0	☐ 1	☐ 2	☐ 3	(43)
38. Rediscovered what is important in life.	☐ 0	☐ 1	☐ 2	☐ 3	(44)
39. Changed something so things would turn out all right.	☐ 0	☐ 1	☐ 2	☐ 3	(45)
40. Avoided being with people in general.	☐ 0	☐ 1	☐ 2	☐ 3	(46)

28

	Not Used	Used Somewhat	Used Quite A Bit	Used A Great Deal	
41. Didn't let it get to me; refused to think too much about it.	☐ 0	☐ 1	☐ 2	☐ 3	(47)
42. I asked a relative or friend I respected for advice.	☐ 0	☐ 1	☐ 2	☐ 3	(48)
43. Kept others from knowing how bad things were.	☐ 0	☐ 1	☐ 2	☐ 3	(49)
44. Made light of the situation; refused to get too serious about it.	☐ 0	☐ 1	☐ 2	☐ 3	(50)
45. Talked to someone about how I was feeling.	☐ 0	☐ 1	☐ 2	☐ 3	(51)
46. Stood my ground and fought for what I wanted.	☐ 0	☐ 1	☐ 2	☐ 3	(52)
47. Took it out on other people.	☐ 0	☐ 1	☐ 2	☐ 3	(53)
48. Drew on my past experiences I was in a similar situation before.	☐ 0	☐ 1	☐ 2	☐ 3	(54)
49. I know what had to be done, so I doubled my efforts to make things work.	☐ 0	☐ 1	☐ 2	☐ 3	(55)
50. Refused to believe that it had happened.	☐ 0	☐ 1	☐ 2	☐ 3	(56)
51. I made a promise to myself that things would be different next time.	☐ 0	☐ 1	☐ 2	☐ 3	(57)
52. Came up with a couple of different solutions to the problem.	☐ 0	☐ 1	☐ 2	☐ 3	(58)
53. Accepted it, since nothing could be done.	☐ 0	☐ 1	☐ 2	☐ 3	(59)
54. I tried to keep my feelings from interfering with other things too much.	☐ 0	☐ 1	☐ 2	☐ 3	(60)

29

	<u>Not Used</u>	<u>Used Somewhat</u>	<u>Used Quite A Bit</u>	<u>Used A Great Deal</u>	
55. Wished that I could change what had happened or how I felt.	☐ 0	☐ 1	☐ 2	☐ 3	(61)
56. I changed something about myself.	☐ 0	☐ 1	☐ 2	☐ 3	(62)
57. I daydreamed or imagined a better time or place than the one I was in.	☐ 0	☐ 1	☐ 2	☐ 3	(63)
58. Wished that the situation would go away or somehow be over with.	☐ 0	☐ 1	☐ 2	☐ 3	(64)
59. Had fantasies or wishes about how things might turn out.	☐ 0	☐ 1	☐ 2	☐ 3	(65)
60. I prayed.	☐ 0	☐ 1	☐ 2	☐ 3	(66)
61. I prepared myself for the worst.	☐ 0	☐ 1	☐ 2	☐ 3	(67)
62. I went over in my mind what I would say or do.	☐ 0	☐ 1	☐ 2	☐ 3	(68)
63. I thought about how a person I admire would handle this situation and used that as a model.	☐ 0	☐ 1	☐ 2	☐ 3	(69)
64. I tried to see things from the other person's point-of-view.	☐ 0	☐ 1	☐ 2	☐ 3	(70)
65. I reminded myself how much worse things could be.	☐ 0	☐ 1	☐ 2	☐ 3	(71)
66. I jogged or exercised.	☐ 0	☐ 1	☐ 2	☐ 3	(72)
67. I tried something entirely different from any of the above. (Please describe)	☐ 0	☐ 1	☐ 2	☐ 3	(73)

APPENDIX H
FACTOR LOADINGS FOR COPING SCALES OF THE WAYS OF
COPING-REVISED

APPENDIX H

FACTOR LOADINGS FOR COPING SCALES OF THE WAYS OF COPING-REVISED

- 3 -

Table 1
Empirically Constructed Scales from the
WAYS OF COPING (Revised)
(Community Sample)

TO SCORE THE SCALES, SUM RATINGS FOR EACH SCALE.

	Factor Loading
<u>Scale 1: Confrontive coping (alpha = .70)</u>	
46. Stood my ground and fought for what I wanted.	.70
7. Tried to get the person responsible to change his or her mind.	.62
17. I expressed anger to the person(s) who caused the problem	.61
28. I let my feelings out somehow.	.58
34. Took a big chance or did something very risky.	.32
6. I did something which I didn't think would work, but at least I was doing something.	.30
<u>Scale 2: Distancing (alpha = .61)</u>	
44. Made light of the situation; refused to get too serious about it.	.55
13. Went on as if nothing had happened.	.54
41. Didn't let it get to me; refused to think about it too much.	.50
21. Tried to forget the whole thing.	.49
15. Looked for the silver lining, so to speak; tried to look on the bright side of things.	.34
12. Went along with fate; sometimes I just have bad luck.	.25
<u>Scale 3: Self-controlling (alpha = .70)</u>	
14. I tried to keep my feelings to myself.	.35
43. Kept others from knowing how bad things were.	.46
10. Tried not to burn my bridges, but leave things open somewhat.	.40
35. I tried not to act too hastily or follow my first hunch.	.40
54. I tried to keep my feelings from interfering with other things too much.	.37
62. I went over in my mind what I would say or do.	.37
63. I thought about how a person I would admire would handle the situation and used that as a model.	.28
<u>Scale 4: Seeking social support (alpha = .76)</u>	
8. Talked to someone to find out more about the situation.	.73
31. Talked to someone who could do something concrete about the problem.	.68
42. I asked a relative or friend I respected for advice.	.58
45. Talked to someone about how I was feeling.	.57
18. Accepted sympathy and understanding from someone.	.56
22. I got professional help.	.45

- 4 -

	Factor Loading
<u>Scale 5: Accepting responsibility (alpha = .66)</u>	
9. Criticized or lectured myself.	.71
29. Realized I brought the problem on myself.	.68
31. I made a promise to myself that things would be different next time.	.49
25. I apologized or did something to make up.	.39
<u>Scale 6: Escape-Avoidance (alpha = .72)</u>	
58. Wished that the situation would go away or somehow be over.	.66
11. Hoped a miracle would happen.	.55
39. Had fantasies about how things might turn out.	.54
33. Tried to make myself feel better by eating, drinking, smoking, using drugs or medication, etc.	.49
40. Avoided being with people in general.	.46
50. Refused to believe that it had happened.	.42
47. Took it out on other people.	.40
16. Slept more than usual.	.36
<u>Scale 7: Planful problem-solving (alpha = .68)</u>	
49. I knew what had to be done, so I doubled my efforts to make things work.	.71
26. I made a plan of action and followed it.	.61
1. Just concentrated on what I had to do next -- the next step.	.45
39. Changed something so things would turn out all right.	.44
48. Drew on my past experiences; I was in a similar position before.	.40
52. Came up with a couple of different solutions to the problem.	.38
<u>Scale 8: Positive reappraisal (alpha = .79)</u>	
23. Changed or grew as a person in a good way.	.79
30. I came out of the experience better than when I went in.	.67
36. Found new faith.	.64
38. Rediscovered what is important in life.	.64
60. I prayed.	.56
56. I changed something about myself.	.55
20. I was inspired to do something creative.	.43

The intercorrelations among the coping scales ^{as rechecked} ~~arranged~~ over 5 occasions are shown in Table 2.

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Table 2
 Eight Coping Scales:
 Intercorrelations Averaged Over Five Occasions

	Scale 1	2	3	4	5	6	7	8
1. Confrontive coping		.01	.36	.27	.26	.27	.28	.26
2. Distancing			.36	-.04	.27	.32	.09	.13
3. Self-controlling				.24	.30	.36	.37	.39
4. Seeking social support					.09	.23	.30	.32
5. Accepting responsibility						.39	.13	.18
6. Escape-Avoidance							.10	.23
7. Planful problem-solving								.39
8. Positive reappraisal								---

APPENDIX I
OUTCOME QUESTIONNAIRE

APPENDIX I OUTCOME QUESTIONNAIRE

30

ID # _____

DATA COLLECTION ASSISTANT _____

Please check the box that best represents your viewpoint.

1. How stressful was this event for you? (Please consider the event at which you were tested before and after.)

Very	Average	Somewhat	Not At All
1 ☐	2 ☐	3 ☐	4 ☐

2. How stressful were the Games for you?

Very	Average	Somewhat	Not At All
1 ☐	2 ☐	3 ☐	4 ☐

3. How challenging were the Games for you?

Very	Average	Somewhat	Not At All
1 ☐	2 ☐	3 ☐	4 ☐

4. Based on your experience here at the Games, how likely are you to continue your participation in competitive sport?

Very Likely	Likely	Not Very Likely	Will Not
1 ☐	2 ☐	3 ☐	4 ☐

5. How confident are you that you will participate in competitive sport again?

Very	Average	Somewhat	Not At All
1 ☐	2 ☐	3 ☐	4 ☐

6. Is the event you were tested at your best event?

YES ☐ NO ☐

7. Is the event you were tested at your most valued event?

YES ☐ NO ☐

APPENDIX J

TRAINING AGENDA FOR DATA COLLECTION ASSISTANTS

APPENDIX J

TRAINING AGENDA FOR DATA COLLECTION ASSISTANTS

1116

MICHIGAN STATE UNIVERSITY

COLLEGE OF EDUCATION • DEPARTMENT OF HEALTH
AND PHYSICAL EDUCATION
INTRAMURAL SPORTS-CRUISE BUILDING

EAST LANSING • MICHIGAN • 48824-1009

25 July 1985

Dear Athlete,

Thank you for your interest in our Handicapper Athlete Project (HAP). You are among 200 athletes who have agreed to participate in this research project. To those of you who have already returned the first set of questionnaires to us, thank you for your quick response. If you haven't yet completed and returned the first set of questionnaires, please complete them and bring them with you to the Games.

We plan to meet with athletes on August 6 and 7 when you check in for classification. Please look for our table in Munn Arena when you check in. We will be located at the end of the Games tables, and our staff will be wearing brightly colored T-shirts with HANDICAPPER ATHLETE PROJECT printed on them. Most athletes who have agreed to participate in this research are competing in several events during the Games. We plan to administer our pre-competition and post-competition surveys for only one of your events. When you check in with us, we will inform you of which event we have selected, and we will confirm the time and location of that event with you so that you will know when to expect us.

To give you an idea of the time it will take you to complete the questionnaires at the Games, I would first like to indicate that the questionnaires mailed to you in advance of the Games are the lengthiest of the questionnaires you will complete. The pre-competition questionnaire will take about 3-5 minutes for most athletes to complete. This questionnaire will be administered to you about 10-15 minutes prior to your event, after you have warmed up. Please start looking for someone in a HAP T-shirt about 10-15 minutes before your event. It will be our responsibility to find you, and this will be facilitated by a bright sticker which we will attach to your Games badge when you check in with us.

The post-competition questionnaires will be administered immediately following your event. It is very important that we learn about your immediate reactions to your performance, so please do not talk to anyone (coaches, friends, other athletes, etc.) until you have completed the post-competition questionnaire. This instrument takes about 10 minutes to complete for most athletes. After completing the post-competition questionnaire, we will give you one more questionnaire to complete at your convenience before leaving the Games. HAP project staff will arrange to collect this questionnaire from you before you leave East Lansing.

We want you to know that this project has attracted considerable funding, both from Michigan State University and from the Kenny Michigan Rehabilitation Foundation. Their support demonstrates their interest in handicapper athletes and in the 1985 National Cerebral Palsy Games. Thank you for making this project possible.

Sincerely,


Sarita Overton
Handicapper Athlete Project

Brief Abstract of Project

This research is designed to ascertain the coping styles and achievement goals of elite athletes with physical handicaps. Subjects will include 150 athletes from the 1985 National Cerebral Palsy/Les Autres Games. Coping behaviors, achievement motivation, and related variables will be assessed using questionnaire instruments administered before and after competition. Resulting data will be analyzed to determine the following characteristics of athletes who are physically handicapped: (a) achievement orientations; (b) coping status; (c) relationship between achievement orientation and coping status; (d) relationship between pre-competition expectations and post-competition attributions; and (e) relationship of post-competition coping strategies, attributions, and affect to expectations for future involvement and persistence in sport. The information gained from this study may enhance current knowledge concerning positive adjustment to disability and begin generalization of sport psychology concepts to a broader population. The practical applications of these results may include changes in the organization of and attitudes in sport programs for physically handicapped athletes so as to increase involvement and persistence in sport.

The study will be submitted for review by the University Committee on the Use of Human Subjects. It should be noted that subjects will be volunteers who are assured of anonymity. In addition, there is no threat of physical or psychological harm associated with participating in this study.

For Research Initiation applications attach 3-4 page proposal including objectives, prior work, methods, applicant's qualifications and budget.

Previous All-University Research grant received? Yes ☐ No ☒ _____
Date of Award

Signatures:

Martha E. Ewing 4/4/85 *John M. Miles*
Project Leader Date Department Chairperson Date Dean Date

Approval:

Vice President Research and Graduate Studies _____
Date

Previous Project No. _____

Final report received? ☐ Yes ☐ No

Project No. _____
 Account No. _____
 Approved Budget \$ _____

Distribution:

White copy to Chairman of All University Research
 Yellow copy to Department Chairman

Blue copy to Project Leader
 Green copy to Dean of College
 Pink copy to Division Director

MICHIGAN STATE UNIVERSITY

**SCHOOL OF EDUCATION • DEPARTMENT OF CURRICULUM,
EDUCATIONAL PSYCHOLOGY AND SPECIAL EDUCATION**

EAST LANSING • MICHIGAN • 48824-1034

**FROM: SARITA OVERTON
ROOM 513 ERICKSON HALL**

DEAR DATA COLLECTION ASSISTANT,

CONGRATULATIONS! As you know, I have decided to hire you to assist me with data collection at the 1985 National Cerebral Palsy/Les Autres Games in August. I believe that this will be a rewarding and exciting experience for you. At this point, 1200 athletes are expected to attend the Games and Vice President Bush is expected to lead the opening ceremonies. National Games are held only once every two years. I am enclosing a copy of a brochure that will give you a little more information about the Games.

Attached to this letter is the location and agenda for your training. I would like you to call me to confirm your commitment as soon as possible. Also let me know if the training times that I have chosen will be good for you. You will be paid for your time in training and of course training is mandatory for all data collection assistants.

Thank you for your time and I look forward to meeting you in training.

You can reach me at 485-5117 Monday through Thursday from noon to 5p.m.

IMPORTANT NOTICE

TRAINING FOR DATA COLLECTION ASSISTANTS:

WHEN: FRIDAY AUGUST 2 and MONDAY AUGUST 5

WHAT TIMES : FRIDAY AUGUST 2 FROM 1p.m. to 5 p.m.

MONDAY AUGUST 5 FROM 8a.m. to 11a.m.

WHERE : ROOM 452 ERICKSON HALL, MICHIGAN STATE UNIVERSITY

AGENDA: This agenda is for both days

ORIENTATION

- GAMES (We will have an athlete from the Games speak to us)
- THE RESEARCH
- SELECTED INSTRUMENTS

ADMINISTRATION OF INSTRUMENTS

- Self administer
- Principles of standardized administration
- Practice administration --partners & observer
- Pilot administration with disabled person

LOGISTICS

- Games schedule
- Athletes schedule and assignment
- Data retrieval (to coordinator)

COLLECT DATASCHEDULE FINAL FOLLOW-UP SESSION

ALL VOLUNTEER DATA COLLECTORS MUST CALL ME TO CONFIRM ATTENDANCE AT THIS TRAINING
YOU CAN REACH ME AT 485-5887 MONDAY THROUGH THURSDAY FROM NOON TO 5 p.m.

GENERAL

INSTRUCTIONS FOR THE GAMMS PERFORMANCE QUESTIONNAIRESBEFORE TESTING

- FILL IN YOUR DATA COLLECTION ASSISTANT ID NUMBER
- MAKE SURE THAT YOU HAVE THE CORRECTLY CODED PACKET. MAKE SURE THAT THE SUBJECT NUMBER ON YOU PACKET CORRESPONDS WITH THE SUBJECT YOU ARE TESTING.
- FILL IN THE EVENT NUMBER , NAME , AND CLASS OF THE ATHLETE YOU ARE TESTING, WHEN NECESSARY .
- WRITE ON THE UPPER RIGHT HAND CORNER PRELIMS OR FINALS TO INDICATE THE NATURE OF THE EVENT THAT YOU ARE TESTING AT.
- LOCATE YOUR ATHLETE BEFORE THE COMPETITION AND ARRANGE TO ADMINISTER THIS QUESTIONNAIRE FROM FIFTEEN TO THIRTY MINUTES BEFORE COMPETITION.

DURING TESTING

- HAND THE ATHLETE THE QUESTIONNAIRES AND ASK IF THE ATHLETE CAN READ THE QUESTIONS CLEARLY. IF THE ANSWER IS YES, PROCEED TO THE NEXT QUESTION. IF THE ANSWER IS NO OR THE ATHLETE SEEMS HESITANT IN ANSWERING THE QUESTIONS, ASK THE ATHLETE IF IT WOULD BE MORE CONVENIENT IF YOU READ THE QUESTIONS ALOUD.
- ASK THE ATHLETE IF THEY WOULD LIKE ASSISTANCE IN MARKING THEIR ANSWERS. IF THE ANSWER IS NO , PROCEED TO THE NEXT STEP. IF THE ANSWER IS YES , PULL OUT THE NUMBERS BOARD AND ASK THE ATHLETE TO POINT TO THE NUMBER THAT CORRESPONDS TO THEIR ANSWER TO EACH QUESTION. GIVE THE ATHLETE A BLANK PACKET IF THEIR IS NO READING PROBLEM. BEGIN BY SAYING, PLEASE READ NUMBER ONE (OR IF YOU ARE READING THE QUESTION THEN READ NUMBER ONE) AND POINT TO THE NUMBER THAT MATCHES YOUR ANSWER. GO THROUGH THIS PROCEDURE FOR EACH QUESTION UNTIL ALL QUESTIONS ARE ANSWERED.
- THANK THE ATHLETE AND TELL THEM THAT YOU WILL BE MEETING THEM DIRECTLY AFTER THIS EVENT TO ASK THEM ADDITIONAL QUESTIONS.

THE FINAL QUESTIONNAIRE
BEFORE TESTING

- AFTER COMPLETING ALL QUESTIONNAIRES TELL THE ATHLETE THAT YOU WOULD LIKE TO ARRANGE A TIME TO MEET JUST BEFORE THEY LEAVE TOWN. LET THEM KNOW THAT THEIR IS ONE MORE QUESTIONNAIRE THAT YOU WOULD LIKE THEM TO ANSWER. YOU ARE RESPONSIBLE FOR MEETING THIS ATHLETE AT THE TIME AND PLACE ASSIGNED TO ADMINISTER THE LAST QUESTIONNAIRE.

INDIVIDUAL QUESTIONNAIRE

BEFORE PERFORMANCE QUESTIONNAIRE

- FILL IN YOUR ID NUMBER
- CHECK TO MAKE SURE THAT THE SUBJECT ID NUMBER CORRESPONDS WITH THE SUBJECT YOU ARE TESTING.
- FILL IN THE EVENT NUMBER , NAME , AND CLASS OF ATHLETE .
- INTRODUCE YOURSELF TO THE ATHLETE AS A HAP DATA COLLECTION ASSISTANT AND BEGIN ADMINISTRATION.
- WRITE IN THE UPPER RIGHT HAND CORNER - PRELIMS OR FINALS WHEN APPROPRIATE.

INSTRUCTIONS

ASK ATHLETES THAT WILL BE FILLING OUT THEIR OWN QUESTIONNAIRES TO CHECK OFF THE CORRECT NUMBER OF THEIR RESPONSE.

FOR QUESTION NUMBER THREE : ANSWERS SHOULD BE SPECIFIC TO THE EVENT YOU ARE TESTING THE ATHLETE IN. IN SOME INSTANCES A SCORE IS APPROPRIATE, IN SOME EVENTS A TIME IS APPROPRIATE AND IN SOME EVENTS A PLACE (FIRST) IS APPROPRIATE. THE SAME IS TRUE OF NUMBER SEVEN.

BEFORE PERFORMANCE FEELINGS AND EMOTIONS

- FILL IN YOUR ID NUMBER
- FILL IN THE EVENT NUMBER , NAME AND CLASS OF ATHLETE
- FILL IN THE SEX OF THE ATHLETE WITH AN F OR AN M.
- AT THE CONCLUSION OF ADMINISTERING THIS QUESTIONNAIRE SET LET THE ATHLETE KNOW THAT YOU WILL BE MEETING THEM DIRECTLY AFTER THEIR EVENT. ASK THEM TO LOOK FOR YOU AND ASK THEM NOT TO SPEAK TO ANYONE BEFORE THEY FINISH ANSWERING THE QUESTIONS YOU HAVE FOR THEM. ALSO LET THEM KNOW THAT YOU WILL NOT BE DISCUSSING ANYTHING WITH THEM AT THE TIME OF TEST ADMINISTRATION.

AFTER PERFORMANCE QUESTIONNAIRE II

- FILL IN YOUR ID NUMBER
- FILL IN THE PLACEMENT OF THE ATHLETE THAT HAS JUST FINISHED COMPETITION.
- FILL IN THE EVENT NUMBER , NAME , CLASS .
- FILL IN THE PERFORMANCE SCORE WHICH CAN BE A TIME , OR SCORE
- IN THE EVENT THAT ANY OF THE ABOVE PLACEMENT INFORMATION HAS NOT BEEN DETERMINED AT THE TIME YOU ARE TESTING THE ATHLETE, GO AHEAD AND TEST THE ATHLETE AND ATTEMPT TO GATHER THE INFORMATION LATER.

AFTER PERFORMANCE QUESTIONNAIRE I

- FILL IN YOUR ID NUMBER
- AFTER ADMINISTERING THIS INSTRUMENT SET, TELL THE ATHLETE THAT YOU HAVE ONE MORE QUESTIONNAIRE TO GIVE AND THAT YOU WOULD LIKE TO SET A TIME TO MEET WITH THEM JUST BEFORE THEY LEAVE. IF THE ATHLETE IS LEAVING IN THE MORNING OF A DAY THEN SET A TIME FOR THE EVENING BEFORE THAT DAY. IF THE ATHLETE IS LEAVING IN THE EVENING OF A GIVEN DAY , THEN SET A TIME FOR THE MORNING OF THAT DAY. YOU ARE RESPONSIBLE FOR MEETING THAT ATHLETE AND COLLECTING DATA WITH THE FINAL QUESTIONNAIRE.

COPING STRATEGY QUESTIONNAIRE

- FILL IN YOUR ID NUMBER
- FOLLOW GENERAL ADMINISTRATION INSTRUCTIONS
- WHEN FINISHED, THANK THE ATHLETE FOR THEIR TIME AND WISH THEM LUCK IN THE FUTURE.

GENERAL INSTRUCTIONS FOR DATA
COLLECTION ASSIST.

- FIND YOUR ATHLETES EARLY AND ARRANGE FOR DATA COLLECTION BEFORE THE GAMES AND AFTER THE GAMES.
- MAKE IT A POINT TO KEEP AN EYE ON YOUR ATHLETES SO THAT YOU CAN COLLECT DATA FROM THEM IMMEDIATELY AFTER THEIR EVENT.
- BE SENSITIVE TO THE REASON THEY ARE HERE AND STAY OUT OF THEIR WAY. BE THE LEAST INTRUSIVE POSSIBLE.
- DO NOT WISH THE ATHLETES GOOD LUCK OR IN ANY WAY GIVE YOUR OPINIONS TO THEM ABOUT THE GAMES OR THEIR PERFORMANCE.
- REPORT TO MISSION CONTROL AT ASSIGNED TIMES
- CONTACT SARITA, GAIL, MARTI, ROCHELLE OR ROSITA IN THE EVENT THAT YOU CANNOT COLLECT DATA FROM AN ATHLETE FOR ANY REASON.
- ARRANGE FOR A TIME TO LEAVE THE LAST INSTRUMENT WITH THE ATHLETE AND WHEN YOU GIVE THE ATHLETE THE LAST INSTRUMENT ARRANGE FOR A TIME TO PICK IT UP. SEE DIRECTIONS FOR THIS INSTRUMENT.
- ALWAYS RETURN ALL DATA THAT YOU HAVE COLLECTED TO MISSION CONTROL THE DAY OF COLLECTION.

CLASSIFICATION PROCEDURES

THE PURPOSE OF MEETING ATHLETES AT CLASSIFICATION IS TO CONFIRM THE INFORMATION THAT WE HAVE ON THEM. INTRODUCE YOURSELF AS A DATA COLLECTION ASSISTANT FOR THE HANDICAPPER ATHLETE PROJECT AND ASK THE ATHLETE TO CONFIRM THE FOLLOWING INFORMATION:

NAME
LOCAL ADDRESS
EVENT ENTERED
TIME OF EVENT AND LOCATION
AGE
RETURN OF MAILED INSTRUMENTS

YOU WILL FIND ALL OF THIS INFORMATION FOR EACH ATHLETE ON THE MASTER FORM. ANY SPACES LEFT BLANK INDICATE THAT WE DO NOT HAVE THAT INFORMATION ON AN ATHLETE, SO IT IS IMPORTANT THAT YOU INQUIRE ABOUT THIS INFORMATION .

SOME ATHLETES WILL HAVE CONSIDERABLE DIFFICULTY COMMUNICATING WITH YOU. IN THIS EVENT, CHECK THE INFORMATION THAT WE HAVE ON THE MASTER FORM AGAINST THE INFORMATION THAT IS ON THE ATHLETES NAME CARD.

NEXT---PLACE ONE OF THE ORANGE STICKERS AVAILABLE ON THE ATHLETES NAME CARDS AFTER WRITING THE HAP SUBJECT NUMBER ON THE STICKER. THIS WILL HELP YOU IDENTIFY THE ATHLETE WHEN YOU MEET AGAIN.

FINALLY LET THE ATHLETE LOOK OVER THE ATHLETE HANDOUT AND ASK YOU ANY QUESTIONS THEY MAY HAVE. CONFIRM AN APPOINTMENT TIME (EG. TWENTY MINUTES BEFORE THE SHOTPUT EVENT) THAT THEY WILL NEXT BE MET BY A DATA COLLECTION ASSISTANT AND WRITE IT DOWN ON THEIR HANDOUT .

CHECK LIST

CHECK ALL DATA ON THE MASTER FORM FOR EACH ATHLETE AND FILL IN MISSING INFORMATION.

PLACE A SUBJECT NUMBERED ORANGE DOT ON THE ATHLETES NAME TAG.

GIVE THE ATHLETE A HANDOUT, CONFIRM AN APPOINTMENT TIME AND WRITE DOWN THE APPOINTMENT TIME ON THE HANDOUT.

TRAINING AGENDAFRIDAY, AUGUST 2, 1985 1p.m. to 5 p.m.1:00 - 3:00 ORIENTATION TO THE GAMES

- BRIEF HISTORY OF THE GAMES BY DUNCAN WYETH
- CHARACTERISTICS OF ATHLETES IN THE GAMES
- AN EXPLANATION OF OUR STATUS AS GUESTS

1:30 - 2:00 ORIENTATION TO THE STUDY

- AN EXPLANATION OF THE STUDY IN GENERAL
THE MODEL
LETTER TO THE DEAN
- REVIEW OF THE HANDOUT TO BE USED IN ANSWERING QUESTIONS
- BRIEF REVIEW OF THE TIMELINE FOR THE STUDY

2:10 - 5:00 ADMINISTRATION OF THE QUESTIONNAIRES

- STANDARDIZATION: RESEARCH IN FIELD SETTINGS
RELIABILITY WITHIN AND ACROSS TESTORS
MEASUREMENT ERROR
DISCUSSION OF PITFALLS IN ADMINISTRATION

ROLE PLAY

- OBSERVE COORDINATOR ADMINISTER PACKET OF QUESTIONNAIRES
- PAIR PRACTICE

ROLE PLAY INDIVIDUALLY WITH COORDINATOR

HOMEWORKMONDAY, AUGUST 5, 1985 8a.m. to 11.a.m.8:00-9:00 REVIEW OF HOMEWORK AND DISCUSSION OF PROBLEMS & RESOLUTIONS
WITH PRINCIPAL INVESTIGATORS.9:00 - 11:00 LOGISTICS OF ACTUAL DATA COLLECTION

CLASSIFICATION
DAILY MEETING TIME AND LOCATION
INDIVIDUAL SCHEDULES
REVIEW OF GAMES MAP AND EVENT LOCATIONS
REVIEW OF OVERALL SCHEDULE OF EVENTS
LOCATION OF MISSION CONTROL & CHECK IN REQUIREMENTS
FORMS, FORMS, FORMS

WRAP UP

GENERAL

INSTRUCTIONS FOR THE GAMES PERFORMANCE QUESTIONNAIRESBEFORE TESTING

- FILL IN YOUR DATA COLLECTION ASSISTANT ID NUMBER
- MAKE SURE THAT YOU HAVE THE CORRECTLY CODED PACKET. MAKE SURE THAT THE SUBJECT NUMBER ON YOU PACKET CORRESPONDS WITH THE SUBJECT YOU ARE TESTING.
- FILL IN THE EVENT NUMBER, NAME, AND CLASS OF THE ATHLETE YOU ARE TESTING, WHEN NECESSARY.
- WRITE ON THE UPPER RIGHT HAND CORNER PRELIMS OR FINALS TO INDICATE THE NATURE OF THE EVENT THAT YOU ARE TESTING AT.
- LOCATE YOUR ATHLETE BEFORE THE COMPETITION AND ARRANGE TO ADMINISTER THIS QUESTIONNAIRE FROM FIFTEEN TO THIRTY MINUTES BEFORE COMPETITION.

DURING TESTING

- HAND THE ATHLETE THE QUESTIONNAIRES AND ASK IF THE ATHLETE CAN READ THE QUESTIONS CLEARLY. IF THE ANSWER IS YES, PROCEED TO THE NEXT QUESTION. IF THE ANSWER IS NO OR THE ATHLETE SEEMS HESITANT IN ANSWERING THE QUESTIONS, ASK THE ATHLETE IF IT WOULD BE MORE CONVENIENT IF YOU READ THE QUESTIONS ALOUD.
- ASK THE ATHLETE IF THEY WOULD LIKE ASSISTANCE IN MARKING THEIR ANSWERS. IF THE ANSWER IS NO, PROCEED TO THE NEXT STEP. IF THE ANSWER IS YES, PULL OUT THE NUMBERS BOARD AND ASK THE ATHLETE TO POINT TO THE NUMBER THAT CORRESPONDS TO THEIR ANSWER TO EACH QUESTION. GIVE THE ATHLETE A BLANK PACKET IF THEIR IS NO READING PROBLEM. BEGIN BY SAYING, PLEASE READ NUMBER ONE (OR IF YOU ARE READING THE QUESTION THEN READ NUMBER ONE) AND POINT TO THE NUMBER THAT MATCHES YOUR ANSWER. GO THROUGH THIS PROCEDURE FOR EACH QUESTION UNTIL ALL QUESTIONS ARE ANSWERED.
- THANK THE ATHLETE AND TELL THEM THAT YOU WILL BE MEETING THEM DIRECTLY AFTER THIS EVENT TO ASK THEM ADDITIONAL QUESTIONS.

THE FINAL QUESTIONNAIRE
BEFORE TESTING

- AFTER COMPLETING ALL QUESTIONNAIRES TELL THE ATHLETE THAT YOU WOULD LIKE TO ARRANGE A TIME TO MEET JUST BEFORE THEY LEAVE TOWN. LET THEM KNOW THAT THEIR IS ONE MORE QUESTIONNAIRE THAT YOU WOULD LIKE THEM TO ANSWER. YOU ARE RESPONSIBLE FOR MEETING THIS ATHLETE AT THE TIME AND PLACE ASSIGNED. TO ADMINISTER THE LAST QUESTIONNAIRE.

INDIVIDUAL QUESTIONNAIRE

BEFORE PERFORMANCE QUESTIONNAIRE

- FILL IN YOUR ID NUMBER
- CHECK TO MAKE SURE THAT THE SUBJECT ID NUMBER CORRESPONDS WITH THE SUBJECT YOU ARE TESTING.
- FILL IN THE EVENT NUMBER , NAME , AND CLASS OF ATHLETE .
- INTRODUCE YOURSELF TO THE ATHLETE AS A HAP DATA COLLECTION ASSISTANT AND BEGIN ADMINISTRATION.
- WRITE IN THE UPPER RIGHT HAND CORNER - PRELIMS OR FINALS WHEN APPROPRIATE.

INSTRUCTIONS

ASK ATHLETES THAT WILL BE FILLING OUT THEIR OWN QUESTIONNAIRES TO CHECK OFF THE CORRECT NUMBER OF THEIR RESPONSE.

FOR QUESTION NUMBER THREE : ANSWERS SHOULD BE SPECIFIC TO THE EVENT YOU ARE TESTING THE ATHLETE IN. IN SOME INSTANCES A SCORE IS APPROPRIATE, IN SOME EVENTS A TIME IS APPROPRIATE AND IN SOME EVENTS A PLACE (FIRST) IS APPROPRIATE. THE SAME IS TRUE OF NUMBER SEVEN.

BEFORE PERFORMANCE FEELINGS AND EMOTIONS

- FILL IN YOUR ID NUMBER
- FILL IN THE EVENT NUMBER , NAME AND CLASS OF ATHLETE
- FILL IN THE SEX OF THE ATHLETE WITH AN F OR AN M.
- AT THE CONCLUSION OF ADMINISTERING THIS QUESTIONNAIRE SET LET THE ATHLETE KNOW THAT YOU WILL BE MEETING THEM DIRECTLY AFTER THEIR EVENT. ASK THEM TO LOOK FOR YOU AND ASK THEM NOT TO SPEAK TO ANYONE BEFORE THEY FINISH ANSWERING THE QUESTIONS YOU HAVE FOR THEM. ALSO LET THEM KNOW THAT YOU WILL NOT BE DISCUSSING ANYTHING WITH THEM AT THE TIME OF TEST ADMINISTRATION.

AFTER PERFORMANCE QUESTIONNAIRE II

- FILL IN YOUR ID NUMBER
- FILL IN THE PLACEMENT OF THE ATHLETE THAT HAS JUST FINISHED COMPETITION.
- FILL IN THE EVENT NUMBER , NAME , CLASS .
- FILL IN THE PERFORMANCE SCORE WHICH CAN BE A TIME , OR SCORE
- IN THE EVENT THAT ANY OF THE ABOVE PLACEMENT INFORMATION HAS NOT BEEN DETERMINED AT THE TIME YOU ARE TESTING THE ATHLETE, GO AHEAD AND TEST THE ATHLETE AND ATTEMPT TO GATHER THE INFORMATION LATER.

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CHECK LIST

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APPENDIX K

SAMPLE LARGE PRINT QUESTIONNAIRES

APPENDIX K
SAMPLE LARGE PRINT QUESTIONNAIRES

3. What score, time, or performance rating do you expect to have in today's event?
7. What is the best score, time, or performance rating you have had in this event?

Score: _____ points

Time: _____ mins. _____ secs. _____ tenths/hundredths

Place: _____ (1st, 2nd, 3rd, etc.)

Other: _____

1	2	3
4	5	6
7	8	9
0	YES	NO

**EXTENT TO WHICH YOU USED THIS COPING STRATEGY TO DEAL WITH
YOUR PERFORMANCE**

Not used Used somewhat Used quite a bit Used a great deal

0

1

2

3

1. How stressful was this event for you (please consider the event at which you were tested before and after)?
2. How stressful were the Games for you?
3. How challenging were the Games for you?

Very	Average	Somewhat	Not at all
1	2	3	4

4. Based upon your experience here at the Games, how likely are you to continue your participation in competitive sport?

Very likely	Likely	Not very likely	Will not
1	2	3	4

5. How confident are you that you will participate in competitive sport again?

Very

Average

Somewhat

Not at all

1

2

3

4

6. Is the event you were tested at your best event?
7. Is the event you were tested at your most valued event?

YES

NO

HOW DO YOU FEEL RIGHT NOW - AT THIS MOMENT?

Not at all

Somewhat

Moderately so

Very much so

1

2

3

4

5. How well do you think you will do compared to the other athletes in today's event?

Worse than
most athletes

Better than
the worst
athlete

As good as
the average
athlete

Better than
the average
athlete

Better than
most athletes

5

4

3

2

1

HOW CONFIDENT ARE YOU? (Questions 4 and 6 BEFORE, Question 17 AFTER)

10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

HOW DO YOU RATE YOUR ABILITY TO PERFORM GENERALLY?

	Terrible		Average		Excellent				
	1	2	3	4	5	6	7	8	9

HOW DO YOU RATE YOUR ABILITY TO PERFORM TODAY?

Excellent		Average		Terrible	
9	8	7	6	5	4
					3
					2
					1

HOW SATISFIED WERE YOU WITH YOUR PERFORMANCE?

Extremely satisfied				Somewhat satisfied		Not at all satisfied
9	8	7	6	5	4	3
						2
						1

HOW WOULD YOU RATE YOUR PERFORMANCE TONIGHT?

	Worst game or event			Average			Reached my potential
1	2	3	4	5	6	7	8 9

EACH OF THE FACTORS LISTED BELOW MAY BE AN EXPLANATION FOR YOUR PERFORMANCE TODAY.
PLEASE RATE EACH REASON ON THE 9-POINT SCALE.

	Not at all a reason				Somewhat a reason				Very much a reason
1	2	3	4	5	6	7	8	9	

HOW WELL WERE YOU ABLE TO CONCENTRATE ON YOUR PERFORMANCE TODAY?

Not at all							Total concentration
1	2	3	4	5	6	7	8 9

BASED UPON YOUR PERFORMANCE TONIGHT, HOW WELL DO YOU THINK YOU WILL PERFORM NEXT TIME?

Reach my potential	Average	Worst game or event played
9	8	7
	6	5
	4	3
	2	1

APPENDIX L
SAMPLE GAMES LOGISTICS SHEETS

MASTER A COLLECTION CHECK OFF FORM				CLASSIFICATION GAMES		PRELIMS										FINALS									
SUBJECT #	SUBJECT NAME LOCAL ADDRESS	DAY, TIME, EVENT #, EVENT NAME, CLASS NAME	AGE	SEX	PERSONAL BACKGROUND	ACHIEVEMENT	COPING INVENTORY	ANXIETY/BASELINE	OPINIONS/LOCUS OF CONTROL	CHECK-IN/MUNN ICE ARENA	BEFORE PERFORMANCE	FEELING & EMOTIONS	AFTER PERFORMANCE I	AFTER PERFORMANCE II	BEFORE PERFORMANCE I	FEELINGS & EMOTIONS	AFTER PERFORMANCE I	AFTER PERFORMANCE II	COPING STRATEGIES	FOLLOW-UP					
001 CP	117A N. Case	Sunday Shotput	FD 117 3	34	M	X	X	X	X	X	X	X	X	X											
002 LA	565B S. Case	Monday Slalom	SC 210 3	19	F	X	X	X	X	X	X	X	X	X											
003 LA	272B N. Case	Sunday Discus	FD 218 5	32	M	X	X	X	X	X	X	X	X	X											
004 CP	166B S. Case	Thursday Bowling	BS 157 Div. C 1	16	M	X	X	X	X	X	X	X	X	X											
005 CP	167B N. Case	Thursday Boccia	BA 151 Div. C 2	36	M					D	R	O	P												
006 CP	164B N. Case	Thursday Bowling	BM 157 Div. C 1	46	M	X	X	X	X	X	X	X	X	X											
007 CP	420 E. Wilson	Sunday Discus	FD 188 6	27	M	X	X	X	X	X	X	X	X	X											
008 CP	162B N. Case	Friday 100m Dash	TR 104 5	25	F	X	X	X	X	X	X	X	X	X											
009 CP	116A N. Case	Monday Slalom	SC 110 2C	40	F	X	X	X	X	X	X	X	X	X											
010 CP	371B N. Case	Friday 400m Dash	TR 106 7	22	M	X	X	X	X	X	X	X	X	X											
011 CP	561B S. Case	Monday Slalom	SC 110 1	22	M	X	X	X	X	X	X	X	X	X											

DAY ThursdaySPORT Bowling Page #1 of 2LOCATION Holiday Lanes, 310 E. Grand River9-11 A.M.
1-3 P.M.Bronze
Div. B = 382
Silver = 420
Gold = 470

EVENT #	EVENT NAME	CLASS DIVIS	CP OR LA	START TIME	SUBJECT NAME	G#	HAP#	TESTER
155	Bowling	C-3-6	CP	B.A.C.		MI 304	036	S.S. 001
	Non-chute	Div.A		XX		nv	057	S.R. 001
	BW			XX	327	103		
				XX		LA 118	078	M.C. 022
				XX	318	OH 109	143	M.C. 002
				XX		RI 111	192	K.B. 004
				XX		MI 102	034	K.B. 004
156	Non-chute	C,7,8	CP	XX	374	MI 005	037	R.R. 003
	Bowling	Div.B		XX		CT 706	115	R.W. 003
	BW			Dropped		LA 116	127	J.C. 006
				Dropped	381	MI 506	184	J.C. 006
157	Closed- Chute	C,1,2	CP	XX	330	MI 500	004	G.D. 007
	Bowling	Div.C		XX	"Bill" 330	MI 402	006	J.R. 008
	BW			XX	375	AZ 105	020	D.S. 009
				XX	296	CA 201	039	J.C. 006
				XX	296	MI 504	071	A.R. 005
				XX		AZ 102	093	S.B. 001
				XX	408	KS 115	129	M.C. 002
				XX	449	VA 500	182	R.R. 003

APPENDIX M
LISTING OF GAMES EVENTS

LISTING OF GAMES EVENTS

ARCHERY

BASKETBALL

BOCCIA

BOWLING

CROSS-COUNTRY RACE

FIELD EVENTS

GOLF

EQUESTRIAN EVENTS

POWERLIFTING

SLALOM

SOCCER SWIMMING

TABLE TENNIS

TARGET SHOOTING

TRACK

WHEELCHAIR SOCCER

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