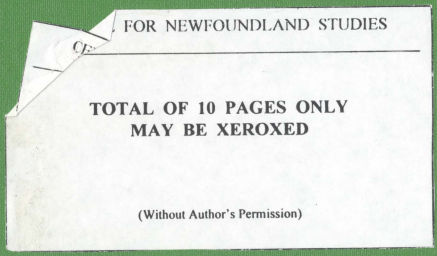
DOES A RECREATIONAL SWIMMING PROGRAM IMPROVE THE SELF-ESTEEM OF CHILDREN AND ADOLESCENTS WITH PHYSICAL DISABILITIES: POSSIBLE UNDERLYING MECHANISMS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MELLISSA CHRISTINA OATES

DOES A RECREATIONAL SWIMMING PROGRAM IMPROVE THE SELF-ESTEEM OF CHILDREN AND ADOLESCENTS WITH PHYSICAL DISABILITIES: POSSIBLE UNDERLYING MECHANISMS

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© Mellissa Christina Oates

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ABSTRACT

The self-esteem of children with physical disabilities has received relatively little attention in the past and the psychosocial benefits of physical activity programs for children and adolescents with a physical disability remain relatively unknown. An 8-week recreational swimming program was implemented to determine such benefits. The recreational program integrated physical activity and social interaction for participant development. Observations, questionnaires, and interviews were conducted to determine changes in physical and social behavior and self-esteem. A pre-post evaluation involving two children and four adolescents with cerebral palsy and spina bifida showed a significant improvement in their self-esteem. Observational data showed improved physical activity and social interaction and interviews supported these findings. During interviews respondents discussed perceived changes that occurred in physical and social domains and resulting growth and development including increased confidence, independence, and altered self-perceptions. Such findings indicate the importance of physical activity programs to the physical, social and psychological development of children and adolescents with physical disabilities.

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Table of Contents

List of Tables

List of Figures

List of Appendices

Preface

This is an exploratory research study that uses both quantitative and qualitative research methods to identify changes in observable behaviour, self-esteem and feelings about the overall participant experience. It is important to highlight that qualitative and quantitative research generally follow quite different presentation formats. Qualitative research is usually presented in first person and quantitative research findings in third person. However, to keep the writing format of this thesis consistent, this author chooses to write using the third person for the presentation of both qualitative and quantitative findings of this study.

Chapter One: Study Rationale

1.1 Introduction

In recent years the visibility in the community of persons with physical disabilities has dramatically increased. It is no longer uncommon to see men, women, children, adolescents and the elderly using wheelchairs, mobility aids, lifts, and canes to increase their functional ability and improve their accessibility. Society has begun to deal with the notion of accommodating people with disabilities; however, people need to become more aware of the challenges faced by people with physical disabilities. Increased attention is needed with regard to the psychological and social dimensions of physical disability. Research indicates that the prevalence of depression, low self-esteem and other psychosocial problems is higher among people with disabling conditions than the general population (Andrews, Tennant, Hewson, & Schonnel, 1978; Berkman, Berkman, Kasl, Freeman, Leo, Adrian, Cornoni-Huntly, & Brody, 1986; Turner & Beiser, 1990; West & Evans, 1986). It is therefore a major concern to discover why some people cope quite well and adjust to a physically debilitating condition, while others suffer low self-esteem, and other associated psychological and social problems. If underlying factors influencing self-esteem are discovered, it may be possible to develop intervention strategies and programs to help people cope with psychological and social problems manifested through experiences with their disability.

Self-esteem is defined as a generalized feeling of self-acceptance, goodness and worthiness, and is considered to be a central aspect of psychological functioning. In addition, self-esteem is related to multiple variables including general satisfaction with one's life and belief in one's ability (Specht, King, & Francis, 1996). Self-esteem has been seen as originating from various sources, including the discrepancy between a person's actual and ideal self,

perceptions of the attitudes of others and attributional factors (Arnold & Chapman, 1992). Furthermore, self-esteem and self-concept are considered to be predictive factors that can reduce the likelihood of adjustment problems such as adjusting to disability. In fact, self-esteem is a valuable outcome of treatment for individuals who have physical disabilities, and programs are conducted in a manner to help people improve their self-esteem. How people with physical disabilities value themselves (self-esteem) may therefore be key predictors of their adjustment to the physical and social environment and hence, future life success (Kapp-Simon, 1986).

Self-esteem is a strong attribute to have but other factors such as support systems also may have an effect and help determine how a person deals with a physical disability. Individuals with high self-esteem may have resources to support their psychological and social needs or have developed strong coping mechanisms to deal with the many psychosocial problems associated with physical disabilities. Their high self-esteem enables them to face environmental barriers, social stigmas, and negative social perceptions associated with physical disabilities. Those persons with low self-esteem or self-concept may not have the support systems necessary to help build strong individual coping skills, positive self-perceptions despite negative social views, and positive attitudes so as to cope with barriers.

Many studies have been conducted in the field of self-esteem and self-concept, however the literature reveals that few studies have been completed with special populations and even fewer specifically with children and adolescents with cerebral palsy, and spina bifida. The literature reveals that recreational swimming, therapeutic aquatics and hydrotherapy have been used extensively in the past; nonetheless the physical, mental and social benefits of this type of therapy for individuals with physical disabilities have only been addressed in more recent years (Broach, Groff, & Dattilo, 1997; Peganoff, 1984; Tank, 1977; Zonnenfeld, 1991). More research

is needed in this field to examine how such programs affect self-esteem and overall self-worth. Qualitative studies need to be completed to discover the underlying mechanisms and factors associated with the overall sense of self. Research needs to investigate why it is that some adolescents with physical disabilities have low self-esteem while others have high self-esteem and cope quite well with their disabilities. The factors influencing their self-esteem would help provide many useful insights into how children and adolescents with physically debilitating conditions maintain a positive outlook on life.

Very few descriptive studies have been completed with both children and adolescents living with physical disabilities and their perceptions of self (Blind & McClung, 1997, Taub & Greer, 2000). Children and adolescents need to be given the opportunity to openly speak about their personal experiences and discuss their feelings with regards to their disability and self-esteem. This open expression and detailed description of experiences will be incredibly useful, as it will enable researchers to have a true understanding of those individuals' perceptions of self-concept. This research would offer a deeper insight into the self-esteem and overall well-being of children and adolescents with physical disabilities. This would be an important step in developing an essential body of descriptive research for special populations at this stage of their development.

1.2 Purpose

The main purpose of this study was to determine the perceived benefits of recreational swimming programs for children and adolescents with physical disabilities, specifically those with neurological disorders such as cerebral palsy and spina bifida. It was hoped that this study would add to the body of knowledge and link previous literature together. This would provide insight into key areas such as social self-concept, physical capabilities and body perceptions,

independence and competence, family support, and overall participant experience. Such research may provide evidence needed to address issues relating to poor self-esteem and provide adequate forms of therapy, social support systems, and physical activity programs acknowledging the needs of those with physical disabilities.

The logic behind this study was to demonstrate what physical and psychosocial forces shape self-esteem in recreational activity settings. The research attempted to answer questions concerning the factors and defining characteristics of self-esteem and self-concept.

1.3 Research Questions

The questions that guided this collaborative quantitative and qualitative study were:

1. Is there an increase in the self-esteem of children and adolescents with physical disabilities attending a recreational swimming program?
2. Are there any changes in physical and social behavior while attending a recreational swimming program?
3. What is the participant's experience while attending a recreational swimming program?
4. What are some mediating factors for self-esteem of children and adolescents with physical disabilities?

Other sub-questions were used to guide this research study and will be highlighted in the literature review.

1.4 Swimming Program Objectives

Before beginning this thesis it is essential to highlight the program objectives of the swimming program that was used for the duration of this study. The Children's Rehabilitation

Swimming Program is offered through a Children's Hospital in Eastern Canada and runs throughout the entire year. The swimming program sessions run for between nine and ten weeks depending on the time of year and this program accepts up to fifteen registered participants. This program is only offered to children and adolescents with physical disabilities. All program participants work one-on-one with their swimming instructor while in the swimming pool, however all participants are encouraged to engage in conversation with others, and participate in games and activities. The program is structured to the specific needs of the child or adolescent. A participant can choose to work on swimming skills for one complete swimming session whereas another participant may want to play games or activities with the rest of the participants. This swimming program is relatively unstructured when it comes to planning each day of sessions for the programs duration and the program is oriented around the needs of the participants on each specific day of attendance. The program is organized around social interaction, physical fitness, cardiovascular fitness, muscle toning and enjoyment. All of which play a role in developing self-confidence, self-worth and self-esteem of those involved (Arnold & Chapman, 1992; Blind & McClung, 1997; Dekel, Tenenbaum, & Kudar, 1996).

The swimming program lasts for 60 minutes and participants are greeted by their instructors before they enter the pool. Children and adolescents decide what activities they would like to participate in and then move to either a large swimming pool or a small heated pool. These pools are directly next to each other and as a result little time is required for participants to move between pools. Some participants require assistance to get in and out of the swimming pools and instructors and parents help with this. The larger pool is divided into lanes where participants can complete swimming laps, and a slide and basketball net are located on the side, so games and fun rides can take place. The smaller pool is quite shallow, so participants

can stand and move about without much help from instructors. Social interaction occurs more regularly in this pool as it is smaller and has benches located on the sides under the water. For the last fifteen minutes of the swimming program, all participants move to the smaller pool with their instructors where they play games, sing songs, and socialize with peers. Instructors will often organize games and activities however, some games are initiated by participants.

Chapter Two: Literature Review

2.1 Introduction

After much deliberation this author has decided that this chapter will highlight pertinent information in the literature describing physical disability, and other relevant concepts including self-esteem. In this chapter, the reader will be introduced to essential background information relating to prevalence of disability, the undeniable differences among people with disabilities and how they related to adjustment. The many concepts of self and how they relate specifically to children and adolescents with physical disabilities will also be discussed. As readers begin to understand this body of literature, research will be introduced which focuses on the importance of social interaction, physical activity and specifically, swimming, in the lives of children and adolescents with physical disabilities.

More people are becoming increasingly aware of people with disabilities; however, more work is needed to ensure that people become aware of the physical, psychological and social challenges that face people with physical disabilities. Research in this field will increase the knowledge we have of the challenges faced by people with disabilities and improve the chances of global recognition of these challenges. This thesis will be one small step in the right direction of increased knowledge and global awareness regarding social and physical barriers faced by those with physical disabilities

2.2 Physical Disability

Historically, physical disabilities were defined in the context of a particular disease, and classified according to the International Classification of Diseases (ICD). This method was useful but failed to incorporate many important dimensions of disability. This method often did not include any indication of severity of disorder, functional limitations, and/or the impact of

social and psychological support systems (Turner, & McLean, 1989). To help combat this deficiency, the World Health Organization (W.H.O.) in 1976, redefined physical disability as an existing difficulty in performing one or more activities which, in accordance with a person's age, sex, and normative social role, are generally accepted as essential components of daily living, such as self-care, social relations, and economic activity (Turner, & McLean, 1989). This implies that physical conditions are often characterized by a decreased capacity to perform occupational roles as well as decreased social functioning. Furthermore, it is assumed that the inability to meet personal needs and accomplish other related satisfactions have an additional debilitating effect. The lack of fulfillment may lead people with physical disabilities to question their abilities and lead to decreased self-perceptions. Given these assumptions regarding the nature of physical disabilities, it is not difficult to understand that persons with physical disabilities are at risk for psychological problems such as low self-esteem, poor self-concept, and depression and other possible social problems. This assumption is also true for children and adolescents with physical disabilities who are equally susceptible to negative perceptions and exclusion from others.

2.3 Prevalence of Physical Disability

Surveys and census' conducted in recent years allow researchers to make estimates of the prevalence of disability among Canadians and citizens of the United States. One study found that 87 per 1000 of the non-institutionalized Canadian population were limited in terms of activity and function (Josie, 1978). The Canada Health Survey (1981) estimated the prevalence of physical disability to be 116 per 1000 of all Canadians, increasing to 300 per 1000 for those over sixty-five years of age (Statistics Canada, 1981). Based on the W.H.O. definition of

physical disability, The Canadian Health and Disability Survey (1981) reported that 128 per thousand disabled Canadians.

More recently, a study was conducted by the Australian Bureau of Statistics (ABS), utilizing the United Nations Disability Statistics Data Base (DISTAT) (United Nations, 2003). The United Nations data base (DISTAT) integrates and compiles data collected from 55 countries in population census', household surveys and registration systems. DISTAT covers five subject areas, prevalence of impairments; prevalence of disability; causes of impairment; social, economic and environment characteristics; and the distribution and use of service and social support. This study compared the prevalence of various forms of disability in many countries and revealed that 13.2% of all Canadians had a physical disability in 1986 (Statistics Canada, 1986). Similarly, in the United States it has been estimated that 14% of the non-institutionalized population is physically disabled, and the numbers appear to be increasing (Siebens, 1990). The statistics from both studies appear to be consistent with figures from the U.S. Census Survey of 1976 that stated the figure was then 13.6 % (Asch, 1984).

The last survey concerning the prevalence of physical disability in Canada was completed in 2001. A Participation and Activity Limitation Survey was conducted nationwide and following analysis it was determined that 14.6 % of all Canadians aged 15 years and over had physical disabilities that ranged in degree of severity (Statistics Canada, 2001). The same survey also indicated that 3.2 % of children aged 0-14 years had physical disabilities. Furthermore, in 2001, 3.6 million Canadians living in households reported having activity limitations, indicating a disability prevalence rate of 12.6 % (Statistics Canada, 2001). When these numbers are compared to Canadian prevalence rates in 1986 and American figures, it can be said that the

prevalence rates for physical disability appear to be consistent throughout North America in the past two decades.

Since millions of people are affected by physical disability in North America alone, it is essential that we understand the factors that influence children and adolescents with debilitating conditions and affect their ability to lead meaningful lives. It was once thought that all people with disabilities could be placed into one easily identifiable homogeneous group. However, this is not the case. A host of different demographic, social, and psychological parameters are used to describe individuals with physical disabilities. Each of these factors contributes to the heterogeneity of the population with disabilities and may help researchers understand the underlying mechanisms involved with psychological problems.

2.4 Heterogeneity of Disability

The term "physical disability" may be clearly defined; however, it becomes vague when attempting to describe people who have a debilitating condition. Some people may not have a labeled physical disability such as cerebral palsy; nonetheless, they may be affected by a broken limb, coordination problems, or decreased mobility associated with age, for example. Thus as described above, other factors must be applied to the definition when describing persons with disabilities. Age of onset, for example, is one of such factors (Turner & Beiser, 1990; Turner & Noh, 1988). One must be cognizant of whether a disorder affects a new born who knows no other form of existence, a teenager dealing with the idea of sexuality, a young adult facing challenges on his or her own, or an elderly individual already losing independence and competence. All people enter new life stages at various times in their lives that pose different challenges that have to be confronted and/or offer new experiences that may prove to be lifetime

lessons. The added burden of physical disability would most likely hinder effective progression through these important life phases.

It seems obvious that the nature, severity and type of disability influences the psychological stress experienced by persons with a disability. Furthermore, the type of onset of the debilitating condition also affects the heterogeneity of disability (McColl & Friedland, 1993). A slow onset associated with Parkinson's disease, for example, and the instant onset of traumatic paralysis offer very different courses for adaptation. One would assume that a person in the early phases of Parkinson's would have time to effectively cope with the progression of the disease, while people dealing with paralysis would have an instantaneous and overwhelming condition, giving them no time to adapt to the physical condition, potentially leading to psychological distress. Conversely, persons born with conditions such as cerebral palsy and spina bifida know no other form of ability or existence and may live a fulfilling life by depending on effective coping strategies, social support, and positive perceptions of self.

Another major factor in the heterogeneity of the concept of disability is prognosis (McColl & Friedland, 1993). Very few chronic conditions or diseases have a favorable outlook or offer much hope for complete recovery. Some conditions like multiple sclerosis are progressively degenerative or recurring while others like spinal cord injury have a fixed outcome with chronic disability that is lifelong. Each of these conditions has a different effect on prognosis and perceptions about the future. People encountering such conditions may cope with the consequences through their own adaptive responses in their own time, or give in to the disease and associated conditions.

Levels of pain and discomfort and degrees of dysfunction are all influential factors as well. Persons experiencing spinal cord injuries often live with chronic pain for the rest of their

lives and, as a result, develop severe depression, are often frustrated, and are outwardly hostile to family, friends, and rehabilitative specialists (Risch, Norvell, Pollock, Risch, Langer, Fulton, Graves, & Leggett, 1993). Depending on adaptive responses, these individuals may also suffer low self-esteem as a result of their loss of independence, loss of social status, and inability to perform seemingly simple tasks they once completed with ease. People with severe mobility problems such as cerebral palsy, muscular dystrophy, and spina bifida often experience lowered self-esteem, depression, and learned helplessness as a result of their physical disability (Appleton, Minchom, Ellis, Elliott, Boll, & Jones, 1994; Arnold & Chapman, 1992; Resnick & Hutton, 1987; Specht et al., 1998). Such research indicates that persons living with chronic pain associated with spinal injuries or neurological disorders often experience increased psychosocial problems resulting from their conditions. Such problems included decreased self-esteem.

Socioeconomic and cultural factors also play a part in the variability of the meaning of disability. Financial constraints may result in an inability to minimize physical handicap thus slowing the adaptive process, and increasing psychological stress (Turner & Beiser, 1990). Furthermore, different cultures attach different meanings to disability. Ethnographic research indicates that the meaning of disability varies among cultures from intolerance, through shame and pity, to relative acceptance and even honor (McColl & Friedland, 1993).

Lastly, and most importantly, disability can only be understood when that disability is viewed within the context of an individual's existence. This subjective meaning of disability takes precedence over all other factors. The affected person's own perception of their disability within their own life experience becomes the ultimate concern, and one to which researchers must pay much attention. The perception of their debilitating condition may either lead them to

effective coping strategies and proceeding to live a fulfilling life, or succumbing to the unwanted disorder and living a life of social and psychological distress (McColl & Friedland, 1993).

There is indeed a true heterogeneous nature of physical disability and many different social, psychological, and cultural constraints are placed on individuals with debilitating conditions. In summary, depression is often exhibited by persons with disability and is often diagnosed as a psychological disorder among the physically disabled. Furthermore, low self-concept, decreased self-esteem and negative self-image, are often experienced by persons living with physical impairments.

It is important that researchers discover why it is that people with physical disabilities all too often experience psychological disorders relating to self-concept. Only then will researchers begin to understand the true nature of living with a physical disability and be able to provide valuable coping tools and resources to help people battle psychosocial problems and dilemmas. Many of these tools could be targeted specifically for the use by children and adolescents. Research indicates that self-concept as a whole is a salient construct to the psychological and social functioning of person's with or without disabilities (King, Shultz, Steel, Gilpin, & Cathers, 1993; Ostring & Nieminen, 1982; Harvey & Greenway, 1984).

2.5 Self-Concept and Self-Esteem

Self-concept as a construct is not well defined, however, most theorists who have considered the topic believe that a person's conscious perceptions of the environment in which they interact and of the self, are important determinants of that person's behavior and sense of self-worth (Harvey & Greenway, 1984). Our body parts and the importance attached to them are a salient part of those perceptions. Therefore, it would be reasonable to assume that defects

in physical development are likely to have detrimental effects upon the self-esteem of an individual with physical impairments.

Self-esteem is defined as a generalized feeling of self-acceptance, goodness and worthiness, and is considered to be a central aspect of psychological functioning (Specht et al., 1998). In addition, self-esteem is related to multiple variables including general satisfaction with one's life and belief in one's ability. It has been seen as originating from various sources, including the discrepancy between a person's actual and ideal self, and perceptions of the attitudes of others (Arnold & Chapman, 1992). It is also is seen as a multidimensional construct and depends on separate and independent entities, such as social relationships, academic and physical abilities and many others, which together constitute one's overall self-esteem (Dekel et al., 1996).

Self-esteem and self-concept are considered to be predictive factors that can influence the likelihood of adjustment problems. In fact, increased self-esteem is often viewed as an essential outcome of treatment for individuals who have physical disabilities. How people with physical disabilities view themselves (self-concept) and value themselves (self-esteem) may therefore be key predictors of their adjustment to the physical and social environment and future life success (Kapp-Simon, 1986).

It has been argued that the overall concept of self is a social phenomenon. It is claimed that many individuals; including the families and employers of people with disabilities, rehabilitation professionals and persons living with disabilities themselves, held negative views of people with physical disabilities (Bender, 1981). The associated danger was that individuals with physical disabilities would themselves internalize these negative views. Other research in the field at approximately the same time indicated that this hypothesis was true. Anderson and

Clarke (1982) found that in general, people with disabilities saw themselves as lacking in self-confidence, having low self-esteem, worried more often about their handicaps and lack of skills, and consequently showed signs of real misery and depression. Later research indicated that individuals with physical disabilities had lower perceived social acceptance, athletic competence, romantic appeal, and both independence and persistence (King et al., 1993). These factors were shown to have a significant negative impact on their perception of self.

Much research has been completed in the field of self-esteem, however more consideration of self-esteem in persons with neurological developmental disabilities such as cerebral palsy and spina bifida is necessary. Studies of the attitudes of persons without disabilities towards those with disabilities have shown that cerebral palsy is one of the least favorably viewed physical disabilities (Magill-Evans & Restall, 1991). This suggests that persons with cerebral palsy can be expected to have lower self-esteem than those with disabilities who are viewed more positively or who do not have disabilities. Furthermore, the psychosocial characteristics of adolescents with chronic conditions such as spina bifida have been studied, and research indicates that there are increased psychosocial conflicts in adolescents with spina bifida (Wolman & Basco, 1994) and higher rates of depression and suicidal ideation (Appleton et al., 1997). Given the relationship between depression, suicide ideation and self-esteem, it is possible to postulate that adolescents with spina bifida may also experience low self-esteem however findings in this area have been contradictory.

2.6 Self-Esteem of Children & Adolescents with Cerebral Palsy and Spina Bifida

Earlier studies of adolescents and young adults with cerebral palsy have demonstrated multiple adverse social and psychological effects including poor self-esteem, as a result of their physical disabilities (Cruickshank, 1952; Klapper & Birch, 1966; Minde, 1978). Similarly,

Zeltzer, Kellerman and Ellenberg (1980) studied adolescents with minor or visible physical conditions, and results showed that these adolescents were at high risk for or already maintained low self-esteem. Interestingly, in a study conducted by Specht et al. (1998), 19 adolescents with either cerebral palsy or spina bifida did not have lower overall self-esteem; however, they did have lower self-concepts in social acceptance and competence. The findings in this study agree with previous research (King et al., 1993; Teplin, Howard and O-Connor, 1991). Although the latter study looked at fifteen children with cerebral palsy between the ages of four and eight years, it revealed that the children with CP tended to have lower self-concepts. Comparing this study to adolescent research it could be hypothesized that children with low self-concepts become adolescents with low self-concepts. This study holds many implications for a longitudinal study looking at maintenance of self-esteem across time for children and adolescents with physical disabilities.

Empirical evidence provided by Blum (1983) indicates that youth with spina bifida show lower self-esteem than those without disabilities. Using psychological profiles from previous research, Blum, elucidated that diminished self-esteem is a characteristic that pervades most youth with spina bifida. Specifically, younger girls showed more emotional problems, older females experienced more isolation and depression, and adolescent males appeared to have major concerns regarding sexuality and socialization. Wolman and Basco (1994) completed a study with 107 adolescents and young adults who had spina bifida with similar results. Forty-five percent of those included in this study had low self-esteem and it was determined that many factors influenced this including parental overprotection, school problems, and self-perception of disability.

Though it is important to discuss literature highlighting persons with physical disabilities experiencing low self-esteem it is equally salient to describe contrasting research in the field. Ostring and Nieminen (1982) conducted a study with thirty children between the ages of nine and thirteen living with cerebral palsy. The researchers reported no difference in self-esteem scores between the experimental and control groups. Further, Magill and Hurlbut (1986) compared 22 young people with cerebral palsy to matched controls and found no difference in overall self-esteem or in the domains of physical, personal, family, and social self-esteem. Similar reports from Crocker and Major (1989) acknowledge that adolescents with spina bifida do not appear to differ in self-esteem from a comparison group of adolescents without disabilities. All these results suggest that young people with and without physical disabilities do not differ in general evaluations of self and are unaffected by their individual limitations.

Evidence indicates that while some research supports low self-esteem other studies support normal or high self-esteem of persons with physical disabilities. It can be said that the different study designs and methodology, sample size, and differing subject backgrounds, family support and experiences may have led researchers to find quite different results regarding self-esteem and self-concept. Further research could shed light on the conflicting evidence and highlight the mechanisms that underlie self-esteem.

2.6.1 Gender Differences

Gender differences have also been identified as a primary aspect for self-concept. Magill and Hurlbut (1986) investigated the self-esteem of adolescents with cerebral palsy. The subjects with cerebral palsy were not significantly different from their non-disabled counterparts on most of the self-esteem scales, however there was a significant sex by disability interaction. When looking at physical self-esteem the girls with cerebral palsy were significantly lower than the

boys with cerebral palsy. On the social self-esteem scale the girls with cerebral palsy scored significantly lower than the boys with cerebral palsy, which was opposite to the pattern for those without disabilities. Similar studies have revealed that adolescent girls with cerebral palsy score significantly lower than those without disabilities in terms of physical, social and personal self-esteem. However, boys with and without disabilities had similar self-esteem scores (Magill-Evans & Restall, 1991).

Gender differences have also been reported with regard to individuals with spina bifida. Appleton et al. (1997) examined the measures of 72 young people, aged 9 to 18, with spina bifida. These results revealed that girls were at greater risk of depressive mood, low self-worth, low self-esteem, and greater self-blame. These findings supported earlier research by Appleton et al. (1994) which investigated 79 subjects with spina bifida. Their results indicated that older girls with spina bifida had the lowest self-worth scores while young boys without disabilities had the highest and also that low self-worth was related to physical appearance and social acceptance. Overall the research suggests that there are gender differences associated with physical and social self-concept.

The interactionist framework may provide a possible explanation for the lower self-esteem scores of girls with cerebral palsy in the social area. Girls place emphasis on values that are linked to overall self-concept such as attractiveness which is thought to enhance social interaction (Magill & Hurlburt, 1986). It would appear that the self-concept of girls is more easily affected by the condition which can severely limit social interactions. Cerebral palsy has been associated with impaired social relationships and negative perceptions. It was hypothesized that this negativity would be absorbed more often by females, thus lowering their self-esteem in both the physical and social areas (Magill & Hurlburt, 1986). Comparisons have been made for

those with spina bifida. Appleton et al. (1994) discovered that girls rather than boys with spina bifida placed more importance on physical appearance and social acceptance. They more often compared themselves to those without physical disabilities leading to negative comparison and decreased feelings of self-worth and competence.

2.7 Indifferent Attitudes and Social Support

Children with physical disabilities often experience attitudes of indifference and diminished interaction from those peers without disabilities (Anderson & Clark, 1982). Compared to children without disabilities, these children are ostracized and viewed in negative ways. Such rejection and withdrawal by peers could engender feelings of loneliness for children with physical disabilities. This same study indicated that these children reported having fewer friends at school and limited availability of friends. Compared to previous studies, isolation and restriction from peers inhibited socialization for children with physical disabilities through decreased social opportunities.

It is important to note that social support has been identified as having a positive effect on self-esteem and psychological functioning (Magill-Evans & Restall, 1991). Resnick and Hutton (1987) examined the relationships of self-image and demographic variables of adolescents with cerebral palsy. They found a significant positive relationship between self-image and having both friends with and without disabilities. Increased social interaction with others was shown to help increase the self-concept of persons with cerebral palsy. Given the importance of peer-group relationships in adolescence it should come as no surprise that having a good network of friends was related to improved self-esteem and self-image. In addition, friends act as a reflection of self and can function as a measure with which youths can compare themselves. Research reveals that the more youths perceive themselves as different from peers, the lower

their reported self-image (Resnick, Blum, & Hedlin, 1981). Furthermore, the presence of good friendships has been found to be an important protective factor against low self-esteem and adjustment problems (Rae-Grant, Thomans, Offord, & Boyle, 1989).

Research demonstrates (Appleton, et al., 1994; Blum, 1983; Kunesh, Hasbrook, Lewthwaite, 1992; Martin & Smith, 2002; Wolman & Basco, 1994) that social interactions and social support play a major role in improving overall self-concept and self-esteem for both individuals with and without disabilities. These empirical studies support the claim that by enabling an individual to increase his/her social skills and interactions, and/or friendship quality we often see a related increase of sense of self worth, self-confidence, and self-efficacy. Other research indicates that social self-efficacy is positively related to both increased independence and persistence toward goal related outcomes (King et al., 1993).

2.8 New Direction for Research

The research indicates that exploration of the social self-efficacy of adolescents with physical disabilities is an important endeavor. A useful direction in research may be to determine whether self-efficacy and other related factors such as self-esteem and self-image could be enhanced by social programs, skills training programs, or recreation programs. Because self-efficacy is based on self-expectations of interpersonal skill, these programs could increase feelings of adequacy and competence by providing opportunities for successful experiences with peers, reinforcing appropriate interpersonal behaviors, and encouraging realistic behaviors. These programs may also serve to promote opportunities for individuals with disabilities to develop close friendships and a sense of belonging.

The research suggests there are a number of implications for interventions with children and adolescents with physical disabilities. General intervention strategies that are thought to

have positive effects on self-esteem and self-concept include goal setting, encouraging problem solving, reinforcing behaviors related to the acquisition of competence, and motivating the acquisition of behavioral, physical, and social competence (King et al., 1993). Moreover, intervention strategies specifically dealing with persons with physical disabilities often include recreational and physical activities (Blinde & McClung, 1997; Crocker, 1993; Dekel et al., 1996; Smith, 1993; Taub & Greer, 2000).

2.8.1 Physical Activity

Physical activity is seen as routine and expected for children and has been shown to play a significant role in childhood socialization and their organization of leisure time (Eppright, Sanfacon, Beck, & Bradley, 1997; Kirkcaldy, 1989; Taub & Greer, 2000). Along with obvious physical limitations, social obstacles and environmental barriers restrict participation in physical activity by individuals with physical impairments. Given such barriers, these children and adolescents are usually relegated to the role of spectator rather than active participant. Furthermore, the lack of available programs and experienced personnel, and inappropriate and inaccessible playground design decreases physical activity for children with physical disabilities. Due to these physical and social hindrances to physical activity, children with physical disabilities often experience decreased fitness levels, reduced self-esteem, and interpersonal isolation (Anderson & Clark, 1982). This is an unfortunate outcome as physical activity can be an opportunity for children to improve their motor control and therefore athletic competence, as well as provide an opportunity for children with disabilities to socialize both with children with and without disabilities.

Moreover, physical activity has been linked to other psychological benefits including decreased anxiety and depression, as well as improved emotional control (Biddle, 1993). Gruber

(1986) conducted a study that looking at the effect of physical activity on self-esteem. There was an overall effect size of 0.41, meaning that children in studies experiencing a physical activity intervention displayed self-esteem scores nearly one half a standard deviation higher than those children who did not.. Interestingly, Gruber found that the greatest effects were for children with disabilities compared to the able-bodied participants.

The physical activity setting provides an environment in which children with physical disabilities can engage in common and expected childhood experiences. By participating in movement activity with peers, children are given an opportunity to acquire physical skills and improve social proficiency. A study completed by Taub and Greer (2000) has helped to legitimize this statement with interesting findings. Perceptions of competence and feelings of self-enhancement were identified by children with physical disabilities including cerebral palsy and those with severe mobility problems as benefits of physical activity. As a result, such acquired impressions helped these children believe they were typical. The second major outcome of physical activity expressed by these children was increased social integration. Involvement offered an opportunity to form new relationships and gain an overall sense of friendship and trust. Evidence from this study suggested that children also enhanced their feelings of being emotionally connected with one another. As a result of this inclusion with peers, the authors contended that children believed they were closer and similar to other children, thus improving their self-esteem and self-concept. Furthermore, such normalizing interactions for children with physical disabilities facilitated their perceptions that they were socially competent and valued as children.

Evidence such as this has led to the use of physical activity and recreation programs as a form of intervention for children and adolescents with multiple physical disabilities. More often

than not, therapeutic and recreational swim programs have been included as normalizing activities for children with neurologic disorders such as cerebral palsy and spina bifida, and others including brain damage and multiple sclerosis (Harris, 1978; McHugh, 1995; Peganoff, 1984; Zonnenfeld, 1991). In addition, swimming has been shown to be a socially acceptable activity that incorporates therapeutic goals with the physically disabled population (Peganoff, 1984). Few studies have been conducted in the filed of therapeutic aquatics and swimming and much of the research is dated.

2.8.2 Adaptive Aquatics

The use of adaptive aquatics within occupational therapy, physical therapy and recreational therapy treatment programs appears to be both a functional and social activity for children and adolescents with physical disabilities. In water, the debilitating conditions seem less apparent in limiting physical abilities and subsequently have been shown to improve confidence and independence (Peganoff, 1984; & Tank, 1977). Swimming is the only branch of sport or recreational activity where all persons with disabilities can move completely freely, independently, and without much personal or technical assistance (Zonnenfeld, 1991). Swimming has the functional ability to help a person restore self-confidence, overcome fears and perform movements that are impossible out of the water environment. This is very important because as previously mentioned confidence and independence have been linked to self-esteem and overall self-concept. To most individuals with physical disabilities swimming is purposeful, enjoyable, and physically, mentally and socially beneficial. Moreover, swim programs address further issues of developmental concern such as acceptance, self-worth, self-identity and body image (Harris, 1978).

2.8.2.1 Physiological Effects

The physiological effects of water are brought about by a combination of warm water, exercise and flexibility training, but the extent of such effects depends on the severity of the disorder (Tindall, 1986). During immersion the physiological effects are similar to those brought about by any form of heat but are less localized. A general increase in body temperature results from water heat and heat created by contracting muscles (Plowman & Smith, 1997; & Tindall, 1986). As the skin becomes heated the superficial blood vessels dilate and the peripheral blood supply is increased. The blood flowing through the vessels is heated, and thus the temperature of the underlying muscles increases. In turn, their vessels dilate and the blood supply to the once debilitated muscles is increased. This is important because the mild heat of the water reduces the sensitivity of the sensory nerve endings and as the muscles are warmed, their tone diminishes. This warmth decreases the amount of pain a person with cerebral palsy experiences and allows the range of motion (ROM) and muscle power to increase (Tindall, 1986; Plowman & Smith, 1997). Studies completed by Woods (1992) and Peterson (2001) support these same physiological effects among persons with multiple sclerosis and report the same functional improvement as people with cerebral palsy.

2.8.2.2 Therapeutic Effects

Firstly, the warmth of the water in which the patient is immersed helps to relieve pain and induces relaxation. As the pain is relieved, the patient is able to move with greater comfort and their ROM increases. Similarly as the warm blood reaches the underlying muscles and their temperature rises, they contract more easily and with greater force (Meyer, 1990; Peterson, 2001; Tindall, 1986). This ease of contraction can engender feelings of self-confidence and self-knowledge of improvement and thus help improve self-esteem and overall self-concept.

Secondly, the buoyancy of the water supports the body and counter-balances much of the effect of gravity (Tindall, 1986). Studies show that this support helps to induce relaxation (Meyer, 1990; Zonnenfeld, 1991) and decrease pain (McHugh, 1995; Zonnenfeld, 1991). These studies show that the feeling of weightlessness allows the individual to move his/her joints more freely and with less effort than if the same movement were performed on land. Combined with the effects of heat, buoyancy allows for a greater range of joint movement. The equal pressure of water on all aspects of the submerged body will support it in the upright position. This support, in combination with the feeling of weightlessness, gives confidence to a child who has difficulty walking and can enable him/her to walk in the pool before he/she can walk on land. These feelings of self-sufficiency and competency are very important for the adolescent who wants to socialize and live a normal lifestyle (Taub, Blinde, & Greer, 1999; Taub & Greer, 2000).

Lastly, studies show that a finely graded progression of exercise can be obtained by using buoyancy first to assist movement, then as a support, and finally, as a resistance (Tindall, 1986; Brunstrom, 2001). Water provides an excellent medium for the improvement of voluntary muscle power. For example, when the muscles are atrophied, active exercises and stretches are given, using buoyancy to assist. As muscle power increases buoyancy is used as a support, and with further motor development, as a form of resistance. Progression will, be dependent upon the initial motor ability of the individual involved and the extent of their disorder.

The therapeutic effects of exercise in water are therefore: to relieve pain and muscle spasm; to increase relaxation; to maintain or increase ROM; to strengthen weak muscles and to develop their power and endurance; to encourage walking and other functional activities; to improve circulation to underlying muscles; to help improve motor control and coordination; and

most importantly, to give the individual encouragement and confidence in carrying out physical and social tasks (Tindall, 1986). This form of therapy has been shown to be one of the more effective approaches to improving morale, self-confidence and self-esteem (Broach, Groff, Dattilo, 1997; McHugh, 1995; Meyer, 1990). Furthermore, it has been shown that through group membership associated with swimming, persons with physical limitations begin to foster a sense of acceptance, which in turn promotes a stronger acceptance of self (Peganoff, 1984).

2.9 Rationale for Study

Many studies have been completed in the field of self-esteem and self-concept, however the literature reveals that few studies have been completed with special populations and even fewer specifically with children and adolescents with neurological disorders such as cerebral palsy and spina bifida. Therapeutic aquatic programs have been used extensively throughout history, however little current research has been conducted in the field and much of it is dated. There appear to be only three studies have examined the physical, mental and social benefits of this type of therapy for individuals with physical impairments. This suggests that more research is needed in the aquatics field to examine questions pertaining to self-esteem and overall self-worth. Additional qualitative studies need to be completed to determine the underlying factors associated with the overall sense of well-being. There is a need to investigate why it is that some adolescents with physical disabilities have low self-esteem while others have high self-esteem and cope quite well with their disabilities. As a result, coping mechanisms could be described and would help provide many useful insights into how children and adolescents maintain a positive outlook on life, or why some are unable to cope and live a life thwarted by psychological, social and developmental problems.

In addition, very few descriptive studies have been completed with children and adolescents with physical disabilities in regards to self-esteem (Blind & McClung, 1997; Taub & Greer, 2000). Many quantitative studies have been completed however these studies simply determine whether or not people with disabilities have low self-esteem. They do not provide insight into the underlying factors and assumptions associated with the phenomenon. Children need to be given the opportunity to speak out about their experiences and discuss their feelings with regards to their disability. This communication would enable researchers to have a better understanding of the individual perception of self-concept of those living with physical disabilities. Such research would allow an insight into the perceptions of physical, mental and social factors relating to self-esteem and overall well-being. This would be an important step in developing an essential body of descriptive research for special populations.

2.10 Purpose of the Study

The main purpose of this study was to determine the perceived benefits of recreational swim programs for children and adolescents with physical disabilities, specifically those with neurological disorders such as cerebral palsy and spina bifida. This will build on the work of previous researchers (Blinde & McClung, 1997; King et al., 1993) and provide useful insight into key areas such as social self-concept, physical capabilities and body perceptions, independence and competence, family support, and overall participant experience. Descriptions of these key areas may provide the insight needed to address issues relating to poor self-esteem among children and adolescents with physical disabilities and provide adequate forms of therapy.

2.11 Research Questions

The questions that guided this collaborative quantitative and qualitative study were:

1. Is there an increase in the self-esteem of children and adolescents with physical disabilities attending a recreational swimming program?
2. Are there any changes in physical and social behavior while attending a recreational swimming program?
   - What is the physical interaction with instructors and peers?
   - What is the verbal interaction with instructors and peers?
3. What is the participant's overall experience while attending a recreational swimming program?
   - What are the participant's feelings about their swimming experience?
   - What are the participant's feelings regarding physical capabilities and body perceptions during their swimming experience?
   - What are the participant's feelings regarding social interaction during their swimming experience?
   - What are the participant's feelings regarding independence during their swimming experience?
4. What are some mediating factors for self-esteem of children and adolescents with physical disabilities?

These questions were designed to ensure that the study would address issues pertinent to self-esteem development in children and adolescents with physical disabilities.

Chapter Three: Methods

3.1 Introduction and Purpose

This study employed many qualitative approaches to determine the impact of the overall participant experience on the self-esteem of children and adolescents with physical disabilities while taking part in a recreational swimming program. Observations were conducted to determine physical activity and social interaction patterns of all participants. Rosenberg Self-esteem Inventories were completed by all participants before and after the swimming programs duration, and semi-structured interviews were held at participants' homes following the program. This study relied on participant's feelings about their overall swimming experience, and specific feelings relating to physical capabilities and body perceptions, social interaction, independence and competence. Furthermore, the study was conducted in the hopes that information resulting from this exploration would provide insight into the concept of self-esteem and possible underlying factors. It was hoped that this information would be of use to recreation specialists and program directors, who are responsible for developing recreational activities and implementing programs to help the social and psychological developmental of children and adolescents with physical disabilities. The information provided in the understanding of persons with physical disabilities experiences may help develop intervention activities and strategies to promote high self-esteem development and independence.

3.2 Research Questions

As described previously, the questions guiding this study were:

1. Is there an increase in the self-esteem of children and adolescents with physical disabilities attending a recreational swimming program?
2. Are there any changes in physical and social behavior while attending a recreational swimming program?
3. What is the participant's overall experience while attending a recreational swimming program?
4. What are some mediating factors for self-esteem of children and adolescents with physical disabilities?

These questions were designed to examine the perspectives of youths and adolescents with physical disabilities regarding self-esteem, physical and social interaction, and overall participant experience. Each question acted as a guide for a specific qualitative research tool making it possible to deduce underlying factors relating to self-esteem.

The first question, "*Is there an increase in the self-esteem of children and adolescents with physical disabilities attending a recreational swimming program?*" guided the preliminary self-esteem inventory (questionnaire), the final self-esteem inventory (questionnaire), and all observations and conversational interviews. All participants were asked to complete a self-esteem inventory before the start and at the end of the swimming program. After determining the self-esteem scores from the surveys it was possible to establish whether an increase in self-esteem was evident for participants. The concept of self-esteem and underlying scores were then used to guide subsequent observations and interviews with participants. The preliminary self-esteem inventory was handed to consenting participants in an information package prior to the start of the

recreational swimming program and returned the following week for analysis. The post self-esteem inventory was completed by each participant on the final day in the presence of the primary researcher. In two instances the final self-esteem inventory was not completed until participants were interviewed at their homes. This occurred because both participants did not attend the last day of the swim program. These questionnaires were analyzed upon completion.

The second research question, "*Are there any changes in physical and social behavior while attending a recreational swimming program?*" helped guide the observational research in this study. A behavior checklist was developed specifically for the Children's Rehabilitation Swimming Program and was divided into two sections, physical interaction with peers and instructors, and social interaction with peers and instructors. Depending on the participant's physical and social interaction and checklist criterion, observable behavior was recorded for each participant on each day of the swimming program. This behavior was then analyzed for trends throughout the duration of the program. In accordance with information previously discussed, observational behavior is missing for two participants on the final day of the swim program. As a result, behavior for only seven days of swimming as opposed to eight was used for trend analysis. Furthermore, this question also guided additional questions during the interview phase of this research.

The third question, "*What is the participant's overall experience while attending a recreational swimming program?*" guided the in-depth interviews with participants. The literature revealed that self-esteem is related to a plethora of factors, therefore the interview guide was divided into four specific sections; participant experience, physical

capabilities and body perceptions, social interactions, and lastly independence. Each section was guided by many questions, and the subsequent replies, shared experiences and examples provided by the respondents allowed the following questions to be answered.

- What are the participant's feelings about their swimming experience?
- What are the participant's feelings regarding physical capabilities and body perceptions during their swimming experience?
- What are the participant's feelings regarding social interaction during their swimming experience?
- What are the participant's perspectives regarding independence during their swimming experience?

In all instances the primary researcher spoke with the participants in order to gain an understanding of their perspectives regarding their participation in a recreational swimming program. An understanding of these questions made it possible to comprehend and appreciate the complexity of the concept of self-esteem, and factors that help mediate self-esteem.

The final question, "*What are some mediating factors for self-esteem of children and adolescents with physical disabilities?*" was guided by the observational research and interview phase of this study. After all information was collected regarding physical and social interaction and overall participant experience, it was possible to highlight factors influencing the self-esteem of these participants living with physical disabilities. As a result, it is possible to make recommendations for future recreation specialists and

program directors to help enhance the self-esteem development of children and adolescents with physical disabilities.

3.3 Theory Guided Research

Theories are the backbone of research and development. They help to generate hypotheses, explain phenomenon, and predict behavior. When approaching any new topic, it is vital that the relevant theories be examined and understood before one is really truly able to comprehend an issue. Bronfenbrenner's ecological systems theory (Bronfenbrenner, 1979) helps researchers understand the different processes influencing overall self-esteem.

3.3.1 Ecological Systems Theory

Studies examining differences in psychosocial development draw heavily on the ecological systems theory proposed by Brofenbrenner in 1979. According to this theory, children are located within not just one environment but in a number of nested environments or levels. Each of these is a social system with its own dynamics, rules, discourses, and relationships. Systems influences each other and range from *microsystems* (the child's immediate surroundings), through *mesosystems* (interaction between environments), and *exosystems* (experiences which affect people who influence youth), to the *macrosystems* (social values, laws and government policies). Changes in each environment influence the others and create ripples of consequences throughout the entire system.

The usefulness of the ecological systems theory lies in the fact that it highlights the complexity of children and adolescents' experiences. Some people may share some contexts like a classroom or involvement in extracurricular activities like swimming but

live under very different circumstances such as a physical disability. Consequently, two children may share some similar experiences but have others that are different in nature and lead to quite different developmental outcomes. Furthermore, the complexity of such interactions may deviate from child to child. A change in one system affects not only the child but also the adults around them, whose reactions further impact on the child. Hence, two children exposed to the same stressor may have very different reactions, not only because of different individual characteristics, but also because of different reactions reaching them through the different spheres of life. Given this, the ecological system theory offers real grounds to support why some children are put at risk of poor self-esteem and psychosocial development and why others have high self-esteem and lead healthy, fulfilling lives.

It was hypothesized that because participants in this study were exposed to a recreational swimming program, the changes that occurred with regard to physical and social interaction and overall participant experience would affect the self-esteem of these children and adolescents with physical disabilities. As the theory posits, changes in one system (recreational activity and ability to participate) may cause changes in other subsequent self-systems (competence, independence and self-esteem).

3.4 Rationale for Chosen Methods

Case studies are often used in research because they provide specific information in the quest to understand a specific phenomenon. Most field research is completed by conducting case studies on small groups of people or special populations for some length of time. In the field researchers observe and interact in the field setting for a period of time that may extend from a few months to several years. Research examines features on

one individual, several people or groups and is detailed, varied and extensive. Moreover, almost all qualitative research seeks to construct representations based on in-depth, detailed knowledge of cases (Neuman, 1997).

Case studies differ from group designs in three ways: 1) a single person is studied rather than a large group of people, 2) the results of the study are based upon the repeated collection of information about one individual, and 3) at some time during the evaluation the individual is given a treatment (Krishef, 1991). The present study conducted a number of individual case studies, information was collected from each individual case over a period of 8 weeks, and the treatment involved was the Children's Rehabilitation Swimming Program. The term treatment (recreational swimming program) refers to the independent variable's effect on the dependent variable (self-esteem). In this study the phenomenon being researched was self-esteem of youths and adolescents with physical disabilities. Because this study met the aforementioned criteria, it represented a case study or single subject research.

The reason for this was to demonstrate a causal argument for how physical and psychosocial forces shape and produce perceived results in recreational activity settings. It was hoped that this study would help researchers gain an understanding of the mediating factors and defining characteristics of self-esteem of youths and adolescents with physical disabilities.

3.5 Preliminary Observations

Before approaching participants for recruitment in this study some preliminary observations were conducted at the research site. It was necessary to gain some knowledge about the swimming program, observational areas, and the participants,

parents/guardians and instructors themselves. It was necessary to determine the number of participants in the program, types and classification of disabilities, and how the program operated with regard to supervision and care of participants. More specifically it was essential to observe the types of social interactions and the activity involvement between the instructors and participants, participants themselves, and total group activity. This was salient for the development of an observational checklist that could be easily utilized for monitoring all types of social and physical behavior of the participants while attending the recreational swimming program.

The researcher was not directly involved with the delivery of the program, but needed to be positioned for observation so that the participants' behavior could be viewed easily while not influencing or hampering participant behavior and program objectives. It was essential to remain a silent observer and the layout of the location allowed this to occur as there was an elevated observation deck that offered a great vantage point.

After conducting four weeks of preliminary observations and asking questions to program directors, parents/guardians of participants, and instructors, it was determined that the swim program was a nine-week program that offered recreational services to children and adolescents with physical disabilities. This recreational swimming program was offered by the Children's Rehabilitation unit at a Children's Hospital in Eastern Canada, and was an ongoing program that began every nine weeks throughout the year. It was also determined that there was a high rate of return to the program and as a result it was possible to identify probable participants. Lastly, for obvious safety reasons, no more than fifteen participants were allowed to register for this recreational swim program at any one time.

Children attending ranged in age from six to seventeen years, and had various types of disabilities including traumatic brain injuries, cerebral palsy, spina bifida and chromosomal abnormalities. Depending on the disability type and severity, several types of assistive devices including wheelchairs, canes, and walkers were used for ambulation. While in the pool, the children and adolescents with more severe forms of physical disabilities used assistive floatation devices. Furthermore, parents/guardians were required to prepare (dress/change) their children and adolescents for the recreational program and bring them to the swimming deck where instructors helped the children and adolescents into the pool. At all times during the program, participants had one-on-one care with their swimming instructor. At no times were children and adolescents left unattended.

It was noteworthy that some participants brought siblings with them to the recreational swimming program. Family support was evident from the start of the program and siblings helped to enhance the social interaction and comfort in the swimming environment. Parents often watched their children from the observational deck, pool deck or waiting area during the swimming program and consequently were easily to approach a month later, at the time of recruitment for this particular study.

3.6 Study Participants

Two children and four adolescents ranging in age from eleven to seventeen years, with various forms of neurological disorders voluntarily participated in this study. Four females, three with cerebral palsy and one with spina bifida, and two males, both with cerebral palsy, took part in all aspects of this study.

Participants were selected based on the following criteria:

- The participant had to be involved in the recreational swimming program.
- The participant had to have either cerebral palsy or spina bifida.
- The participant had to be between the ages of eight and sixteen.
- The participant's parent/guardian had to be available and willing to provide consent for the participant's participation, as well as their own.
- The participant had to have the cognitive ability to communicate for survey/questionnaire and interview purposes.

These criteria were established prior to gaining ethical approval and conducting preliminary observations and were based on the literature reviewed and discussions with program directors. Because the research was to investigate the perceived benefits of recreational swimming programs for children and adolescents with neurological disorders, only children and adolescents actively taking part in the recreational swimming program were approached to participate. Furthermore, only participants with cerebral palsy and spina bifida were asked to participate because these disabilities are forms of the neurological disorders under investigation. All remaining participants in the swimming program were not approached for participation because they did not meet study criteria.

The age range was determined specifically because self-esteem development is essential at all stages of life; however, self-esteem issues present themselves more often in late childhood and during adolescence. The age range was selected in hopes that participants would show changes in self-esteem at these critical developmental junctions. In one instance a seventeen year old was included in the study because she was sixteen years of age at the time of recruitment and during the eight-week swim program itself.

As the participants were considered minors a parent/guardian had to consent for their participation in this study. In addition parents were asked to give their own consent for participation in the instance where additional information was necessary. In five of the six cases, parents gave voluntary information concerning disability classification and history and in one case, parents accompanied their son during the interview phase of this study.

Severe forms of cerebral palsy and spina bifida are accompanied by other disorders including other impairments, poor comprehension skills, learning disabilities, speech problems, and in some cases an inability to communicate how they feel. It was determined that such complications would hinder the data collection and therefore the study was limited to including only those with mild and moderate cerebral palsy and spina bifida. These participants required some physical assistance, however they were able to understand the purposes of the study and were able to communicate how they felt during the interview portion. This was essential for the collection of accurate and valid information.

Before approaching possible participants a meeting was conducted with a recreational specialist at the Children's Hospital. She had been involved with the Children's Rehabilitation Swimming Program for years and was quite aware of the program objectives and participants. She discussed potential participants based on selection criteria and stated that she would notify parents and guardians of this study and warm them to the idea of participation. This proved beneficial, given that when it came time to approach the parents, many admitted to having prior knowledge of this study and were very interested in participating.

Based on preliminary observations parents were approached on the first day of the swim program. Introductions took place and parents were told about the research study being conducted. As stated above, many already knew about this study and some admitted to completing studies similar to this in the past. Parents/guardians were presented with an information package that was designed for this study. The package included some background information outlining the purpose of the study and highlighting ethical approval (Appendix A), a consent form (Appendix B), and a self-esteem inventory/questionnaire (Appendix C). This package also contained the questions to be used for the interview of their children and adolescents (Appendix D, Appendix E). Parents were instructed to read the information package, sign the attached consent form, have their child answer the questionnaire (self-esteem inventory), and return both forms the following week, if they and their child were interested in participating.

Three of six parents were interested in signing the forms immediately, therefore the material was discussed with them and participants were instructed to complete the self-esteem inventory before entering the pool. The other three participants simply returned the consent form and self-esteem inventory/questionnaire the following week. Observational behavior such as physical activity and social interaction was not collected until week two of the recreational swimming program.

3.7 Data Collection

A variety of quantitative and qualitative methods were used in this particular study to aid the collection of pertinent information regarding participant self-esteem and recreational swimming experience. Self-esteem inventories/questionnaires were completed by participants, observational data was collected via a behavior checklist,

semi-structured interviews were conducted with participants, and specific questions regarding disability were asked to parents/guardians. The questionnaires were completed at two different phases of the research and were analyzed upon completion. The primary researcher conducted and recorded all observations during the nine-week swimming program. At two different times during the data collection process, colleagues were asked to collect observational data to determine the inter-rater reliability of the behavior checklist. All semi-structured interviews were conducted at the participant's homes following the completion of the nine-week program. Interview times were scheduled beforehand and questions were asked of parents/guardians at this time regarding type and class of disability, in the instances where this information was unknown. These interviews were tape-recorded for transcription purposes.

3.7.1 Self-Esteem Inventory/Questionnaire

The Rosenberg self-esteem scale was developed in 1965 and is perhaps the most widely used self-esteem measure in social science research. It was developed in an attempt to achieve a uni-dimensional measure of self-esteem (Rosenberg, 1965) however there are other definitions and measures of self-esteem. It should be noted that this scale has high reproducibility and reliability and typical test-retest correlations fall in the range of 0.82 to 0.88.

The items on this scale represent a continuum of self-worth statements ranging from statements that are endorsed by individuals with low self-esteem to statements that are endorsed only by persons with high self-esteem. The ten-question scale is scored by four response choices ranging from "strongly agree" to "strongly disagree." The original statements include:

1) On the whole, I am satisfied with myself.
2) At times I think I am no good at all.
3) I feel that I have a number of good qualities.
4) I am able to do things as well as most other people.
5) I feel I do not have much to be proud of.
6) I certainly feel useless at times.
7) I feel that I am a person of worth, at least on equal planes with others.
8) I wish I could have more respect for myself.
9) All in all I am inclined to feel that I am a failure.
10) I take a positive attitude toward myself.

Positive and negative items are presented alternately in order to reduce the effect of answer repetition. While the reader may question some of the items, there is little doubt that the items deal with a favorable or unfavorable attitude toward oneself. To view the self-esteem inventory as it was given to participants, please see Appendix C.

The completed self-esteem inventory and analysis was used to establish a base line score to which the final self-esteem score of each participant would be compared. After completing the nine-week swim program, participants were gathered at the end of the final swim day and were individually asked to complete the same questionnaire. Four of six participants completed the questionnaire on location, whereas the other two participants completed the inventory following their semi-structured interview at their homes.

3.7.2 Behavior Checklist

After viewing the relevant literature in the field of recreation, physical activity and behavior, it became quite apparent that no existing behavior checklist, measure or social interaction scale would be appropriate for this study. Some measures were designed specifically for the school environment, some were designed for clinical evaluation, and others were designed for use by parents to monitor their child's behavior at home. These checklists and scales were very extensive, involved rigorous protocol, were time consuming and deemed unacceptable for this study. This study required a checklist that could be easily implemented to monitor physical as well as social activity among a large group of individuals, specifically participants, instructors, and peers. This checklist needed to organize large amounts of information while having easy to follow protocol. It was also necessary to be able to record information quickly, all the while maintaining observation of all participants. The behavior checklist (Appendix F) was designed to meet these needs and enhance the data collection process. Furthermore, the behavior observed through this checklist, specifically physical activity and social interaction, would help validate findings reported by participants during the interview phase.

The checklist was organized around 2 classes of natural human behaviors: Physical Interaction and Social Interaction. Each class was then subdivided into 3 categories. Physical Interaction was divided into category 1) Engage with Instructor, 2) Engage in Activity/Contact with Peer or Instructor, and 3) Engage in Activity/Contact with Group. Social Interaction was divided into category 1) Verbal Interaction with Instructor, 2) Verbal Interaction with Peer, and 3) Verbal Interaction with Group.

Each of these subsequent categories was further separated into different types of contact and physical activity, and different types of verbal interaction. Under Physical Interaction, category 1 was divided into two additional subsections: Proximity/Physical Contact, and Signs of Physical Encouragement. Category 2 was divided into four subsections; Splash Water or Activity, Swimming with Peer/Instructor, Games, and Physical Encouragement. The third Category was also divided into four subsections: Splash Water or Activity, Game with 2+ Peers (Instructors Present), Game with 2+ Peers (No Instructors Present), and Physical Encouragement. Under Social Interaction, both Categories 1 and 2 were divided into three subsections: Greeting, Brief Conversation, and Lengthy Conversation. The final Category was organized around these three subsections: Greeting, Brief Conversation, and Lengthy Conversation, furthermore behavior was placed in categories based on whether the instructor was present or not.

Further delineation was also required with regard to some subsections. For organizational purposes, Proximity/Physical contact had five alternative behaviors; hold body/torso while swimming, hold hands/hand while swimming, swim 1meter apart (contact), swim with a distance greater than 1 meter apart (contact), and leave instructor (no contact). Signs of Physical Encouragement also had five probable alternative behaviors; pat on back/head, shake hand, high five, jumping up/down (excitement), and clapping.

During the preliminary observations the types of physical activities and social behaviors the participants engaged in were determined. Based on the observations it was possible to organize the checklist around these behaviors and define the criteria for each specific behavior. It was necessary to define all unclear terms and behaviors beforehand

so that all observational data would be consistent from one subject to the next. With regard to Physical Interaction, activity was defined as any type of behavior that involved physical activity or contact that was not considered a game (dunking peer/instructor, actively engaging in movement in water environment). Swimming was defined as any type of swimming activity or guided stroke performed in the water (floating, front crawl, breaststroke, back stroke, side stroke, or doggy paddle). A game was defined as any activity guided by rules (basketball, catch, volleyball, ring around the rosie) or activity involving the use of an object (water gun, ball, or water toys). Regarding Social Interaction, a greeting was defined as an appropriate verbal introduction or gesture that lasted five seconds or less. A brief conversation was defined as conversation between two or more people lasting less than 20 seconds. A lengthy conversation was defined as conversation between two or more people lasting more than 20 seconds.

Based on preliminary observations it was possible to determine the natural order of participant behavior therefore, the checklist was designed based on this hierarchy of physical and social behavior. Participants dealt with their instructors one-on-one for the entirety of the program so this interaction was placed first on the list of behavior. Participants then moved to peer interaction and lastly to group physical and social interaction. Each category of behavior was subdivided into a hierarchy of behavior. On the Physical Interaction side of behavior, activity and splashing water occurred before swimming with peer/instructor. Participants then moved to swimming then to games with two or more peers, and finally to games with two or more peers (no instructors present). On the Social Interaction aspect of behavior, the checklist hierarchy was presented as greetings first, then brief conversations and lastly, lengthy conversations.

When it came time to record the participant behavior a check was placed in the appropriate section on the checklist and if a behavior was repeated this was represented by multiple checks. It should be noted that for the first section of the checklist, under both Physical and Social Interaction; Engage with Instructor (Proximity/Physical Contact) and Verbal Interaction with Instructor, such behavior was seen as mandatory and multiple behaviors were not recorded. If a behavior occurred a check was placed in the appropriate section, however it was not recorded if the behavior happened again. Based on preliminary observations, instructors engaged one-on-one with their designated participants for the duration of the recreational swimming program and verbal interaction as well as physical contact occurred constantly while swimming. Thus, these interactions were seen as important but less meaningful than the other interactions and only recorded once for analysis purposes. In addition, if a behavior occurred that was self-initiated (a participant performed the physical behavior or initiated a conversation on their own accord) a C was placed by the check on the behavior checklist. These C's were then counted later to determine if changes in self-initiative behaviors occurred throughout the duration of the recreational swimming program.

It was hypothesized that participants would move away from constant interaction with their instructors and move toward more peer and group activity as the program progressed. It was also hypothesized that there would be more observable behaviors in the subcategories of games and lengthy conversations as the program advanced. Furthermore, it was hypothesized that self-initiated behaviors would increase as the program advanced.

3.7.3 Interviews

In order to obtain information about the recreational swimming program's perceived impact on participants, an open-ended semi-structured interview guide was developed. At present there is no one specific standardized method of measuring self-concept or self-esteem in disabled populations, therefore rather than devise new assessments, one existing interview guide which has been used and validated in other studies (Arnold & Chapman, 1992; Blinde & McClung, 1997) was modified to suit the needs of this study.

To allow for an in depth look into the phenomenon the interview guide consisted of open-ended questions grouped into four specific areas. General information was collected about: 1) the overall participant experience; 2) impact of participation on physical abilities and body perceptions; 3) on social self-efficacy and; 4) on independence and competence and included a number of questions (See Appendix D and E for interview guides). Younger children answered questions from the modified interview guide, while adolescents were asked questions from the full interview guide.

It should be noted that depending on the intellectual ability of the participant, some questions were used from both interview guides. Furthermore, to encourage participants to discuss topics thoroughly, open-ended questions were asked with probing techniques. Depending on the response, participants may have been asked, "Why do you think that?" or "How does that make you feel?" or "Could you please give me an example?" Interviews were tape-recorded to ensure accurate data gathering and to facilitate smooth uninterrupted responses. Depending on the length of answers and the depth of information, interviews ranged in length from 25 to 55 minutes. All interviews

were conducted in the privacy of the participant's home in a comfortable sitting area. Five of six interviews were conducted with the participant alone while one interview was conducted with parents present

3.8 Data Analysis and Interpretation

3.8.1 Rosenberg Self-Esteem Inventory

Statistical analysis was used to quantify some of the research material and serve to help increase the validity and reliability of the results with regard to self-esteem. A paired T-test was employed to compare pre and post Rosenberg self-esteem scores and determine the statistical significance of the differences in self-esteem scores. Each questionnaire was scored appropriately and compressed to analyze the difference between overall self-esteem scores. Ratings were assigned to all items and compressed after reverse scoring the positively worded items. To be specific, a rating or 4 was given to all positive and negative worded items in the instance where an answer was given that reflected the most positive self-esteem. Scores ranged from 10 to 40, with higher scores indicating higher self-esteem. The significance level was set at $p < 0.05$.

3.8.2 Behavior Checklist

After collecting data on the observable behaviors of swim program participants, all checklist data had to be scored for interpretation. It was determined that the scoring would follow a similar hierarchy as behavior did with the checklist design. Each behavior was given a point value based on importance. Please see Appendix G for accurate scoring design.

Under Physical Interaction, in category 1, Engage with Instructor, subsection Proximity/Physical Contact, hold body/torso while swimming was given a point value of

1. Hold hands/hand while swimming was given a point value of 2. Swim 1 meter apart (contact) was given a value of 3, while swim greater than 1 meter apart (contact) was given a point value of 4 and leave instructor (no contact) was given a value of 5. Under all sections all signs of Physical Encouragement were given a point value of 1 and each self-initiated behavior was given an additional point. All points were then added together to get a final score for the section.

Under category 2 of Physical Interaction, Engage in Activity/contact with Peer or Instructor, splash water or activity was given a point value of 1, swimming with peer/instructor had a point value of 2 and games each had a value of 3. This section was also viewed as more important than interaction with the instructor alone so when the final score for the section was tabulated, this score was doubled.

Under category 3 of Physical Interaction, Engage in Activity/Contact with Group (2+ peers or instructors), splash water and activity was given a point value of 1, game with 2+ peers (instructors present) was given a value of 2 and game with 2 + peers (no instructors) was given a point value of 3. In addition this category was given three times the importance of the first category, therefore tabulated scores were then tripled. Scores for all categories were then added together to get a net score for the overall Physical Interaction on that particular swim day.

Under the Social Interaction class of behavior, for all categories of behavior, greetings were given a point value of 1, brief conversation a point value of 2 and lastly, lengthier conversation was given a point value of 3. The delineating factor came into play by looking at the importance of each category. Verbal Interaction with Peer was given twice the importance as Verbal Interaction with Instructor and final scores in this

category were doubled. Scores were tripled for Verbal Interaction with Group (Instructor Present) and scores were quadrupled for Verbal Interaction with Group (No Instructor). Similar to Physical Interaction, under all categories of social behavior an additional point was given to any self-initiated behavior under all categories. All scores were then added to determine the final net score for Social Interaction. A total score for combined physical and social behavior was then determined by summing the net scores for Physical and Verbal Interaction.

Initially, overall scores were not determined using the allotted point values. Each section was analyzed individually to determine if there were increases or decreases in specific behavior occurrences. Occurrence of a specific behavior was determined by simply adding the number of checks in a particular section. For example, if there were 3 checks under splash water or activity, than that particular behavior occurred three times during the duration of the swim program. Depending on the section, participant occurrences were graphed and it was possible to see changes in specific types of behavior patterns.

To determine changes in overall physical and social interaction patterns the hierarchal scoring system was employed and aggregate data were analyzed. Scoring occurred after each day of the swim program and aggregate data were then compared using graphical analysis for each participant. It was then possible to determine if there were any increases or decreases in the overall physical and social behaviors of the children and adolescents with physical disabilities attending the recreational swimming program.

3.8.3 Interviews

All interviews were conducted during the month of June 2003, and all interviews were tape-recorded. These interviews were then transcribed into written text (Appendix H) and proof read for accuracy. Each individual transcript was then read several times for preliminary content analysis and potential emerging themes. In the process of identifying common themes, patterns of responses, and concepts, comparisons were made among the six respondent transcripts. A high degree of consistency and mutual agreement by participants was required for the identification of a primary theme. To help this initial identification, a specific type of thinking, Hurricane thinking (Kirby & McKenna, 1989) was used to identify themes and organize patterns that emerged from the transcripts. In this process, transcripts were analyzed and summary sheets were constructed that contained relevant comments and quotes from the interviews with each participant, for each of the primary themes and patterns of responses and underlying concepts that were identified. These summary sheets were then analyzed again for underlying sub-concepts and generalities. When describing each major theme, specific quotes and responses were selected from each of the participant's summary sheets that gave the most insight into the outcome or phenomenon under examination.

3.9 Ethical Considerations

Due to the nature of this study and the group of participants involved, it was important that confidentiality and anonymity be maintained. Parents, guardians, youths and adolescents were informed of the purposes of the study and were asked to volunteer for the study. Given the nature of the recreational swimming program and program objectives, participants only completed swimming activities that they felt comfortable

with and that their abilities allowed. To ensure that the study was conducted ethically, all those interested in participating received an information package (Appendix A) highlighting the purpose of the research and containing consent forms (Appendix B), self-esteem questionnaires (Appendix C), and further interview questions (Appendix D & E). All interested parties were encouraged to read through the information package and questions they might have would be answered. Probable participants were asked to sign and return the letter of informed consent, which acknowledged that they understood fully the objective of the study and the methods to be used. It also gave the primary researcher, permission to release pertinent information following the completion of the study. Confidentiality was explained to them and they were informed that they had the right to withdraw from the study at any time without subsequent impact.

Safety factors were a concern for the participants, as they were registered in a program that required them to be physically active in water. Certified lifeguards were on duty at all times during the recreational swimming program. As well, all participants were accompanied one on one by a certified swimming instructor, while in this water environment and this decreased the chance of an injury or accident. In addition, participants registered for this Children's Rehabilitation Swimming Program on their own accord and were aware of the risks involved before recruitment for this study.

For the post activity interviews, parents or guardians were given the option to accompany their child/adolescent so that the interview environment would be as comfortable as possible for participants. Participants did not have to respond to any questions they felt uncomfortable with and were able to stop the interview at any time. Code names were selected by the participants to maintain confidentiality. As a final note,

before the onset of participant recruitment, ethical approval for the conduct of the study was granted by Memorial University of Newfoundland's Interdisciplinary Committee on Ethics in Human Research.

Chapter Four: Quantitative Findings

4.1 Introduction

Data were gathered over a four-month period (March 2003- June 2003) and consisted of swimming session observations (behavior checklist), questionnaires (self-esteem inventory) and semi-structured interviews with participants. The observational data were collected during the recreational swimming sessions for a total of eight weeks. The first observations were recorded on March 13 and final observations were recorded on either May 22, or on May 29, 2003.

4.2 Participants

Two children and four adolescents with various forms of neurological disorders agreed to participate in this study. The primary focus for the data analysis and interpretation was the information gathered by observing the physical and verbal interactions that took place between all study participants, swimming program participants, and instructors. It should be noted that all names used in this report are pseudonyms, and thus have been changed to protect the identity of the participants involved in this study.

4.2.1 Research Participants

Four females and two males agreed to participate and this sex distribution reflected the sex distribution in registrations for the Children's Rehabilitation Swimming Program. Eleven children in total were registered for the swim program and eleven instructors accompanied them in the pool. Five of these participants did not meet specific study criteria and were not approached for recruitment. Each participant, with their

chosen code name, will now be introduced as they were recruited for this study and their individual disabilities will be described.

Kayla was a 16 year-old adolescent, who had spina bifida. Only her lower limbs were affected and she used braces as an assistive device for mobility. Kayla and her mother were the first people approached for recruitment into the study. After discussing the study with them both, Kayla immediately agreed to participate. During this conversation it was learned that Kayla was exceptionally mild mannered.

Samantha was a high energy, 17 year-old adolescent, with cerebral palsy. She had been diagnosed as having spastic diplegia, where only her lower limbs were affected. Although her muscle tone was tighter than normal and she moved with stiff, jerky movements it did not prevent her from moving around. She did not use any type of assistive device and was quite mobile outside the swimming environment. Samantha and her mother were approached on the first day of the swim program. They had already heard about this study, and agreed to participate.

Heather, an eleven year old with cerebral palsy could only be described as a bundle of energy. She was extremely talkative and energy exuded from her. Both her and her father wanted to hear details about this study when they were approached, and immediately offered to participate. From what was gathered about Heather's disability, she had been diagnosed as having spastic triplegia. In her case, one arm was involved and both lower limbs were extremely affected. She used both a wheelchair and walker for ambulation outside of the pool environment, but most often used a wheelchair.

Lindsay, an eleven year-old with cerbral palsy, had been classified as having spastic quadriplegia. All of her limbs were involved and her muscles had high tonicity.

She required the use of a wheelchair for all types of locomotion outside the swim program and had very little mobility both in and outside the pool environment. Lindsay used a lifebelt as a floatation device during her swimming sessions and was the most affected participant. On the first day her father was approached for recruitment purposes and the study was described. He was very interested and discussed it with Lindsay who then agreed to participate. It was quickly observed that Lindsay had a pleasant demeanor and always had a smile on her face.

Seth was a 13 year-old male, who had been diagnosed as having cerebral palsy. He had spastic quadriplegia, where all of his limbs were involved. Seth did however have a mild case and required no assistive devices for ambulation. Seth was extremely energetic and talkative and actually approached the researcher on the first day of the swimming program. He had not seen the researcher in the vicinity before and was very curious about reasons for attendance. Seth introduced the researcher to his parents and after discussing this study with them, Seth was included as a participant.

Matthew was the last participant and he was a very active and motivated sixteen year old. He too had cerebral palsy, and had been diagnosed as having spastic diplegia. He had extremely high muscle tone and all four limbs were affected: however, his legs were more affected than his arms. He used a cane for mobility outside the pool environment. Matthew was approached on the first day of the swim program and he was very interested in this study. He stated he would love to help and pointed out his parents. This research study was described to them, and Matthew became the final participant.

As a final note in this section a table has been included for clarification purposes and ease of identification.

Table 4.1: Participant and Disability Information

Participants	Sex	Age	Disability	Classification	Assistive Device
Kayla	F	16	Spina Bifida	Lower Limbs Affected	Braces
Samantha	F	17	Cerebral Palsy	Spastic Diplegia	None
Heather	F	11	Cerebral Palsy	Spastic Triplegia	Wheelchair Walker
Lindsay	F	11	Cerebral Palsy	Spastic Quadriplegia	Wheelchair
Seth	M	13	Cerebral Palsy	Quadriplegia	None
Matthew	M	16	Cerebral Palsy	Spastic Diplegia	Cane

4.3 Overview of Quantitative Findings

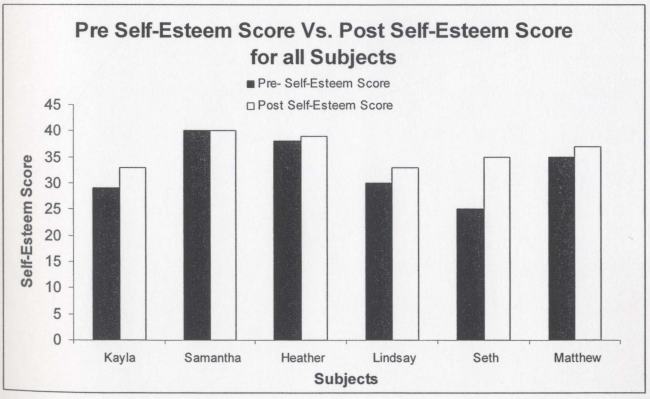
The quantitative findings from the four months of data gathering are divided into two sections: the Rosenberg Self-Esteem Inventory and Observational Data/Behavior Checklist.

4.3.1 Rosenberg Self-Esteem Inventory

As stated in Chapter Two the Rosenberg Self-Esteem Inventory was used to determine if there was a change in the self-esteem scores of participants with various forms of neurological disorders from the onset of a Rehabilitation Swim Program to its conclusion. This inventory was selected because of its simplicity and high reproducibility and validity. Based on subject responses and the scale options, participant's scores could fall anywhere between 10 and 40. A score of ten indicated the lowest self-esteem and a score of forty indicated the highest self-esteem registered by the scale.

In this study, five of the six subjects showed improvements in their self-esteem scores. Samantha showed no improvement in her self-esteem, however she scored the highest possible score of 40 on both the pre and post-self-esteem inventories. This suggests methodological concerns with the Rosenberg Self-Esteem Inventory. Samantha reached a maximum score on this scale and there was no quantitative way to tell if improvements in her self-esteem did occur. It would be interesting to see if the same results would have arisen if a different self-esteem questionnaire or inventory had been used. It is important to note that five of the subjects attained self-esteem scores of 30 or more on their preliminary self-esteem inventory however they also showed increased self-esteem nonetheless.

Figure 4.1 **Participants' Self-Esteem Score for Pre and Post Inventories**



Group Pre Self-Esteem vs. Post Self-Esteem Scores: Significant at the $p < 0.05$ level

4.3.2 Observational Data/Behavior Checklist

A behavior checklist was used to record the participants' verbal and physical behaviors. This checklist was divided into classes of behavior and a check mark was placed beside each of the designated behaviors each time they occurred. To determine the accuracy of observations using the behavior checklist, on two separate occasions, trained observers helped with the research. They were each given instructions to use the checklist, and the inter-rater reliability was calculated following these sessions. On all sections of data collection, the correlation coefficient fell between 0.76 and 0.99. The average correlation coefficient for the collection of data for this study was 0.96, indicating a very high level of objectivity.

All observations were recorded on individual behavior checklists and based on these all observable behavior was then scored according to the scoring methods described in Chapter Two. This observable behavior and information was then considered cumulative data; whereby all qualitative data was given a quantifiable score based on a hierarchy of behavior. All data was then analyzed and graphed for each participant and regression lines were added for ease of interpretation. For organizational purposes the results will be described and arranged by participant.

Before beginning it may be appropriate to re-acquaint the reader with some of the terminology used. Activity was defined as any type of behavior that involves physical activity or contact that is not considered a game. Swimming was defined as any type of swimming activity or guided stroke performed in the water. Lastly, a game was defined as any activity guided by rules, or activity involving the use of an object. Regarding Social Interaction, a greeting was defined as an appropriate verbal introduction or gesture

that last five seconds or less. A brief conversation was defined as conversation between two or more people lasting less than 20 seconds. A lengthy conversation was defined as conversation between two or more people lasting more than 20 seconds. In addition, a table will help outline the sections of the behavior checklist and observable behavior, and give the reader some visual aid for clarification and better comprehension.

Table 4.2: **Classifications of Observable Behavior**

Class of Behavior	Category of Behavior	Subsections of Behavior
Physical Activity		
	Engage with Instructor	- Proximity/Physical Contact - Signs of Physical Encouragement
	Activity with Peer/Instructor	- Activity - Swimming - Game
	Group Activity	- Activity - Game (Instructor Present) - Game (No Instructor)
Verbal Interaction		
	Verbal Interaction with Peers	- Greetings - Brief Conversations - Lengthy Conversations
	Verbal Interaction with Group (Instructor Present)	- Greetings - Brief Conversations - Lengthy Conversations
	Verbal Interaction with Group (No Instructor Present)	- Greetings - Brief Conversations - Lengthy Conversations

4.3.2.1 Kayla

Kayla's Activity with Peer/Instructor data showed improvements over time in all three categories of behavior. Kayla showed increases in her activity and swimming. She improved in activity and swimming with an increased number of times swimming with her instructor and increased in length of time spent swimming. She also showed a large increase in the number of games she participated in. At the beginning of the program she only took part in one game and on the last day she participated in seven games. It is important to note that on the last day of the swimming program, all participants moved from a large pool to a smaller, heated pool. This offered more opportunity for games and social interaction and may have been the primary reason for such a large increase in game participation.

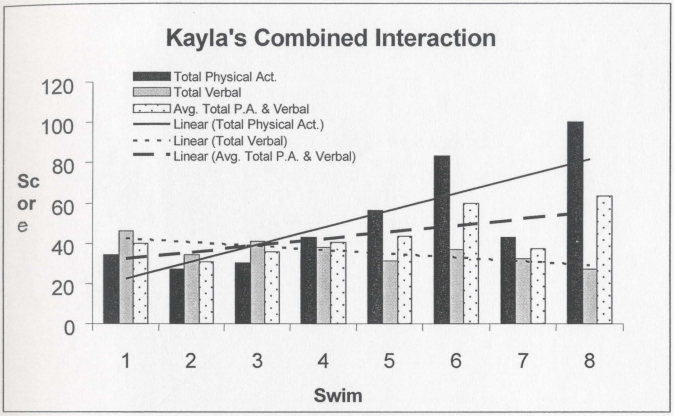
In Group Activity, Kayla showed an increase in game participation with an instructor present. This increase was accompanied by a decrease in activity, which made sense since only so many interactions were possible and there had to be a decrease in activity for such a large increase in games to occur. She increased the number of games in which she participated without an instructor present. Kayla did not participate in any games without her instructor's presence until the final day of the swim program, during which she participated in two games. Once again moving to the smaller of the two pools offered more opportunity for interaction and her confidence to show.

After compressing the verbal interaction data it was seen that Kayla showed an increase in the number of Greetings with peers. Trend analysis showed no change in brief conversations with peers, however there was a jump on the sixth day of the program where she participated in three brief conversations. In Kayla's Verbal Interaction with

Group (Instructor Present), she demonstrated an increase in the number of greetings in which she participated. The compressed data revealed no change in participation in brief conversations, but during the middle sessions of the program she increased participation but decreased her participation in lengthy conversations. From day one to four she participated in only one lengthy conversation and this did not occur again perhaps as a result of time spent elsewhere in another activity or swimming. After analyzing Verbal Interaction with Group (No Instructor present), the compressed data showed an increase in greetings. There was no change in the number of greetings but analysis showed an increase in the frequency of occurrence, meaning that her participation became more consistent and occurred on each of the last three days of the swim program.

A scoring system allowed data to be plotted graphically to determine changes in overall physical and verbal interactions. The analysis of Kayla's Combined Interaction showed an overall increase in average physical and verbal interactions throughout the duration of the recreational swim program (Figure 4.2). Lastly, Kayla showed large increases in her self-initiated interactions as the onset of the swim program she only initiated five interactions, whereas on the final day she initiated 19.

Figure 4.2: Kayla's Average Physical Activity and Verbal Interaction



4.3.2.2 Samantha

After looking at the compressed graphical data in the section Activity with Peer/Instructor, Samantha showed an increase in both activity participation and games for the duration of the swim program. Interestingly, there was a decrease in swimming when viewing the regression line as well as a decrease in the number of incidences swimming with her instructor, but from observation and reflection, Samantha increased in the length of time she spent swimming. This may have accounted for the decrease in actual incidents that are seen graphically. Furthermore, after analyzing Samantha's Group Activity, there was an increase in her activity participation and a decrease in her games (instructor present) participation. This may have resulted from her increased participation in swimming. She spent much more time swimming with her instructor at

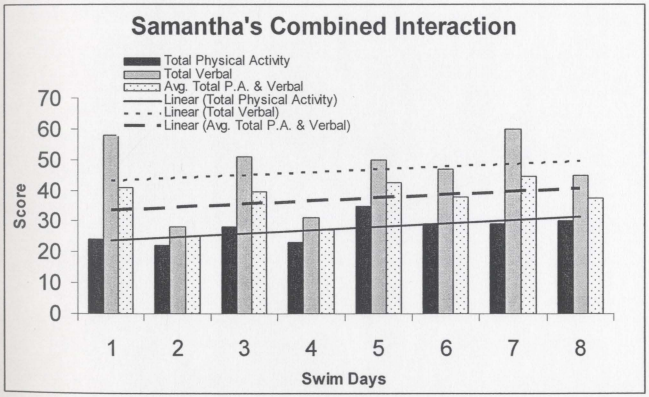
the conclusion of the program and this may have significantly decreased her opportunity for game socialization.

Analysis of her Verbal Interaction with Peers, showed that there were no change in the number of greetings she participated in, however she did show an increase in the frequency of their occurrence. Participation in greetings occurred more consistently at the conclusion of the program. She maintained her participation in brief conversation and at the same time decreased her participation in lengthy conversation with peers throughout the program. This could be explained by her increased time spent swimming specifically with her instructor. At the end of the program Samantha was very focused on her swimming strokes and spent very little time engaged in other activities.

In Verbal Interaction with Group (Instructor Present), Samantha showed similar increases in her involvement in greetings. Likewise, she showed an increase in the occurrence of brief conversations at the end of the program. The program was structured so that at the end of the session participants would move to a smaller pool and have ample opportunity for group and individual physical activity and socialization. Lastly, after compressing the Verbal Interaction with Group (No Instructor Present) data, Samantha again showed an increase in participation in greetings. She showed no sign of change with regard to her involvement in brief conversations; however, she did display a decrease in her participation in lengthy conversations. It is important to note that she only participated in one lengthy conversation which occurred on the first day of the program. This behavior did not occur again and therefore it may have been a fluke occurrence and not part of her regular social activity.

After combining both physical activity and verbal interaction data, and viewing Samantha's Combined Interaction graphically, she showed an overall slight increase in her average physical activity and verbal interaction (Figure 4.3). Samantha did show increases in both behaviors throughout the duration of the recreational swim program. She also showed increased initiative behavior and self-initiated interactions as on the first day of the program she initiated only seven interactions whereas at the conclusion she initiated as many as 12 verbal and/or physical interactions.

Figure 4.3: Samantha's Average Physical Activity and Verbal Interaction



4.3.2.3 Heather

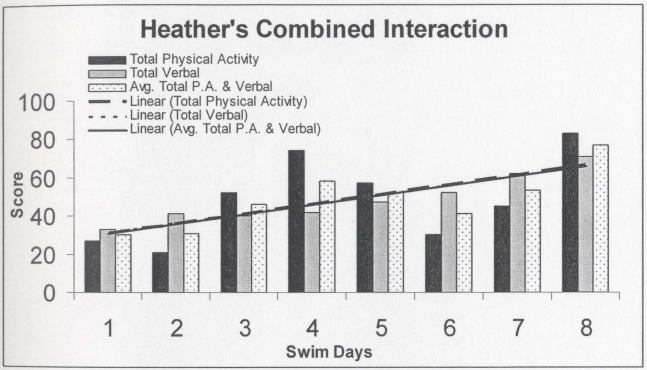
The combined data of Heather's physical activity, in Activity with Peer/Instructor, showed increased her participation in swimming and activity but decreased participation in games which may have resulted from her increased time spent swimming on the last few days of the program. Heather did participate in many games during the middle

sessions of the swimming program; however, the opportunity for these interactions decreased as she began to focus more specifically on swimming. In Group Activity, Heather showed large increases in her activity and games (instructor present) participation. She also took part in a game, with instructor present, on the last day of the program in the smaller pool where there was an increased opportunity for such interactions. This was the first time in the program where she felt comfortable enough to leave her instructor and participate in social group activity.

After viewing the aggregate verbal interaction data, Heather showed changes in her behavior under all three sections of verbal interactions. In Verbal Interaction with Peers, Heather showed decreased participation in greetings and increased participation in lengthy conversations. Her participation in brief conversations showed no change. In Verbal Interaction with Group (Instructor Present), Heather increased her participation in both greetings and brief conversations throughout the duration of the swim program. She demonstrated no change in the number of lengthy conversations she participated in, however there was an increase in the consistency of participation throughout the program. These conversations were less sporadic and occurred on both day seven and day eight. Lastly, in Verbal Interaction with Group (No Instructor Present), Heather again showed changes in all three categories of behavior. She increased participation in greetings, and brief conversations and furthermore, increased the frequency of participation in lengthy conversations. Heather was an exceptionally verbal individual who took every opportunity she could to socialize and talk with others when not focused on swimming.

Heather's combined physical activity and verbal behaviors (Figure 4.4) showed that she had increased her average physical activity and verbal interaction throughout the program. In addition, she increased her self-initiated interactions from six to as many as sixteen as the conclusion of the program.

Figure 4.4: Heather's Average Physical Activity and Verbal Interaction



4.3.2.4 Lindsay

Post analysis of Lindsay's physical activity revealed that she increased all aspects of her physical activity involvement. In Activity with Peer/Instructor, Lindsay increased her participation in activity, games and swimming. She did not increase the number of swimming incidents, however she did increase the amount of time she spent swimming on the last few days of the swim program. At the conclusion of the program, Lindsay swam consistently for the last four swimming sessions. In Group Activity, Lindsay increased her participation in group activity and her participation in games with an instructor present. She also participated in three games without her instructor's presence

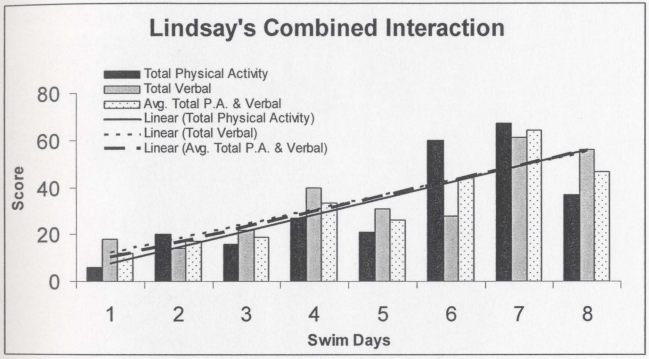
on one of the final days of the swimming program. Most of this activity and participation took place during the final sessions showing increased sociability, confidence and comfort with her group.

After analyzing the verbal component of Lindsay's behavior from the checklist, she again showed changes in her behavior. In Verbal Interaction with Peers, there was no change in the number of greetings she participated in, however Lindsay did participate in one brief conversation at the conclusion of the swim program. Because of her lack of strength and physical mobility, Lindsay was accompanied by her instructor at all times while in a large swimming pool which lowered her interaction with peers only. In Verbal Interaction with Group (Instructor Present), Lindsay increased both the number of greetings she participated in and her participation in brief conversations. These increased behaviors were seen throughout the duration of the swim program. In Verbal Interaction with Group (No Instructor Present), she demonstrated increased participation in brief conversations and she participated in one lengthy conversation during the concluding sessions of the program. It should be stated that Lindsay had limited interaction with peers and groups without her instructor's presence. The only group interaction she experienced without her instructor occurred in a small pool where she could sit unaided and others could approach her.

The compressed graphical data of both her physical and verbal components of behavior showed that Lindsay had made large increases in her average physical activity involvement and verbal interaction (Figure 4.5). More importantly, these large increases in behavior were seen consistently throughout the duration of the recreational swimming program. In addition, Lindsay increased her self-initiative behaviors. She initiated only

three interactions at the onset of the swim program, however initiated as many as 11 at the conclusion of the swim program.

Figure 4.5: Lindsay's Average Physical Activity and Verbal Interaction



4.3.2.5 Seth

It is important to note that Seth refused to swim in the large pool because of his sensitivity to temperature so he only swam in the small heated one. Subsequently, the numbers of physical activity and group activity occurrences were much larger than the other participants because he spent the whole of every session playing games and participating in various activities.

In Seth's Interaction with Peer/Instructor, the regression lines of the graph show that Seth did not change his overall participation in activity and games. After viewing the graphical data, Seth showed an increase in participation in both activity and games during the middle sessions of the program but then this behavior decreased. In Group Activity,

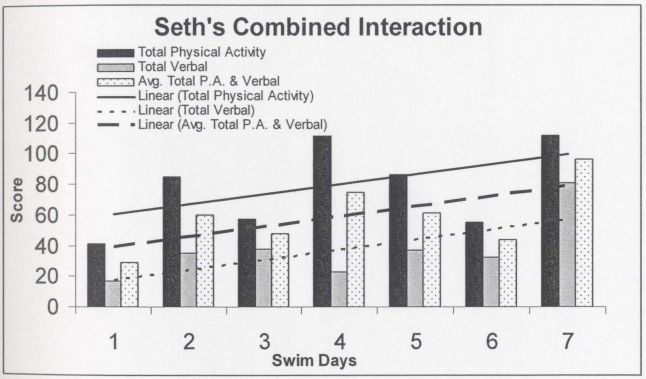
he again increased his participation in activities, games (instructor present) and games (no instructor present). Interestingly, Seth showed most of these increases in behavior on the last two days of the program. This made sense because many of the other participants moved over to this smaller pool for longer periods of time on the final days of the program for increased socialization and group activity.

In Verbal Interaction with Peer, Seth showed increased participation in greetings, by the number and consistency of them, throughout the program. He demonstrated increased participation in lengthy conversations with increased frequency of these in the final 2 days of the program. In Verbal Interaction with Group (Instructor Present), Seth showed no change in the number of greetings he participated in and occurrences were sporadic. He did participate in two lengthy conversations on the final day of the swim program and he maintained his participation in brief conversations. This behavior occurred daily throughout the swim program. When the opportunity arose to speak with another participant Seth took that opportunity. In Verbal Interaction with Group (No Instructor Present), Seth showed no patterns of change in his behavior. His participation in both greetings and brief conversations were sporadic and in no way numerous. For the entire program he only participated in five greetings and brief conversations without his instructor present. It can be said that Seth was much more physically minded and enjoyed participating in games and social activities more so than conversations.

Seth's combined physical activity and verbal interaction data, revealed an increase in both physical activity involvement and verbal interaction throughout the program. Though there was a considerable difference between the amount of physical activity and verbal interaction, Seth did show increases in both behaviors. Overall he

showed increased average physical activity and verbal interaction from the onset to the conclusion of the program (Figure 4.6). Furthermore, Seth showed increased initiative behaviors. He increased his confidence and was less inhibited and improved his self-initiated interactions from a total of 10 at the beginning of the program to a maximal effort of 22 at its conclusion.

Figure 4.6: Seth's Average Physical Activity and Verbal Interaction



4.3.2.6 Matthew

After viewing Matthew's Activity with Peer/Instructor, he showed large increases throughout the duration of the swim program in both activity participation and swimming. At the conclusion of the swim program Matthew spent much more time developing swim strokes and was more focused while swimming. He also showed consistent behavior with participation in games. In Group Activity, Matthew demonstrated increases in activity, and participation in games (instructor present) and games (no instructor present). Interestingly, Matthew engaged in games without his

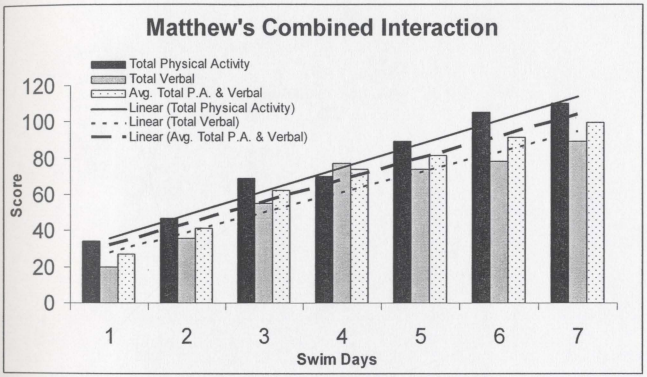
instructor's presence on the last three days of the swim program. His increased self-confidence may have led him to move away from the security of his instructor and engage in group activities and games by himself. In addition, Matthew was an active individual and his numbers of physical activity involvement and games ranged from two to six incidents, much more than any other child.

Analysis of Matthew's Verbal Interaction patterns, in Verbal Interaction with Peer, demonstrated an increased the number of participations in greetings, with consistent lengthy conversations throughout the program. He also showed consistent participation in lengthy conversations with peers. Matthew did demonstrate sporadic participation in a conversation if another participant was present, otherwise he engaged in another activity. In Verbal Interaction with Group (Instructor Present), Matthew increased his participation in greetings and brief conversations, and he maintained his involvement in lengthy conversations. He did not show any change in number of occurrence or frequency of lengthy conversations, however. Lastly, in Verbal Interaction with Group (No Instructor Present), Matthew increased his participation in greetings throughout the swim program. He also increased the consistency of his participation in both brief conversation and lengthy conversations at the conclusion of the swim program. Matthew showed increased confidence and comfort with program participants and increased verbal interaction as a result.

After combining the verbal interaction and physical activity data, Matthew showed constant increases in all aspects of both his physical activity involvement and verbal interaction throughout the swimming program. He also demonstrated large increases in average total physical activity and verbal interaction from the onset to the

conclusion of the program (Figure 4.7). Moreover, Matthew showed large increases in his own initiated behaviors as he increased from five self-initiated interactions to a maximum of 21 on the final day of the program.

Figure 4.7: Matthew's Average Physical Activity and Verbal Interaction



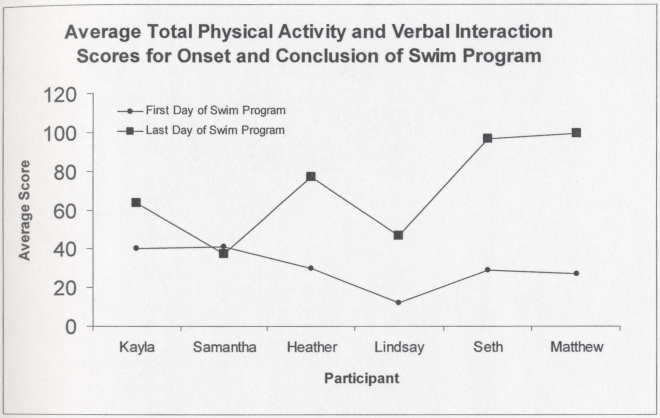
4.4 Summary of Quantitative Findings

It was not possible to complete a group comparison among participants because of previously mentioned limitations including disability type and participant experience however, it was possible to highlight similarities in participant behaviors and trends in observable behaviors throughout the recreational swimming program's duration. In summary the results concluded five participants showed increases in self-esteem (Rosenberg Self-Esteem Inventory) following their participation in a recreational swimming program. A paired t-test was used to determine the statistical significance of the difference between pre and post self-esteem scores, and the test was statistically

significant at the $p = 0.035$ level. All six participants showed significant increased self-initiative behaviors from the onset to the conclusion of the swim program ($p=0.001$).

Lastly, and most importantly, all participants showed changes in both physical activity involvement and verbal interaction throughout the program. Most participants began to interact in increased group activity and games and participated in additional greetings, brief conversations, and lengthy conversations at the conclusion of the swimming program. In addition, participants began to move away from the comfort of their instructor and engaged in group activity and verbal interactions without their instructor's immediate presence. The combined observable data determined their average physical activity involvement and verbal interaction from the first day to the last day of the program, with five of the six participants demonstrating statistically significant ($p=0.018$) increases in average physical and verbal behaviors (Figure 4.8). Interestingly, the only participant who showed no increase in physical and verbal behaviors also demonstrated no change in self-esteem. This demonstrates that she may already have the coping skills (physical interaction skills and social skills) necessary to maintain her self-esteem.

Figure 4.8: Participant Average Physical Activity and Verbal Interactions Scores for Onset and Conclusion of Swim Program



Paired T-test: Significant at $p = 0.018$

Chapter Five: Qualitative Findings

5.1 Introduction

To help support quantitative findings and reveal possible mediating factors for self-esteem, participants were interviewed in the privacy of their own homes and asked questions pertaining to their overall swimming experience. It was hoped that the interview would allow the subjects to reveal their true feelings and perceptions about their participation and exhibit the personal growth and development they underwent as a result of outcomes experienced in both the physical and social domains of the program.

5.2 Methodological Review

After the completion of the program, participants were interviewed by the primary researcher. The semi-structured interview guide was divided into four sections: Participant Experience, Physical Capabilities and Body Perceptions, Social Interaction, and Independence, so as to organize the material. Open-ended questions were asked to gain insight into the overall physical, mental and social factors involved in a recreational swimming program. In addition, probing questions were used to encourage respondents to elaborate on or clarify a response. These responses provided an in-depth awareness and understanding of their experiences while swimming. All interviews took between twenty-five and fifty-five minutes to complete based on the amount of participant disclosure. Lastly, participants were not required to answer any questions they felt uncomfortable discussing.

5.3 Analysis of Qualitative Data

Tape-recorded interviews were transcribed verbatim and proofed for accuracy, with each transcript read several times for content analysis and emerging research

themes. Comparisons were made among the six transcripts in order to identify common themes, patterns of responses, and outcomes and analysis resulted in a high degree of consistency and mutual agreement among participants on the primary themes. Hurricane thinking (Kirby & McKenna, 1989) was employed to organize the primary themes and the specific patterns. Summary sheets were constructed that contained relevant comments and quotes from the interviews describing each of the primary themes and underlying patterns that emerged. These were reviewed again for underlying sub-themes and generalities with specific quotes and responses selected that best described each pattern and gave the most insight into the identified themes.

It is important to note that this study was exploratory with a small sample size for examining group similarities and differences; however group patterns were identified whenever all participants spoke of a particular underlying pattern relating directly or indirectly to a primary theme. It is equally important to note that qualitative research is generally presented in the first person, however for consistency, the third person writing style will be used.

Furthermore, it is important to state that the participants were interviewed only once and as a result all the quotations resulted from single interviews. To reduce unnecessary verbatim, introductory quotations for individual participants were cited only once. Additional quotations for each participant were not cited, as they were produced from the transcript previously referenced.

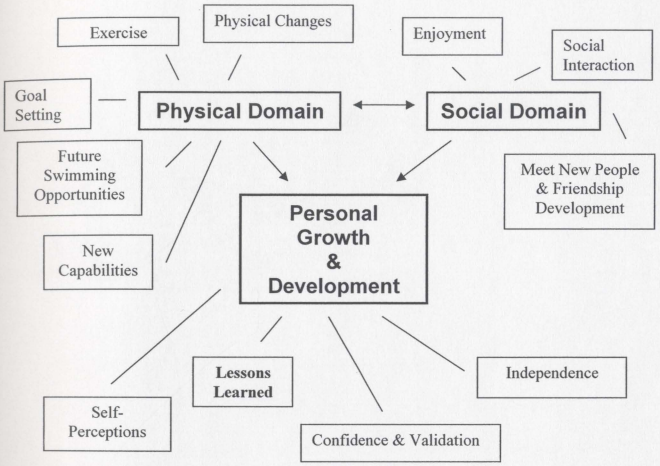
5.4 Results

Analysis of interview comments uncovered several primary themes and related patterns or outcomes that resulted from participation in a swimming program that were

important for children and adolescents with physical disabilities, specifically those with cerebral palsy and spina bifida. These perceived outcomes were grouped into three broader themes, which spoke to the overall participant experience. The primary themes the participants spoke of included: (a) Physical Domain; (b) Social Domain; and (c) Personal Growth and Development. Direct quotes from the participants (identified by pseudonyms from chapter three) were used to illustrate the primary themes and patterns that emerged from the interviews. Although not a primary theme, the water environment and its specific use as a medium to enhance physical capabilities was discussed by the subjects. This section was used to introduce the reader to the concept of buoyancy and its unquestionable value to persons living with physical disabilities.

Please refer to figure 5.9 for clarification and organization of the primary themes and mutual underlying concepts.

Figure 5.9: Primary Themes and Underlying Concepts



Note: Outcomes of both the physical and social domains resulted in personal growth and development. The interaction between these two domains was important, as both elements were crucial for growth and development and an overall positive swimming experience.

5.4.1 Water Environment

The swimming environment proved to be very important as it offered participants an opportunity to complete physical tasks that they could not complete elsewhere. After reading the group transcripts, all participants agreed that the water environment offered some very interesting outcomes as a result of the buoyancy. Furthermore, respondents discussed their new found physical capabilities in the swimming pool, which led to some very interesting self-realizations and self-perceptions.

5.4.1.1 Physical Capabilities in Water

The water environment proved to be very valuable to the participants as it was the one place where they could successfully perform physical tasks. The subjects were asked questions regarding self-perceptions of capabilities and eagerly responded about their self-perceptions of their own abilities in the program.

When asked the question, "Is there anything you can do in the water that you can't do anywhere else?" Heather responded, "I can jump…I can walk in my walker, but I can walk better in the water than I can anywhere else." (June). When asked if you can do anything in the water that you can't do outside of swimming or on land, other respondents replied in a similar manner. For example, Seth stated, "I can like, like walk faster in the pool…I can jump better, I can oh what is it, I can go faster…" (June), and Samantha exclaimed, "I am able to do a lot more in the water, like I'm able to jump and like move a lot freer, in like, you stretch my legs a bit more." (June). She also indicated that if she stopped swimming she would not be able to perform a lot of the things she was able to do now.

Lindsay and Matthew described the fact that the water environment made it easier for them to move and they felt energized and excited as a result. For example, Lindsay stated, "I can float and move my legs and arms easier…it gives me more energy when I swim." (June). When asked specifically what he did or did not like about swimming, Matthew responded, "O.K., I loved the whole buoyancy part, and being able to walk around, and walk backwards and walk sideways." (May). After being probed for more information he stated,

> "Yeah, I could walk forward and I can walk sideways but I…in order to walk sideways I needed to hold something. You know put my hands against the wall,

> slide sideways or if I needed to walk backwards, it would be kind of like find something to hold behind me and then move my legs backwards…But in the water I could just, back peddle or go sideways, I loved it. It was a new and interesting feeling for me. It was something I never experienced truly before."

Matthew reflected on the fact that his new abilities resulted from a very enlightening, positive swimming experience and were very welcomed. Other respondents highlighted the things that they were able to do best in the water and they spoke with great pride as they described this experience. Matthew also touched upon the issue of buoyancy in his preceding statement, when describing the things he could complete in the water. This is very important as it suggests the specific reason behind swimming as an effective intervention for those with physical disabilities, specifically spina bifida and cerebral palsy.

5.4.1.2 Buoyancy

In describing their swimming experiences, respondents were aware that their new capabilities resulted from a very specific phenomenon of water; buoyancy. Participants were asked why they thought they could complete tasks such as walking in the water, or what it was about the water that enabled them to complete such tasks. The older participants quickly talked about buoyancy while the younger ones talked indirectly about the way the water was. For example, when asked, "Why do you think you can walk better in the water?" Heather responded, "Because of the buoyancy." When asked for more details, she agreed that the support of the water helped her and she did not need to use anything to help her move. In a similar discussion, Seth explained that the water helped his knee problem, and thought that the water helped take the pressure off his knees and joints. In a similar discussion, Samantha described her experiences with buoyancy.

> Researcher: "Ok, so what is about the water that enables you to do that, do you think?"
> Samantha: "*I don't know I think, it may be the way the water is I suppose.*"

When describing her swimming experience, Samantha did not know the specific term used to explain the phenomenon but indirectly discussed the concept of buoyancy. Seth followed similar suit when describing the fact that the water medium helped take the pressure off his joints and helped to relieve his knee pain.

The swimming environment is very helpful for persons living with physical disabilities, as a type of intervention program to aid movement and enhance physical ability. Buoyancy, which describes how things feel lighter within rather than out of water is a force which pushes the body upwards in water (Nova, 2000). For persons with physical disabilities this equal force upward helps alleviate the force of gravity, and the equal forces of pressure on all sides of the body, help enable an immobile individual on land, to walk in the water. The buoyancy force upward on a body can reduce the force of gravity downward and relieve the pressure placed on joints and weakened muscles. Once this pressure is alleviated and the person feels somewhat weightless, they are able to move muscles and joints very differently and effectively compared to an out of water experience. Furthermore, equal pressure on all sides of a person submerged will enable an immobile individual to stand in the water as opposed to slumping under the force of gravity on land. Hence, a person who is unable to sit upright without help, stand unaided or walk on land, being in water enables them to move with ease and walk without assistance, and this helps build confidence, gives fulfillment, feelings of enjoyment, and positive feelings of self.

5.4.2 Physical Domain

The recreational swimming setting provides an environment in which children and adolescents with physical disabilities can engage in physical activity that is both physically and mentally purposeful. From reviewing the transcripts the first theme that emerged was that of the physical domain of the program and the specific outcomes that resulted. Respondents identified outcomes of physical activity participation that individuals with physical disabilities have had limited opportunity to develop. The participants all agreed that swimming gave them an opportunity to exercise and to keep fit. Further mutually perceived outcomes included, physical changes experienced by the body, future swimming opportunities, and increased physical capabilities. They also discussed their use of goal setting as a way to motivate themselves to ensure such outcomes.

5.4.2.1 Exercise

After reviewing the transcripts it became abundantly clear that exercise was a contributing factor involved in the overall enjoyment of the program. For example, when asked what participants really liked about swimming, respondents answered by saying, "the exercise" (Heather), "It's when I like move around and try to have races and stuff", "it gives me exercise" (Lindsay) and "it keeps me physically active, and I guess that's a good thing." (Samantha). There was mutual agreement that exercise was a key factor in their enjoyment of the program.

Exercise was also a motivator to get the children and adolescents to swim. This proved important as many children with physical disabilities do not get many opportunities for physical activity or fitness, as a result of negative views, misguided societal perceptions, and environmental limitations and constraints (Anderson & Clark,

1982). Heather was asked why she liked exercise so much and responded, "Because it gets me moving." When probed she admitted that exercise got her moving outside her wheelchair and that, "it feels great". Samantha was asked similar probing questions about and responded, "Yeah, like you know, getting fit I suppose…like keeping fit and I like doing it because it makes me feel good about myself." These particular statements emphasize how these positive exercise experiences led to enhanced self-perceptions and positive feelings. Kayla also supports this claim as when asked if it was the physical activity that was so good, she stated, "Yeah, being active just makes me feel good." (June). These comments indicated that exercise was linked to enjoyment and these feelings of joy were shared by participants and helped to enhance their positive feelings of self.

5.4.2.2 Physical Changes

The second outcome discussed was that of the physical changes their bodies underwent while participating in the swimming program. When asked questions relating to bodily changes, participants eagerly discussed changes specific to strength and/or flexibility. For example, Samantha was asked, "How has swimming helped your body?" and replied, "It's probably helped by knee bending and stuff like that. My leg strength…I don't know about my balance. I don't really pay attention to that but probably my leg strength, my arms and stuff like that." Matthew responded to a similar question, "What changes have you seen in your body since swimming?" by, "My shoulders and my chest are bigger because they get worked out…I'm more defined than I was before. Um, I know that I'm physically in better shape." Lindsay, however, focused

on her increase in flexibility and stated, "When I do my stretches, every time my dad does them on me, each time they get looser and looser."

Some respondents reflected on changes they experienced in their bodies as a result of swimming. Seth agreed that his legs worked better when he was in the water, however he did not think that his legs were any stronger. Kayla described her ability to get around better outside the water and revealed increased feelings of comfort with herself because she was stronger. Heather described how she felt the first time she performed a hand stand in the water and how good it made her feel because her arms were stronger.

These changes in strength and flexibility are very important for children and adolescents with physical disabilities. These changes in strength and/or flexibility enable a child who has had previous difficulty performing simple tasks to finally perform these tasks with success and competence. This in turn may lead to confidence in performing other previously unsuccessful tasks such as walking, playing other physically active games, or moving with ease. As described above by many respondents, this improved strength often lead to enhanced feelings of self in the pool environment and elsewhere. This is important as it suggests a carry over effect, meaning that children may take successes from the pool environment, because of their improved strength and mobility, and use this as motivation to try other activities outside the swimming program. Once these children realize that they can engage in physical activity successfully, they may be more apt to succeed elsewhere in society.

5.4.2.3 New Capabilities

The next pattern that was revealed was that of the new capabilities experienced by participants as a result of swimming and how they now felt about themselves being able to complete new tasks. All respondents agreed that they were capable of so much more in the water, however all participants experiences were different in nature. For example, Seth explained that he could now dive down under the water, something he was unable to do before. When asked how that made him feel, he stated, "It makes me feel, like I got less problems." which indicated his sense of normalcy when diving. Seth was comparing himself to others and by this statement he indicates indirectly that he feels more normal and therefore, better about himself.

Kayla similarly explained that she swam underneath the water one time while participating in the program. When asked how it made her feel, she said, "It was cool, it was the first time I ever did it, and it was new." This indicated that Kayla was reflecting on the fact that this new experience made her feel good about herself. Lindsay also felt better about herself because she was able to do something new (walk) in the water as she stated, "Well before I started swimming I couldn't, I don't think I could walk in the water and now I can." As opposed to feeling more normal, both Kayla and Lindsay felt better about themselves because they were able to do something for the first time. These feelings of accomplishment may have helped participants feel better about their physical abilities and helped to improve feelings of self-worth. All these feelings were very individual and reflected personal experiences and specific accomplishments while in the swimming program.

5.4.2.4 Future Swimming Experiences

Another important finding related to the physical domain was indicative of the active pursuit of future swimming experiences. When asked if participants would like to swim again, or asked, "Do you think swimming will be an integral part of your life?" all participants agreed that in some way they would always swim. For example, some responded with, "Yeah", "I can't see why I wouldn't", "Yes. Oh, yes!", and "Would I? Yeah. Of course."

Further prompting revealed why they would continue to swim. For example, Heather explained that swimming would always be part of her life because, "It's basically the only thing that always gets my legs moving." Lindsay followed suit by responding, "It's fun for me, and my legs move easier, and I get to hang out with my friends." This particular statement speaks to her enjoyment found while swimming and the social interaction. Matthew stated, "I don't think I will be able to remove swimming from my life. It's given me too much." When pushed as to why swimming would remain an integral part of his life he said,

> "It clearly is! And not just the in water stuff. It like, I got friends through swimming that I never would have had if I didn't swim. I made contacts with piles of people through swimming. Involvement in any sport will do that. I don't think that it is isolated to swimming but I'm glad swimming is in my life and it will be, I think, in some form or another always."

Matthew also spoke of the fact that swimming offered him an opportunity for social interaction.

In many cases children and adolescents with disabilities have limited opportunities for social interaction and physical activity as a result of social misconceptions and physical barriers (Thomas, 1989). The children in this swimming program were given the opportunity to participate in a social program where physical

activity was a major goal. These children had fun, were given the opportunity to exercise and made social contact with many other participants. As a result, they have been motivated to look for future swimming programs or similar physical activity experiences. In some instances such dance, horseback riding, and overnights with friends and family, participants had already found similar positive experiences.

5.4.2.5 Goal Setting & Motivation

The last underlying pattern was the use of goal setting as a way to motivate participants to challenge themselves while swimming. All subjects agreed that in some way they would set minor goals and push themselves in order to achieve. Seth explained that when he swam he would set his mind on something and just go for it. He stated, "If I want to do something I just try it for myself." When asked if she liked doing new things, Samantha responded, "I don't mind doing new things at all. Anything that's a challenge, really different I like to do." When probed as to why she enjoyed a challenge, she said, "I suppose I can say hey, I've done that before and nothing will stop me." It is clear that Samantha was driven to achieve and was not going to allow anything to prevent her from succeeding. Matthew as he was asked, "When did you feel really, really good when you were in the water?" responded,

> "Um…really when I started to accomplish things that were set out for me. Like whatever it was. Well the first time I felt like, I guess, I was on top of the world, was the first time my instructor asked me to do one length under the water and I pulled it off."

Clearly he was motivated to achieve a specific goal set for him and was obviously elated when he did so. These demonstrate that the completion of a task for the first time improves self worth and self esteem and that the accomplishment of small acts may be a driving force behind many participants' determination and will to succeed.

5.4.3 Social Domain

Another salient theme to emerge was the social experience of the subjects. Participants spoke of the social interactions they enjoyed from relations with other participants and instructors while participating in the recreational swimming program. Respondents discussed outcomes such as meeting new people and developing friendships while swimming. Furthermore children and adolescents described their own interaction with others, specifically those with and/or without disabilities. It became quite clear that even though these participants lived with physical disabilities and may have been discriminated against in the past, they themselves showed no discrimination as to who they selected as friends or interacted with. Participants discussed their enjoyment as a result of the social interactions and physical activity involvement.

5.4.3.1 Meeting New People & Friendship Development

As stated previously, children with physical disabilities often experience limited opportunities for socialization, as a result of physical barriers, social stigmas, and perceived lowered expectations of self and others (Thomas, 1989). While children and adolescents with physical disabilities may share similar desires as others to develop a rewarding social life, they often find themselves without the opportunity to satisfy these desires. It was revealed in the transcripts, however, that the recreational swimming program did indeed satisfy the desire for social interaction in this case. Respondents discussed these new opportunities to meet new people and develop potential friendships. When asked, "Do you enjoy meeting new people while swimming," all responded favorably making statements such as, "Yes, I love it!", "It's, oh gee whiz, I just really

like it,", "Oh, I love it because you get an opportunity to find out what other people are doing."

When probed as to why respondents enjoyed meeting new people, they explained that it enabled them to develop friendships and social networks. For example, when asked, "Can you tell me about swimming?" Lindsay stated, "It gives me time to meet up with my friends and it's nice to see some friends that I haven't seen in a long time." When asked additionally, "Why do you enjoy meeting new people?" she exclaimed, "Because then I have more people I can have friendships with." When asked the same question Heather said, "Because the more people I know, the more people I have to talk to, and the more friends I have…" Kayla also described her social interactions and she explained in the transcripts that she enjoyed, "Just being there with the people and my friends, and just getting out and about." Matthew described his social interactions favorably, and stated, "I met people I wouldn't have met if I didn't get involved with swimming. And there is a real chain of command there, you know, you meet people, and if they don't stay with it, you may meet them and their friends elsewhere. And you just meet more people."

These comments demonstrate that meeting new people and developing friendships are important to these individuals. The swimming program gave participants ample opportunity for social interaction with varying degrees of ability. Participants developed friendships in the pool environment that may have carried elsewhere and furthermore, established a network of friends or peers. This is vital because persons with physical disabilities often find themselves limited in this particular area. The swimming environment offered interaction opportunities, both physical and verbal, for all children

and adolescents to interact with both persons with physical disabilities and those without. This is important because persons with physical disabilities more often than not experience limited interaction, and less often develop meaningful relationships with able-bodied individuals as a result of negative perceptions and social stigmas (Thomas, 1989).

It was important to determine if negative social stigmas applied to this group of subjects. During the interview all participants were asked if they had many friends without any type of disability, all participants stated that they did in fact have multitudes of friends without disabilities. For example, when asked, "Do you have much interaction with peers without physical disabilities?" Samantha responded, "Yeah, all my friends at school and also the ones at the barn, like you know, they don't have disabilities. I get along with them just fine and I don't feel that I get treated any different, or I don't treat them any different than I would with my friends with disabilities." Matthew was asked, "How do you feel when you talk and interact with other people with or without disabilities?" and responded with, "Well for me I don't care. I've had a wonderful upbringing that sort of taught that it doesn't really matter."

These responses indicated that having a physical disability did not limit the subjects in developing friendships or social networks. Furthermore, these children and adolescents did not hold personal grudges or host any sense of discrimination against people without disabilities. Possibly their upbringing and family support may help to account for their positive perceptions of those without disabilities. As a result of positive experiences with the general public and peers they may have little if any bias. This may indicate that even when living in a world where living with a disability is viewed at times as negative and socially unacceptable, people living with these physical limitations do not

themselves absorb these negative views and treat people with the same negativity and disrespect. These children and adolescents participating in the recreational swimming program were able to overlook social negativity and bias and treat everyone as equals.

5.4.3.2 Enjoyment

All subjects agreed that swimming gave them a great deal of satisfaction which they perceived as a form of motivation for increased physical activity participation. For example, when Heather was asked if there was anything that she really liked or disliked about swimming, she responded, "Well there's nothing I don't like about swimming…it basically gets me moving and that it's a lot of fun." Lindsay responded to a similar question and said, "I just like swimming around in the pool, because its fun and it gets me to exercise." Kayla also answered the same question by responding, "It's just fun. It's really fun." Evidence supports the fact that any type of activity that is viewed as likeable will often increase the chance of further occurrence and this is valuable for children who experience little physical and social activity. Opposite of the renowned quotation by Henry David Thoreau, "misery loves company," it is perceived that persons enjoying an activity will seek future similar enjoyable experiences.

Seth, spoke about the joy he felt while swimming but he also spoke of this enjoyment in respect to social ties. When asked why he felt really good while swimming, Seth was quoted as saying, "Because, like…like I feel good because my friends are there, my family is there and like it's all fun." This quotation is very important as it suggests the importance of the association between physical activity and social interaction.

5.4.4 Personal Growth and Development

Each participant in the recreational swimming program described the personal growth and development they underwent as a result of the recreational swimming program. One outcome they discussed was the growth of their independence and how this had transferred into other areas of their lives such as school, their social life outside of the swimming program, and other sporting events. These subjects also described favorably how it felt to complete tasks by oneself. Participants described the sense of validation and confidence they experienced while participating in the water environment, and more importantly discussed the lessons they learned as a result of their experience.

5.4.4.1 Independence

It was clear that participants became increasingly more independent following the completion of the recreational swimming program. Participants discussed this new independence in terms of being able to do new things by themselves outside the swimming program. These conversations lead to the perceived outcome of transference as an underlying pattern. In describing their abilities to do things independently they referred specifically to this increased independence and its transfer to other elements of their lives. For example, when asked what types of things she could do all by herself with regard to swimming and her social life, Heather explained,

> "I go, like I have a lot more independence. I go on out with my friends to the mall. And like, these people that I know from different camps, they stare at me, like what is she doing just out with a couple of girls, thinking that it's my sister. I'm like no. I don't mind them asking those questions, because it's not very often you see a child out in a wheelchair with just friends."

Heather spoke of the importance of being able to participate in 'normal' social outing with friends without constant supervision of parents or caregivers. This is exceptionally

important for an adolescent who is discovering who they are and trying to develop their identity.

Samantha added further vindication to this statement when she said, "I find that swimming has helped me with like my other activity. Like horseback riding and dancing. Especially with like, the arm movements with dancing, it's helped me build up my arms…stronger arms and stuff." She spoke indirectly of independence and transfer resulting from her improved strength. Later in the same conversation Samantha discussed her independence with regard to activity at school. When asked what types of things has swimming helped her do and she stated, "Like in school…like if I never swam, my legs…I would get down there and I wouldn't be able to get up like all those flights of stairs by myself." She again claims that swimming has helped her become more independent at school because she is stronger and she can climb all the stairs by herself. In retrospect, this may have prevented her from having to take the school elevator, allowing her to fit in like any other student, and thus enabled her to establish a sense of normalcy.

Other participants described similar independent experiences. Seth described his independent schooling experience when he described the use of his new combination lock and said, "It's easier to use and I don't need anyone's help." When asked how swimming helped this to occur, Seth described that swimming enabled him to gain a sense of confidence and independence to attempt things by himself. In similar fashion, Kayla described her transfer of independence to her experience with plays and Lindsay discussed transfer with regard to riding her bike and horseback riding.

5.4.4.2 Self-Perceptions

An outcome that was discussed was their improved self-perception after completing tasks independently. Participants agreed that they felt better about themselves when they performed new things and were able to complete new tasks alone. Seth explained that he could walk and run and hold his breath and do things that he taught himself, and when he was asked how that made him feel he stated, "Good! It just makes me feel happy. It makes me feel happy because I don't feel like…my friends don't think I'm a baby." Samantha described her independence and the fact that she was able to help others. The made her feel good because she didn't have to be the one needing all the help because of her disability. Similarly, both Kayla and Lindsay described how they felt the first time they were able to perform a swimming task completely by themselves and both had very positive feelings of self. Kayla stated that, "It was new. It was awesome." and Lindsay said, "I felt really, really good."

Again these positive feeling of self and independence may have led participants to feel much better about their physical abilities and enabled them to focus on what they could do. This may in turn lead to increased positive feelings about themselves including self-esteem and self-confidence, and provide the motivation and drive for success and achievement outside the security of the specific swimming environment.

5.4.4.3 Confidence & Validation

The transcripts made it quite clear that the participants experienced increased confidence while involved in the program. Participants explained that they felt more confident in their own abilities and felt better about their bodies because of the support received from buoyancy. In addition, participants were no longer afraid to try new things because of their improved self-confidence. For example, in conversation with Heather,

she was probed for information regarding why she thought swimming helped her body. She explained that she was no longer afraid to attempt new things in the water, stating, "I'm much more confident in my abilities." Similarly, when asked, "Why do you feel better about yourself?" Samantha stated, "I feel better about myself. I don't know…Like, I feel more confident in the water."

This confidence also led respondents to attempt new and exciting endeavors outside the swimming pool. Early in a conversation Kayla explained that swimming helped her perform other things, such as plays. Probing questions were used to get her to explain this statement. This conversation is transcribed as follows:

> Researcher: "So you feel more confident getting up in front of people because you've swam?"
> Kayla: "Un hun, yeah."
> Researcher: "Yeah, so why is that?"
> Kayla: "I don't know." [pause]
> Researcher: "Like how…tell me a bit about that? About your plays and how swimming has kind of led you to do more plays."
> Kayla: "Because I'm used to people, like looking at me and watching me swim. I don't mind people watching me anymore."
> Researcher: "So with this you don't mind being in front of people now."
> Kayla: "No, just recently I was in a play, The Twelfth Night, in front of like 90 people or something."
> Researcher: "How did that make you feel?"
> Kayla: "It was cool!"

Kayla explained that by swimming in front of many other people, she learned to perform in the public eye. She began to develop a sense of comfort while being watched or performing under scrutiny or with judgment. When she realized that she could do things in the water, this helped to increase her self-confidence and she was then able to take this confidence elsewhere and attempt new activities in view of even more people.

This swimming program offered something of equal importance to the participants as it gave them an opportunity to prove to themselves and everybody else

that they were capable of succeeding in the pool. This program also gave them a sense of validation; that they could do things in the water just as well as anybody else and that they were no different to anyone else. Respondents revealed that they could prove to others that, 'I can do this' and 'I am just like you.' For example, when asked, "How did it make you feel when you could do something that your friends though you couldn't?" Heather exclaimed, "It felt great. I could like prove to them that I could do it too. I was explaining it to all the Guides, but I was like I just can. And they were like just explain to me how you did it. And I explained it to them and they were like, cool." Similarly, Lindsay stated, "Yeah, it feels good to show other people what I can do," when asked if she took pride in showing others what she could do.

Matthew described how his swimming experience related to his self-concept and indirectly to his sense of equality. He believed that, "In the water I wasn't quite as different as anybody else," and agreed that swimming brought him a sense of normalcy by stating,

> "…swimming brought a real sense of, I really am just like everybody else…I mean I always knew I was quote unquote normal. And just the way that things needed to be done might need to be different. But this was a way to let other people see it…and now I don't have to try as hard to convince you that what I am talking about isn't bull."

To summarize, this physical activity acted as a medium through which these children and adolescents could prove an emphatic point: that they could succeed in swimming and now could see this. The program acted as a type of non-verbal language for the subjects as in a sense they were saying to everyone through their swimming abilities, 'I told you so.'

5.4.4.4 Lessons Learned

The transcripts were condensed into some very powerful statements. All participants were asked, "What have you learned about yourself through swimming?" All responded differently, however each response was no less influential or valid. For example, Kayla learned, "Not to be so down on yourself." She learned not to be so hard on herself and that she can feel good about herself. Samantha adopted a very positive attitude early and truly believed that she could do anything she wanted if she put her mind to it, even with a physical disability, by stating, "I can do anything. If I put my mind to it I can do anything I want." She learned to develop an 'I can' attitude and did not accept her disability as an excuse to limit oneself. Lindsay learned that she could be more independent and stated, "I know that I can do stuff on my own." She learned that she could do things all by herself instead of always having things done for her. When asked about his learning experience Matthew stated,

> "I've learned that I am self-sufficient. I've also learned that I can be a leader. I will motivate people…I found out that I like being in front of people. I should say that I don't mind it. I also found out that I like it to be so that I have control over it…and I don't like to invest time in something that I don't believe can happen. Like, I wouldn't be swimming now if I didn't believe that I could do it, or I thought it wasn't beneficial for me."

For Matthew his swimming experience allowed him to learn things about himself in all areas of development. He also learned that he would be able to take care of himself if he was on his own because of his self-sufficiency. Matthew established that he liked to be in a position of leadership and control over his environment. He also learned that he would never spend his time completing futile activities when there were other activities he could be completing that would help him both physically and mentally.

When asked about the lesson he learned, in a similar positive light, Seth stated, "I can do just about anything that anybody else can do." Seth discussed his experience in

comparison to others and reflected that he was just as normal as the next person. He may have been slightly limited but this was not going to stop him from trying things. Similarly, Heather stated, "That I can try anything I want to try", when asked, "What have you learned about yourself through swimming?" Heather learned that nothing was going to prevent her from trying new things. If she wanted to do something, she was going to give it an attempt.

All subjects learned something truly wonderful about themselves through the swimming experience. Participants learned to be independent and confident and not to be placed inside a box by defying social bias and negative attitudes of society. Participants refused to accept that societal view that they were unable to perform and succeed well physically, socially or mentally. Participants did not accept this and refused to help fulfill this statement. If this was the rule, participants in this recreational swimming program were going to be the exception! Furthermore, participants learned that they could indeed perform well in the water and were able to prove this to others as a form of validation. Participants were able to prove a point and may have changed social attitudes in the process. Lastly, participants learned that they could do anything they put their minds to. Instead of adopting a self-handicapping attitude, participants were motivated to try new things, to accomplish small feats, and inevitably take this success outside the swimming pool environment. These may be seemingly small lessons for the majority of the population, but for those with physical disabilities these were huge lessons, on the right was to living a rewarding life.

5.5 Summary

After review of this chapter it can be read through the participants own words that the recreational swimming program is indeed beneficial to the physical, social and psychological needs of this group of participants living with cerebral palsy and spina bifida. Through participation in this swimming program, participants were able to experience outcomes in both the physical and social domains of this program that enabled them to undergo personal growth and development. Changes occurring in the physical environment and further experiences through social interaction allowed participants to change self-perceptions and improve self-esteem and self-confidence. Furthermore, participants gained a sense of independence and were motivated to attempt new experiences and achieve small goals that were set for them both in and out of the swimming pool. More importantly respondents agreed that they would look to their future and attempt skills they acquired while participating in the recreational swimming program, outside the pool environment. This transference of new skills and new personal attitudes led many participants to believe in themselves and their abilities and furthermore, changed the way they looked at society as a whole. Many participants adopted a positive view of themselves in spite of negative social views and environmental barriers. Participants adopted an 'I can' and 'I will succeed' attitude and transferred this from the swimming pool to every day life. This new attitude helped raise spirits and helped to enhance the self-esteem of these youth and adolescents living with physical disabilities.

With regard to the swimming program itself, the program offered some very interesting outcomes in both the physical and social domains and these proved to be integral to the personal growth and development of program participants. The water

medium proved to enhance the mobility of otherwise immobile participants and physical activity helped to improve strength, flexibility and agility. Transcripts also revealed that exercise was valued by participants because physical barriers and social misconceptions limited previous physical activity involvement. In addition, children and adolescent participants used goal setting techniques to motivate themselves to achieve small feats in the pool and then attempted additional goals outside the pool environment.

The social domain also offered salient outcomes as enjoyment seemed pertinent to the viability of swimming programs as future physical activity and social outlets for participants. All participants agreed that swimming would be an integral part of their life in some way or another for the rest of their lives. Furthermore, social interaction during the swimming program offered participants opportunities to develop friendships and social networks that were important and meaningful to the participants involved. Also social skills development may have occurred during the duration of the program although this was not a primary program objective.

The interaction between these two domains was important as both elements were crucial for participant growth and development and an overall positive swimming experience. In fact not one participant had anything negative to say about their specific swimming experience. In summary, physical changes, exercise opportunity, and new capabilities accompanied by enjoyment, social interaction and friendship development enabled participants to change self-perceptions, improve self-esteem, enhance self-confidence, establish a sense of validation and normalcy, and gain independence. These changes are vital to the success of program participants in a world where negative perceptions, environmental barriers, and social bias attempt to exclude and stigmatize

those persons living with physical disabilities. Programs such as this help those involved directly and indirectly see persons with disabilities for whom they truly are, aside from their disability, and help participants establish a strong, positive sense of self and sense of achievement. This recreational swimming program and other programs like it designed to enhance the physical, social and psychological well-being of its participants are essential to the success of participants living at times in an impervious and hostile world.

The next chapter of this thesis will discuss and identify why this recreational swimming program was so successful. The discussion will also include mediating factors discovered that helped maintain or otherwise improved the self-esteem of the youth and adolescents involved in the children's rehabilitation swimming program. Throughout this chapter important concepts were briefly touched upon, however these concepts will be discussed in more detail in the next chapter in relation to their impact on the overall swimming experience of participants. Chapter five will help establish the importance of this recreational swimming program on the overall self-esteem of youth and adolescent participants living with physical disabilities. This improved self-esteem is essential to developmentally appropriate physical, social and psychological functioning in society.

Chapter Six: Discussion

6.1 Introduction

One of the main objectives of this exploratory research study was to determine if a recreational swimming program had an impact on the self-esteem of children and adolescent participants with various forms of physical disabilities. As hypothesized, evidence from previous chapters demonstrates that the self-esteem of participants did significantly improve as a consequence of outcomes experienced as a direct result of the recreational swimming program.

This discussion will highlight the importance of recreational swimming programs to the physical, social and psychological needs of persons with disabilities and demonstrate why this specific recreational swimming program was so vital to the self-esteem development of the participants involved. Furthermore, this chapter will focus on the observable changes in both physical and social behaviors of participants supported by evidence reported in interviews. The overall participant experience with regard to personal growth and development will be described, and most importantly, a discussion of mediating factors for the improved self-esteem demonstrated by youth and adolescents with physical disabilities will occur. To conclude, Bronfenbrenner's ecological systems theory will bring the research findings together and illustrate the different processes influencing overall self-esteem.

6.2 Primary Findings and Relevant Literature

6.2.1 Self-Esteem

This program had an impact on the self-esteem of youth and adolescent participants living with physical disabilities. As previously stated, self-esteem is defined as a generalized feeling of self-acceptance, goodness and worthiness, and is considered to be a central aspect of psychological functioning (Specht et al., 1998). Research has

indicated that persons living with physical disabilities, specifically cerebral palsy and spina bifida, have lowered self-esteem as a result of the connotations their bodies assume, negative social perceptions, stigmas and bias, and environmental barriers (Anderson & Clark, 1982; Arnold & Chapman, 1992; Dekel et al., 1996; Harvey & Greenway, 1984). Based on these findings, it was assumed that the children and adolescents involved in this particular study would have low self-esteem. Furthermore based on the results of recreational and social research (Blinde & McClung, 1997; Crocker, 1993; Dekel et al., 1996; Magill-Evans & Restall, 1991; Rae-Grant et al., 1989; Smith, 1993; Taub & Greer, 2000) it was assumed that participation in a recreational activity program would help improve the self-esteem of participants. The second assumption was indeed validated by this exploratory study, however some discussion is necessary with regard to the initial assumption of low self-esteem.

Five of the six participants in this program showed significant improvements ($p<0.04$) in their pre and post self-esteem scores. It is important to note that all participants' pre self-esteem scores fell between 25 and 40 indicating satisfactory self-esteem. Participants in this study were not experiencing low self-esteem before the swimming program began but the recreational swimming program offered outcomes and experiences that would allow participants further improvement of their self-esteem. Samantha, the only participant that showed no change in her self-esteem, scored the highest attainable value on both pre and post self-esteem questionnaires. Despite methodological concerns with the self-esteem inventory, it was felt the program would enable her to maintain her self-esteem.

It can be argued that the program offered a valuable psychological service to the participants because of significant changes in the self-esteem scores of five subjects and Samantha's ability to maintain her high score. Research indicates that programs involving recreational or competitive sport activity help to develop the psychological, physical and social needs of individuals.

Regan, Banks and Beran (1993) suggest that therapeutic recreation programs improve the self-concept of children and teenagers with epilepsy. The positive feedback from participants on this week long ski camp demonstrated the potential benefits of combining therapy with recreational activity. Another study (Stefl, Shear, & Levinson, 1989) investigated the impact of a summer camping experience on the self-concept of juveniles with rheumatoid arthritis. This study also indicated that self-esteem scores improved following the camping sessions. Furthermore, the results of a study conducted by Andrade et al. (1991) demonstrated that participation in a ten week structured physical activity program positively altered the self-concept of children with spina bifida. These subjects showed statistically significant ($p<0.05$) increases in their global self-worth and self-perception profiles. Findings from a study supporting the use of aquatics with adolescents with cerebral palsy (Peganoff, 1984) also support previous research that swimming improves self-esteem of participants with physical disabilities. The author reported that following an eight-week swimming program most significant changes were noted in self-image. Improved self-esteem was also demonstrated in 25 Special Olympians who participated in a 10-week swimming program compared to non-participant controls (Wright & Cowden, 1990). Compared to this study, the Olympians participated in a strictly regimented program.

Given such empirical findings it is evident that recreational activity and swimming programs are important to the development of self-esteem and self-concept of children and adolescents with various forms of disabilities. This evidence poses some questions. Why do recreational activity programs have the ability to alter the self-esteem of participants and what mechanisms are involved for such changes. In trying to help answer these questions researchers feel that a combination of physical activity involvement and social interaction help to improve self-concept, self-esteem and change self-perceptions of those who participate (Andrade et al., 1991; Biddle, 1993; Regan et al., 1993; Rudich & Vallacher, 1999; Taub & Greer, 2000). This exploratory study also provides evidence to support such a claim.

6.2.2 Observable Changes in Behavior

All participants in this study showed observable changes in both physical activity involvement and verbal interaction throughout the duration of the recreational swimming program. In fact, five of the six participants demonstrated statistically significant ($p<0.02$) increases in average physical and verbal behaviors, after determining average physical activity involvement and verbal interactions during the program. For the most part, participants increased their group activity including games and took part in additional greetings, brief and lengthy conversations as the program progressed. It was hypothesized that participants would go through a progression of hierarchal behaviors, and therefore shift from simple one-on-one interactions to participation in more group activity and lengthier conversations. The observable evidence showed that this is what happened and subjects began to move away from the comfort of their instructor and engaged in more group activity and verbal interactions without their instructor's

immediate presence. Interestingly, the five participants who showed increases in physical and social (verbal) behaviors demonstrated improved self-esteem thus supporting the notion that changes in physical and social activity involvement impact overall self-esteem.

These observable changes were supported by statements made by the participants during the interview phase of this research study. As a result of experiences all participants claimed that they changed attitudes and self-perceptions, established an increased sense of confidence and independence and felt validated as persons as a result of outcomes experienced through participation.

As already stated, persons living with physical disabilities get very little opportunity to participate in meaningful physical activity as a result of social bias, negative views, environmental barriers, and poor program development. This is unfortunate because the physical activity setting provides an environment in which children with physical disabilities can engage in common childhood experiences (Taub & Greer, 2000). By participating in physical activity with peers, children are given an opportunity to acquire new physical skills and improve social proficiency. These new skills help improve self-concept, self-esteem and overall self-worth of a person who may be susceptible to negative social views and self-perceptions. The results of this study support this.

6.2.3 Physical Domain

During the months of March, April and May of 2003, participants underwent changes and experienced outcomes in both the physical and social domains. In the physical domain, participants agreed they were given the opportunity to exercise and get physically fitter. Many referred to the fact that the swimming program got them moving, and for most this was a new experience as much of their time they were confined to wheelchairs or needed the aid of braces or canes. Some linked exercise to positive feeling of self and claimed that exercise made them feel good about themselves thus demonstrating that physical activity can have a positive impact on psychological well-being. As a result of physical activity and exercise many participants also experienced physical changes including increased strength and flexibility. These changes in strength and flexibility enabled participants who had previous difficulty performing tasks such as walking or moving with little effort to perform these tasks with more comfort, competence and success. Respondents also expressed feelings about their new abilities developed while swimming and the sense of normalcy they felt when completing tasks independently for the first time. These changes and new capabilities again helped to enhance self-esteem, self-concept and overall worth of children and adolescents with physical disabilities.

This study occurs with others which have report similar outcomes. Andrade et al. (1991) suggested that participation in a physical activity program increased the muscular strength of children with physical disabilities. These authors also contended that this improved strength was linked to a corresponding increase in self-concept scores as a direct result of improved physical capability. Another study on a group of older adults, reported that participation in exercise programs improved flexibility, increased reaction

time, instilled feelings of happiness and enhanced psychological well-being (Stones, Kozma, & Stones, 1985). Similarly, after attending a symposium on ageing Dr. David Brown (1992) wrote an overview of the research and contended that exercise helped to improve the cognitive functioning of elderly individuals. Participants of these highlighted studies experienced increased self-esteem and decreased psychological distress because of improved performance on complex tasks. Though not all these studies involved those with physical disabilities they do demonstrate the importance of physical activity for overall well-being.

Participants also described their use of goal setting and discussed motivational factors involved in achieving goals. Participants agreed that they would set minor goals and push themselves to improve physical skills to experience feelings of success, achievement and competence. It is possible that this resulted in the subjects competing amongst themselves and comparing themselves to their peers. This indirect competition and comparison may have motivated the subjects to perform better than others and this enhanced performance may have led to increase feelings of self-esteem.

Previous research has linked the use of goal setting to those with high self-esteem (Arkin & Oleson, 1998) and in the present study the use of goal setting may have helped improve the self-esteem of youth and adolescents with physical disabilities. The six participants were achievement-oriented individuals and wanted to improve their physical abilities and thus their performance. Research indicates that such individuals want to master tasks and use goals to increase their competence, grow as individuals and improve their physical skills and psychological functioning (Arkin & Oleson, 1998). Other findings suggest that performance accomplishments are the most important influences on

self-concept (Greenwood et al., 1990). Competitive sport and participation in physical activity has been shown to raise individuals' perceptions of their physical capabilities through performance accomplishments on sport and physical skills. More importantly, this study by Greenwood and associates suggests that the stronger the individual's sense of accomplishment for physical tasks, the more positive his or her perceived psychological well-being. By setting goals and accomplishing them, participants get a better idea of what they are truly capable of achieving. One small accomplishment can lead people to push themselves for larger goals and performance standards, and to never settle for anything less. This motivation and drive for success can be factors in improving self-esteem through sport and activity. This study supports previous research that physical activity programs benefit the overall physical and psychological well-being of participants.

Evidence suggests that youth and adolescents compare their abilities to peers and rely more heavily on peer-based informational sources for self-perceptions and self-evaluations (Bois, Sarrazin, Brustad, Trouilloud, & Cury, 2002). The present study would seem to support this as all participants were viewed as equals. All participants had various form of physical disabilities, but because of the water environment all were able to function at similar skill levels. Normally persons with physical disabilities are at a disadvantage when participating in physical activity programs and adopt negative self-perceptions because of comparisons with able-bodied individuals who have enhanced comparative abilities (Specht et al., 1998).

In this study negative self-perceptions were not reported as all the participants had equal abilities while performing in the water and as a result were able to make positive

peer comparisons and thus enhance their self-perceptions. The effects of buoyancy enabled them to successfully perform and complete activities such as walking and running that they would otherwise have been unable to do. As a result of these successes they increased their self-esteem and feelings of self worth because they compared their new abilities and accomplishments with previous abilities and lack of success.

It is also reasonable to suggest that participants in this study did not have negative self-perceptions because of the family support and positive, friendly environments they often found themselves in. During interviews participants reflected on the support they received at home from parents and siblings, from peers, and from other social programs. Given such support from family, friends and social programs like swimming, participants had very positive self-perceptions and high self-esteem. Individuals living with physical disabilities without this type of support may be more prone to low self-esteem and negative self-perceptions.

As already noted all the subjects agreed that this program offered them so much more than just swimming with some stating that swimming would be an integral part of their lives for the remainder of their lives. The recreational program was enjoyed by participants and got many of the participants moving unaided for the first time. Most walked for the first time and these same participants attempted to walk outside of the water environment. Outcomes such as improved physical ability, increased competence, goal attainment, improved self-esteem and enjoyment were enough to motivate children and adolescents to look for future positive physical activity experiences.

Many other empirical studies have reported similar findings. For example, Wankel et al. (1994) reported that perceived enjoyment, behavioral control or mastery,

and personal attitudes influenced the decision to remain physically active for young participants. With older age groups, physical ability and competence became more important for continued activity involvement. They also stated that improvement and belief in one's ability proved important for continued activity involvement. Dzewaltowski (1989) claimed similar results when he found that self-efficacy added significantly to the prediction of exercise behavior. Results indicated that those with control over their physical abilities exercised in order to maintain or develop their abilities. In 1993, Wankel also found that enjoyment in physical activity appeared to have lasting benefits. The findings in the study indicated that people who enjoy what they are doing enter into a stage of flow and concentrate their attention on a limited stimulus field, forget personal problems, feel competent and in control and have a sense of harmony and union with their surroundings. These feelings of competence, enjoyment, harmony, and personal control lead them to adhere to exercise programs for long-term benefits.

These findings are important as they suggest a cyclic process in that those who participate in physical activity develop improved physical skills that enable them to feel better about themselves. These enhanced self-perceptions then motivate them to look for future activity involvement, whereby they can continue to improve physical fitness, strength and coordination, competence, and maintain their psychosocial needs. This cycle is seen as valuable to the psychological, physical and social development of children and adolescents with physical disabilities and the Children's Rehabilitation Recreational Swimming Program indirectly sets this process in motion which is important for all participants.

6.2.4 Social Domain

Physical activity programs offer valuable experiences to those involved. Youth sport and recreation has long been heralded as an effective medium for promoting important psychosocial qualities such as self-esteem. Social interaction has been described as one of the most important guiding factors for leisure involvement because participation in social activities can help create individual and group identity, give opportunity for social skill development, enhance competitive drive and peer comparison, and give positive social reinforcement (Wankel, 1993). Stated previously, individuals with physical disabilities are often socially isolated (Asch, 1984) and have fewer friendships compared to able-bodied individuals (Martin & Smith, 2002) and therefore opportunities to be with peers, develop friendships and establish social networks are deemed important. The subjects in this current study described many positive outcomes as a result of their social experiences during program. They did not feel socially isolated and had friends with and without disabilities, and established many meaningful relationships as a result of the program. All agree that friendship development was important and they liked the social networks that this particular program helped create.

All participants in the present study all agreed that they enjoyed meeting new people and developing friendships. Most discussed the concept of networking and explained that through swimming they developed friendships that they would not have been able to develop elsewhere. They explained that once you meet people and develop friendships in one environment, you can maintain them outside of that specific environment and meet other people through those friendships and social connections. For many participants this was considered important because it gave them a sense of

social connectedness and social identity. Participants in this recreational swimming setting were also able to develop friendships with similar peers. Children and adolescents developed 'equal' friendships and may have felt physically and emotionally safe because they were not alone in their disability. In addition, many participants developed competence, were motivated by peers and developed positive self-esteem as a result of positive peer comparisons between equally skilled participants. This is especially salient because research indicates that individuals who are perceived to be different or seem to lack coordination and physical ability, may be at an increased risk for peer rejection, or negative self-perceptions resulting from direct comparisons between able bodied and disabled peers (Martin & Smith, 2002).

Research has demonstrated that socialization during physical activity is a particular worthy area of interest because research indicates that physical activity involvement can affect young people's psychological health as well as the quality of their social relationships (Bois et al., 2002). With regard to social and psychological outcomes, participation in recreational activity can enhance a child's self-concept, boost self-esteem, maintain and form meaningful friendships, gain peer acceptance and establish a sense of social connectedness (Bois et al., 2002; Kirkcaldy, 1989; Kunesh et al., 1992; Lee & Robbins, 1998; Martin & Smith, 2002). More specifically friendship development during sporting opportunities for persons with disabilities is related to positive mood, competence and self-esteem development. Martin and Smith (2002) clearly showed that disability sport provided participants an opportunity to interact with peers who provided them with a variety of important self-enhancing benefits. Participants in the present study pushed each other to succeed, gave compliments and

praise, gave encouragement after failed skill attempts, and instilled confidence in each other. It can be seen that participants received positive evaluations and feedback from their close friends and these findings clearly support the premise that sport promotes positive peer relations.

Adolescence is a period of time when young people will seek out friendships and social experiences that will help them develop positive feelings of self, increase their self-esteem and establish a sense of who they are and where they belong in society (Rudich & Vallacher, 1999). However, persons with poor psychosocial development often demonstrate symptoms of loneliness, isolation, and lack of social identity (Lee & Robbins, 1998). The authors went on to describe that these symptoms led many to experience the social phenomenon referred to as a lack social connectedness. This reflects an internal sense of belonging, defined as awareness of being in close relationships with the social world that provides individuals with a lens with which to view their world. Youth and adolescents with high levels of connectedness perceive their world in a positive light and are better able to manage their own psychological and social needs through self-evaluations, peer comparisons and social relationships. Furthermore, people develop a sense of connectedness if they experience satisfying relationships with other people who do not reject them and with whom they may closely identify (Lee & Robbins, 1998).

Given such findings it can be said that participants in this particular program may have developed a sense of social connectedness as they were supported by peers with similar abilities and so were able to make positive physical and social comparisons. They were not rejected because of their disabilities but were instead bonded by this

commonality. All six participants agreed that they felt validated as individuals as they were able to prove to each other and spectators that they were capable of completing goals and succeeding in physical activity. Participants were most importantly able to complete these goals all the while receiving motivation and peer support. This mutual giving and receiving of support, accompanied by increased self-esteem and positive feelings of self, may have given participants a sense of belonging, feelings of social connectedness and a reason to participate in other programs.

Other research indicates that children with physical disabilities tend to have poor social skills and are not well accepted by their peers (King et al., 1997). Reduced social opportunities and negative stereotypes have been shown to limit development of social skills and thus limit peer approval, friendship development and subsequent positive self-evaluations. Improving the social skills of children is thought to lead to increased acceptance by peers, enhanced sense of belonging, reduced social isolation and decreased likelihood of future psychosocial adjustment problems (Ladd, 1985). Improved social skills have also been linked to improved self-esteem, self-concept and sense of belonging of those receiving social skills training (King et al., 1997; Rudich & Vallacher, 1999). The recreational swimming program may have acted as a medium for social skills development. Children and adolescents were able to socialize with others their own age going through similar life experiences. Participants may have found themselves on an equal playing field, and instead of being inhibited they excelled as a result of this new, positive social experience. Although social skills training is not a specific goal of the recreational swimming program, improvements in social interaction skills obtained by

participants my have implications for personal and social growth in the global community.

Children and adolescents in this particular study participated in a recreational swimming program that offered multitudes of opportunities for social interactions. Although social skills training was not a specific goal of this program, participants interacted socially and verbally with peers their own age and demonstrated improvements in their social behaviors. All children and adolescents showed increased participation in games with peers, and furthermore showed increased verbal interactions with peers and groups without their swimming instructor's presence. At the conclusion of the program participants engaged in much more group activity and participated in less greetings and more significant conversations with others. Such observable behaviors demonstrate the importance of physical activity involvement to social development and suggest a combination of physical activity and social skills training programs as potentially beneficial tools for enhanced psychosocial development of persons with physical disabilities.

Findings reported in this current study speak to the importance of this program to the physical, social and psychological development of youth and adolescents with physical disabilities. They also suggest that the outcomes resulting from both the physical and social domains are vital to the overall positive participant experiences.

6.2.5 Personal Growth and Development

The overall participant experience was enhanced by personal growth and development including increased confidence and independence, personal validation and changed self-perceptions and attitudes. Specifically, as a result of the water environment

and a phenomenon known as buoyancy, participants described a sense of confidence in their abilities in the water and felt better about their bodies because of this confidence. This confidence also transferred into other aspects of participants' lives and led many of them to attempt newly acquired skills at other activity programs, in their homes and at school. For many participants this self-assurance helped improve self-esteem, feelings of self worth and helped them gain a sense of control over their abilities. Similar findings were reported by Campbell and Jones (1994) when they claimed that sport participants' recorded higher mastery scores and therefore, were able to control many aspects of their lives as a result of physical capabilities associated with sport participation that transferred into everyday life.

Participants also described their increased sense of independence and many referred again to the concept of transfer. All participants described their abilities to do things completely by themselves, but referred more specifically to their ability to complete tasks by themselves outside the swimming environment. Participants were elated by their increased independence and also reported feelings of normalcy because of their ability to do things independent of care takers and guardians. Society does not usually witness children and adolescents with physical disabilities socializing with friends by themselves or participating unsupervised in group activities. Participation in such independent activities enables adolescents to gain a sense of independence and become confident in their own abilities to go out on their own (Thomas, 1989). This independent lifestyle may help to change publicly held stereotypes and lead to decreased restrictions and more opportunities for persons with physical disabilities.

The observable behaviors in the pool supported the participant's claims about their newly acquired independence and confidence. All six participants showed significantly ($p=0.001$) increased self-initiative behaviors throughout the swimming program. All participants initiated more physical and verbal interactions with peers, groups and/or instructors at the conclusion of the swimming program. For many, physical capabilities such as strength, coordination and swimming skills increased, thereby improving self-confidence and inspiring the initiation of more games and interactions. As they became more familiar with peers and enhanced their sense of social connectedness, participants also increased their participation in conversations. Furthermore, while engaging in such behaviors participants moved away from interactions with their instructor and moved to more independent interactions with peers, without their instructor's help or presence. Both their reported changes and observable behaviors again support the notion that physical activity programs can help improve confidence, build independence, and meet the psychosocial needs of persons with physical disabilities.

In terms of growth and development the participants were given the opportunity to prove to themselves, peers, family and friends, swimming instructors, and program directors that they were capable of attaining success in the swimming pool. There was a mutual agreement among subjects that the program gave them all a sense of validation as they were just as capable and could do things as well as persons without disabilities in the pool. For many participants this helped to change self-perceptions and they began to feel that they were not as different as they previously thought. Once their own attitudes changed to an 'I can' attitude, participants explained that they felt they could prove to

others that they were not just a disability, and were able to perform successfully and competently in the swimming pool. Many participants spoke of being able to change public views and negative stereotypical attitudes. The idea of being able to change such widely held negative perceptions may have indirectly helped participants feel better about himself/herself and therefore, helped to increase their self-esteem and self-worth.

The water environment itself also held important implications for the changing of attitudes and stigmas associated with disabilities. It has long been recognized that the visibility of physical limitations has predictability of interaction outcomes, self-esteem, and overall social functioning (Hebl & Kleck, 2000). Research consistently concludes that individuals with less visible or hidden disabilities have fewer problems with social interactions and psychological development (Crocker & Major, 1989). These statements are important because the water environment in which participants engaged offered a very important service: one of invisibility. The buoyancy effect masked their physical limitations and enabled many to complete activities without the assistance of others. Instead of being viewed publicly in a wheelchair or with a cane, participants were seen walking, running, swimming and moving without the help of others. The youth and adolescents in this swimming program were viewed by many, as people with abilities instead of persons with disabilities. All participants were viewed with something other than distain, pity and/or contempt. In essence this program helped to change the attitudes of those involved and enabled part of society to see these individuals for who they truly are. Such changes were viewed as a major breakthrough, whereby stereotypes began to fall by the wayside and people saw a person, not a disability.

This program proved to be valuable as the reported physical and social domains led participants to experience changed attitudes, enhanced self-perceptions and improved confidence and independence. These changes support the claims that programs could help to improve the self-esteem of those participants involved. Given such a robust statement, what factors have been involved with these reported self-esteem increases?

6.3 Mediating Factors for Self-Esteem Development

After reviewing the findings and supporting evidence from the literature it can be said that physical, psychological, and social processes influenced the self-esteem changes demonstrated in this study. The physical components attributed to improved self-esteem included skill development and the discovery of new capabilities, equality among participants and positive physical comparisons, and adherence to physical activity programs. Many improved their strength, flexibility, and coordination and these improvements led many to discover that they were capable of succeeding physically in water. Feelings of success and competence helped change self-perceptions and improved or maintained the self-esteem of the youth and adolescents involved.

Those who recorded high self-esteem scores furthermore, admitted to the use of goal setting to help achieve goals and to be motivated to improve physical skills. The subjects were seen as achievement-oriented individuals and pushed themselves to meet standards set for them. By motivating themselves and each other, individuals exhibited some control over their immediate environment, and pushed each other to perform to their highest standards and achieve improved physical fitness and skills. This would suggest the use of goal setting as a tool used by people with physical disabilities to help achieve success and thus improve or maintain self-esteem and self-worth.

The subjects participated in a water environment that masked their physical limitations so that all were placed on an equal footing, so to speak, of equal physical ability. This sense of equality enabled children and adolescents to change negative self-perceptions through positive physical comparisons between peers. As previously noted adolescents often compare themselves to others and adopt positive or negative views based on these comparisons. People who see themselves as less than successful or not as good as others, will often adopt negative feelings and experience low self-esteem, however those who compare themselves favorably to others will often experience positive self-perceptions of their abilities, feel great about themselves, and experience high self-esteem. The children and adolescents in this program improved their self-esteem as a result of these positive peer comparisons.

The active pursuit of physical activity programs was seen as a cyclic process that helped maintain or improve the self-esteem of participants and the activity helped them acquire physical and social skills that could be used elsewhere. Adherence to such programs was deemed vital to the psychosocial development of youth and adolescents with physical disabilities. The subjects felt better about themselves and their abilities and wanted to maintain these positive feelings and future physical activity participation was seen as a mediating factor for enhanced self-esteem.

The social processes involved in their improved self-esteem included friendship development, positive social peer-comparisons, improved social skills, and feelings of social connectedness. The subjects were able to develop friendships and received positive peer support from these connections. Children and adolescents were able to meet people with similar limitations going through similar life experiences and were

bonded by these similarities. Many experienced feelings of connectedness and a sense of belonging as a result of these positive social experiences. All participants had equal abilities while participating in the water and many reported feelings of normalcy or lack of noticeable differences. For most this lack of reported differences and positive peer comparisons led to enhanced self-esteem.

Additionally, social skills development resulted from participation in this recreational swimming program and is thought to be a mediating factor for self-esteem. Participants demonstrated improved social skills (physical interaction and verbal behaviors) and for many, this may have helped to increase acceptance by peers, decrease social isolation, and enhance feelings of belonging to a social group. Feelings of social competency were linked to peer approval, positive feelings of self and improved self-esteem.

Clearly as a result of their positive experiences, the participants underwent psychological changes, experienced independence and self-confidence, and were able to break attitudinal barriers and change social stigmas. These experiences and changes were also seen as mediating factors for self-esteem development. This swimming experience enabled all participants to increase their independence and confidence by helping to improve their physical abilities and social skills. All agreed that these outcomes transferred into other areas of their lives and many were able to show others that they could do things that were once thought unattainable. For many, this validation was important because they could change negative social perceptions and prove to others that they had been incorrect in their previous thoughts and stigma attachment. Success in the swimming pool offered proof to society that participants could perform at high levels

even with a physical disability. The subjects used these experiences to change their own and societal attitudes and aided the improvement of their own self-perceptions of their own abilities and their self-esteem.

The evidence clearly shows that a variety of processes influence the self-esteem development of children and adolescents with physical disabilities through recreational activity such as swimming. Both physical and social outcomes from such participation are integral for personal growth and development and the improvement of self-esteem. It can be said that changes in various environments (physical and social) can cause changes in one's overall self-esteem. Theory posits that changes in one environment can cause changes in another and self-esteem can subsequently decrease or increase as a direct result of such environmental changes. Brofenbrenner's (1979) ecological systems theory supports such notions and offers theoretical support to the findings of the present study.

6.4 Brofenbrenner's Ecological Systems Theory

According to this theory, children and youth are located within not just one environment but within a number of nested environments or levels. Each of these is a social system with its own dynamics, rules, discourses, and relationships and each system has the ability to influence the next. The systems range from *microsystems* or the child's immediate surroundings, through *mesosystems* or the interactions between environments, and *exosystems* or the experiences which affect people who directly influence youth, to the *macrosystems* with include social values, perceptions and governing policies.

The usefulness of this theory with regard to this exploratory research study lies in the fact that it highlights the complexity of interactions and the resultant experiences. All children and adolescents experienced the same immediate surroundings (microsystem)

while participating in the program and the interaction between the social and physical domains (mesosystems) offered changes in self-esteem, self-perceptions and social attitudes (exosystems). Their family and social support was very evident for these participants and this support may have also changes self-esteem and self-perceptions. Such changes may have influenced negative social values and lead to changes in future social policies and the removal of environmental barriers (macrosystems). Outcomes and experiences in the mesosystems were seen to affect the psychosocial and psychological developmental of participants involved in the program. Furthermore, changes in growth and development were seen to influence societal views and may have led to the breakdown of stigmas and stereotypes involving disability. Given this, the ecological systems theory offers real ground to support why some children experience changes in self-esteem while participating in swimming programs.

6.5 Conclusions

This particular program offered a valuable psychosocial service to youth and adolescents with physical disabilities. Everyone participated as equals because the water hid physical limitations and therefore, enhanced physical capabilities. For most this experience instilled feelings of normalcy and helped them feel better about their place in society. Instead of being viewed as a person with a disability, they were seen for the first time as a person capable of attaining goals and succeeding. In addition, participants were given ample opportunities to socialize and develop friendships with others experiencing similar social bias and environmental barriers. Adolescents were able to develop social networks outside that of swimming and established a sense of social connectedness. As a result of physical changes and social success, participants were able to gain a sense of

independence, competence, self-confidence and also change personal attitudes and self-perceptions. In effect, self-esteem was improved or maintained as a result of changes experienced during all aspects of the program and this was viewed as a major positive outcome.

The purpose of this study was to determine the perceived benefits of participating in a recreational swimming program and highlight potential mediating factors for self-esteem. The benefits of this program included increased physical fitness, strength, and flexibility, improved physical skills, exercise adherence, improved social skills, friendship development, peer approval, social connectedness, independence, improved self-confidence, a sense of validation, and most importantly increased self-esteem. Furthermore, many of these benefits also doubled as potential mediating factors for self-esteem development. Given such factors, programs may now be able to focus their goals on such outcomes and deliver quality programs that can increase the self-esteem of those participating.

To conclude, the goal of many physical activity programs is to enhance the self-esteem of individuals involved. This swimming program did indeed enhance the self-esteem of participants with physical disabilities but also showed the true value of swimming as a tool for physical, social and psychological development. Swimming is a very valuable resource for children and adolescents with cerebral palsy and spina bifida. It is to be hoped that such programs everywhere will become more available to persons living with physical disabilities. It is too valuable a service for all people, including those with physical disabilities, and should not be denied to anyone because of negative perceptions, social stereotypes, environmental barriers and obsolete governing policies.

Chapter Seven: Concluding Statements and Future Research

7.1 Concluding Statements

Over the years physical activity programs have proved their worth to the physical, psychological and social development of individuals with physical disabilities. This current research involved the participation of children and adolescents with physical disabilities, including cerebral palsy and spina bifida, in a recreational swimming program. This program also saw improved physical and psychosocial development of its participants, but why did a swimming program offer such developmental outcomes? What made the outcomes of this particular program so vital to the self-esteem development of these participants?

Compared to other activity programs this one occurred in water which offers a medium where all participants were capable of excelling physically. Buoyancy was able to mask individual limitations so that all participants were able to complete physical tasks that would otherwise have been unattainable. As a result, participants who would normally require assistive devises were able to walk, jog, swim and perform physical tasks with ease. By completing such tasks without support they felt independent, confident, and competent in their abilities. The subjects tried to transfer these water successes and use them as motivation for other tasks elsewhere, including activity programs, general social excursions, school and home life.

The water environment also placed people in a program where they were viewed as equals. Once in the water all children and adolescents had the same physical abilities and were able to complete the same physical skills. Furthermore, all participants were experiencing similar disabilities, social misconceptions, negative stereotypes and

environmental barriers. These similarities gave people a sense of equality, normalcy, and feelings of being connected to the individuals surrounding them. This sense of social connectedness moreover, instilled in people a sense of who they were and where the belonged in society. For all participants self-comparisons among equally capable individuals helped them adopt positive feelings of self, thereby changing their own attitudes and enhancing one's self-esteem.

Apart from outcomes specific to the water the program offered them opportunities to develop the physical and social self. All agreed that they improved their strength, flexibility and physical capabilities. The six participants also improved physical fitness and completed skills that many thought were unattainable. Socially those participating with physical disabilities were able to develop friendships and establish social networks. This was important as children and adolescents with disabilities normally experience limited social interactions, decreased friendships, and poor peer approval. Furthermore, participants were able to improve social skills while participating in the swimming program. Participants were seen to engage in more group activity and increased conversations during the last sessions of the recreational activity program. Participants also moved away from the security of their instructor and initiated many activities and conversations on their own accord. This showed that participants were confident in their own social abilities and they could engage in meaningful activity and conversations without their instructor watching directly over them. Such independence was also reported when they agreed that they were able to do things completely by themselves outside the pool. Strength and confidence demonstrated in the pool enabled most to try new things elsewhere independent of assistive devices and help from parents and peers.

Participants were able to attend other social activities without supervision because of improved capabilities resulting from the program. Participating in such normal and expected adolescent experiences may have helped improve the self-esteem of these children and adolescents with cerebral palsy and spina bifida.

Such experiences and outcomes from this program were vital to the self-esteem development of those participating in the swimming program. The self-esteem was shown to improve as a result of many complex process and interactions between immediate environments and changes resulting in other environments acting indirectly on the well-being of participants. Social attitudes may have changed because of physical proof that people with disabilities were able to succeed in a physical activity program. Changes in personal attitudes and social milieus also help breakdown social misconceptions, negative stigmas and environmental barriers and policies. Such a break through is important as many people with physical disabilities adopt negative self-perceptions and accept environmental barriers as the norm.

Physical activity programs can help develop the self-esteem of persons who otherwise experience low self-esteem as well as offer a service to help change negative social attitudes and misconceptions. Only when these barriers begin to fall will persons with physical disabilities be in full control of their lives, feel totally fulfilled as a person and be entirely connected to the social world in which they live. This program gave participants opportunities to develop these feelings of control, fulfillment and social connection on a small scale. However, many more programs are required if such changes are to be effected globally. If this is done then we as a society may be able to

live together in harmony without bias, disability stereotypes and negative perceptions regarding limitations.

7.2 Future Research

The findings of this study hold many implications for program directors, social psychologists, physical therapists and health care workers. However these findings should be considered with care. Due to population constraints a small sample size was used without a representative control group. To offset these study limitations multiple data collection methods were used and their results support each other along with the literature. Observational data was seen to support interview material and all this was supported by increases seen in the self-esteem inventory scores. The findings should not be discarded however they should be viewed with care and are generalizable to those participating in recreational swimming programs with a similar structure within the designated age group and with similar abilities.

The findings also substantiate the need for more research in the field of exercise and social psychology dealing specifically with persons with physical disabilities. More studies should be conducted with control groups using standardized social measures looking at social skill improvement through physical activity programs. It may be possible then to determine the usefulness of activity programs as a tool for social skill development. Because of methodological concerns with the Rosenberg self-esteem inventory it would be interesting to see if similar results occurred using a different self-esteem measure.

It may also prove useful to conduct a study to determine if different physical activity mediums offer the same opportunities for changes in self-esteem. For example,

would swimming programs offer different experiences compared to wheelchair basketball, dance, and/or recreational skiing. Findings may uncover different mechanisms involved for self-esteem development in different programs. Some programs may offer better physical, social and psychological outcomes for youth and adolescents with physical disabilities. These programs offering better outcomes and experiences may then be used to aid in the enhanced development of persons with various forms of disabilities. Research could also be conducted with persons with other disabilities to such as muscular dystrophy or degenerative arthritis to determine if swimming is a viable option for improving their self-esteem.

Participants in recreational swimming programs may compete within themselves and against others to succeed. This indirect competition may have been motivation for respondents to perform better and succeed physically in the pool environment. This study revealed that participants spoke more so to the use of goal setting for individual purposes; however, it may be interesting to complete future research in a similar field to see if participants compete against each other even within a recreational setting. Participants in this study spoke of the lack of discrimination or bias they felt toward others and toward themselves. Many participants in this study had multitudes of friends with and without disabilities. Although this may not be directly related to the swimming program or its outcomes, it is salient and may lead to future research uncovering mechanisms of equality and lack of discriminatory behavior. Society as a whole may be able to learn an important lesson.

It may also be an idea to conduct a longitudinal study with children living with physical disabilities who become adolescents. Research has indicated that children with

cerebral palsy have low self-esteem and that adolescents with cerebral palsy have low self-esteem. It may prove important to determine if children living with cerebral palsy with poor self-esteem become adolescents with low self-esteem, or are they able to develop into psychologically sound adolescents. Through this process coping mechanisms, social supports and programs, and family support could be monitored.

The findings of the present study and future recommended studies may hold implications for global program development. However, current funding for such studies is limited and so it is necessary to increase government and agency funding to help researchers identify the most promising program options for enhanced ability development. Research has done its share to support those with physical disabilities now its society's turn to make a commitment.

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Appendix A

School of Human Kinetics and Recreation
Memorial University of Newfoundland;

Consent to Participate in Research Project

TITLE: Does A Recreational Swim Program Improve Self-Esteem of Youths and Adolescents with Physical Disabilities; Possible Underlying Mechanisms

INVESTIGATOR: Mellissa Oates (B. Kin)
747-8202

You and your child have been asked to take part in a research study. It is up to you to decide whether to take part or not. Before you decide, you need to understand what the study is for, what risks might be associated with it and what benefits you and your child might receive. This consent form explains the study.

The researcher will:

- **Discuss the study with you**
- **Answer your questions**
- **Keep confidential any information which could identify you personally**
- **Be available during the study to deal with problems and answer questions**

It should be noted that information collected will be used to write a thesis to fulfill the requirements of the Masters of Physical Education. Copies of the final report will be available in the dissertation section of Queen Elizabeth II Library. Information obtained may also be found in published journal articles.

The proposal for this research has been approved by the Interdisciplinary Committee on Ethics in Human Research. If ethical concerns arise that are not dealt with by the researcher, you may contact the Chairperson of ICEHR at icehr@mun.ca **or by telephone at 737-8368.**

1. Introduction/Background:

Research has indicated that differences in physical development are likely to have an effect upon the self-esteem of an individual with physical impairments. Self-esteem is defined as a general feeling of self-acceptance, goodness and worthiness, and is considered to be a central aspect of psychological functioning. How people view themselves (self-concept) and value themselves (self-esteem) may therefore be key predictors of their adjustment to the physical and social environment and future life success.

2. Purpose of study:

The purpose of this study is to determine if a recreational swim program changes self-esteem for youths and adolescents with physical disabilities and also to determine possible mechanisms of change.

3. Descriptions of Tests and Procedures:

This study will consist of three different tasks:

-Your child will be observed throughout the duration of the Easter Seals Children's Rehab Swim Program and social interaction and behavior patterns will be recorded.

-At the conclusion of the swim program, an interview guide will be used to ask your child questions about his/her physical activity involvement and how this involvement has affected overall self-concept (see attached form A). These interviews will be tape-recorded and typed for analysis.

-Your child will also be asked to answer a questionnaire before and following the swim program. The Rosenberg Self-Esteem Inventory involves your child rating, on a scale of 1-4, how much a given statement applies to how they feel right now and how they generally feel (see attached form B).

4. Duration of Participation:

You and your child's participation in this study will be intermittent during the Easter Seals Children's Rehab Swim Program and will require only the time it takes you to fill out the given questionnaires, and take part in the interview process, which should take no more then an hour.

5. Foreseeable Risks, Discomforts or Inconveniences:

There are no foreseeable risks, discomforts or inconveniences associated with the questionnaires and interview aside from the loss of time it takes to complete them. The normal ongoing risks associated with the pool environment will remain, however a certified lifeguard will be on duty at all times.

6. Benefits:

The questionnaires and interview process could potentially increase you and/or your child's awareness of overall self-concept and self-esteem. Participation may improve overall sense of self and independence. Participation in the swim program offers opportunity for social interaction, improved motor control and strength, and enjoyment.

7. Liability Statement:

Signatures on the attached consent form confirm that you and your child have fully understood your role in this research project, are satisfied with the information that was provided to you, and have agreed to be participants. By signing this consent form you and your child have not given away any legal rights or agreed to release the researchers from their legal and professional responsibilities.

8. Confidentiality:

Unless required by law, whereby an unlawful incident or inappropriate action has taken place outside that required by law, only the researcher will have access to any confidential documents pertaining to you and your child's participation in this study that may identify you and your child by name. Furthermore, all information collected will be stored in a locked filing cabinet in the office of the Director of the School of Human Kinetics and Recreation, Dr. Colin Higgs, and all data will be destroyed at the end of the study. Names will not appear in any report or article published as a result of this study.

Due to the nature of this study and the small number of participants, you and your child must be aware that despite all efforts to maintain confidentiality, code names may not protect anonymity in all instances because those involved and readers of the final report may assume identities by the supplied responses and information obtained.

9. Voluntary Participation in the Study:

Your and your child's participation in this study is completely voluntary. Your child does not have to complete the questionnaires and you and your child have the option to discontinue your involvement at any time. Also, your child may omit any questions with which he/she feels uncomfortable with during the interview phase.

Appendix B

Signature Page

Study Title: Do A Recreational Swim Program Improve Self-Esteem of Youths and Adolescents with Physical Disabilities; Possible Underlying Mechanisms

Name of principle investigator: Mellissa Oates

To be filled out by the participant:
Please check as appropriate

I have read the consent/information sheet.	Yes [ ]	No [ ]
I have had the opportunity to ask questions/to discuss this study.	Yes [ ]	No [ ]
I have received satisfactory answers to all of my questions.	Yes [ ]	No [ ]
I have received enough information about the study.	Yes [ ]	No [ ]
I have spoken to Mellissa Oates or a qualified member of the team.	Yes [ ]	No [ ]
I understand that I am free to withdraw for the study - at any time - without having to give a reason - without affecting participation in future swim programs	Yes [ ]	No [ ]
I understand it is my choice to participate and that I may not benefit.	Yes [ ]	No [ ]
I agree to take part in this study.	Yes [ ]	No [ ]

_____ _____

Signature of participant **Date**

_____ _____

Signature of witness **Date**

To be signed by the investigator:

I have explained this study to the best of my ability. I have invited questions and gave answers. I believe that the participant fully understands what is involved in being in the study, any potential risks of the study and that he or she has freely chosen to be in the study.

_____ _____

Signature of investigator **Date**

Telephone number: _____

Assent of minor participant:

_____ _____

Signature of minor participant **Date**

_____ _____

Relationship to participant named above Age

Appendix C

Rosenberg Self Esteem Inventory

Code Name: _____
Date: _____

Circle the appropriate number for each statement depending on whether you strongly agree, agree, disagree, or strongly disagree with it.

Questions	Strongly Agree	Agree	Disagree	Strongly Disagree
1. On the whole, I am satisfied with myself	1	2	3	4
2. At times I think I am no good at all.	1	2	3	4
3. I feel that I have a number of good qualities.	1	2	3	4
4. I am able to do things as well as most other people.	1	2	3	4
5. I feel I do not have much to be proud of.	1	2	3	4
6. I certainly feel useless at times.	1	2	3	4
7. I feel that I'm a person of worth, at least on an equal plane with others.	1	2	3	4
8. I wish I could have more respect for myself.	1	2	3	4
9. All in all, I am inclined to feel that I am a failure.	1	2	3	4
10. I take a positive attitude toward myself.	1	2	3	4

Appendix D

Interview Guide

Participant Experience:

- Tell me about your overall experience?
- Describe any positive/negative aspects of participation?
- What specific things were you able to do?
- What other activities would you like to participate in?

Physical Capabilities & Body Perceptions:

- How did this activity change your perceptions in your ability to participate in recreational activities?
- How do you feel about your body when you participate?
- Describe how participation changed how you feel about your body?
- What are you able to do when you are in the water?
- Has swimming helped your body? Can you describe this?

Social Interactions:

- Discuss your interactions with other people when you/they participate?
- Has participation affected your social life?
- Has participation affected your family life?
- What is your interaction with peers without disability?

Independence:

- What have you learned about yourself?
- Describe any specific skills you have developed as a result of swimming?
- How are these skills useful outside the swim program?
- How do you feel about doing things by yourself?

Appendix E

Modified Interview Guide

Participant Experience:

- Can you tell me about swimming?
- What did/didn't you like about swimming?
- When did you feel really good?
- Can you describe how you felt?
- Would you like to swim again?
- What would you like to be able to do next time?
- *What other activities would you like to participate in?*

Physical Capabilities & Body Perceptions:

- What could you do when you were in the water?
- How does your body feel when you swim?
- Do you feel better about your body when you swim?
- What changes have you seen in your body since swimming?
- Describe how you feel now since swimming?

Social Interactions:

- Do you enjoy meeting new people?
- Tell me about the people you met while swimming?
- How much did you like swimming with them?
- Would you call them your friends?
- How do you feel when you talk/interact with other people?
- Can you describe how swimming has helped you meet more people?
- Do you have many friends without disabilities?

Independence:

- What have you learned about yourself?
- What can you do now that you couldn't do before?
- How do you feel when you do things by yourself?
- What could you do all by yourself while swimming?
- Can you describe how that made you feel?

Appendix F

Name: _____
Date: _____

Comments: _____

Behavior Checklist

Physical Interaction		Social Interaction	
1) Engage with Instructor **Proximity/Physical Contact**: - Hold body/torso while swimming - Hold hands/hand while swimming - Swim 1 meter apart (contact) - Swim > 1 meter (contact) - Leave instructor (no contact) **Signs of Physical Encouragement**: - Pat on back/head - Shake hand - High Five - Jumping up/down (excitement) - Clapping **Indicate if Instructor Initiated or Self-Initiated by (I or C)**		**1) Verbal Interaction with Instructor** - Greeting - Brief Conversation (< 20 sec) - Lengthy Conversation (> 20 sec) Comments: _____ _____ _____ _____ _____ **Indicate if Instructor Initiated or Self-Initiated by (I or C)**	
2) Engage in Activity/Contact with Peer or Instructor (I or C) - Activities & splash water - Swimming with peer/instructor - Game _____ _____ _____ _____ _____ _____ _____ - Physical Encouragement: High five, handshake, pat on back/head, jumping up/down, clapping.		**2) Verbal Interaction with Peer** - Greeting - Brief Conversation (<20 sec) - Lengthy Conversation (> 20 sec) Comments: _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	

Cont…			
3) Engage in Activity/Contact with Group **(2+ peers or instructors)** - Activities & splash water - Game with 2 + peers (instructors) _____ _____ _____ _____ - Game with 2 + peers (no instructors) _____ _____ _____ _____ - Physical encouragement: - High five - Pat on back - Jumping up/down (excitement) - Clapping - Handshake		**3) Verbal Interaction with Group** Instructor: - Greeting - Brief Conversation (< 20 sec) - Lengthy Conversation (> 20 sec) Peer: - Greeting - Brief Conversation < 20 sec - Lengthy Conversation > 20 sec Comments: _____ _____ _____ _____ _____	

Appendix G

Behavior Checklist
Scoring System

Physical Interaction	Social Interaction
1) Engage with Instructor **Proximity/Physical Contact**: - Hold body/torso while swimming (1 pt) - Hold hands/hand while swimming (2 pts.) - Swim 1 meter apart (contact) (3 pts.) - Swim > 1 meter (contact) (4 pts.) - Leave instructor (no contact) (5 pts.) Hierarcy Total = _____ **Signs of Physical Encouragement**: (all 1 pt.) - Pat on back/head - Shake hand - High Five - Jumping up/down (excitement) - Clapping Total Points = _____ **Indicate if Instructor Initiated or Self-Initiated by (I or C)** (all 1 pt.)	**1) Verbal Interaction with Instructor** - Greeting (1 pt.) - Brief Conversation < 20 sec (2 pts.) - Lengthy Conversation > 20 sec (3 pts.) Total Summation = _____ **Indicate if Instructor Initiated or Self-Initiated by (I or C)** (all 1 pt.)
2) Engage in Activity/Contact with Peer or Instructor - Activities & splash water (1 pt.) - Swimming with peer/instructor (2 pts.) - Game (3 pts.) - Physical Encouragement: (all 1 pt.) High five, handshake, pat on back/head, jumping up/down, clapping. Total Points X 2 = _____	**2) Verbal Interaction with Peer** - Greeting (1 pt.) - Brief Conversation < 20 sec (2 pts.) - Lengthy Conversation > 20 sec (3 pts.) Total Points X 2 = _____

3) Engage in Activity/Contact with Group (2+ peers or instructors)	**3) Verbal Interaction with Group**
- Activities & splash water (1 pt.) - Game with 2 + peers (instructors) (2 pts.) - Game with 2 + peers (no instructors) (3 pts.) - Physical encouragement: (all 1 pt.) - High five - Pat on back - Jumping up/down (excitement) - Clapping - Handshake Total Points X 3 = _____	Instructor: - Greeting (1 pt.) - Brief Conversation < 20 sec (2 pts.) - Lengthy Conversation > 20 sec (3 pts.) Total X 3 = _____ Peer: - Greeting (1 pt.) - Brief Conversation < 20 sec (2 pts.) - Lengthy Conversation > 20 sec (3 pts.) Total X 4 = _____

Total for Physical Interaction = _____

Total for Verbal Interaction = _____

Grand Total for Physical and Verbal Interaction = _____

Appendix H

Transcribed Interviews
Graph Analysis
Thesis Body

Contained on CD

If Compact Disk is missing please contact the author of this thesis