# Inclusion and Health:
# A Study of the 2001 Participation and Activity Limitation Survey (PALS)

A Thesis

Submitted to the Faculty of Education
In Partial Fulfillment of the Requirements
for the Degree of
Master of Education
University of Prince Edward Island

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Charlottetown, PE
April, 2008

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Ottawa ON K1A 0N4
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*Your file Votre référence*
*ISBN: 978-0-494-49844-6*
*Our file Notre référence*
*ISBN: 978-0-494-49844-6*

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# DEDICATION

This thesis is dedicated to my parents, Irena and Mahmoud Amoli,

for giving me every opportunity to pursue my goals,

for instilling in me the value of education,

and for their love and support.

# ABSTRACT

This thesis presents findings of a quantitative study into the relationship between inclusive education settings and the parent-reported health of more than 140, 000 Canadian children with disabilities between 5 and 14 years of age. In framing the research questions and analysis of the data, the thesis includes a critical review of the concepts of disability, inclusive education and health. The main statistical data that were used were retrieved from the children's component of Statistics Canada's 2001 Children's Participation and Activity Limitation Survey (PALS), a major post-censal survey of people with disabilities. PALS provides a wealth of information about children with disabilities in Canada. Responses to questions from PALS were selected to compile a framework to distinguish three levels of inclusiveness of educational settings: low, middle and high. Using the broad approach to health that guided the research and these three levels of educational inclusiveness, the analysis revealed that parents were more likely to report that their children with disabilities are in better general health, progress very well/well at school, interact very well/well with their peers, and frequently look forward to going to school in higher inclusive educational settings than in mid-range or lower inclusion settings. This positive trend was consistent, regardless of severity and type of disability.

# ACKNOWLEDGEMENTS

There are many people to whom I owe gratitude for their assistance and support throughout this endeavour.

I am indebted to my supervisor, **Vianne Timmons,** who has given me a multitude of opportunities over the last three years including the opportunity to work on this project. She has encouraged me, opened my eyes to an inclusive world, and guided me on this worthy journey.

My deep thanks and appreciation are extended to **Cameron Crawford** for teaching me, supporting me, providing me with his invaluable insight and guidance, and especially for caring about my outcome.

I acknowledge the valuable assistance and feedback of **Philip Smith**, who helped me to make my 'associations' and provided advice on the statistical analysis.

I am appreciative to **Miles Turnbull** for his thorough examination of my thesis, and his equally valuable role as graduate coordinator as he encouraged me, and helped me with all the bumps in the road.

Thank you to **Nancy Hutchinson** for her review and thought provoking comments which improved the final product.

I acknowledge the financial support of the **Canadian Council on Learning** and the **Social Sciences and Humanities Research Council of Canada** which helped make the life of a graduate student not a starving one.

I am grateful for the support of **Graham Pike**, my favourite professor, who shares his unique vision with me, and inspires me to share his global perspective.

Thank you to **Beverly Gerg** for being my friend and all which is implied in that single, powerful word.

Finally, I owe deepest thanks to my family. My brilliant and beautiful children, **Thomas and Isabel Wagner**, were my inspirations. My amazing husband, **Brian Wagner**, was my editor, my support, my rock, my friend, and is my everything.

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# Chapter One

# Introduction

Since the 1980's many children with disabilities in Canada have attended their neighbourhood schools with age appropriate peers. Research exists that reveals parents' perceptions of their children's experiences with schooling. In particular, Statistics Canada's 2001 Children's Participation and Activity Limitation Survey (PALS), a post-censal survey of people with disabilities, has been undertaken. PALS provides a wealth of about all children with disabilities in Canada. Responses to questions from PALS are selected to compile a framework to analyze inclusive educational settings and compare those findings with the health of the child across multiple domains. The data are subsequently grouped into categories and are presented to illustrate findings.

And the hardest part
Was letting go, not taking part
It was the hardest part

And the strangest thing
Was waiting for that bell to ring
It was the strangest start
 - from "The Hardest Part" lyrics by ColdPlay

## *Participation and Activity Limitation Survey (PALS)*

The data gathered for this research study are derived primarily from Statistics Canada's 2001 Participation and Activity Limitation Survey (PALS). PALS is Statistics Canada's 'flagship' survey on persons with disabilities in Canada and is designed as a follow-up to the Canadian Census of Population (i.e. it is a post-censal disability survey). Both an adult and a children's component to PALS exists which provide a variety of information about people with disabilities in Canada. This information includes general details about the child such as age, schooling, family life, and socio-economic status, as well as disability specific information such as type of disability (e.g., learning, developmental, and psychological), and the severity of the child's disability (Statistics Canada, 2002). This thesis focuses on the child's component of the survey. PALS provides information on the impact of the child's disability on her or his activities as well as the limitations or barriers experienced within education, transportation, and leisure activities.

Participants for the PALS questionnaire were identified based on "filter questions" from the 2001 census which were used to identify the percentage of the population who live with a disability. The filter questions act as global indicators of disability. Subsequent to the identification through the census, potential PALS participants were then re-filtered through the same census question several months later, and were screened through further detailed questions before being considered part of the disabled population. PALS provided survey results for an estimated 140 000 school aged children (aged 5 to 14 years) with disabilities.

The purpose of analyzing PALS for this thesis project is to test the hypothesis that where educational services are organized to ensure inclusion, parents are more likely to report that their children with disabilities are in good general health and that their children are performing well in school. In order to facilitate the discussion of this hypothesis, definitions of terms (disability, inclusion, health, and inclusive education) are presented below. Connotations of these terminologies in various contexts are also discussed.

### *Disability*

There are competing models and understandings of 'disability', each providing a differing interpretation of the nature and causes of disability. These models include the bio-medical and social models of disability. Both of these models are discussed in depth in the literature review along with a third model, the International Classification of Function, which attempts to bring together these two opposing constructs. A brief introduction to the models is presented in this section.

Disability can be understood as sets of practices or as social constructions (Thompson, 2007). This social approach to disability can even involve removing all categorical distinctions of disability and considering and interrupting the social practices that have produced these practices. The purpose of adopting such a model is to achieve movement towards equality for people with disabilities based on the understanding that the struggles and exclusionary exploitations that they experience are based on environmental barriers and not their medical conditions or physical limitations (Keil, Miller, & Cobb, 2006). This change in the view of the constructs of disability has occurred within the last two decades (Schalock et al., 2007).

The main distinction between the bio-medical and social models is that in the former, it is the individual who is/has the problem. The social model identifies the problem within the society that "oppresses, stigmatizes, and isolates that person" (Tarzian, 2007, p. 49).

Both models of disability are encapsulated within a spectrum where extremist positions exist.

As a result of the criticisms of its earlier approach, the World Health Organization (WHO) adopted a more integrative approach in 1980 and it has been modified and expanded since that time. Their new approach (2001) makes distinctions amongst impairment, handicap, and disability through a classification system. This new model is represented in figure 1.

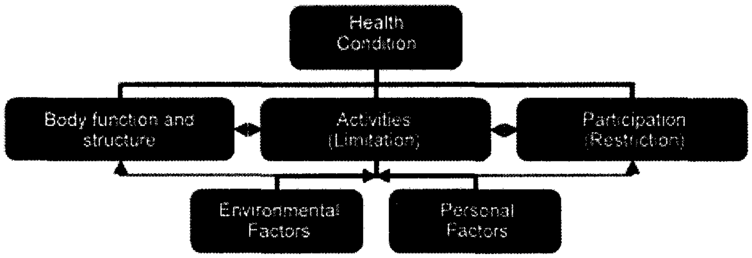

*Figure 1.* The International Classification of Function, Disability and Health (ICF)

From Human Resources and Social Development Canada. (2006). *Advancing the inclusion of people with disabilities 2006.* Retrieved on January 3, 2008 from, http://www.hrsdc.gc.ca/en/hip/odi/documents/advancingInclusion06/chapter5.shtml

The International Classification of Function, Disability and Health (ICF) is a bio-psycho-social approach to defining disability and represents a third approach that considers both social and medical implications of disability. The ICF attempts to convey the multiple dimensions of disability in order to communicate the complexities and the societal influences that factor into the term disability.

For the purposes of this thesis, disability is considered using WHO's Internal Classification of Function in which all environmental, societal, and health factors play an interactive role in defining the disability of the child. Additionally, the implications of disability within education are considered. This thesis also examines the role that inclusive educational settings have on the health of a child with a disability.

### *Inclusion*

What is inclusion and how are inclusive educational settings defined? The Merriam Webster Dictionary (2007) defines inclusion simply as "being included". A subsequent search for the term, 'included', reveals the following definition: "to take in or comprise as part of a whole or group". Ultimately, these definitions capture the essence of inclusion of people with disabilities as used in the context of disability. Timmons (2006) defines inclusion in terms of a society "where adults and children with disabilities learn, play, and work in their community with their peers" (p. 134). That is, people with disabilities are not excluded or segregated. "Inclusive education is simultaneously a philosophy and a practice, based on particular theories of teaching and learning" (Peters, 2007, p. 99). Based on this notion, an inclusive education refers to "the education of children and youth with disabilities in general education classrooms with their nondisabled peers" (Peters, p. 99).

### *History of Inclusion*

Inclusion has a relatively brief history. Prior to the 1960s children were placed in segregated settings and special education classrooms. However, the 60s were a time of political and social strife and chaos. It was at this time that there was the beginning of a movement towards desegregation and integration of students with disabilities. "Parents, consumers, and advocates used the period's increased sensitivity to human and civil rights to promote the normalization philosophy, the 'handicappism' movement, and to mount a case against special education as it was practiced at that time" (Winzer, 2007, p. 31). However, this change was simply the initial stages of this movement. Through the 60s and continuing into the 70s, efforts by people with disabilities and their advocates mounted towards integration. The central theme of special education was 'educational integration' (Winzer). Within the context of education, the concept of inclusion began to take shape in 1973 based on the belief that students with disabilities should not be segregated from their non-disabled peers; they should "have access to friendships and interactive relationships with nondisabled peers" (Sailor, 2002, p. 7). This assertion is based on civil rights.

In the 1980s there were vast educational reforms across many nations (Winzer, 2007). Some of the special education services that resulted from educational reforms included specialized curriculum, trained personnel, and smaller more homogeneous enrolments (Andrews & Lupart, 2000). The result was that as more children were assessed, more were also being labeled and segregated, and not reaching either academic or social potentials. While more students were recognized as needing special education services, there were also competing demands from all marginalized groups such as pregnant teenagers, the homeless, and students for whom English is a second language, in a time of budgetary and resource constraints. It was also at this time that the term 'integration' became prevalent in research literature (Sailor, 2002). Integration involved providing opportunities to students with disabilities to participate with their nondisabled peers through interactions and experiences, but did not necessarily imply same classroom placement.

Consequently, diversity was recognized as an issue affecting all groups of students and not just students with special needs. It was shortly before 1990 that the term ‘inclusion’ began to be used in reference to students with disabilities. “Where integration had principally to do with proximity and opportunities for social interaction, inclusion has to do with full membership and conjoint participation with peers at all levels of education” (Sailor, 2002, p. 13). There are multiple definitions of inclusion that can be found in the current literature amongst educators, policy makers, advocacy groups, communities, and nations. Turnbull, Shank, and Leal (1999, p. 22) elaborated on a six point definition of inclusion in the field of education:

1. All students receive education in the school that they would attend if they had no disability;
2. A natural proportion (i.e., representative of the school district at large) of students with disabilities occurs at each school site;
3. A zero-reject philosophy exists so that typically no student will be excluded on the basis of type or extent of disability;
4. School and general education placements are age-and grade-appropriate so that no self-contained special education classes will exist;
5. Cooperative learning and peer instruction are the preferred instructional methods;

6. Special education supports exist within the general education class and in other integrated environments.

Therefore, inclusion is about meeting the needs of all students, both socially and academically, in a non-segregated setting through adaptive instruction, while respecting the diversity of all students. "An inclusive classroom is a classroom which celebrates individual differences and develops a classroom environment to support this celebration" (Timmons in Andrews & Lupart, 2002, p. 8). Internationally, the United Nations has long supported the rights of people with disabilities; in 2006 the Convention on the Rights of Persons with Disabilities was adopted which recognizes "the right of persons with disabilities to education with a view to realizing this right without discrimination and on the basis of equal opportunity. States Parties shall ensure an inclusive education system at all levels and lifelong learning" (Article 24). This Convention illustrates the impact of inclusive education internationally.

### *Inclusion and Health*

The focus of this thesis is not simply on the inclusive practices of schools for students with disabilities, but on of the health of the individual related to her/his learning environment.

The WHO defines health as "The state of complete physical, mental and social well-being" (2007a, para 1). This denotation conveys the meaning that health is a concept greater than an absence of illness or disease, that in fact, social development plays an equal role in an individual's healthy state. Health Canada's population health framework identifies determinants of health and their interactions to consider how they contribute to a population's overall health (Human Resources and Social Development Canada [HRSDC], 2004). These determinants are:

- Living and working conditions (socio-economic environment);
- Physical environment;
- Health services;
- Early childhood development;
- Social support;
- Personal health practices and coping skills;
- Biology and genetic endowment.

The Public Health Agency of Canada (2003) suggests a further five determinants of health: income and social status, education and literacy, social environments, gender, and culture. Applying the social model lens, disability is a condition created by society in which:

> ...the social environment creates barriers to integration, and the solution is to develop strategies to remove the barriers. ...Improving the health and well-being of people with disabilities, or reducing disability, is possible by reducing impairment, activity, limitations or participation restriction (Human Resources and Social Development Canada [HRSDC], 2004, p. 73).

While the aforementioned determinants can be examined in relation to the social model of disability, they can also be examined through a medical approach. Human Resources and Social Development Canada (2004) categorizes bio-medical advancement as the most obvious factor contributing to health, and using this approach, disability would be viewed as a personal health condition for which solutions are found through medical interventions.

Inclusive education may be an effective strategy for removing participation restrictions and, consequently, contributing to the improvement of the health of individuals with disabilities. Although there is a vast amount of research literature on inclusion and even more on health, there is little that has demonstrated the relationship between the two concepts quantitatively. This research study attempts to fill this gap.

Research shows that including children with disabilities in the regular classroom positively impacts their academic achievement, social adjustment and interactions, and overall health (Heiman, 2000; Knox & Hickson, 2001). The purpose of analyzing PALS was to test the hypothesis that where educational services are organized to ensure inclusion, parents are more likely to report that their children are in good general health and that their children are performing well in school. Furthermore, there was an examination of 'robust' approaches to inclusive educational practice as compared with less effectual approaches, and the relationship between such modalities and child health and academic performance. Robust approaches to inclusion are defined as ones that ensure that all children irrespective of degree or nature of disability: are educated with their age peers in the regular classroom in their home community; are involved in the extra-curricular life of the school; have the needed disability-specific accommodations and supports for participation as valued equals at school; and are in schools and pedagogies where their parents are made to feel welcomed and involved (Crawford, 2004).

Although this thesis reveals data examined through consideration of the severity of disability of the children, a comprehensive exploration of the research question posed in this thesis through simply a medical lens is not possible. Examining the relationship between the health of an individual and inclusive educational settings requires a thorough investigation of societal factors as well which will also be conducted.

# Chapter Two

# Literature Review

The purpose of this literature review is to introduce the topics of inclusion and health by first providing a background on the issue of disability. This exploration allows for familiarization with the key concepts and debates that establish the framework for the research results. The literature review also includes the rationale for the use of, and background information on, the research instrument, namely the Participation and Activity Limitation Survey.

## Disability

It is a challenging task to find a single comprehensive definition of disability; the topic is extremely broad in scope, with differing and sometimes conflicting definitions. However, it is important to analyze how disability is operationalized in society and specifically in this thesis in order to understand the roots of inclusive education.

The most commonly cited definition of disability and, arguably, the one that is most universally conjured by many individuals is the one that is adopted by the World Health Organization (WHO) in 1976:

> An impairment is any loss or abnormality of psychological, physiological or anatomical structure or function; a disability is any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being; a handicap is a disadvantage for a

> given individual, resulting from an impairment or a disability, that prevents the fulfilment of a role that is considered normal (depending on age, sex and social and cultural factors) for that individual (Disabled People's Association, n.d., para 1).

Another definition of disability is the one proposed by the Union of the Physically Impaired Against Segregation:

> An 'impairment [is] lacking part of or all of a limb, or having a defective limb, organism or mechanism of the body'. 'disability [is] the disadvantage or restriction of activity caused by contemporary organisation which takes no or little account of people who have physical impairments and thus excludes them from the mainstream of social activities'" (WHO as cited in Disabled People's Association, n.d., para 1).

The Participation and Limitation Survey (PALS) considers a person to have a disability (participation or activity limitation) if a physical or mental condition or a health problem restricts her/his ability to perform activities that are normal for her/his age in Canadian Society (HRSDC, 2006). This definition is another of the multiple interpretations of disability. Several definitions of disability are presented here; however, they are representative of only a few of the numerous adopted by individuals and groups in today's society. Even a cursory examination of the literature offers a series of definitions that illustrate both the pervasiveness of this topic in current literature, and the multitude of interpretations. This literature review will attempt to explore some of these interpretations by examining past and current beliefs surrounding disability, and the development of the models of disability which have led to the inclusion of students with disabilities in educational settings. This examination will include detailed descriptions of the medical and social models of disability (as described in the Introduction section of this thesis), as well as several subsequent models that have been developed in response to or in conjunction with these models.

### *The Medical Model of Disability*

The medical model of disability, also referred to as the bio-medical model or the individual model (Shakespeare & Watson, 2002; Tregaskis, 2004), is a traditional or orthodox (Joseph, 2007) understanding of disability. The term 'individual' is used in reference to the occurrence of disability as an individual pathology (Rioux, 1997). According to Hodkinson (2007) this conceptualization has dominated the educational, charitable, and medical thinking for most of the twentieth century. According to the medical model, disability is a personal tragedy suffered by an individual (Hodkinson). People with disabilities are identified as individuals "with physical, sensory, and cognitive impairments who are considered to be less than whole" (Hodkinson, p. 58). The concept recognizes a person with a disability as one who has:

> ...certain physical limitations, who is unable to communicate in a standard fashion, who has a learning disability, who has a visual or hearing impairment or who is unable to perform activities of daily living; therefore the person is considered sick or unhealthy (LoBianco & Sheppard-Jones, 2007, p. 1).

Applying this interpretation leads to the perception that people with disabilities are victims in need of care (Joseph), on the premise that they can be 'fixed' or rehabilitated through medical intervention.

The WHO definition of disability (presented above) distinguishes between impairment, handicap, and disability, and tends to present 'disability' as a medical pathology. This approach represents the bio-medical model of understanding disability which involves a consideration of disability based primarily on health conditions that cause physical or psychological limitations and impairments in which individuals are implicitly deficient. Implications are that the person with the disability may be 'fixed' through rehabilitations, aids, surgery, etc. (Tarzian, 2007). However, there has been great criticism of this definition by activists in the disability movement. Their contention is that disability is actually a 'socially imposed restriction'

Rioux (1997) differentiates between the medical approach and a functional approach to disability under the umbrella of an individual pathology whereas this differentiation is not necessarily made in the current literature. Figure 2 is reproduced to illustrate Rioux's approach.

In Rioux's representation, the bio-medical approach places an emphasis on the origin of the disability as caused by a mental or physical condition. The functional approach also considers the individual as deficient, but "the problems experienced by people with disabilities are interpreted as a result of a functional incapacity resulting from individual impairment" (p. 9). Their shortcomings are then treated by assisting the individual to become socially functional and a more productive member of society. Whereas the treatments through the medical approach are solely biologically based (e.g. nursing), the rehabilitation approach involves life-skill, vocational, and job training amongst other skill training for independent living.

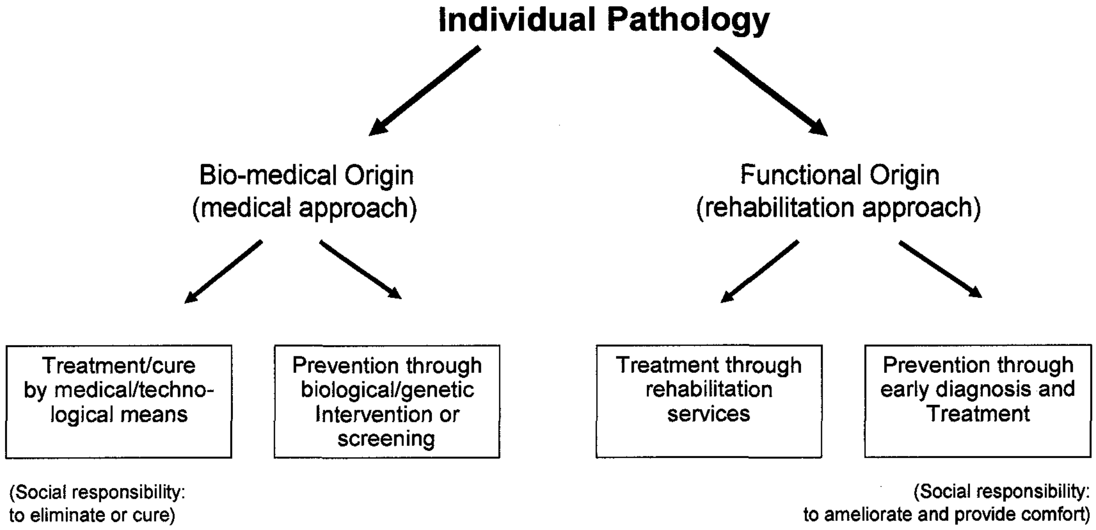

*Figure 2.* Individual Pathology
From Rioux, M.H. (1997). Disability: The place of judgement in a world of fact. *Journal of Intellectual Disability Research, 41*(2), p. 104 (Reproduced with permission of the author.)

One of the main criticisms of this model (other than its regard for people with disabilities to be deficient or flawed) is that it is normative (Mitra, 2006). That is, "people are considered disabled on the basis of being unable to function as a 'normal' person does" (Mitra, p. 237). Therefore, the motives driving any treatment or rehabilitation are to make the person with the disability 'normal'.

In contrast to the medical approach to disability, organizations of disabled people have adopted a more radical approach called the social model of disability.

### *The Social Model of Disability*

The social model of disability has its roots in Britain. Mike Oliver, a professor of disability studies and activist, developed this model from the ideas of the Union of the Physically Impaired Against Segregation (UPIAS), an organization founded by Vic Finkelstein and Paul Hunt in the 1970s (Thomas, 2004). The core definition of this model is cited in an UPIAS document, and reprinted in Oliver's (1996) work, which states:

> …in our view, it is society which disables physically impaired people. Disability is something imposed on top of our impairments by the way we are unnecessarily isolated and excluded from full participation in society. Disabled people are therefore an oppressed group in society. To understand this it is necessary to grasp the distinction between the physical impairment and the social situation, called 'disability' of people with such impairment (Oliver as cited in Shakespeare & Watson, 2002, p. 9).

The definition of disability proposed by the Union of the Physically Impaired Against Segregation (introduced earlier in this section) demonstrates the social model approach to viewing disability. This model considers limitations within a social context where personal and environmental factors play a large part in disablement (Schalock et al., 2007). According to Schalock et al. the evolution of this process has been a result of three major factors:

1. the research on the social construction of illness and the extensive impact that societal attitudes, roles, and policies have on the ways that individuals experience health disorders;
2. the blurring of the historical distinction between biological and social causes of disability;
3. the recognition of the multidimensionality of human functioning (p. 117).

Additionally, Thomas (2004) recounts how this approach to disability was an emancipative strategy by Finkelstein as opposed to compensative. An important aspect of this model is that the causal connection between impairment and disability is removed. Impairments are considered to be part of the biological make-up of an individual which is distinguished from the disability which is a form of discrimination with its roots in society (Hodkinson, 2007). Hodkinson elaborates that key factors of oppression of people with disabilities within this framework are the economy, governmental policy, state authorities, and institutions.

It should be noted that this 'strong social model' (Shakespeare & Watson, 2002) is a British model of disability. In North America, the elements of the social model of disability are the same in that there is a claim that people with disabilities are an oppressed social group, and that there is a distinction between impairments and experienced oppression (Shakespeare & Watson). The key element which illustrates the way in which the approach differs geographically is that, in Britain, disability is defined as the social oppression, not the impairment. Shakespeare and Watson illustrate this point by explaining that in Canada and the United States, the language used in disability is ‘people first’. That is, in North America, the term, ‘people with disabilities’ is employed, unlike the British redefinition of disability as a social oppression in which the disability precedes the person (i.e. disabled person).

Mitra (2006, p. 237) lists nine different versions of the social model of disability that currently exist:

1. the social model of the United Kingdom
2. the oppressed minority model
3. the social constructionist version of the United States
4. the impairment version
5. the independent living version
6. the postmodern version
7. the continuum version
8. the human variation version
9. the discrimination version

It is beyond the scope of this thesis to delve deeply into the many versions of the social model of disability (Mitra, 2006); however, a final description of the social model of disability is represented as interpreted by Rioux (1997) in Canada. Figure 3 summarizes this social construction of disability.

As outlined in figure 3, there is an assumption in Rioux's model that disability "is not inherent to the individual" (p. 11). Therefore, it is society that needs to be 'fixed', not the individual.

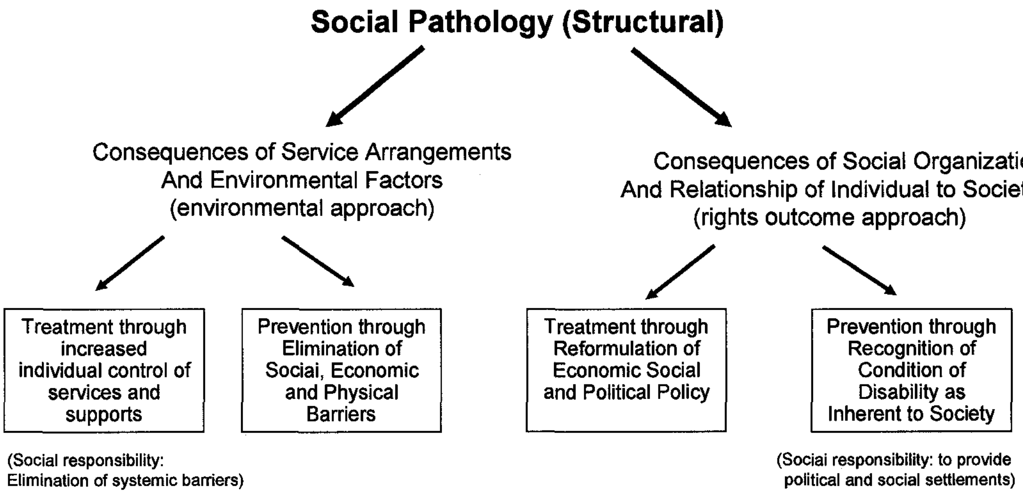

*Figure 3.* Social Pathology (Structural)
From Rioux, M.H. (1997). Disability: The place of judgement in a world of fact. *Journal of Intellectual Disability Research, 41*(2), p. 104 (Reproduced with permission from the author.)

From an environmental perspective, limitations are rooted in the interaction between the individual and her/his environment, and environment's failure to accommodate the needs of people with disabilities (Rioux, 1997). Rioux frames the rights outcome approach within human rights where its scope extends beyond the physical environment. This approach is analogous to the British social model of disability with its focus on systemic barriers that inhibit equality within society. The rights outcome approach has many political and social ramifications (Rioux; Vanhala, 2006). This approach (and the more extreme British model) creates a context for litigation to combat discrimination.

> If disabled people are challenged more by the structure and organization of society than by their impairment, the logical extension of the social model is that the discrimination that disabled people face can be eliminated only through profound and wide ranging socio-political change. (Vanhala, p. 561)

Because the British social model of disability takes such an extreme view, with its dichotomy between impairment and disability, there have been criticisms of it. Shakespeare (2005) states that it is an unbalanced debate to ignore impairment, pain, rehabilitation and other medical interventions in the lives of people with disabilities. Further to this contention, Shakespeare and Watson (2002) write:

> Impairment and disability are not dichotomous, but describe different places on a continuum, or different aspects of a single experience. It is difficult to determine where impairment ends and disability starts, but such vagueness need not be debilitating. Disability is a complex dialectic of biological, psychological, cultural and socio-political factors, which cannot be extricated except with imprecision. (p. 22)

Therefore, they assert that impairment does in fact play a crucial role in disability. Many people with disabilities make this same assertion that impairment is relevant to their lives, and that this aspect cannot be removed from discussion (Colver, 2005). Vic Finkelstein, whose work initiated this model, states that too much has been invested in this theory (Thomas, 2004). Thomas quotes Finkelstein from 2001:

> Sadly, a lot of people have come to think of the social model of disability as if it were an explanation, definition or theory and many people use the model in a rather sterile formalistic way….The social model does not explain what disability is. For an explanation we would need a social theory of disability. (p. 572)

Thomas reviewed multiple papers with critiques of the social model of disability and found that the commonality amongst them is that this model is fundamentally flawed due to denial of the impact of impairment on disability. These authors "agree that impairment and chronic illness have direct causative effects on the daily restrictions of activity that constitute disability" (p. 577). Consequently, disability can be considered to be made up of multiple biopsychosocial forces (Thomas); this view is at the heart of the International Classification Function, an integrative approach to the extreme medical and social models described here.

### *The International Classification of Function (ICF)*

The World Health Organization (WHO) developed the International Classification of Impairments, Disabilities and Handicaps (ICIDH) in 1980 as a first major classification system whose focus was disability (HRSDC, 2003). This classification represents disability through a linear model. According to this organization, there is an underlying cause which may bring about an impairment, which causes a disability, which may subsequently result in a handicap. This initial approach, as mentioned in the introduction, was widely criticized, and subsequently, revised, expanded and renamed as the International Classification of Function, Disability and Health (ICF) in 2001 (World

Health Organization, 2002). The criticisms predominately addressed the ICIDH's medical focus and its focus on "the limitations of people's abilities as the key determinant of disability" (Imrie, 2004, p. 288). The ICIDH proved to be a reductionist approach to defining disability. The World Health Organization developed the new classification, the ICF, as an integration of the medical and social models of disability which they claim are both partially valid, but individually inadequate. "A better model of disability, in short, is one that synthesizes what is true in the medical and social models, without making the mistake each makes in reducing the whole, complex notion of disability to one of its aspects" (WHO, p. 9).

Accordingly, this classification is based on the biopsychosocial model of disability. That is, this classification attempts to provide perspectives on health from biological, individual, and social perspectives (WHO, 2002). These viewpoints are represented under the domains of 'functioning' and 'disability'. The usage of these terms by ICF refers to all body functions, activities, and participation in the former (functioning), while 'disability' is the umbrella term for impairments, activity limitations, and participation restrictions. ICF also recognizes the role of environmental factors within these domains. The WHO uses the representation below (figure 4) to illustrate the basis of the ICF schematically.

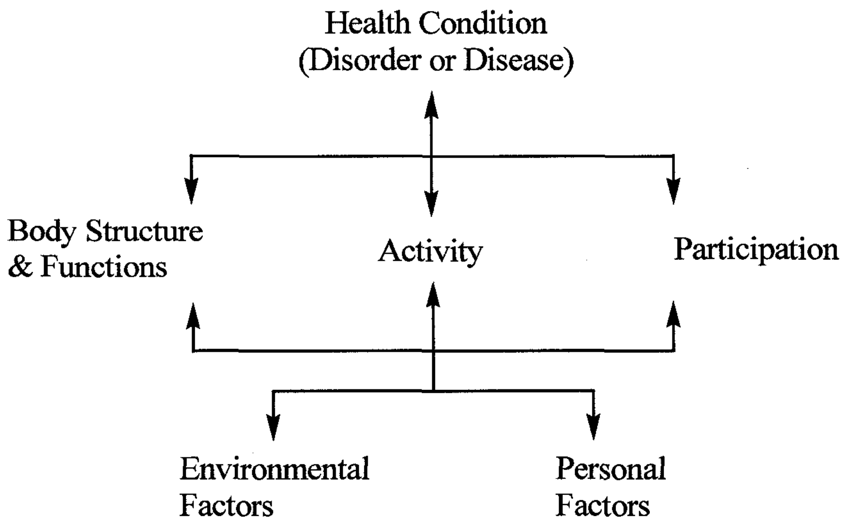

*Figure 4.* The International Classification of Function, Disability and Health (ICF). From page 9 of World Health Organization. (2002). *ICF.* Retrieved on December 15, 2007 from, http://www.who.int/classifications/icf/site/intros/ICF-Eng-Intro.pdf

This representation indicates that disability and functioning are outcomes of the interactions between 'health conditions' and 'contextual factors' (WHO, 2002). The health conditions refer to medical conditions such as disease, disorder, and injuries, while contextual factors include societal influences. These societal influences include contextual and environmental factors. Environmental factors refer to societal attitudes, legal and social structures, physical characteristics of buildings, terrains, etc. Context also includes personal factors may include gender, education, social background, age, behaviour patterns, experiences, and any other factors which may affect an individual's experience of disability.

Due to its integration of health and disability, ICF acknowledges that all people can "experience a decrement in health and thereby experience some degree of disability"

(WHO, 2008, para 2). Therefore disability is 'mainstreamed' due to the recognition that disability is a shared, universal experience. The ICF acknowledges that the presence of impairment does not necessarily signify the presence of a disease (Imrie, 2004) or sickness. Consequently, disability can be considered to be a political issue, since societal changes are needed to bring about new attitudes in the name of human rights.

Shakespeare (2005) states that the ICF offers potential for moving beyond the now sterile debate surrounding the social versus medical models of disability. It should also be noted that this model of disability recognizes disability as a personal condition, and so, it can also be categorized within an 'individual' framework similar to the medical model of disability (Terzi, 2004). Disabilities are attributed to health conditions or 'abnormalities' which lead to limitations within activities.

Imrie (2004) asserts that the ICF is extremely important in the reconceptualization of disability, but also makes the observation that there has not been an evaluation of the theoretical underpinnings of the ICF. He claims that parts of the ICF's "theoretical and value bases require some amplification and clarification" (p. 293) before it can be considered complete. He believes that the following three areas need further conceptual development:

(a) (Re)defining the nature of impairment
(b) Specifying the content of biopsychosocial theory; and
(c) Clarifying the meaning and implications of universalisation as a principle for guiding the development of disability policies (p. 294).

Colver (2005) reports that the ICF was developed for use with adults and that there is a need to refine the classification for children. Although a draft version exists (WHO, 2007b), the classification of environmental factors for children has not been modified.

Even though the ICF may need further development, nonetheless, it provides a useful model for the examination of results in this thesis because of its integrative approach towards disability. "It is the conceptual basis for the definition, measurement and policy formulations for health and disability" (WHO, 2002, p. 19) and it is the study of health of children with disabilities in educational settings which is at the heart of this thesis exploration using data from the children's component of Statistic Canada's 2001 Participation and Activity Limitation Survey (PALS).

Although PALS identifies participants (that is, children with disabilities) using the ICIDH, the ICF framework is also employed throughout the survey (HRSDC, 2003). "PALS recognizes that disability-related characteristics vary according to type and severity at the individual level, and according to personal factors (e.g., age, gender, and schooling) as well as environmental factors (e.g., region, integration policies and programs)" (HRSDC, 2003, p. 9). Furthermore, the survey development was conducted with consultation from community groups. These practices illustrate PALS' consideration of environmental factors on disability.

### *Other Models of Disability*

The focus thus far has been on the three most prevalent models of disability: the medical model, social model, and the ICF. In addition, other models of disability exist. It is beyond the scope of this thesis to delve into them in great depth; however, some will be mentioned briefly.

*The Nagi model.* Developed in 1965, this model is also called the functional limitation paradigm (Mitra, 2006). The key point in understanding this model is to understand Nagi's use of the term 'functional limitation'. These limitations are inabilities to perform socially defined roles within the social and physical constructed parameters. This model adopts a social and cultural relativistic approach to disability where "impairment is at the source of a causal chain leading to disability, which eventually becomes a social construct" (Mitra, p. 238).

*The capability approach to disability.* This approach was developed by A.K. Sen in order to examine the connections between disability, gender discrimination and poverty (Mitra, 2006). Mitra's elaborations on Sen's framework help to conceptualize the approach in terms of disability. The explanation is that 'capability' is a practical opportunity; it refers to what a person 'can do'. Furthermore, capability is linked to functioning, which represents the actual achievement of an individual.

> Here, disability can be understood as a deprivation in terms of capabilities or functionings that results from the interaction of an individual's (a) personal

> characteristics (e.g., age, impairment) and (b) basket of available goods (assets, income) and (c) environment (social, economic, political, cultural). (Mitra, p. 237)

According to Burchardt (2004) this approach presents the barriers of people with disability in achieving equality.

*The human rights approach to disability.* In 2002, a United Nations Ad Hoc committee was established to consider proposals "to promote and protect the rights and dignity of persons with disabilities, based on the holistic approach in the work done in the fields of social development, human rights and non-discrimination" (United Nations, 2002, para 1). Stein states that the human rights paradigm "maintains a moral imperative that every person is entitled to the means necessary to develop and express his or her own individual talent" (p. 77). Therefore, a person is valued based on her/his human 'worth', and not as a measure of her/his ability to contribute to society (Stein). Brown (2003) asserts that the ratification of this convention would allow the protection of human rights related to disability, and that these rights would be enforceable through the law. The human rights approach to disability, therefore, is a perspective on disability based on social justice, and provides the avenue through which disability rights can be created (policy) and protected (law).

### *Canadian Legal and Administrative Definitions of Disability*

In 2003, Human Resources and Development Canada released its first major report on legal and administrative definitions of disability (another followed in 2004). This report, entitled, *Defining disability: A complex issue* summarized the conceptual models and classifications of disability that inform definitions in human rights legislation, and in social programs such as selected pensions, other income support programs, tax measures, and several other programs in Canada. Generally, the report focuses on a definition for the purpose of laws and programs that fall within the federal jurisdiction. As is implied in its name, it is acknowledged in the report that disability is an extremely multifaceted issue:

> Many people argue that there is no simple way of defining disability. One definition of disability that fits all circumstances may not be possible or even desirable. Disability is difficult to define because it is a multi-dimensional concept with both objective and subjective characteristics. When interpreted as an illness or impairment, disability is seen as fixed in an individual's body or mind. When interpreted as a social construct, disability is seen in terms of social, economic or cultural disadvantages resulting from discrimination or exclusion. (p. 39)

From this report it can be gleaned that the Canadian government acknowledges three conceptual models of disability (HRSDC, 2003): the impairment perspective, the functional limitation perspective, and the ecological perspective. Although the names differ, these models are equated to the aforementioned models. That is, the impairment perspective is analogous to the medical model of disability wherein medical professionals are ‘experts’.

The functional limitations perspective evolved through attempts to include the social and physical environmental aspects of disability (the non-medical aspects) into a pre-existing model that only considered the medical criteria of disability.

Finally, the ecological perspective (HRSDC, 2003) is a variation of social model of disability that has been discussed in this thesis and the human rights model. From this viewpoint, disability is seen “as resulting from the interaction of impairment, activity limitations and participation restrictions in a specific social or physical environment such as work, home or school” (p. 6).

Many students defined as having a disability are educated in regular classrooms. This thesis involves an examination of survey data of children with disabilities in Canada. It is an exploration of the health of children with disabilities in inclusive educational settings compared to children who may not be included into the ‘regular’ classroom. Therefore, the next section of this literature review will consist of a discussion of inclusive education.

# Inclusion

Inclusive education has its roots in the social model of disability (Gabel & Peters, 2004; Terzi, 2004). Inclusive education is grounded on the principle that people with disabilities should be included in all aspects of society, including in regular educational settings. Inclusive education is both a philosophy and a practice (Peters, Johnstone & Ferguson, 2005). This next section will delve briefly into the history of inclusive education, provide a context for this philosophy within international frameworks, and present some current research on inclusion with a focus on health.

## *History of Inclusion: A Canadian Perspective*

The term inclusion did not begin to be employed in education until the late 1980s. People with disabilities have struggled with a history of exclusion and segregation through the years. Andrews and Lupart (2000, p. 30) provide a comprehensive snapshot of the history of inclusive education in Canada. Table 1 is a reproduction of this summary.

Andrews and Lupart identify that providing a general national perspective on education in Canada is extremely difficult. The biggest obstacle is that since Confederation in 1867, each province and territory in Canada has independent authority over education. Therefore, each jurisdiction has separate laws, policies, and regulations.

Table 1

*History of Progressive Inclusion in Canadian Education*

| **Time Period** | **Key Descriptor** | **Predominant Educational Trend** |
|---|---|---|
| Early History | Exclusion | Elitist orientation, education reserved for privileged classes. Handicapped individuals were scorned and excluded from general society. |
| 1800s | Institutionalization | Separate residential schools provided care primarily for visibly handicapped students. |
| 1900-1950 | Segregation | Public education system develops. Special schools and classes are formed. Residential schools increase and become larger. |
| 1950s and 1960s | Categorization | Increased numbers and categories of special classes, particularly for high-incidence exceptional learners. Testing, labeling emphasis. Low-incidence students remain in residential schools. |

Table 1 *(continued)*

*History of Progressive Inclusion in Canadian Education*

| **Time Period** | **Key Descriptor** | **Predominant Educational Trend** |
|---|---|---|
| 1970s | Integration | Philosophical shift to promote education for handicapped students in the least restrictive environment. Placement alternatives are developed. Moderate and severely handicapped students are served within the public school. |
| 1980s | Mainstreaming | Emphasis on serving the needs of high incidence exceptional students in the regular classroom. Physical, social, instructional needs are met in the least restrictive environment. |
| 1990s | Inclusion | Merging of special education and regular education into a unified education system. Student-centred, individual learning needs are focused. |

Prior to the 1800s, education was mainly for the wealthy and upper classes of society (Andrews & Lupart, 2000); the only concern for students with disabilities arose not from an educational standpoint, but one of basic care.

In 1817, an institution for persons who were deaf was established (Winzer, 1999) and was soon followed by institutions for the blind and 'mentally retarded'. The latter half of the 1800s brought the introduction of reformatories, which have also been referred to as asylums, institutions, colonies, or training schools (Winzer). The impetus for these reformatories was the fact that children with disabilities were often neglected or abandoned (Andrews & Lupart, 2000). Children were described as "deaf and dumb, blind and idiotic or feeble minded" (Winzer, p. 31) in these institutions. It should also be noted that these reformatories were not under the provision of the educational systems, but were administered with prisons, asylums and charities.

By the early 1900s most children in Canada were being schooled (Winzer, 1999). Therefore, schools were responsible for both the education and the socializing of large numbers of students. Students with disabilities continued to be excluded from schools; however, schools faced the new problems of dealing with students who did not 'fit' into the regular classes. These students were labeled as difficult, "truant, delinquent, incorrigible, and feeble-minded" (Winzer, p. 31). Consequently, segregated classes were introduced into the school system and firmly established in most schools by 1910. The existence of special classes in the schools resulted in increased referrals of children to them (Andrews & Lupart, 2000). Andrews and Lupart further elaborate: "...it was generally accepted that handicapped children were much better served in these special classed due to the reduced teacher-pupil ratio, special teaching methods, resources, equipment, programs suited to the particular group, and specially trained teachers" (p. 33). Artiles, Kozleski, Dorn and Christensen (2006) suggest that "the development of a special education was largely determined by a country's wealth" (p. 69). Reformatories also continued to grow during this time; students with disabilities continued to be excluded and segregated.

It was in the 1960s that parents, advocates, legislators, and educational systems began to reject current practices and push for reform for students with special needs (Andrews & Lupart, 2000; Winzer, 1999) towards integration. This decade introduced new categorizations such as 'learning disabled' (Winzer). Students with exceptionalities were tested and categorized using the five box-'special education' approach (Figure 5).

*Figure 5.* Traditional Special Education Approach

From Andrews, J., & Lupart, J. (2000). *The inclusive classroom: Educating exceptional children* (2nd ed.). Scarborough, ON: Nelson. (Reproduced with permission from the authors.)

This time period was strongly influenced by Bengt Nirje's (1969) conception of the normalization principle defined by him as: "making available to all mentally retarded people patterns of life and conditions of everyday living which are as close as possible to the norms and patterns of the mainstream of society" (in Wolfensberger et al., 1972, p. 27). Nirje provided the guidelines for the treatment of people with disabilities. This conceptualization, of the need to treat people with disabilities fairly and humanely, was the initial approach towards a social model of disability. Arguably, this marked the beginning of inclusive education. Winzer (1999) states that the process of deinstitutionalization began with the conception of this principle.

In the 1970s the education of students with disabilities moved towards integration. Integration is the idea that "the educational system should educate handicapped children in the least restrictive environment and should guarantee every child adequate social adjustment and maximum school achievement" (Robichaud & Enns as cited in Andrews & Lupart, 2000, p. 202). This movement along with a trend towards provincial and territorial legislation of education of students with disabilities, provided the impetus for further change to the educational system based on civil rights (Winzer, 1999).

The greatest school reforms in Canada, focusing on children with disabilities, occurred in the 1980s and 1990s (Winzer, 1999). In the 1980s there was great pressure for change; during this time the concept of mainstreaming, which is the term used to refer to the process of involving children with special needs into the regular classroom, became prominent (Andrews and Lupart, 2000). This movement towards integration was due partly to the intensive efforts of the 'Regular Education Initiative' (REI), "which stressed that special education must redefine its relationship with general education" (Winzer, p. 35). REI was the terminology initiated by groups such as The Association for Severely Handicapped (TASH) and the Association for Retarded Citizens (ARC) which preceded the use of the term 'inclusion' (Philpott, n.d.). One of the main differences between the 80s and 90s is the placement of students with special needs into both special and regular education classes, as well as the continual categorization of students with special needs (Andrews and Lupart). The term 'inclusion' was first introduced in the mid-1980s (Winzer). In 1987, Reynolds, Wang and Walber identified the need for "The joining of demonstrably effective practices from special, compensatory, and general education to establish a general educational system that is more inclusive and better serves our students particularly those who require greater-than-usual educational support" (in Winzer, p. 35). It is important to note that there is a distinction between inclusion and integration. Thomas (1997) states that:

> ...an inclusive school is one which is accepting of all children. The policies, practices and the *raison d'être* of an inclusive school involve everyone and ensure that everyone belongs. By contrast, the stress in integration is on the physical movement of the child from one place to another without a concomitant expectation of necessary change by the mainstream school (p. 103).

Thomas elaborates that inclusion (unlike integration) does set parameters; it is a philosophy of acceptance.

There are a multitude of other definitions of inclusive education. Several examples include:

- "All children being educated in their neighbourhood school with their age appropriate peers" (Timmons, 2006, p. 469).
- "Inclusion means full inclusion of children with diverse abilities (that is, both giftedness and disabilities) in all aspects of schooling that other children are able to access and enjoy" (Loreman, Deppeler & Harvey, 2005, p. xi).
- "The perspective that individuals with disabilities are entitled to an education that includes full participation with their peers and an educational process that allows access to the same resources as other students" (Jordan, 2007, p. 249).

- "The process of increasing the participation of learners in and reducing their exclusion from the curricula, cultures and communities of neighbourhood mainstream centres of learning" (Booth, 1999, p. 164).

Many further examples could be given; however, it is important to note that the commonality amongst these definitions and those found elsewhere in the literature is that students with disabilities should be educated alongside their peers. For the purposes of this thesis, the following definition of inclusive education is used:

> Educational arrangements are considered to be inclusive if all learners:
>
> - are welcome and included, in all their diversity and exceptionalities, in the regular classroom in the neighbourhood school with their age peers;
> - are able to participate and develop to the fullest of their potential; and
> - are involved in socially valued relationships with diverse peers and adults (Crawford, 2004).

The education of students can also be connected to a medical and social model in the same way that disability is examined within those constructions. Using the bio-medical model as a framework, students with disabilities are perceived as being different from their 'normal' peers; therefore, it is perceived as beneficial and justified under this approach to place them in special, segregated settings. These special education environments purportedly allow for instruction that benefits their unique needs (Peters, 2007). "Progress in special education is a rational-technical process of incremental improvements in diagnostic and special instructional practices" (Skrtic as cited in Peters, p. 99).

### *Salamanca and the United Nations (UN)*

The Salamanca Statement and Framework for Action on Special Needs Education (UNESCO, 1994) provides the construct for inclusive education based on the social model of disability. The Salamanca Statement resulted from a UNESCO sponsored meeting of delegates from 92 governments and 25 international organizations in Spain in 1994 (Jordan, 2007). The Statement provides evidence of international support for inclusive education:

> Regular schools with this inclusive orientation are the most effective means of combating discriminatory attitudes, creating welcoming communities, building an inclusive society, and achieving education for all; moreover, they provide an effective education to the majority of children and improve the efficiency and ultimately the cost-effectiveness of the entire educational system (UNESCO, 1994, p. 2).

Peters (2007) identifies four assumptions in the Salamanca statement that are inherent in conception of inclusion through a social model of disability approach:

1. All students are diverse; therefore, there are no fundamental differences.
2. The education system is responsible for responding to ALL students.

3. A general education system that provides high expectations and standards, quality academic curriculum and instruction that is flexible and relevant in an accessible environment. Furthermore, teachers are well prepared to address the educational needs of all students.

4. Within an inclusive society, schools, and community work together to educate children such that they are able to experience societal life and experience its benefits; this is a measure of progress in education.

Therefore, the two approaches, medical and social, can be associated with a special education and an inclusive model of education, respectively.

The Salamanca Statement, along with several other key international declarations, helped to delineate the operational definitions of inclusion and inclusive education (Peters, 2007). These declarations, which include those established by the United Nations, and the historical Salamanca statement all helped to play a role in changing societal attitudes towards disability. A synopsis of these monumental events is presented below:

- 1946: Universal Declaration of Human Rights
- 1971: Declaration on the Rights of Mentally Retarded Persons
- 1975: Declaration the Rights of Disabled Persons
- 1981: International Year of Disabled Persons
- 1983-1992 Decade of the Disabled Persons
- 1993: United Nations Standard Rules on the Equalization of Opportunities for Persons with Disabilities

- 1994: Salamanca Statement of Principles, Policy, and Practice in Speical Needs Education and a Framework for Action
- 2006: Convention on the Rights of Persons with Disabilities

"The concern of the United Nations for the well-being and rights of the disabled is rooted in its founding principles, which are based on human rights, fundamental freedoms and equality of all human beings" (Pineda, 2004, p. 13). The 1946 Universal Declaration of Human Rights affirmed the rights (civil, political, social, etc.) of people with disabilities as equal to those of people without disabilities. The 1975 Declaration of the Rights of Disabled Persons reaffirmed these rights, and was the first of its kind to specifically address the rights of people with special needs (Peters, 2007). It should be mentioned that this declaration defined a person with a disability as one who is "unable to ensure the necessities of normal social life due to deficiency" (UN, 1975, para 9). Therefore, a deficit model of disability was being maintained; however, with respect to education, it was stated in the Declaration that the goal was to "promote integration in normal life" (UN, p. 1).

The 1993 Standard Rules made distinctions between handicap and disability, moving towards a social model for inclusion (Peters, 2007; Smith-Davis, 2002). The Rules for Education stated that "general educational authorities are responsible for the education of persons with disabilities in integrated settings. Education for persons with disabilities should form an integral part of national educational planning, curriculum development, and school organization" (Independent Living Institute, n.d.). With respect to the educational setting of the child with a disability, the Rules stated: "...in situations where the general school system does not yet adequately meet the needs of all person with disabilities, special education...should be aimed at preparing students for education in the general school system" (Independent Living Institute, p. 14).

In June 1994, following soon after the UN Standard Rules, the Salamanca Statement and Framework for Action was endorsed by 92 countries and 25 international organizations (Peters, 2007). Salamanca was integral in promoting inclusive education for children with disabilities by identifying inclusive education as the means by with 'Education for All' (EFA) may be achieved. As its name implies, EFA is a term used to denote the need to bring education to 'every citizen in society' (World Bank, n.d., para 1). This commitment was initiated by various national governments, civil groups, and development agencies such as UNESCO and the World Bank in Thailand in 1990. Peters asserts that because of the international participation and contribution to its development, the Salamanca Framework provides "the best cross-cultural definition of inclusive education in action" (p. 121). This definition of an inclusive school states:

> The fundamental principle of the inclusive school is that all children should learn together, wherever possible, regardless of any difficulties or differences they may have. Inclusive schools must recognize and respond to the diverse needs of their students, accommodating both different styles and rates of learning and ensuring quality education to all through appropriate curricula, organizational arrangements, teaching strategies, resource use and partnerships with their communities. There should be a continuum of support and services to match the

> continuum of special needs encountered in every school. (UNESCO, 1994, para 7)

The Salamanca Framework provided a foundation for inclusion, but it also identified inclusive education as an international matter of priority.

The most recent contribution to this issue by the United Nations has been the Convention on the Rights of Persons with Disabilities which aims to ensure that people with disabilities have the same rights as all others (United Nations, 2008). Its adoption on December 13th, 2006 classifies it as the first major UN human rights treaty to be adopted in the 21st century. The Convention was adopted in part to recognize the systemic discrimination of people with disabilities (United Nations, 2006). The rationale for this treaty originated from a gap in the international human rights system which did "not specifically prohibit discrimination on the ground of disability" (United Nations, 2006, para 8 ). Article 24: Education, of the Convention specifically addresses inclusive education:

> States Parties recognize the right of persons with disabilities to education. With a view to realizing this right without discrimination and on the basis of equal opportunity, States Parties shall ensure an inclusive education system at all levels and life long learning. (United Nations, 2006, article 24)

### *Research in Inclusive Education*

This thesis aims to explore the relationship of a student's educational placement and the subsequent health of the child across several domains. This next section explores some of the current research (since 2000) and trends that correspond with the themes that will be examined in subsequent sections of this thesis.

*Site and nature of educational placement.* According to the 2006 Canadian Census, the population of Canada is 31.6 million people, 5.6 million of which are children under the age of 15 (Statistics Canada, 2007). Based on the 2001 PALS data, 4.0% of school aged children between the ages of 5-14 have activity limitations (Statistics Canada, 2002). However, this number is not indicative of the entire population of students that may be in some form of special education or inclusive setting. Timmons (2006) reports that approximately 15% of the school aged population are considered to have exceptionalities, such as behaviour, communication, physical, and intellectual abilities. The services which are provided for these children are not uniform as education is under provincial and territorial jurisdictions. Consequently, there is no national approach to inclusive education in Canada (Timmons). Furthermore, there are no statistics which offer information on how many students with disabilities are in inclusive educational settings. The reason for this lack of information is that there are limited questions in PALS which address the question of educational settings of students with disabilities (Crawford, 2004). Although this thesis will attempt to address this gap, Statistics Canada has also completed some reporting that suggests an exploration and difference in regular versus segregated classroom placement. A problem with the broad level data that have been reported is that they tend to focus solely on regular placement, whereas this is not the only consideration concerning effective inclusive practice. Furthermore, the information that Statistics Canada has gathered about students with disabilities is not available on public use data files, thereby limiting the access to the information.

*Academic performance.* One of the goals of inclusive education is to meet the educational needs of all students (Salend, 2000). Therefore, it is important to examine the academic achievement of students with disabilities placed in inclusive educational settings and compare it to those who are not. McDonnell et al. (2003) performed a quantitative examination of the academic achievement of students with developmental disabilities in primarily inclusive educational settings, and found that these students made gains across many levels and achieved the majority of their individualized education plans' (IEP) objectives. Cole, Watdron, and Majd (2004) reported similar findings in their review of six Indiana schools. Although students with disabilities did not make significant progress in mathematics or reading, their overall average grades were indicative of the relationship between inclusive settings and academic achievement.

Hawkins (2007) performed a longitudinal study in Rhode Island to examine approaches that benefit the academic achievement of students with special needs. His findings indicate that inclusive educational settings are one of the effective approaches in achieving academic success with students with disabilities. Kemp and Carter (2006) conducted an interesting study in which they examined data related to academic achievement of 24 students with disabilities over an 18 month period. They state that "there may well be a link between academic achievement and the success of an inclusive placement" (p. 141). This finding is based on the associations between teacher perceptions of the level of 'integration' and student success. That is, students who were identified as being 'very successfully integrated' achieved higher academic scores than those who were deemed as being 'moderately' or 'unsuccessfully integrated'. Although this research is informative, it is has limitations because it has been gathered from small samples, and is therefore of limited use for making broad generalizations about the effectiveness of inclusive practice.

*Student involvement.* Students with disabilities tend to have fewer friends and participate less frequently in extracurricular activities than their non-disabled peers (Eriksson, Welander, & Granlund, 2007). Although he does not focus on students with special needs, Baily (2005) reports that there is evidence to indicate the positive impact (both socially and physically) of physical education and involvement in sports; therefore, an examination of students' with disabilities participation in extracurricular activities may be significant. Sherrill (2003) discusses the necessity for physical education and the social benefits of it. She states that research "indicates that persons with disabilities list lack of companions as a major barrier to participation in physical activities" (p. 56). Tapasak and Walther-Thomas (1999) conducted a first-year evaluation of a school's inclusion program. Their evaluation revealed that teachers reported improved social skills for students with disabilities after their inclusion in general classroom settings. Inclusive classrooms allow students with special needs to form larger social networks, which positively influence an individual's future and indicate better social adjustment throughout life (Heiman, 2000; Knox & Hickson, 2001). Students in inclusive classrooms learn advanced social skills such as how to get along with others, are more receptive and helpful to others, and exhibit less prejudice and stereotyping (Stahmer, Carter, Baker, & Miwa, 2003). The research presented here supports the benefits of inclusive education as having a positive impact on student involvement. There is also evidence of the need for student involvement in order to augment social and physical benefits for students with disabilities. Whilst supportive research for inclusive education has been presented, the fact remains that there is a general lack of evidence for its effectiveness, simply because the studies have not been conducted (Lindsay, 2007). Lindsay conducted a review of the effectiveness of inclusive education and concluded that inclusion has been mainly promoted based on human rights as opposed to its effectiveness, which has rarely been evaluated. The literature reviewed revealed that only 1% of the 1300 studies published between 2000 – 2005 addressed the effectiveness of inclusive education.

## Inclusion and Health

The main research focus of this thesis is the exploration of the relationship between the educational setting of a child with a disability and the health of the child. That is, it is hypothesized that where there is robust inclusive practices, parents are more likely to report that their children are in good health.

Traditionally, the term health is simply associated with wellness (or its absence) and general physical conditions of an individual. In the introduction to this thesis, the definition of health as conceptualized by the World Health Organization (WHO) was stated. This definition acknowledges that there are social factors which contribute to the health of an individual. The modification of this definition has its roots in a Canadian document published in 1974.

In 1974, Marc Lalonde, Minister of Health and Welfare in Canada, released a working document entitled 'A New Perspective on the Health of Canadians'. This document, known simply as the 'Lalonde Report', identified four concepts that were responsible for health other than medical interventions. It has been asserted that this report was the first by an industrialized nation to acknowledge that there are social determinants to health (Health Promotion Agency, n.d.). Lalonde states, "The purpose of this Working Paper, as its title suggests, is to unfold a new perspective on the health of Canadians and to thereby stimulate interest and discussion on future health programs for Canada" (p.7). This new perspective to which he is referring is the recognition of the multiple facets of health beyond the physical dimensions. Lalonde proposed dividing the health field into four components which he referred to as the 'Health Field Concept'. These four elements are: human biology, environment, lifestyle, and health care organization.

Human biology refers to the physical and mental aspects of health (Lalonde, 1974). This component of the Health Concept is also concerned with associations of health and well-being derived from biological factors (heredity, genetic make-up). All health related matters of which an individual has either minimal or no control, and are external to the human body are categorized as the 'environment'. These factors include both the physical and social environment. Lifestyle is the element of the Health Concept over which individuals have greatest control. This category represents the combination of decisions of individuals that contribute to their health. 'Bad choices' and habits that may be detrimental to a person's health (such as smoking) are said to be contributors to the individual's illness or death. The health care organization "consists of the quantity, quality, arrangement, nature and relationships of people and resources in the provision of health care" (Lalonde, p. 32), and represents how the general health care system was defined. Lalonde asserts that much of health care expenditure was focused on this organization, but that in fact an examination of the causes of sickness and death in Canada reveals that their roots are found within the other three elements of the Health Concept. He states, "It is apparent, therefore, that vast sums are being spent treating diseases that could have been prevented in the first place. Greater attention to the first three conceptual elements is needed if we are to continue to reduce disability and early death" (p. 32). In summary, the Lalonde Report asserted that in addition to the health care system, there are other determinants of health, namely, human biology, environment and lifestyle.

Several decades later, in Canada, social factors contributing to health were examined and explored amongst social and health policy experts, community representatives, and health researchers at a conference in 2002, which was entitled, 'Social Determinants of Health Across the Life-Span (Raphael, 2003). The organizers of this conference synthesized various formulations of the determinants of health, using those published by a WHO working group, the 'Ottawa Charter for Health Promotion', and Health Canada.

They identify the 11 key social determinants that, in their view, are most relevant to Canadians (Raphael). They are:

1. Aboriginal Status;
2. Early Life;
3. Education;
4. Employment and Working Conditions;
5. Food Security;
6. Health Care Services;
7. Housing;
8. Income and its Distribution;
9. the Social Safety Net;
10. Social Exclusion;
11. Unemployment and Employment Security.

Raphael asserts that Canadians are unaware of the importance of these social determinants of health. In a later paper, Raphael (2004) summarizes the meaning of the social determinants of health as:

> the economic and social conditions that influence the health of individuals, communities, and jurisdictions as a whole. Social determinants of health determine whether individuals stay healthy or become ill (a narrow definition of health). Social determinants of health also determine the extent to which a person possesses the physical, social, and personal resources to identify and achieve personal aspirations, satisfy needs, and cope with the environment (a

> broader definition of health). Social determinants are about the quantity and quality of a variety of resources that a society makes available to its members (p. 1).

It is reasonable that there is a connection between inclusive education and the health of a child with a disability. This association depends on the acceptance that health is not solely determined by the healthcare system and its organization, but also on other determinants, including education and social inclusion/exclusion, which may affect the health of an individual. Conversely, health status may also contribute to these other determinants such as whether a child is in an inclusive setting.

The Canadian classroom has dramatically changed in the past 50 years. One of these changes is reflected in the diversity of the students who attend public education classes. One of the ways that this diversity is reflected is in the increase in the number of students with disabilities in the education system (Ungerleider & Burns, 2004). Due to new technologies and medical advances, many children who would not have survived due to disability now have the opportunity to attend schools. Ungerleider and Burns state that "deinstitutionalization in the health and social services sectors has resulted in retention in the community of students who, in previous generations, would have been 'out of sight, out of mind'" (p. 144). However, Ungerleider and Burns introduce a series of alarming statistics with respect to children with disabilities and their educational placement. These issues revolve around income distribution/poverty, and early life experiences and the education of their parent(s), as summarized below:

- In 1994-1995 one tenth of students received some form of special education;

- Children in low-income families are more likely to receive special education;
- Children living in single parent families are twice (17%) as likely as children from two parent families (9%) to receive special education assistance. Single parents face multiple social and economic disadvantages;
- Children receiving special education are more likely (24%) to have a parent who did not finish high school than children who are not receiving special education (14%).

It is extrapolated that students who are receiving special education largely separated from their age peers are at greater risk of being in poorer general health as compared with their peers who are placed in regular classroom settings.

In addition to low income and low education, another determinant of health, as identified by Raphael (2003), is social exclusion. "Groups experiencing some form of social exclusion tend to sustain higher health risks and lower health status" (Galabuzi, 2004, p. 235). Amongst the people who are situated in this category are people with disabilities (Health Canada, 2004). Galabuzi offers a definition of social exclusion in the Canadian context as:

> the inability of certain subgroups to participate fully in Canadian life due to structural inequalities in access to social, economic, political, and cultural resources arising out of the often interesting experiences of oppression as it relates to race, class, gender, disability, sexual orientation, immigrant status, and the like. Along with the socio-economic and political inequalities, social exclusion is also characterized by processes of group or individual isolation

> within and from such key Canadian societal institutions as the school system, the criminal justice system and the health care system, as well as spatial isolation or neighbourhood segregation (p. 238).

Galabuzi's identification of segregation and its enablement by the school system as a contributor to social exclusion illustrate the potential impact of inclusive education on the health of students with disabilities.

The benefits of inclusive education for students with disabilities have been reported in the literature (Graves & Tracy, 1998; Gray, 2005; Stahmer et al., 2003). Inclusive classrooms have the positive effect of promoting healthy social relationships between children with special needs, and the rest of society. Students who are regularly exposed to children with special needs, as their equal counterparts, gain understanding and empathy for human difference (Graves & Tracy; Gray). Therefore, students in inclusive classrooms learn advanced social skills such as getting along with others; they are more receptive and helpful to others, and exhibit less prejudice and stereotyping (Stahmer et al.). As Heiman (2000) notes, students with intellectual disabilities have more friends in inclusive schools than they do in special needs schools, and "social connections between students and their peers enrich their private world by providing emotional support, offering means of relaxation and providing opportunities to voice various frustrations" (p. 1). Inclusive classrooms allow students with special needs to form larger social networks, which positively influence an individual's future and indicate better social adjustment throughout life (Heiman; Knox & Hickson, 2001). Individuals who are socially adjusted have a greater chance of maintaining lasting, fulfilling relationships, which in turn leads to a healthier overall life.

Research that examines the relationship between inclusive education and health is scant. Furthermore, to the best of this researcher's knowledge, research that attempts to explore this relationship using quantitative methods with large-scale samples has not been conducted to date. The analysis of the Participation and Activity Limitation Survey will attempt to fill this gap in the literature by exploring the relationship between inclusive education and health of children with disabilities. As Lalonde (1974) eloquently stated:

> Complete well-being for all may be beyond our grasp, given the human condition, but much more can be done to increase freedom from disease and disability, as well as to promote a state of well-being sufficient to perform at adequate levels of physical, mental and social activity, taking age into account. (p. 8)

The relationship between robust inclusion and health is the focus of this research. The perspective on health draws from the multi-faceted framework introduced by Lalonde (1974) and further articulated by Raphael (2003). Accordingly, the health of a child with a disability is studied not only using a physiological perspective, but also with a focus on other determinants of health, specifically, education and social inclusion (exclusion). This research was conducted using Statistics Canada's 2001 Participation and Activity Limitation Survey.

## Participation and Activity Limitation Survey (PALS)

Between 1986 and 2001 Statistics Canada has conducted three disability specific surveys following a population census (Statistics Canada, 2001a). The first of these surveys was the 1986 Health and Activity Limitation Survey (HALS), which was also repeated after the census in 1991. Also conducted in 1991 was the Aboriginal Peoples Survey (APS). Statistics Canada identifies these surveys as 'post-censal'. That is, they are surveys conducted following a census. Statistics Canada identifies their advantages and defines them as:

> ...a survey that uses a census question to identify the target population. It is usually conducted shortly after a census, with census staff and field infrastructure being used to select the sample and collect the data. Census data are used to augment the data collected on the post-censal survey questionnaire. (para 4)

These characteristics translate into several advantages. A post-censal survey is an efficient means of collecting information on a segment of the Canadian population that is geographically dispersed. It reduces overall respondent burden and is a cost-effective means of collecting information (Statistics Canada, 2001a).

The Health and Activity Limitation Survey was developed in response to a report entitled 'Obstacles' which was published in 1981 by the Special Parliamentary Committee on the Disabled and the Handicapped. The role of this committee was to study the needs and concerns of people with disabilities in Canada. Of the 130 recommendations that were included in the report, one identified the need for the development and implementation on a 'long-term strategy' for gathering information on people living with disabilities in Canada. It was based on this recommendation that HALS evolved. Information from HALS generated data on:

- the nature and severity of disabilities;
- the barriers that persons with disabilities face in household tasks, employment, education, accommodation, transportation, finances, and recreation and lifestyles;
- the use of and need for assistive devices; and
- the out-of-pocket expenses related to disability. (Statistics Canada, 2001a).

Due to budget constraints, no post-censal data were collected in 1996; therefore, no data on persons with disabilities were collected between 1991 and 2001. The Participation and Activity Limitation Survey (PALS), which was implemented in 2001 and 2006, was the newly named and designed survey for the collection of data for persons with disabilities in Canada. There are both children and adult components to PALS, with the focus of this thesis being on the former. Although both surveys (PALS and HALS) provide information about "the demographic and socio-economic situation of persons with disabilities as well as the type and severity of their disabilities" (Statistics Canada, 2002, p. 2), the surveys are not comparable due to the use of different filter questions in identifying participants. PALS respondents were all sampled from participants who answered positively to disability filter questions on the Census of Population in 2001, whereas HALS targeted those who also responded negatively. In addition, new disability filter questions were also implemented. Strictly, the filters used before 2001 and since then are not comparable. The present filter questions serve as 'global' indicators of disability to standardize the definition of disability used by Statistics Canada across its population. The filter questions for the Census of populations probe whether survey respondents have any difficulty hearing, seeing, communicating, walking, climbing stairs, bending, learning, or doing any similar activities; and whether a physical condition or mental condition or health problem reduces the amount or kind of activity that respondents can do at home, work or school or in other activities such as transportation or leisure (Statistics Canada, 2001a).

A significant difference between the two surveys is the questionnaire content. In HALS, children with learning disabilities, mental illness, and developmental disabilities were grouped together in a category identified as 'other'. Conversely, the PALS questionnaire allows for distinction amongst these disabilities (Statistics Canada, 2002). Furthermore, there is a different approach in the identification of the severity of the activity limitations. The HALS severity scale, which was divided into three groups: mild, moderate, and severe, gave more weight to physical disabilities as opposed to non-physical disabilities. The PALS severity scale was divided into four groups (for children aged between 5-14 years): mild, moderate, severe, and very severe, and gave equal weight to all types of disabilities – mobility, agility, hearing, seeing, spoken communication, developmental, learning and psychiatric/psychological.

Statistics Canada has an intricate method of defining severity of disability (Statistics Canada, 2002). Their measure of overall severity is influenced by the intensity of a person's disability as well as the number of disabilities that the person possesses. Each reported disability is scored based on the frequency and intensity of the disability using a point system. A respondent's severity of disability is then calculated based on a standardized average score of all reported disabilities (Faucher, 2002).

There were a total of 43 000 respondents to the PALS questionnaire of which 35 000 were adults and 8 000 were children (Statistics Canada, 2002). Data were collected on (Statistics Canada, p. 17):

- difficulties with certain daily activities, such as moving around, hearing, seeing, communicating and learning;
- type and severity of the activity limitation;
- specialized equipment and aids that are used and/or needed;
- help required to complete everyday activities;
- impact of disability on employment, education, leisure, accommodation and transportation;
- information on out-of-pocket expenses related to specialized aids and services;
- need for and use of medications, transportation, etc.;
- economic characteristics, such as insurance coverage and sources of income;
- statistics

This thesis analyzes data collected from the children's component of the 2001 Participation and Activity Limitation Survey, and examining specifically questions on the survey that are related to education and overall health of the child in order to test the hypothesis that where educational services are organized to ensure inclusion, parents are more likely to report that their children with disabilities are in good general health and that their children are performing well in school.

Although PALS is a comprehensive data source for disability-specific information, it has limitations with respect to the information on the schooling of children with disabilities. For example, a key limitation is that PALS does not provide an objective measure of children's school performance, such as standardized test scores. A further limitation is that the survey does not allow for comparisons to be made between children with and without disabilities; however, there is extensive information that may be derived in the examination of the dimensions and extent of inclusive educational practice, and into the relationship between these practices and student outcomes.

Statistics Canada has several other data sources which provide information on children's health and well-being. These include the National Longitudinal Survey of Children and Youth (NLSCY) and the Youth in Transition Survey (YITS). The NLSCY is:

> ...a long-term study of Canadian children that follows their development and well-being from birth to early adulthood. The study is designed to collect information about factors influencing a child's social, emotional and behavioural

> development and to monitor the impact of these factors on the child's development over time. (Statistics Canada, 2006)

Key limitations of this survey are that it gathers little information about the educational situation of children and youth and provides a relatively small sample of students with disabilities. Detailed disability-specific data, which would allow for creation of a severity of disability scale similar to that available in PALS, is not available.

The YITS is another longitudinal survey providing information on the transitions faced by youth between education and work (Government of Canada, 2007). One of the limitations of this survey is that there are only two cohorts who are sampled, one of which is 15 year olds, and the other is an 18-20 year old cohort. It does not provide the range of detailed disability specific information that is provided by PALS, nor does it offer as large a disability sample size as that offered by PALS.

With the relevant literature and historical context now established, the methodology of the research is described in the following chapter.

# Chapter Three

# Methodology

"Though this be madness, there is method to it" (Hamlet, Act II, Scene II).

## *Research Design and Rationale*

As introduced earlier in this thesis, Statistics Canada's 2001 Participation and Activity Limitation Survey (PALS) of Children was used to test the hypothesis that, where educational services are organized to ensure inclusion, parents are more likely to report that their children with disabilities are in good general health and that their children are performing well in school. PALS provides a wealth of general demographic information on children with disabilities such as age, gender, schooling, family life and socio-economic status, as well as disability-specific information such as type of disability (for example: learning, developmental, and psychological) and severity of the child's disability (e.g., mild, moderate, severe, very severe – Statistics Canada, 2002).

As mentioned earlier, the PALS data were pooled from a sample of 43,000 respondents, of which nearly 8,000 were parents/guardians of children birth to 14 years with disabilities (Statistics Canada, 2001b). This data base provides the largest and most comprehensive view of children with disabilities that exists in Canada. While there are data in the Adult file concerning young adults 15 years and older with disabilities, the questions pertaining to education are quite different than those in the Children's component and are not comparable. Accordingly, only data from the Children's component of PALS were analyzed.

In a previous section of this thesis, two other sources of information of children with disabilities were introduced: the National Longitudinal Survey of Children and Youth (NLSCY) and the Youth in Transition Survey (YITS). Neither survey offers the diversity of information about children with disabilities as PALS provides, nor does either contain information on as large a sample size of the disabled population as is offered by PALS. For example, the disability sample size of the NLSCY is approximately 10% that of the PALS children file (Government of Canada, 2007; Statistics Canada, 2006). While PALS has questions similar to those in the NLSCY on educational arrangements, it is further supplemented by information on disability not included in the NLSCY. Furthermore, neither the NLSCY nor YITS addresses the kinds of questions related to the educational setting of young people (aged 5-14), which allow for the determination of the level of 'inclusivity' (a term which will be explained in detail) of children with disabilities. Therefore, the exploration of the inclusiveness of the educational situation of children with disabilities as compared with their health could only be answered through the examination and analyses of the PALS data.

Research based on surveys such as PALS is referred to as 'secondary research' (Stewart & Kamins, 1993) which differs from its counterpart, 'primary research', in that the data collection is not the responsibility of the researcher. In this case, the data was gathered and organized by Statistics Canada.

Furthermore, the PALS data that was collected is identified as 'secondary data'(Stewart & Kamis, 1993; Thomas, Heck & Bauer, 2005). Once secondary data are summarized and reported, it is referred to as a 'secondary source' (Stewart & Kamis). The PALS data set that was used in this thesis research is an example of secondary data.

Secondary research has several key advantages over primary research, which are related to time and cost (Stewart & Kamis, 1993). Statistics Canada collected information on about 8000 children with disabilities for the 2001 Children's component of PALS. Approximately 3,660 of these children were 5 – 14 years of age and attending school. No data were collected concerning children and youth older than 14 years in the Children's component of PALS. Using a complex algorithm, Statistics Canada was then able to 'weight' the data such that it is representative of the entire population of children with disabilities in Canada (Faucher, 2002). Collecting this breadth of information and gaining access to such a large population is simply not possible by non-governmental agencies. Stewart and Kamis identify several other advantages of secondary research. These points, as well as disadvantages of secondary research are illustrated in Table 2.

There are several key disadvantages of the secondary analysis of PALS that need to be addressed. The first is that the survey information was collected following the 2001 census, and that although new information was also gathered following the 2006 census, the latter data will not be available for analysis until the latter part of 2008.

Table 2

*Key Advantages and Disadvantages of Secondary Research*

| **Advantages** | **Disadvantages** |
|---|---|
| Less expensive | Data may be collected with a specific intention and may produce deliberate or unintentional bias |
| Time effective | Data may be so extensive that the analyst may find different and potentially conflicting interpretations |
| Provides a useful starting point for additional research | Data may have been collected for a different purpose; therefore, different categories and measures may be an issue |
| May be a useful comparative tool | Data may not be timely; it may be published significantly later than it was collected |
| Provides a basis for determining if information is representative of a population | |
| Can help inform subsequent primary research and with enhanced efficiency | |

Another disadvantage is that, while PALS contains more than 225 questions designed to gather a range of information about children with disabilities, it was not the direct aim of the survey to explore the research hypothesis of this thesis. Therefore, based on an analysis of the questionnaire, variables had to be indentified that touched upon issues relevant to the present thesis. Indicators and measures were developed based on those variables that would then enable issues of inclusion and child health to be interpreted quantitatively. Perhaps another limitation of the PALS data is that it is purely quantitative. That is, in itself the data does not directly explain the relationship between inclusion and child health. Discovering the relationship is one of the tasks of quantitative analysis. Moreover, causal relationships cannot be established; only correlational analysis is possible.

Creswell (2005) identifies "quantitative research as a type of educational research in which the researcher decides what to study, asks specific, narrow questions, collects numeric (numbered) data from participants, analyzes these numbers using statistics, and conducts the inquiry in an unbiased, objective manner" (p. 39). In this thesis, the researcher has decided to study the relationship between educational setting and health of children with disabilities. Specific, narrowly-focused questions were asked and compiled by Statistics Canada concerning education, health and other matters. The process of analyses will be explained in detail and the results reported in subsequent chapters of this thesis.

Quantitative inquiry in education has a long, established history. This kind of research began in the late 19th century and dominated educational research for most of the 20th century (Carson, 2007; Creswell, 2005). Its foundations are rooted in the physical sciences (Creswell). Carson refers to relationships between the variables that are analyzed in quantitative enquiry. The notion of establishing relationships between variables supports the use of the PALS survey data in exploring the possibility of associations between inclusion and child health.

All research methodologies have limitations (Carson, 2007). One approach to overcoming some of the limitations of using a purely quantitative methodology is to adopt a 'mixed methods' approach. Mixed methods research design is defined by Creswell (2005) as "a procedure for collecting, analyzing, and 'mixing' both quantitative and qualitative data in a single study to understand a research problem" (p. 510), and was first introduced by Campbell and Fiske (Creswell, 2003). Leahey (2005) asserts that "mixed methods are making headlines" (p. 150). Leahey acknowledges the potential benefits of combining multiple approaches; however, she asserts that despite the advantages, mixed methods has limited practicality. Leahey states:

> The purpose of this paper is to draw attention to a single limitation of such mixed methods designs: in short, integrating a qualitative component into a survey research project is limited to a rather privileged subset of researchers. Either the researchers must be involved in the original collection of survey data or they must have access to the geographical person, or other unique identifiers

> to collect additional qualitative data from the research site or original research participants (p. 151).

Since the PALS data set did not provide any identifiers to the researcher to permit any subsequent quantitative data collection, using a mixed method approach based on the PALS sample was not possible. Despite the limitations of PALS, quantitative research methods are the most appropriate choice to systematically measure and scientifically assess many types of questionnaires and data, including census data (Nardi, 2006).

There is not a great deal of research in the area of inclusive education that has adopted a quantitative methodology; furthermore, both the qualitative and quantitative research that does exist is based on small samples. While in-depth qualitative research based on small samples can provide a wealth of insight into the kinds of educational situations in which children (and family members) may find themselves, and can provide valuable insight into challenges and successes in those situations, it is methodologically problematic to generalize on the basis of such samples (Gravetter & Wallnau, 2008). Indeed, even with large statistical samples, answers to particular questions may involve coefficients of variation so large due to sampling bias and other errors that the results, while interesting and informative for the cases under scrutiny, may not be generalizable to the broader population of children with disabilities.

The sample is representative of the distribution of children with disabilities across household incomes and geographic regions of Canada excluding the northern territories.

The large numbers of children represented in the sample are of both genders with diverse kinds and combinations of disabilities. The questions investigated were detailed enough to explore the extent to which facets of inclusive educational practice are being actualized for children with specific disabilities and other characteristics, yet general enough so that the findings would not become burdened with idiosyncrasies that cannot be generalized with confidence.

Permission to analyze the data was gained through a rigorous, adjudicated process in which access to the survey results had to be garnered through a proposal submission to the Social Sciences and Humanities Research Council of Canada (SSHRC). Part of the reason for this rigorous process is that Statistics Canada is extremely diligent about protecting the privacy of all of its respondents. For this same reason, there are no identifying details provided alongside the other PALS survey data, resulting in a compilation of purely quantitative data. In addition, the data were submitted to Statistics Canada's evaluation process, which ensures that most data too marginal for reliable use in analysis are suppressed at source, i.e., it is not released to researchers, even though the researchers may have requested it.

The specific strategies used to conduct these quantitative analyses of the PALS survey data are described in the following sections.

### *Data Analysis Strategies*

Prior to collecting any data from the PALS survey, a proposal had to be written and submitted to SSHRC clearly identifying the rationale and objectives of the study, as well as the required data sets, specific variables to be analyzed and computer program requirements. Upon acceptance of the proposal, access was provided to Research Data Centres (RDCs) at Dalhousie University in Halifax, Nova Scotia, and the University of Toronto, in Toronto, Ontario. This adjudication process took approximately six months. Because this is secondary data collection, it was not necessary to apply for ethics approval from the University of Prince Edward Island.

*Statistics Canada rules and regulations.* Before any data from PALS were released from Statistics Canada's Research Data Centres (RDCs), their analysts conducted disclosure risk analysis, also referred to as vetting. The purpose of vetting was to ensure the protection of survey respondents' confidentiality (Yei, 2006). Several data sets, including the Participation and Activity Limitation Survey, have additional guidelines applied to them, in order to ensure further confidentiality protection. All of these guidelines were strictly adhered to during data extraction. One of these guidelines is that all weighted descriptive statistics need to be rounded to the nearest multiple of 10. All subsequent averages, ratios and percentages were calculated based on the basis of the rounded values. The rounding guidelines also "dictate that when the unweighted count for a particular cell is lower than 10, the [weighted] cell itself -- as well as all proportions or ratios calculated from this cell -- must be suppressed" (Yei, p. 7). It might be further added that any information that would allow analysts to re-construct deleted values must also be suppressed; suppression of the value in a given cell typically means suppression of the values in one or more other cells as well.

It may be noticed that the cell counts were identified as 'weighted' or 'unweighted'. PALS provides information that is collected directly concerning its sample of nearly 4,000 school-aged children. When presented in tables, these data are referred to as 'unweighted counts', which are not released by Statistics Canada. Based on complex algorithms developed by Faucher (2002), Statistics Canada draws inferences about the relationship between unweighted counts and the entire population of children with disabilities in Canada. All cases are assigned a weight. So, for example, a case with a weight of 40 represents 40 children in the population of children as a whole. When presented in tabular form, these data are referred to as the 'weighted counts', are used for analyses, and are vetted by Statistics Canada for release.

*Inclusion.* Before data could be gathered and analyzed from PALS, a great deal of preliminary work needed to be done to develop a methodological tool to measure inclusion or degree of 'inclusivity' of a child with disability attending school. It was previously stated that for the purposes of this data exploration, Crawford's (2004) definition of robust inclusive practices is employed:

Robust approaches to inclusion are defined as ones that ensure that arrangements exist where all learners

- are welcome and included, in all their diversity and exceptionalities, in the regular classroom in the neighbourhood school with their age peers;

- are able to participate and develop to the fullest of their potential; and
- are involved in social valued relationships with diverse peers and adults

Additionally, Crawford (2004) provided more detailed considerations for operationalizing that definition which informed the analysis of PALS to identify variables that would indicate the inclusiveness of educational arrangements. It was not sufficient to simply use a student's regular classroom placement as the sole measure of inclusion; other facts contributing to robust inclusion were considered as well. One of the tools that was developed to measure inclusion was dubbed the 'inclusion index'.

*The inclusion index.* The PALS questionnaire contains over 200 variables which address multiple facets concerning children with disabilities (Statistics Canada, 2002). Therefore, specific variables had to be identified that, when examined together, would best reflect a robust approach to inclusion. These variables are identified in Table 3. Also illustrated in Table 3 are the response options for each variable in parentheses. Additionally, each respondent was offered the choice of 'refusing to answer' for any given question. Statistics Canada documents these responses as well.

Table 3

*PALS analysis for development of an inclusion index*

| **Source Data for Sub-Indices (Reference Year: 2001)** | **PALS Question Number** |
|---|---|
| **1. Child was in a regular school and classroom in his/her home community** | |
| Child was attending school or kindergarten in the reference week (Going to school or kindergarten; Being tutored at home through the school system; Neither of the above i.e. neither going to school or being tutored at home) | E1 |
| Child was attending a regular school (Special education school; Regular school; Regular school with special education classes) | E6 |
| Child was attending only regular classes (Only regular classes; Some regular classes and some special education classes; Only special education classes) | E7 |
| Child was receiving education in academic subjects (not only in life skills or speech and language therapy, and was not receiving only mental health or counseling services. The child could have been receiving such non-academic services together with academic services, however.) (Yes; No; Don't know) | E20a |

Table 3 (*continued*)

| Source Data for Sub-Indices (Reference Year: 2001) | PALS Question Number |
|---|---|
| Child attended school in his/her home community (i.e., the child did not have to leave his/her community to attend school) (Yes; No; Don't know) | E23a |
| **2. Child was involved in the extra-curricular life of the school** | |
| Child was able to take part in physical education or organized games at school without restrictions due to disability/health condition (Yes; No; Don't know) | E24a |
| Child was able to play with others during recess or lunch hour at school without restrictions due to disability/health condition (Yes; No; Don't know) | E24b |
| Child was able to take part in school outings, such as visits to a museum, without restrictions due to disability/health condition (Yes; No; Don't know) | E24c |
| **3. Needed supports were available to the child** | |
| Needed special (architectural) features or equipment at school were available to the child (ramps, elevators, etc.) (Yes; No; Don't know) | E27 |

Table 3 (*continued*)

| **Source Data for Sub-Indices (Reference Year: 2001)** | **PALS Question Number** |
|---|---|
| Needed assistive aids, devices or services at school were available to the child (teacher's aides, interpreters, attendant service providers, computer with adaptive technologies, etc.) (Yes; No; Don't know) | E30 |
| Child was able to participate in the classroom, without restrictions due to disability/health condition (Yes; No; Don't know) | E24d |
| **4. Parental involvement** | |
| Parent(s) were made to feel welcome in the school (Yes; No; Don't know) | E24b |
| During the school year the parent(s) spoke to, visited or corresponded with the child's teacher (Yes; No; Don't know) | E33a |
| Frequency of parent(s) checking the child's homework or providing help with homework (Never or rarely; Less than once a month; At least once a month; At least once a week; A few times a week; Every day; Don't know) | E22 |

Table 3 illustrates the variables that were grouped thematically together to comprise four sub-indexes:

1. Child's school and classroom placement, and proximity of school;
2. Child' involvement in extra-curricular life of the school;
3. Availability of supports and accommodations for the child;
4. Parental Involvement.

The first sub-index contains information on whether the child attended school in a regular, neighbourhood school and was placed in a regular classroom (not segregated), all of the time. The second sub-index has information on children's involvement in extra-curricular activities based on their ability to participate in physical education classes and games at school, participation during recess, and involvement in school organized field trips. The third sub-index addresses the availability of physical supports (such as ramps and elevators) and assistive aids (such as educational assistants and technological supports) that a child with a disability might require, as well as the school's overall accommodation of a child's physical and health needs. Finally, the last sub-index addresses parental involvement, which is a key component of this index, with information about the school's ability to welcome parents, communication with parents, as well as the parents' participation at home in assisting their child(ren) with homework.

The variables which contributed to each of these categories were directly consistent with the definition of robust inclusionary practices as defined in this thesis. Furthermore, this selection of variables represents all of the variables in PALS that relate to inclusive educational practices.

PALS data are available for analysis through several formats. Of the choices, it was decided that the data would be accessed using the statistical software, SPSS (formerly, Statistical Package for the Social Sciences). This program was chosen mainly due to its ease of use and the relative simplicity of learning it. The language of SPSS analyses is called its syntax. Syntax refers to the data definition files that allow a user to manipulate and format the datasets (How to Create your own Dataset using SPSS Syntax Files, n.d.). Upon identification of the variables to include within the four sub-indices, syntax was written so that each variable was recoded with a new name and assigned new values. The purpose of recoding the variables was so that a meaningful value could be given to each answer in order to measure inclusivity. For example, the variable E22, frequency of parent(s) checking the child's homework or providing help with homework, was recoded as E22_R. Then, each response to this question was given a value: if the response was 'never or rarely', then a score of one was given. 'Less than once a month' earned a score of two; 'at least once a month' achieved a value of three; 'at least once a week' scored a four; and responses of 'a few times a week' and 'every day' garnered scores of five and six respectively. Therefore, the value given to each response was indicative of consistent order and direction: from low to high or from poor to good practice. That is, the higher the score, the better the practice with respect to robust inclusion. It should be stated that most variables allow the respondent to not answer a question with an option such as 'refusal to answer' or 'don't know'. In the cases where this type of answer was given or the question was not applicable, then the respondent was dropped from the analysis. The missing values constituted a small percentage of the total response (approximately 0.72%).

The next step in completing the inclusion index was to calculate the product of the source variables within each sub-index, and divide this number by the maximum total score for each index. This step resulted in a score between zero and one for each of the four sub-indices. The decision to multiply the values of the recoded variables in the sub-indices, instead of finding the sum, was to maximize the variability or spread of the scores within each sub-index. The final step in creating the inclusion index was to calculate the sum of the scores across the four sub-indices; a maximum score of four was possible. However, in order to simplify the score for the inclusion index, this value was standardized by dividing the sum by four. The maximum score that could be achieved, which indicated optimum robust inclusive settings, was one, and the lowest score possible was zero.

*Inclusion Scale.* Due to the large sample size, a vast array of possible inclusion index scores was available. Therefore, to simplify the data analysis and provide meaningful results, the inclusion index was divided into a three-point scale reflecting three degrees of inclusivity, which were labelled 'low-inclusion', 'mid-inclusion', and 'high-inclusion'. The three categories were created using a function within SPSS that displays 'cut points' for continuous variables. Cut points allow the user to determine the number of equally sized groups of cases that can be created based on a continuous variable.

Originally, a five-point inclusion scale was constructed; however, this was ultimately rejected because, when performing cross-tabulations to obtain research results, the unweighted counts in a large number of cells were too low to meet Statistics Canada's data release requirements; data suppression by Statistics Canada would have prohibited the use of much of the data. The three-point scale was a resolution to this problem.

The problem of low, unweighted cell counts occurred a few times during analyses of other variables necessitating further collapsing of the data. For example, one variable, which was cross-tabulated with the inclusion scale, was B68: description of child's general health. In the PALS survey, respondents were given a choice of five answers. These were 'excellent', 'very good', 'good', 'fair' and 'poor. Because of low frequencies in the areas of fair and poor health when crossed with the inclusion scale, responses to B68 were collapsed into a three point ordinal with the following categories: excellent/very good; good; and fair/poor.

*Analysis.* Upon construction of the inclusion index, and its subsequent division into the inclusion scale with its three equally sized groups, a series of bivariate cross-tabulations were performed to compare the degree of inclusivity with various outcomes. These outcomes were identified from the PALS questionnaire using the following variables:

- B68: How would you describe .....'s general health? (Excellent; Very good; Good; Fair; Poor)
- E21: Based on your knowledge of his/her school work, including his/her report cards, how did..... do during the last school year? (Very well; Well; Average; Poorly; Very poorly)
- E 35: With regard to how he/she feels about school, how often did..... look forward to going to school during the last school year? (Almost never; Rarely; Sometimes; Often; Almost always)
- F9: How well has..... gotten along with other children, such as friends or classmates (excluding brothers or sisters)? Very well (or no problems); Quite well (or hardly any problems); Pretty well (or occasional problems); Not too well (or frequent problems); Not well at all (or constant problems)

The latter three questions were selected as outcomes because, arguably, they are the questions from the PALS survey that best serve as a measure of the broader well-being of the child when their associations are evaluated along with health in relation to the inclusion scale.

Cross-tabulations and analyses also included runs to control for the nature of disability (e.g., developmental, mobility, agility, etc.), and severity of disability (mild/moderate and severe/very severe).

It was also decided that an exploration of the variety and frequency of health services used by this population of children with disabilities may provide meaningful information. In order to do this, a four-point scale was constructed to measure the frequency of children's use of health-related services. The following questions were used to create this scale:

B80 A – H: In the past 12 months, how often has [child] seen or received care from:

- A: a family doctor or general practitioner?
- B: a medical specialist (such as a heart specialist)?
- C: a nurse?
- D: speech therapist?
- E: a physiotherapist?
- F: a psychologist or psychotherapist?
- G: a chiropractor?
- H: a other health professional?

Each question had four response options: at least once a week; at least once a month; less than once a month; and never. Each response was assigned values from four to one respectively. These responses were rescaled inversely so that the highest frequency of visits was assigned the greatest value.

As with the Inclusion Index, the values across all the variables were added together and then standardized out of a maximum total of one. This procedure resulted in a 'Health Service Utilization Index'. This index was then transformed into a four-point scale, reflecting four groups with equal numbers of cases. One group reflected the lowest frequency of service utilization, one group the highest frequency of utilization and two groups with frequency of utilization between the two extremes. These groups were labelled accordingly.

*Descriptive Statistics*. All of the data were collected using SPSS, as mentioned above. This statistical software was used to calculate totals, central tendency (specifically, the mean), probabilities, and correlation measures. The measure of correlation that was used was the Kendall's tau rank correlation coefficient, designated by the lowercase Greek letter, τ. Kendall's tau is used to measure the degree of association between two ordinal (rank) variables (Kraemer, 2005). Kendall's tau is equivalent to the Spearman r statistic with respect to its underlying assumptions, and its statistical power, but they differ in magnitude because of their underlying logic. It is beyond the scope of this thesis to delve into these intricacies, but it is notable that the Kendall's tau provides a more conservative measure of the association (than the Spearman r) between variables. Arndt, Turvey, and Andreasen (1999) conducted an experiment in which they compared Pearson, Spearman, and Kendall's correlation coefficients with a large sample size. Their evaluations showed that Kendall's tau had many advantages over the other statistics. They state that although the Kendall's tau is often the better choice, it is often not considered due to its infrequent use. One limitation of the Kendall tau is that squaring it will not represent the proportion of variance (Kraemer). Kendall's tau b was used for cross-tabulations of square tables, and tau c was used for rectangular tables. The possible values for Kendall's tau range between -1

(100% negative association) to +1 (100% positive association). The following guidelines (Table 4) were used to guide the interpretation of the values (Corbett, 1993):

Table 4

*Measures of Association for Kendall's Tau Statistic*

| **Value of the ordinal measure of association is:** | **Association** |
|---|---|
| Under .1 (or between 0 and –.1) | Very weak |
| From .10 to .19 (or from –.10 to – .19) | Moderately weak |
| From .20 to .29 (or from – .20 to – .29) | Moderately strong |
| .30 and above (or from – .30 to – 1.00) | Strong |

Results of the analyses are presented in the subsequent section of this thesis.

# Chapter Four

# Results

I was just guessing
At numbers and figures
Pulling your puzzles apart

Questions of science
Science and progress
Do not speak as loud as my heart

From “The Scientist”, lyrics by Coldplay (2002)

This research was guided by the intent to explore the relationship and examine the association between inclusive education and health. This exploration was partly conducted in order to fill the gap that exists in this field. The results are grouped based on four themes relating to different dimensions of health as previously introduced. Specifically, the results are categorized into a ‘general health section’ as well as the following dimensions, based on the determinants of health, as identified by Raphael (2003):

- Education
- Social Exclusion
- Health Care Services

The results in each section are presented in tabular format and summarize the data that prompts subsequent discussion. Each table also provides significance values as well as the results of the non-parametric measure of analysis, the Kendall tau. Results are presented to illustrate the findings based on the outcome and the inclusion index, and cross tabulated based on severity and type of disability. Presenting this variety of results allows analysis and exploration of any or all of these major research questions within each category:

- What is the extent of positive student outcomes associated with high and low scores on the inclusion scale? i.e. What is the relationship between robust inclusive educational practice and each of the four outcomes at the focus of this research?
- Who are most (and least) likely to experience such outcomes; i.e. who will benefit?
- Who are most (and least) likely to be involved in robust inclusive educational arrangements?

There are two types of tables:

1. "Outcome by Inclusion Scale"

   This table illustrates the distribution of children with disabilities across the three groups of the inclusion scale (low, medium, high) as a percentage. This distribution is revealed across each of the possible responses for the particular outcome question.

2. "Specific types of disabilities and severity of disability by Inclusion Scale"

   This table displays the distribution of children who reported to be doing 'best' in any given outcome across the three groups of the inclusion. This distribution is represented as a percentage, and is also categorized based on each type of identifiable disability. It should be noted that any child may have more than one disability. Finally, this table also displays the distribution of children across the inclusion scale based on the severity of their disability.

It is important to reiterate that all the data in the tables are parent-reported.

### *Canadian Overview*

Prior to the presentation of the results, organized according to the social determinants of health specified in this thesis, it may be beneficial to consider the distributions across the three categories of inclusiveness according to province. Education in Canada falls under provincial jurisdiction; therefore, each province has differing policies and legislations. This variation in terms of extent of robust inclusive practice is evident in Table 5.

Table 5 illustrates that in the categorization of 'high' inclusive education, the provinces of New Brunswick and Prince Edward Island have the highest fraction of students in this setting with percentages of 51.5% and 50.0% of respectively. This statistic reveals that approximately half of the students in these two provinces are in robust educational settings as defined in the present research.

Table 5

*Distribution of children with disabilities across the Inclusion Scale grouped by province*

| | Inclusion scale - 3 groups | | | Total[a] |
|---|---|---|---|---|
| **Province** | **Low** | **Middle** | **High** | |
| Newfoundland/Laborador | 29.7% | 33.9% | 36.4% | 1.6% |
| Prince Edward Island | 17.1% | 32.9% | 50.0% | 0.5% |
| Nova Scotia | 29.1% | 27.1% | 44.0% | 3.5% |
| New Brunswick | 24.0% | 24.8% | 51.5% | 2.5% |
| Quebec | 39.2% | 26.9% | 34.0% | 14.2% |
| Ontario | 33.5% | 35.3% | 31.2% | 45.0% |
| Manitoba | 31.1% | 36.8% | 32.1% | 4.2% |
| Saskatchewan | 30.1% | 35.7% | 34.2% | 3.0% |
| Alberta | 32.8% | 36.1% | 31.2% | 12.5% |
| British Columbia | 32.0% | 33.5% | 34.5% | 12.9% |
| Total percent | 33.3% | 33.3% | 33.3% | 100.0% |
| Total number | 48,250 | 48,490 | 48,220 | 144,960 |

Note. [a]Total is the percentage of the sample population from each province.

Source: PALS 2001 microdata (children)

### *General Health*

The measure of health that is reported in the following table is based on parents'/guardians' perception of their child's general health (excellent/very good; good; poor/fair). This measure of health is cross-tabulated with the inclusion scale. Thus,

Table 6 illustrates the percentages of children who have been categorized as being in a low, mid, or high inclusive setting based on the previously defined conditions for robust inclusion. The percentages are displayed according to the reported health condition and are statistically significant with a moderately weak association ($\tau_{Ken,b} = 0.085$) between health and the inclusion scale.

Table 6

*General health, by Inclusion Scale*

| | Inclusion scale - 3 groups | | | Total |
|---|---|---|---|---|
| **General health** | **Low** | **Middle** | **High** | |
| Excellent / very good | 55.7% | 65.4% | 76.3% | 65.8% |
| Good | 32.2% | 26.8% | 19.9% | 26.3% |
| Fair / poor | 12.0% | 7.8% | 3.8% | 7.9% |
| Total percent | 100.0% | 100.0% | 100.0% | 100.0% |
| Total number | 48,190 | 48,460 | 48,170 | 144,810 |

Note. $\tau_b = 0.169$;

$*p < 0.001$

Source: PALS 2001 microdata (children)

Table 6 shows that students with disabilities in 'high' or most robust inclusive settings are in the best general health overall. That is, amongst children with disabilities in the highest or 'best' categorization of inclusive setting, 76.3 % of children with disabilities are in excellent/very good health and only 3.8% of children are in fair/poor health. In contrast, in the lowest inclusion categorization or least robust setting, 55.7% of students are in excellent/ very good health (a lower percentage than in the highest inclusion grouping) and 12.0% of children with disabilities are in fair/poor health. Therefore, Table 6 reveals that children with disabilities in the high inclusion setting are 1.4 times more likely to be in excellent or very good health, and that those in the lowest inclusion scenario are three times more likely to be in fair/poor health.

Table 7 allows for comparison of the inclusive educational categorization (low, middle, high) and general health with consideration of specific disabilities. The 'Total' column shows the percentages of children with disabilities in excellent or very good health irrespective of educational arrangement. For instance, 64.6% of children with hearing disabilities taken as a whole are in excellent or very good health. For all types of disability and degrees of severity, the percentages in high inclusion scenarios with excellent or very good health are consistently higher than the figures shown in the Total column. Accordingly, not only can better general health be anticipated in the high versus low inclusion settings, but better general health can be expected in high inclusion settings than when looking more broadly at children with various types and degrees of disability.

Table 7

*Percentage of children with disabilities in the three Inclusion Scale categories with excellent or very good health, by type and severity of disability*

| | **Inclusion scale** | | | **Total[a] %** | $\tau_b$ | $p$ |
|---|---|---|---|---|---|---|
| **Disability status** | **Low** | **Middle** | **High** | | | |
| **Type of disability** | | | | | | |
| Any Disability | 55.8% | 65.4% | 76.3% | 65.8% | 0.169 | |
| Hearing | 37.6% | 68.0% | 79.2% | 64.6% | 0.324 | < 0.001 |
| Speech | 56.2% | 67.4% | 79.0% | 64.8% | 0.182 | < 0.001 |
| Developmental | 49.2% | 69.9% | 78.1% | 59.7% | 0.234 | < 0.001 |
| Learning | 54.0% | 68.4% | 77.7% | 65.5% | 0.194 | < 0.001 |
| Seeing | 53.0% | 47.5% | 68.2% | 55.2% | 0.105 | < 0.001 |
| Psychological | 53.9% | 67.1% | 66.6% | 60.2% | 0.126 | < 0.001 |
| Mobility | 45.5% | 55.5% | 65.0% | 52.2% | 0.155 | < 0.001 |
| Dexterity | 53.7% | 67.3% | 60.4% | 59.0% | 0.085 | < 0.001 |
| **Severity** | | | | | $\tau_c$ | |
| Mild / Moderate | 60.6% | 68.3% | 79.4% | 71.7% | 0.120 | < 0.001 |
| Severe / very severe | 52.9% | 61.2% | 65.3% | 57.8% | 0.098 | < 0.001 |

Note. [a]Total % is the percentage of children on each row of the table reported with excellent/ very good health overall.

Source: PALS 2001 microdata (Children)

The trend that was apparent in Table 6 is the same that is revealed in this table (Table 7). That is, in general, when considering the general health of a child in the highest grouping of the inclusion scale, the percentage of children reported to be in excellent/very good health is greatest, followed by a lower percentage in the middle grouping, and the lowest fraction is found in the low inclusion category. Although there are a few deviations from this pattern (e.g., children with psychological and seeing disabilities), it is still notable in the examination of most of the types of disability, and is certainly true when considering the illustrated percentages for 'any disability'. In this instance, the highest categorization of the inclusion scale, 76.3% of the students have been reported to be in excellent/very good health. In the middle inclusion setting, 65.4% of students are in excellent/very good health, and of the students in the lowest inclusive education setting, 55.8% are in excellent/good health. Even for children with psychological and seeing disabilities, the percentage in excellent or very good health is higher in the most robust scenario than in the least robust scenario. There are varying degrees of association (ranging between very weak to strong) amongst each type of disability and the inclusion scale, but every relationship is statistically significant.

### *Education*

The following table (Table 8) shows the progress at school by children with disabilities cross-tabulated with the inclusion index. The relationship is statistically significant ($p < 0.001$), a value of $\tau_{Ken,b} = 0.191$ is indicative of a moderately weak association.

Table 8

*Progress at school, by Inclusion Scale*

| | **Inclusion scale - 3 groups** | | | **Total** |
|---|---|---|---|---|
| **Progress at School** | **Low** | **Middle** | **High** | |
| Very well/ well | 31.7% | 40.3% | 52.0% | 42.5% |
| Average | 27.8% | 30.5% | 32.2% | 30.5% |
| Poorly/ very poorly | 40.5% | 29.2% | 15.8% | 27.1% |
| Total percent | 100.0% | 100.0% | 100.0% | 100.0% |
| Total number | 32,730 | 47,150 | 47,860 | 127,740 |

Note. $\tau_b = 0.191$

$^*p < .001$

Source: PALS 2001 microdata (children)

Similar to the trend observed in the general health section, the children who are in high inclusive settings are performing best at school. For example, in the high inclusion group, 52.0 % of children are progressing very well or well at school academically, and only 15.8 % of children are progressing poorly or very poorly. Comparatively, in the low inclusion group, 40.5% of children are progressing poorly at school and a distinctly lower 31.7% are progressing very well or well. There is a marked difference amongst the success at school by children with disabilities in the three inclusion groups.

Table 9 displays the data gathered from the cross tabulation of the progress of children with disabilities at school with the inclusion scale, based on specific disabilities.

Table 9

*Children with disabilities performing very well/well as a percentage of all children with the same disability or severity of disability, in each category of the Inclusion Scale*

| | **Inclusion scale** | | | **[a]Total %** | $\tau_b$ | *p* |
|---|---|---|---|---|---|---|
| **Disability status** | **Low** | **Middle** | **High** | | | |
| **Type of disability** | | | | | | |
| Any Disability[b] | 31.7% | 40.3% | 52.0% | 42.5% | 0.191 | < 0.001 |
| Mobility | 35.4% | 45.5% | 56.9% | 43.8% | 0.115 | < 0.001 |
| Seeing | 38.7% | 41.9% | 56.2% | 45.1% | 0.158 | < 0.001 |
| Hearing | 21.6% | 38.7% | 52.6% | 41.9% | 0.314 | < 0.001 |
| Dexterity | 35.7% | 39.9% | 49.5% | 40.2% | 0.123 | < 0.001 |
| Developmental | 33.8% | 39.3% | 44.6% | 37.6% | 0.109 | < 0.001 |
| Speech | 35.3% | 39.4% | 42.9% | 38.8% | 0.094 | < 0.001 |
| Psychological | 28.9% | 30.5% | 37.8% | 31.3% | 0.100 | < 0.001 |
| Learning | 27.3% | 28.6% | 35.7% | 30.3% | 0.111 | < 0.001 |
| **Severity** | | | | | $\tau_c$ | |
| Mild / Moderate | 32.1% | 43.7% | 53.6% | 47.1% | 0.170 | < 0.001 |
| Severe / very severe | 31.5% | 35.4% | 46.4% | 35.8% | 0.096 | < 0.001 |

Note. [a] Total % is the percentage of children on each row of the table reported as doing very well/well overall.

Source: PALS 2001 microdata (Children)

Of children with any disability who are in the high inclusion group, 52% are progressing very well or well at school compared to 40.3% who are in the middle inclusion setting and 31.7% in the low inclusion group. Table 9 illustrates that as the level of inclusivity is decreased, so is the children's perceived success at school, regardless of the type or severity of disability. A range in $\tau_{Ken,b,c}$ of 0.096 – 0.314 was observed.

*Social Exclusion*

Table 10, below, displays the results obtained from the cross-tabulation of the interaction of children with disabilities with their peers and the inclusion scale.

Table 10

*Interaction with other children, by Inclusion Scale*

| | **Inclusion scale - 3 groups** | | | **Total** |
|---|---|---|---|---|
| **Interaction with Other Children** | **Low** | **Middle** | **High** | |
| Very well/well (none or hardly any problems) | 47.4% | 62.2% | 72.6% | 61.0% |
| Pretty well (occasional problems) | 32.3% | 24.6% | 21.4% | 26.0% |
| Not too well/not well at all (frequent or constant problems) | 20.3% | 13.2% | 6.1% | 13.0% |
| Total percent | 100.0% | 100.0% | 100.0% | 100.0% |
| Total number | 47,690 | 48,440 | 48,130 | 144,260 |

Note. $\tau_b = .201$
$*p < 0.001$
Source: PALS 2001 microdata (children)

Students in the most robust inclusive setting are one and half times more likely to be having no or hardly any problems, as compared to the children in the lowest inclusive education grouping. That is, 72.6% of children in the highest inclusive education group experience no problems or minimal problems, versus 47.4% of students in the lowest inclusive grouping. Conversely, only 6.1% of children in the highest inclusive setting are experiencing frequent or constant problems, while 20.1% of those grouped in the least robust inclusive setting are experiencing frequent or constant problems. This may also be interpreted as a proportion that is 3.3 times greater. This statistically significant relationship demonstrated a moderately strong relationship as revealed from the Kendall's tau value of 0.201.

As in the previous examinations, this variable (interaction with peers) was also cross-tabulated with the inclusion index with the identification of the type and severity of disability limitation experienced by the child. These statistically significant results are displayed in Table 11.

Table 11 is organized according to nature and degree of disability. It is apparent from the results that the same trend that has been observed thus far continues to hold true. To extrapolate, there are a larger proportion of students who are in the high inclusive setting who are interacting very well or well with their peers as compared to their counterparts who are in less robust settings. This pattern holds true for all types and severity of disability. Another recurrent pattern is the variability in the observed tau values.

Table 11

*Children with disabilities interacting very well/well with other children as a percentage of all children with the same disability or severity of disability, in each category of the Inclusion Scale*

| | **Inclusion scale** | | | **[a]Total %** | $\tau_b$ | $p$ |
|---|---|---|---|---|---|---|
| **Disability status** | **Low** | **Middle** | **High** | | | |
| **Type of disability** | | | | | | |
| Any Disability | 47.4% | 62.2% | 72.5% | 60.8% | 0.201 | < 0.001 |
| Hearing | 39.4% | 66.1% | 73.1% | 61.9% | 0.257 | < 0.001 |
| Seeing | 54.4% | 66.4% | 68.2% | 62.1% | 0.119 | < 0.001 |
| Speech | 44.5% | 55.0% | 64.2% | 38.8% | 0.139 | < 0.001 |
| Learning | 39.0% | 53.5% | 62.2% | 50.4% | 0.181 | < 0.001 |
| Dexterity | 47.7% | 54.6% | 60.9% | 52.3% | 0.096 | < 0.001 |
| Developmental | 38.3% | 51.2% | 56.5% | 44.9% | 0.137 | < 0.001 |
| Psychological | 30.9% | 31.9% | 40.0% | 32.9% | 0.079 | < 0.001 |
| Mobility | 60.1% | 69.8% | [b]-- | 56.7% | [b]-- | < 0.001 |
| **Severity** | | | | | $\tau_c$ | |
| Mild / Moderate | 61.6% | 71.0% | 76.8% | 71.6% | 0.093 | < 0.001 |
| Severe / very severe | 39.2% | 50.0% | 57.1% | 45.8% | 0.121 | < 0.001 |

Note. [a]Total % is the percentage of children on each row of the table reported as interacting very well/well. [b]Data suppressed by Statistics Canada.

Source: PALS 2001 microdata (Children)

Table 12 illustrates the results of 'looking forward to school' cross-tabulated with the inclusion scale.

Table 12

*Looking forward to going to school, by Inclusion Scale*

| | **Inclusion scale - 3 groups** | | | **Total** |
|---|---|---|---|---|
| **Looking Forward to School** | **Low** | **Middle** | **High** | |
| Often / almost always | 61.4% | 68.7% | 77.8% | 69.3% |
| Sometimes | 17.1% | 14.4% | 10.4% | 14.0% |
| Almost never / rarely | 21.5% | 16.9% | 11.8% | 16.7% |
| Total percent | 100.0% | 100.0% | 100.0% | 100.0% |
| Total number | 47,360 | 48,420 | 48,020 | 143,800 |

Note. $\tau_b = 0.132$

*$p < 0.001$

Source: PALS 2001 microdata (children)

As shown in Table 12, the largest fraction of students with disabilities who often or almost always look forward to going to school is in the highest inclusion group. That is, 77.8% of children with disabilities, who are in the most robust inclusive grouping, often or almost always look forward to going to school compared to 61.4% of students who are in the low inclusion group. Conversely, the largest fraction of students who almost never or rarely look forward to going to school (21.5%) are found in the lowest inclusive grouping, compared to a lower percentage (11.8%) who are in the high inclusion group. Although statistically significant, a value of $\tau_{Ken,b} = 0.132$ illustrates a moderately weak relationship between the inclusion scale and the looking forward to going to school variable.

Table 13 organizes the results gathered for children looking forward to going to school cross-tabulated with the inclusion index while accounting for the specific type of disability and severity of disability experienced by the child. These results are statistically significant with a similar variability in the Kendall tau values that have been observed in previous tables. This table shows the percentages of children who often or almost always look forward to going to school.

The results in Table 13 continue to illustrate the positive trend between higher inclusive grouping and a more favourable outcome. For example, when considering students with learning disabilities in the high inclusive grouping, there are 71.0% who look forward to going to school often or almost always, as opposed to 56.2% who are in the low inclusion group. It should be acknowledged that in this table, there are several instances where the percentage of middle inclusion grouping of students with a specific type of disability who look forward to going to school often or almost always is in fact higher than it the high inclusion grouping (for example, amongst students with speech and developmental limitations). However, these percentages are not far removed from each other and the positive trend is observed in the examination of the overall category of 'any disability'.

Table 13

*Children with disabilities looking forward to going to school often/almost always, as a percentage of all children with the same disability or severity of disability in each category of the Inclusion Scale*

| | **Inclusion scale** | | | **[a]Total %** | $\tau_b$ | $p$ |
|---|---|---|---|---|---|---|
| **Disability status** | **Low** | **Middle** | **High** | | | |
| **Type of disability** | | | | | | |
| Any Disability | 61.3% | 68.7% | 77.8% | 69.3% | 0.132 | < 0.001 |
| Mobility | 77.4% | 76.8% | 86.8% | 78.8% | 0.060 | < 0.001 |
| Hearing | 53.5% | 72.6% | 81.5% | 71.2% | 0.219 | < 0.001 |
| Speech | 65.6% | 77.0% | 76.3% | 71.7% | 0.208 | < 0.001 |
| Developmental | 63.4% | 75.6% | 74.6% | 68.9% | 0.032 | < 0.001 |
| Seeing | 50.5% | 73.6% | 75.0% | 65.0% | 0.100 | < 0.001 |
| Dexterity | 64.1% | 65.5% | 72.8% | 66.2% | 0.103 | < 0.001 |
| Learning | 56.2% | 65.0% | 71.0% | 63.4% | 0.049 | < 0.001 |
| Psychological | 55.3% | 60.0% | 63.3% | 58.3% | 0.109 | < 0.001 |
| **Severity** | | | | | $\tau_c$ | |
| Mild / Moderate | 64.6% | 65.3% | 79.4% | 71.5% | 0.111 | < 0.001 |
| Severe / very severe | 59.4% | 73.5% | 72.3% | 66.3% | 0.098 | < 0.001 |

Note. [a] Total % is the percentage of children on each row of the table reported as often/almost always looking forward to going to school overall.

Source: PALS 2001 microdata (Children)

*Health Services Utilization*

The following table (Table 14) illustrates the results from the cross-tabulation of the frequency of use of health services by the inclusion scale. The section on methodology (p. 80 – 81) discusses how the health services utilization scale was constructed.

Table 14

*Frequency of use of health services, by Inclusion Scale*

| | **Inclusion scale - 3 groups** | | | **Total** |
|---|---|---|---|---|
| **Frequency of Use of Health Services** | **Low** | **Middle** | **High** | |
| Lowest quartile | 15.5% | 26.5% | 37.4% | 26.0% |
| Lower-middle quartile | 28.8% | 35.3% | 32.3% | 32.1% |
| Upper-middle quartile | 20.2% | 14.8% | 11.0% | 15.51% |
| Highest quartile | 35.4% | 23.4% | 19.4% | 26.4% |
| Total percent | 100.0% | 100.0% | 100.0% | 100.0% |
| Total number | 37,140 | 36,350 | 32,960 | 106,450 |

Note. $\tau_c = 0.211$

$*p < 0.001$

Source: PALS 2001 microdata (children)

In Table 14, a quartile represents one-quarter of the students for whom data were available on health service utilization. The quartiles are ranked from most frequent to least frequent service utilization.

Table 14 shows that students with disabilities in the high inclusion grouping use health services less frequently than those students who are in the low inclusive setting. For example, 37.4% of students in the most robust category of inclusion use health services infrequently, as compared to 15.5% of students who are in the least robust grouping. Conversely, 35.4% of students who are grouped in the low inclusion setting are in the quartile for the most frequent use of health services, compared to only 19.4% of students who are in the high inclusion grouping. A moderately strong association was revealed through a Kendall's tau value of 0.211 was observed for these statistically significant results.

### *Summary*

The following table (Table 15) illustrates the results of a cross-tabulation of the general population of children with disabilities, aged 5-14 and identified based on the type and severity of their disability, with the inclusion scale.

There is great variability in the results that are shown in table 15. Generally, it can be seen that with the exception of students with hearing impairments, students with disabilities are more frequently in low inclusive groupings than in more robust ones. Also, students with mild/moderate disabilities are more likely to be in a high inclusive grouping that those with severe or very severe limitations. The negative Kendall's tau values that are observed reveal that there is an inverse relationship between the observed variables. The results are statistically significant.

Table 15

*Percentage of children with disabilities in the three Inclusion Scale categories, by type and severity of disability*

| | **Inclusion scale** | | | **Total[a, b]** | $\tau_c$ | $p$ |
|---|---|---|---|---|---|---|
| **Disability status** | **Low** | **Middle** | **High** | **%** | | |
| **Type of disability** | | | | | | |
| Any Disability | 33.3% | 33.4% | 33.3% | 100% | | |
| Hearing | 26.8% | 31.1% | 42.0% | 13.3% | 0.054 | < 0.001 |
| Learning | 37.8% | 34.8% | 27.4% | 65.3% | -0.182 | < 0.001 |
| Seeing | 40.1% | 33.4% | 26.5% | 9.2% | -0.033 | < 0.001 |
| Speech | 46.0% | 31.7% | 22.3% | 42.8% | -0.270 | < 0.001 |
| Psychological | 51.1% | 29.6% | 19.3% | 31.4% | -0.266 | < 0.001 |
| Dexterity | 51.8% | 29.3% | 18.9% | 19.9% | -0.174 | < 0.001 |
| Mobility | 49.5% | 33.6% | 16.9% | 13.3% | -0.116 | < 0.001 |
| Developmental | 54.8% | 30.5% | 14.7% | 29.4% | -0.315 | < 0.001 |
| **Severity** | | | | | | |
| Mild / Moderate | 21.1% | 33.8% | 45.1% | 57.8% | -0.370 | < 0.001 |
| Severe / very severe | 49.9% | 33.0% | 17.1% | 42.2% | -0.370 | < 0.001 |

Note. [a]Total % is the percentage of children who have the particular activity limitation. [b]'Totals across all the types of disability do not add to 100% because many children have more than one disability

Source: PALS 2001 microdata (Children)

The following chapter presents a discussion of the results obtained in these analyses.

# Chapter Five

## Discussion

This examination of the Children's component of Statistics Canada's Participation and Activity Limitation Survey (Statistics Canada, 2001c) has afforded a glimpse into the health of children with disabilities in relation with their level of inclusivity at school. It has been an exploration to test the hypothesis that where educational services are organized to ensure inclusion, parents are more likely to report that their children with disabilities are in good general health and that their children are performing well in school. Analysis of results involved accounting for specific disabilities as well as their severity.

The results were organized to allow for a consideration of the answers to the following questions:

- What is the extent of positive student outcomes associated with high and low scores on the inclusion scale? i.e. What is the relationship between robust inclusive educational practice and each of the four outcomes at the focus of this research?
- Who are most (and least) likely to experience such outcomes; i.e. who will benefit?
- Who are most (and least) likely to be involved in robust inclusive educational arrangements?

This chapter will explore the answer to these questions and the main research question.

Am I a part of the cure
Or am I part of the disease?

From "Clocks", lyrics by Coldplay (2002)

### *Canadian Context*

The results of the cross-tabulation of the provinces and the inclusion scale provide an interesting perspective on education in Canada. Because education is legislated provincially, students with disabilities across Canada are placed in more or less robust inclusive settings. As will be discussed in the subsequent sections, the inclusive setting may be associated with the health of the child. The results show that Prince Edward Island and New Brunswick have the highest percentage of their students in the high inclusive grouping (approximately 50% or half of the students with disabilities). Most of the other provinces, including Ontario, which has the largest student population with disabilities, have only one third (approximately) of their students in the most robust inclusive settings. This result may have policy implications if, indeed, there is an association between health of a child and her/his level of inclusivity. This is an issue that will be revisited later in this chapter.

In consideration of health in a Canadian context, it is also important to reiterate the fact that in 1974, the Lalonde Report had an enormous impact on the perception of health. This government report introduced the perspective that health is a larger concept than would be suggested by a singular examination of an individual's physical or medical condition. Since that time, 11 determinants of health have been accepted as contributing to a person's overall health and well-being (Raphael, 2003). In addition to the examination of general health of children with disabilities, three of these determinants were chosen as the basis on which the results and this discussion are to be framed: education, social exclusion, and health care services. It is logical to include education in this discussion and exploration as it relates directly to one of the variables that are being studied. That is, the concept of inclusion is associated with the educational setting of the children with disabilities. Social exclusion encompasses the factors of emotional well-being that are integral to the overall health of children with disabilities. Due to the fact that the children in this study do have disabilities, it is safe to assume that they will require more health care or more frequent visits to doctors than a typical child without a disability. Therefore, an examination of health care services permits an exploration of this facet of health.

### *General Health*

The question of general health that was posed on the PALS questionnaire was: "How would you describe .....'s general health? Would you say that his/her health is excellent, very good, good, fair, or poor?" (Statistics Canada, 2001c). Before the results can be discussed, it is necessary to remark upon this measure of health. The general health of the children with disabilities was a subjective measure based on parent/guardian reports. Therefore, it is necessary to consider the validity of self-reported health as an indicator of well-being, and also the confidence of proxy reporting (by parents) in addressing the children's health. Sibthorpe (2001) asserts that "self-assessed health status has gained increasing attention, becoming an important component of contemporary health research that is arguably as reliable as-or more reliable than-other 'objective' biomedical measures for which it can be a proxy" (p. 1660). This claim is further supported by van Doorslaer and Jones (2001) who state that this general health question is indeed a good predictor of health and other related outcomes.

Statistics Canada addressed the issue of proxy reporting in a 2004 document about methods for surveying difficult-to-reach populations. They assert that proxy reporting is especially important when addressing the needs of people with disabilities due to the existence of communication problems and their dependability on others with it. Statistics Canada reports that proxy respondents are more inclined to identify activity limitations, and are often more conservative in their judgments.

The results in the general health outcomes reveal an identifiable trend wherein children with disabilities who are highly included are in better general health overall. The reverse relationship is also recognized: children who are in better general health overall are more likely to be in highly inclusive settings. This pattern holds true regardless of type or severity of disability. The values obtained for Kendall's tau measure indicate some variability with respect to the strength of the relationship between the variables that are being cross-tabulated ($\tau_{Ken,b} = 0.085$ to $\tau_{Ken,b} = 0.324$, $p<0.001$). However, the results are statistically significant, i.e., they did not occur by chance. Another important point is that all of the values obtained for the Kendall's tau-b and tau-c were positive. This positive relationship is indicative of the direction of the relationship; as the first variable increases in value, the second value also increases. In other words, as the level of inclusivity increases (from low to high), so does the general health of the child. In all cases, regardless of the degree of association between the variables, it is necessary to acknowledge that there are other factors which may be contributing to the overall general health of the child. It is difficult to speculate what all these factors may be, although it is likely that as the severity of disability of a child increases, so does the likelihood that the child will require more supports and more specialized services that may detract from the inclusivity of the educational setting of the child or that decrease the likelihood that the child will be placed in a more rather than less inclusive setting.

Research that assesses the impact of inclusion on the general health of a child is scant. Dugger-Wadsworth and Knight (1999) state that there are characteristics of students with varying disabilities and health impairments which are significantly different. They discuss a series of health and medical concerns that are necessary to consider in the placement of a child with disabilities in an inclusive setting. Therefore, it may be possible to assume that a child who has increased limitations and requires more supports is more likely to be in an educational setting that reflects a lower level of inclusiveness. Furthermore, this child may be more likely to be generally in poorer health overall.

### *Education*

Education is an important determinant of health. Munro et al. (2000), in examining the relationship between education and health, have demonstrated that education provides the tool (knowledge) that allows individuals to make informed, positive choices for the protection and creation of their own health and that of their environment. Thus, it may be extrapolated that parental level of education is of extreme importance as a determinant of children's health. There is a growing literature that "shows that school connectedness predicts a variety of health outcomes. Students who feel connected to school report higher levels of emotional well-being, less substance abuse, better health, decreased levels of suicidal ideation, decreased depressive symptoms and decreased risk of violent or deviant behaviour and teen pregnancy" (Thompson, Iachan, Overpeck, Ross, Gross, 2006, p. 379). There is strong and mounting evidence that higher education, social and economic statuses are also associated with better health (PHAC, 2004).

The results gathered in this exploration support a possible association between the progress attained at school by students with disabilities (as reported by their parents), and their level of inclusivity. A statistically significant, but moderately weak association ($\tau_{Ken,b} = 0.190$; $p < 0.001$) was obtained from results that illustrated that students in high inclusive settings perform very well or well at school – 1.6 times more frequently than students in low inclusive education settings. Perhaps more revealing is the fact that students in the lowest inclusive setting are 2.6 time more likely to be performing poorly in school than their counterparts in the highest inclusive setting. The literature suggests that students with disabilities perform better academically in mainstream classrooms (Cole et al., 2004; McDonnell et al., 2003; Hawkins 2007; Kemp & Carter, 2006). Research has also provided evidence that when classrooms are inclusive, there are also positive academic outcomes for all the pupils in the class because teachers become more effective at meeting the needs of all students (Booth & Ainscow, 2002; Jordan & Stanovich , 2001).

The analysis of results in this domain by type and severity of disability revealed an identical positive trend between academic outcome and robustness of inclusive setting, and is apparent across every type of disability. Once again, the statistics reveal strong probability that these results did not occur by chance, and associations range from weak to moderately strong ($\tau_{Ken,b} = 0.094$ to $\tau_{Ken,b} = 0.314$, $p < 0.001$). It is notable that the stronger Kendall's tau association of 0.314 is observed when looking at the situation for students with hearing impairments. This same strong association was observed for students with a hearing impairment when examining the general health outcome. There are many other factors which may contribute to parent reports of academic success of students; these may include those that are inherent to the student (such as willingness or desire to succeed), as well as parental, peer, and teacher influences. A point that needs to be raised is that parents may have different expectations for their child based on the type(s) and severity of disability that s/he possesses. A parent with a child with a developmental disability may have different expectations that a parent whose child has a learning disability. There may be teachers who have had more experience or training with curriculum adaptation, and are therefore more adept at assisting students with disabilities meet their academic challenges. Some schools may have access to greater resources with respect to providing the necessary supports to students in helping them achieve success. Some of these factors may also play a role in predicting the academic performance of students with disabilities.

*Social Exclusion*

A focus on social exclusion as a determinant of health involves consideration of the factors contributing to the emotional well-being of a child with disabilities. This broad category is discussed by focusing on the results obtained from the cross-tabulations of peer interaction and students' desire to go to school with the inclusion index. In examining the results of the first of the two cross-tabulations, the analysis revealed that students with disabilities who are grouped into high inclusive settings are 1.5 times more likely to be experiencing 'none or hardly any' problems when interacting with other children than students in the lowest inclusive education grouping ($\tau_{Ken,b} = .201$, $p < 0.001$). Furthermore, the results indicated that the students with disabilities who were experiencing frequent or constant problems are 3.3 times more often in the low inclusion grouping than in the high. The results are encouraging not only because of their implications, but also because of the high statistical significance, and the moderately strong association between the two variables. The statistical data illustrate that there is a strong association between inclusive setting and peer interaction of students with disabilities, consequently illustrating the correlation between inclusivity and the health of children with disabilities.

Similar to the outcomes discussed thus far, the positive trend of a greater percentage of students in the high inclusive grouping experiencing a better outcome (none or hardly any problems in this situation) is once again observed when looking at results based on type and severity of disability ($\tau_{Ken,b} = 0.079$ to $\tau_{Ken,b} = 0.257$, $p < 0.001$). The Kendall's tau values, which range from weak to moderately strong associations, illustrate that there are other factors that may contribute to this outcome. Before these possibilities are explored, it is noted that once again, the strongest association was for students with a hearing impairment.

One possible contributor to this outcome of the strong association for students with hearing impairments is the fact that students who are generally of a more 'agreeable' disposition, and therefore less likely to cause disruptions in a classroom, may be more likely to be included in a mainstream classroom more often. These same students may be more likely to have better interactions with peers. Frederickson, Simmonds, Evans and Soulsby (2007) confirmed previous studies that revealed correlations between peer acceptance and peer ratings of social behaviour. That is, social acceptance "is associated with positive social behaviours and roles, while rejection is associated with undesirable social behaviours and role" (p. 113). However, the observance of the same marked positive trend between a more robust inclusive situation, and a more favourable outcome should be noted.

In the same recent study, Frederickson, et al. (2007) assessed the social outcomes of inclusion to assess peer-group belonging, social behaviour, bullying and feelings of belonging at school. Arguably, each of these variables contributes to peer interactions and looking forward to going to school. Frederickson, et al. cite multiple studies in which children with disabilities have lower social status and are less accepted than their non-disabled counterparts. However, these authors also state that their review of the literature produced a number of studies that "have reported the development of positive and caring relationships by peers towards classmates who have special educational needs' (p. 106). They attribute this discrepancy in the literature to the different approaches and strategies used by students with special needs and their peers that promoted acceptance. Therefore, it may be possible that with respect to this PALS research study the instances of higher inclusive setting are perhaps fostering students' use of these different approaches and strategies for socialization; however, this hypothesis would require further research. Furthermore, the implementation of these methods is probably dependent on many factors such as the province, school, and teachers.

As described in the literature review, Eriksson et al. (2007) assert that students with disabilities tend to have fewer friends and participate less frequently in extracurricular activities than their non-disabled peers. From the results gathered in this thesis research, it may be possible that a more robust inclusive arrangement may help to increase the interaction amongst students with disabilities and their peers, which could contribute to the favourable associations that are observed.

The second contributor to social exclusion in this thesis research is an examination of student attitudes regarding attending school. Students who were grouped in the highest inclusion category looked forward to going to school most often or always as compared to students who were in the lowest inclusion grouping. In contrast, the largest percentage of students who almost never or rarely looked forward to going to school was 1.8 times greater in the least robust inclusion grouping than in the most robust

($\tau_{Ken,b} = 0.132$, $p < 0.001$). Although this favourable trend is once again detected and is statistically significant, there is a moderately weak association between the variables as determined by the Kendall's tau value. Once again, the fact that other factors may be contributing to the relationship between the variables is made apparent.

As it has been previously discussed, all the results of the survey are based on parents'/guardians' perceptions. It is possible that this may be a limitation with respect to all the answers, but particularly with respect to this variable. There is no way to validate parents' perceptions against the children's experiences. There is the potential that parents may be more likely to report that their children look forward to school more frequently than is the actual case. There are several reasons for this. One explanation could be that children do not communicate negative experiences to their parents, and the other and probably more likely explanation is that it would be difficult for many parents to acknowledge that their child(ren) is/are not happy at school. Such a concession would possibly make it extremely difficult to send a child to school, knowing that s/he is not happy. This may skew results in all three inclusive groupings: high, middle, and low, and the degree of the effect of this on the results, which may differ amongst the inclusivity groupings, cannot be measured.

Analysis of the frequency of children's looking forward to school was cross-tabulated with the inclusion scale, with consideration of the type and severity of disability ($\tau_{Ken,b} = 0.049$ to $\tau_{Ken,b} = 0.219$, $p < 0.001$). The analysis of this outcome showed that the highest percentages of students who look forward to school often or almost always were in the higher inclusivity grouping. The consistent trend of the higher inclusive group displaying higher percentages than lower inclusive group is apparent for children with mild to moderate versus severe to very severe disabilities. There was not a great deal of difference, in this situation; however it is notable that regardless of degree of disability, those in more inclusive settings were most likely to look forward to going to school. Perhaps students who are included, whether it be in the classroom, in play, by teachers, or by the school as a whole, are more likely to look forward to going to school.

### *Health Services Utilization*

Students with disabilities who are grouped in the most inclusive grouping seek the help of medical professionals less frequently that those in the middle or lowest inclusive grouping. Conversely, the largest percentage of students who require the most number of visits to health professionals are in the least robust inclusion setting ($\tau_{\text{Ken,c}} = 0.211$, $p < 0.001$). These results are statistically significant and there is a moderately strong association between the variables.

It would be obvious to assume that if a student requires the attention of health professionals more often, then s/he is more likely to require greater supports, and be less likely to be included in a mainstream classroom. However, this research finding may be given further validity owing to the fact that the results are consistent with the other patterns that have been observed thus far. Simply stated, if students with disabilities are in higher inclusive settings, they exhibit better health outcomes across a range of measures.

At this point in the discussion, it is important to revisit the conceptions surrounding the perspectives on disability. Previously, the medical, social, and an integrated approach to models of disability were introduced. It would be natural to frame the analysis of this aspect of the results in the medical model conceptualization. However, it is also interesting to remark upon the role of medical professionals in attitudes towards disability. Shakespeare (2005) writes that people with disabilities gain validation from diagnoses; however, diagnosis is also accompanied by "an unwelcome form of labelling" (p. 145). He adds that medical professionals may be "parasitical on disabled people" (Shakespeare, p. 145). The reason why this analysis is important is that it provides a connection between the medical well-being and social health of students with disabilities. Furthermore, a diagnosis by medical professionals may contribute to a lower likelihood of a student being placed in an inclusive setting as there might be perceived difficulties. In Prince Edward Island, students with disabilities are not categorized or labeled based on their disability.

### *Robust Inclusive Settings*

In order to answer the final of the three questions that was posed at the beginning of this discussion section (Who are most (and least) likely to be involved in robust inclusive educational arrangements?), it is necessary to examine the results that are presented in the summary table (Table 15). This table provides the results of a cross-tabulation of the general population of children with disabilities, aged 5-14 and identified based on the type and severity of their disability, with the inclusion scale.

For students with disabilities, there is a strong association between severity of disability and degree of inclusivity; this is the first important point for discussion. This association is demonstrated by the fact that there is a greater percentage of students who are placed in high inclusive settings with mild or moderate disabilities than with severe or very severe disabilities ($\tau_{Ken,c} = 0.370$, $p < 0.001$). In fact, there is an inverse trend: students who are in more robust inclusive settings are more likely to be only mildly or moderately disabled.

Another important outcome is one that has been observed in previous cross-tabulations: students with hearing impairments in high inclusion settings appear to be benefiting the most across the health-related measures explored in this research. Children with hearing impairments are also more likely to be in high inclusion settings. A hypothesis to be tested is the possibility that it is simply easier to provide necessary supports to students who possess hearing impairments than to those with other forms of disability, especially where hearing impairment does not amount to deafness.

A third point that is made evident is that, for every type of disability, with the exception of hearing, the largest percentage of students across the three inclusion groupings are in low inclusion settings, and the lowest percentage are in the highest inclusion category. That is when examining the inclusive setting for children with disabilities, without the analysis of a health outcome variable, the greatest of the three percentages of children are found in the least robust setting. It should be noted that these results are statistically significant, but that there is variability in their strength of association ($\tau_{Ken,b} = 0.033$ to $\tau_{Ken,b} = 0.315$ absolute values are reported, $p < 0.001$).

Students with learning disabilities constitute the largest fraction of the students with disabilities. They comprise over 65% of the population of students with disabilities aged 5 to 14, yet only 27.4% are in high inclusion settings. Similarly, children with speech, psychological and developmental disabilities comprise fairly large segments of the disabled child population at 42.8%, 31.4% and 29.4% respectively, but, only a minority of such children is in high inclusion settings (22.3%, 19.3% and 14.7%, respectively). These results suggest that the inclusive setting may be chosen for students who are already succeeding in each disability group and for those with mild disabilities.

With respect to degree of inclusivity, it is disappointing that all students are not able to be in the highest robust settings all of the time. However, these results only provide a glimpse into the Canadian situation; worldwide, it is estimated that a mere 1-5% of the 120 -150 million children with disabilities even attend school (UNESCO, 1994). Therefore, it is important to recognize that although there is a vast amount of change needed to be implemented to improve the situation for students with disabilities in Canada, it is nonetheless progressive when compared with international statistics.

### *Implications*

The results discussed provide consistent evidence that students with disabilities in more robust inclusive arrangements exhibit more positive health outcomes. Specifically, these outcomes are:

- General health;
- Academic progress;
- Interaction with peers;
- Looking forward to school;
- Utilization of health services.

The results, although statistically significant, exhibited varying degrees of strength of association. Consequently, it has to be acknowledged that there are alternate interpretations to explain some of the results. Some possible interpretations have been offered. It is important to note that these results are suggesting that there may be an association between inclusivity and health (broadly conceived), but that a causal relationship cannot be assumed. The results illustrated a repeated trend that is notable, and which have many implications, some of which will now be explored.

*Teachers.* The potential benefits of inclusive education on health has been previously suggested in the literature, but not shown quantitatively. While inclusive education has potential health, social, academic and economic benefits for students with disabilities, the access of students to such benefits depends largely on the predisposition of school administrators and teachers to facilitate the necessary educational accommodations so young people with disabilities can succeed in regular classrooms (Dugger-Wadsworth & Knight, 1999; Molto, 2003). Therefore, school and teacher disposition are extremely important factors in the implementation of successful inclusion. Successful inclusion or robust inclusive practices depends on teachers' agreeability in accepting students with exceptionalities into their classroom and having a willingness to modify and adapt their curricula and instruction to meet the needs of all learners. Jordan and Stanovich (2001) found "an indication that the success of students with disabilities who are included in regular classes depend in part on teaching factors" (p. 47). They showed that heterogeneous classrooms that are exemplary in including students with disabilities benefit *all* students, in part because teachers who subscribe to inclusion tend to have mastered multiple strategies for meeting diverse instructional needs. This result has been substantiated by others, including Wedell (2005). He states that "effective teaching for those with special needs has direct relevance to effective teaching in general" (p. 7). Another eloquent quote on the same topic comes from Davis and Florin (2004): "questions about whether there is separate special education pedagogy are unhelpful… The more important agenda is about how to develop a pedagogy that is inclusive of all learners" (p. 34).

Teachers and schools may also be instrumental in helping students with disabilities improve their social relationships, and develop friendships. Cuckle and Wilson (2002) assert that teachers may provide such opportunities through "direct social skills teaching, exploration of emotions and relationships with groups, opportunities in school, outside of school hours and during school holiday for a range of supervised activities and cultural events similar to those enjoyed by their mainstream peers" (p. 71).

From this brief discussion on the role of teachers in the classroom, their role in encouraging inclusive practices, improving academic outcomes and social relationships of students with disabilities is evident. Therefore, it may be possible to assert that teachers have an extremely influential role in fostering the health of children with disabilities as viewed through the multiple lenses presented in this thesis. Consequently, lack of school support for inclusive practices, and/or the unwillingness of teachers may represent barriers to the inclusion and health of students with disabilities.

*Parents*. Forlin and Hopewell (2006) assert that there is an international movement towards increasing parental involvement in the education of children. This is especially important with respect to children with disabilities. Parents have a responsibility to act as advocates for their children. When organizations, policies, and society fail to meet the needs of students with special needs, parents can assist in attaining what is socially just and appropriate for their children. Yssel, Engelbrecht, Oswald, Eloff, and Swart (2007) declare that parents' roles in the inclusion movement are pivotal, and that strong school-parent partnerships are essential in ensuring success of placements in inclusive settings. It is not surprising that these researchers' findings would be true; however, the key element is that parents need to be provided the opportunity to voice their opinions. Parents are their children's first and most important teachers; arguably, they have the largest impact on their children's health. Advocacy for an inclusive educational placement may be one of the ways by which parents can exhibit their concern for the health and well-being of their children.

*Disability*. Earlier in this thesis, different approaches to disability were examined, including the social and medical models, as well as the integrative approach of the International Classification Function (ICF). This discussion of the results would not be complete without returning to this original issue. Self-reported and parent/guardian reported general health general health, academic performance, peer interactions, desire to attend school, and the utilization of health services are all affected by the perceptions of children and parents concerning ‘disability’. LoBianco and Sheppard Jones (2007) explored this issue of self-perception. They state that self-perception of disability is multi-faceted and that there are “social factors in compensating for more direct physical limitations” (p. 2). Using the social model perspective, students may feel ‘unhealthier’ or experience bullying, stigmatization, or other forms of alienation due to negative attitudes towards their disability. This form of disablement may contribute to a child’s overall feeling of inadequacy, and have an effect on all the variables that were examined. If this analysis is accepted, then the results gathered herein would allow the conclusion to be drawn that these negatively social forms of ‘disablement’ are less likely to occur in more robust inclusive settings. Alternatively, the students who were included may be those least likely to elicit negative responses from classmates.

Using the medical model approach, the effect of disability on a student is more obvious. A student is considered to be ‘deficient’ and needs to be fixed. When applied, this model of disability may have direct impact on the last outcome that was explored in this thesis: the utilization of health services. With increasing diagnosis and labeling, and more frequent visits to health professionals, a student with a disability is more likely to feel unhealthy. This feeling has the potential to also have an impact on how general health is reported, as well as the perception by the student and/or the parent or the guardian that the child has too many limitations to perform academically.

Using the outlined framework for analysis, it may be stated that neither the social model of disability, nor the medical model can separately address the issues faced by students with disabilities. The ICF, which provides the integrative approach, is more comprehensive. Landsman (2005) writes that American mothers of children with disabilities are confronted by these same issues. She asserts that these mothers nurture their children in a society that 'medicalizes' and devalues them, but that they are also being presented with and participate in disability rights movements which adopt the more social approach to disability. The paper includes many quotes from mothers of children with disabilities, but there is one in particular that speaks to this duality:

> She is what she is. I asked about the vitamin hoping that it would change her outward appearance not her inside. It's more important for outward appearance because people judge you on the outside first, nothing inside. Your daughter's probably very intelligent but no one's ever going to know that because they're not going to give her a chance, unfortunately. And that is sad. And that really, really bothers me a lot. Maybe she'll [daughter Susan] change people, I don't know. Hopefully, she can make a difference, and maybe people will look at her and say, gee, she has Down's, but she's intelligent. You know, gee, she doesn't have to sweep floors, or she doesn't have to bag groceries. And that's not good enough for me, and I won't accept that for her. You know, I wait because I choose to, not because I'm not intelligent enough (unidentified mother, in Landsman, p. 136).

It is possible that inclusive education may help in removing some of the negative attitudes towards students with disabilities. Hodkinson (2007) states that if inclusion is to be effective, then there is a need to educate non-disabled students about disabilities and about inclusion. If inclusive education is effective in assisting students without disabilities to understand and see students with disabilities as their equal peers, then perhaps there might be an overall improvement in their overall health as well.

## Conclusions

Health is a predominant issue for all children and their parents. The social determinants of health identify the multiple dimensions that may have an effect on the health of an individual. Through the consideration of several of these determinants and the educational placement of students with disabilities, the relationship between inclusive education and health of students with disabilities has been explored in this quantitative analysis. Although it cannot be stated definitively that inclusive education has a direct impact on health, this research points to the likelihood that this association does exist.

These results may be of interest to many different individuals and groups who have an interest in the education and well-being of children with disabilities. This research has the potential to impact students, teachers, administrators, policy makers, advocacy groups, and parents. Health is a predominant issue for all children, and this research highlights the association between the health of children with disabilities and inclusive educational practices. This research also has the potential to positively influence public perception of the value of inclusive education.

In order to investigate this association further, there are several recommendations presented here for further work.

1. More national research should be conducted using quantitative methodology;
2. International research may be carried out to explore the themes discussed in this thesis;
3. Further research may be performed to address the gap that exists in exploring the relationship between inclusive education and the health of a child with a disability; and
4. Qualitative research could be conducted to supplement this research.

### *National Research*

PALS data from Statistics Canada's children's component of the 2001 survey was used in this quantitative exploration; however, in the fall of 2008 the results from the 2006 PALS survey will be released. It would be both interesting and beneficial to conduct the same analyses performed in this research study in order to compare results. If similar results are obtained, it may be possible to make more conclusive determinations about the relationship between inclusive education and health.

Although PALS is superior to other databases in providing a wealth of information regarding the educational settings of children and their health, it may be beneficial to conduct research explorations using the National Longitudinal Survey of Children and

Youth (NLSCY) or Youth in Transition Survey (YITS) to further explore associations between health and inclusive education that may exist.

There is a definite gap in quantitative data and analysis in educational literature that may be beneficial to address. Research at the provincial and territorial levels may provide data that will help close the current knowledge gap that exists in this arena. As was noted in an earlier section of this thesis, Statistics Canada is not able to release all the data that exist at these levels due to their strict policies. Therefore, data collected independently of Statistics Canada at these levels could greatly enhance the knowledge that exists.

### *International Research*

The WHO's International Classification of Functioning, Disability and Health is a tool for measuring health and disability at individual and population levels (WHO, 2008). The ICF was endorsed by 191 member states in 2001. Specifically, a Children and Youth version of the ICF exists. An exploration of the results of this instrument would be noteworthy, and may provide further insight into the data that are presented in this thesis within an international framework. Comparisons between Canadian results and those from other countries may reveal important results.

### *Research in Health and Inclusive Education*

Researching the relationship between health and inclusive education revealed definite gaps. Many aspects of inclusive education have been explored including, amongst other themes, the academic achievement of children with disabilities, and their non-disabled peers, and social relationships. Furthermore, the health of students with disabilities has been explored applying the models of disability that have been discussed in the literature review. However, there is scant literature that investigates the relationship between these two domains. This thesis research reveals that there may be an association between health and inclusive education. This relationship deserves further exploration.

### *Qualitative Research*

A disadvantage of quantitative research is that it is possible to forget that behind the numbers and percentages are real people for whom these issues are prevalent. Qualitative research has the ability to bring numbers to life. It has the potential to bring a voice to the statistics so that the research has the ability to bring greater impact to a greater number of people.

### *Summary*

Whilst the merits of further lines of inquiry as well as those involving qualitative research have been presented, the fact remains that quantitative research remains a powerful research methodology in driving government policy. Kamil (2004) recognizes that quantitative research is making resurgence in social science research after "predictions of its demise" (p.101). Kamil states that "policymakers have become focused on experimental quantitative research to guide their formulation and implementation of instruction" (p. 101). His rationale is that policymakers are required to be accountable to the public, and have limited resources which are best utilized through quantitative research methods.

The results and discussions presented in this thesis have created a framework upon which the relationship between inclusive education and health has been examined. Through this research definitions and conceptualizations of disability have been critically reviewed, and the results have been framed within an understanding of health that encompasses a definition that is not limited to the physical well-being of an individual.

The analysis of data revealed that parents were more likely to report that their children with disabilities are in better general health, progress very well/well at school, interact very well/well with their peers, and more frequently look forward to going to school in higher inclusive educational settings than in mid-range or lower inclusion settings. This positive association was consistent, regardless of severity and type of disability. These favourable results have the potential to impact Canadian education policy; however, the results also prompt considerations for future work.

Inclusive education is not a panacea, but it may provide an option for improving the health of students with disabilities. Fullan (1999) wrote about moral purpose in education. He stated that this purpose "means making a difference in the life-chances of all students-more of a difference for the disadvantaged because they have further to go. At the macro level, moral purpose is education's contribution to societal development and democracy" (p. 1). Fullan's statement summarizes the purpose of inclusive education: placing students with disabilities in inclusive educational settings where their diversity is accepted and valued means making a positive difference in the life of *all* students, and potentially having a positive impact on their health.

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