Evaluation of a professional development curriculum in movement education and adapted physical activity for invisible disabilities: A critical cross-case analysis

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ABSTRACT

Movement education and adapted physical activity are content areas not addressed in pre-service education or in-service training for Ontario practitioners working with individuals with disabilities in physical environments. Consequently, physical activity is often overlooked by service providers in programming and intervention for exceptional young learners. A formative evaluation, multiple-case study design was employed in this research in which a purposeful sample of expert practitioners performed a guided, descriptive evaluation of a three-day professional development workshop curriculum designed to supplement these areas lacking in professional preparation within their respective cohorts. Case-by-case and comparative analyses illustrated the inherent assumptions and societal constraints which prioritize the structure of professional development within the education system and other government organizations providing services for school-aged persons with disabilities in Ontario. Findings, discussed from a critical postmodern perspective, illustrate the paradoxical nature of Western values and prevailing mind/body dichotomy that guide professional practice in these fields.
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CHAPTER 1

INTRODUCTION

Physical activity is an important part of a healthy lifestyle for all people. Regardless of an individual’s age, sex, culture, ethnic background, religious practice, socio-economic status, physical ability or intellectual capacity, physical activity (PA) is an essential component to a high quality of life. Caspersen, Powell, and Christenson (1985) define physical activity as any bodily movement produced by the skeletal muscles which results in energy expenditure by the body. Physical activity in this sense is limitless. It encompasses a continuum of varied types of movements, from complex and difficult skill patterns related to sport and recreation activities, to more subtle, discreet movements such as those related to work and activities of daily living (ADL). Activities of daily living are those intricate movements and tasks in our day to day lives such as brushing our teeth, getting out of bed, vacuuming the house, typing an email, or walking up and down stairs that are often not seen or thought of as ‘physical activity,’ and consequently, the ability to perform them is often taken for granted. This especially becomes the case when physical activity is placed in a context of individuals with disabilities.

The value of physical activity and its importance to quality of life is often overlooked in persons with disabilities (Pan & Frey, 2006; Todd & Reid, 2006). One reason for this may be related to an immature ability of most citizens to differentiate between the concepts of physical activity and exercise. The two terms are often confused and used interchangeably. However exercise is much more than simply a movement which causes energy exertion; it is planned, structured and repetitive
types of physical activities that are performed with a specific objective of improving or maintaining some aspect of physical fitness (Caspersen et al., 1985). It is obvious that some individuals with disabilities would not be able to participate in exercise, nor would they benefit from it the same way those without disabilities would. The importance of clarifying these terms and differentiating them as they apply to the disabled population is that most disabilities, whether or not there is a large physical or bodily movement component that is directly affected, will benefit from interventions which include movement and physical activity programming.

Another potential reason for the lack of significance placed on physical activity in interventions for the disabled population is the common misconception that persons with disabilities are "globally incapacitated" by their condition (Wendell, 1996, p.19). This insinuation is easy to make towards individuals with an obvious physical disability. However Autism Spectrum Disorder (ASD) for example, is a sensory/communication disorder in which many aspects of motor function and movement coordination may be affected, but individuals with these types of impairments are often active with a diverse motor repertoire, physically capable, and physically independent (Reid & Collier, 2002). Even in conditions such as Cerebral Palsy (CP), in which the limbs and extremities are affected on one or both sides of the body, individuals can participate in a wide range of sport and physical activities with appropriate modifications and accommodations in order to assist in maintaining their independence and quality of life (Sherrill, 1998). Having a disability or condition in which some or even many different aspects of functioning are impaired, does not mean that the individual is incapable of functioning in all
aspects of their life. Opportunities to participate in enjoyable and functional physical
activity and recreation are frequently denied to this population because of this
assumption that their disability prevents them from doing so. These assumptions and
stereotypes inherent in the structure, organization and relationships between
individuals in our society contribute to the ablist view of reality that dominates our
cultural practice.

Wendell (1996) discusses how ablist cultural norms allow for some citizens in
society to be privileged over others; in particular the “paradigm citizen” who is
young, white, male, strong, has the ideal (valued) body, meets society’s expectations
of performance and productivity and of course, is free of disability and illness.
Anybody who doesn’t personify this ideal (women, children, persons with
disabilities, the sick and the elderly) are segregated and hidden from the public sphere,
creating a private world where individuals with disabilities and chronic diseases are
considered to be “the other” (Wendell, 1996, p.60). The ‘other’ is the embodiment of
the aspects of ourselves that we as a society fear and reject, and this label of
‘otherness’ is associated with the traits that oppose standards of normalcy that govern
our beliefs and actions – weakness, passivity, dependency, shame, helplessness and
global incompetence (1996). Ablism is the separation and isolation of ‘others’ into a
private sphere, not to be exposed to the public, and the continued perpetuation of
implicit norms and standards of function that maintain this social division.

The notion of challenging current societal beliefs and assumptions on
disability has been a prevalent theme in recent literature in Adapted Physical Activity
(APA) and Disability Studies (Bain, 1990, 1997; Fernandez-Balboa, 1997; Wendell,
The reason for this is that the human body assumes a central role in the creation and perpetuation of cultural standards of appearance and function: those with the ideal body fit in, while those who are deemed ‘abnormal’ in any way do not.

Accompanying this trend in the literature is a push for more inclusive practices and critical pedagogical approaches in Physical Education (Fernandez-Balboa, 1997). Educators and practitioners in the field of physical education and other fields related to the condition and use of the body, have the obligation to provide the highest duty of care or provide the best quality service or education to all people; because physical activity is an important part of a healthy lifestyle for all people. Until more recently there has been a radical disconnect between the roles and responsibilities of service providers working with persons with disabilities and the study of physical activity, enabling the misconceptions of bodily impairment and incapacity to go unchallenged. Given the abundance of theoretical and conceptual frameworks available to both pre-service and in-service practitioners and educators, it remains inconceivable that cultural norms which uphold an ablist construction of reality continue to dominate not only the pedagogy of these professionals, but also the policies and practices of the post-secondary educational institutions which cultivate them (Bain, 1990; Wendell, 1996). I have been witness to this in both my personal observations and my professional experience as a practitioner: both a lack of knowledge of physical activity programming on the part of service providers, and a lack of awareness and encouragement from school boards and agencies to incorporate physical activity regimes into therapies and interventions for this
population. Stated simply, there is not enough importance placed on physical activity and movement programming in interventions and services for persons with disabilities. It is largely these personal observations and professional experiences in the field of disability that prompted my motivations for this research project.

1.1 Researcher Perspective

Throughout my 5 years in secondary school, I was always heavily involved in sports teams and physical education (PE) courses. In the twelfth grade I had the fortuitous experience of taking an elective PE course during the same time period that the “DD” class had their scheduled PE time. The “DD” class, as they were so affectionately known around my high school, was the “Developmentally Delayed” (or Special Education) class that was offered to students with special needs in the surrounding region. Not all high schools in or neighbouring my town were equipped with the personnel or the educational resources to provide for students with more unique learning requirements, so mine was thought to be somewhat advanced in this regard. The reason this particular experience was so pivotal in the course of my academic and personal journey, is that it was the first opportunity I had really had to observe individuals with developmental disabilities in a physical activity setting. The fact that my first experience learning alongside individuals with disabilities came more than half way through my secondary school career is a travesty in and of itself, (and indicative of the very heart of this problem), but what is even more important about this experience with the DD class is that it was my first opportunity to see the
way the adults/instructors interacted with the learners in their class—or rather did NOT interact with them—which would be a more accurate statement.

What I noticed immediately was a complete lack of structure to the class as well as a lack of involvement of the educators. “Phys. Ed class” was likely known as or associated with “play time” for these learners, and what it had become was a “free-for-all” of bouncing balls and flying hula-hoops and screaming students with absolutely zero effort on the part of their educators to make valuable use of this time. There were no structured lessons, no task or activity stations, and very rarely did the educators intervene with corrections or modifications to ensure the equipment was being used appropriately. The only structured PA these students ever participated in was when my class joined up with them once in a while to play a modified game of dodge ball! (If you are aware of the current movements in Physical Education and the scrutiny dodge ball has come under in recent years, then you know how truly sad this is!). Although it is true that unstructured ‘play’ and exploratory movement is vital for the physical development and motor learning of young children, and there are of course benefits to engaging in vigorous physical activity of any kind, a point that may be necessary to mention, is that these learners were nearly all over the age of 15 years old, and were more than physically capable. Now, after years of studying the body and physical education in a context of disability, I realize this is a constant hurdle in these kinds of situations, and that part of the discrimination that persons with disabilities face, is the idea that because one body part does not function as ‘normal,’ (with physical disabilities), or because they do not process information or communicate in the same way as others (as in learning and developmental
disabilities), that the rest of them must be "broken" as well. The idea that they are 'globally incapacitated' is what prevents quality learning, interaction and progress to take place, especially in physical education settings. The learners in the DD class in my high school, while granted had much lower intellectual capacities and lacked social and life skills in comparison to their same-aged peers, had human bodies that were capable of moving in similar ways to mine, but were denied the opportunity to try.

I often now reflect on this experience with some degree of sadness and frustration as I realize how much they could have benefitted from quality instruction and programming in physical education, and how they were cheated out of experiences that are not only fundamental to healthy physical development, but necessary for positive social and emotional growth; experiences that all children and youth in the education system should be afforded. I don't think I fully appreciated the ramifications of what was occurring within the DD class in terms of the lack of adequate PA exposure and structured learning in PE. I did recognize though, that this was an area clearly in need of attention, and I thought that with my skills in this area, I might have something valuable to offer to this population. It was then that I decided to pursue a Physical Education degree, but at Brock University in particular because of the specialization offered in Disability Studies.

The Disability Studies program at Brock offered a vast array of courses concerning physical education, adapted physical activity, movement programming across the lifespan, and the impact of disability on all of the above. I learned about many different disabilities, and included in many of my required courses were
mandatory field placements that allowed me to gain hands-on experience while immersed in the theory, and to practice my skills with direct applications of the material being taught. Why then, in such a phenomenal, well-rounded and necessary program did my graduating cohort consist of only 13 people? In an institution well known for its achievements and scholarly excellence in the field of physical education and kinesiology, and in a faculty of hundreds of graduates that year, only 13 individuals thought it important enough in their practice to gain some perspective and experience working among and with individuals with disabilities. Many may not be surprised by the lack of interest shown in this particular area of concentration. Even less may be surprised to learn that Brock University no longer offers this particular specialization in Disability Studies, and furthermore that courses offered pertaining to disability have dwindled down to only three or four; all of which are elective courses. It is not mandatory for any graduates in physical education or kinesiology, a field of study which deals with the body in all facets—to know anything about or know how to work with individuals whose bodies might be the least bit different. In my opinion, an institution which houses one of the province’s largest Physical Education programs; a program that addresses how and why the body works the way it does, how to sculpt it and train it to function at its maximum capacity, how to treat it and heal it when it doesn’t work properly; should not be allowed to send new graduates and what will soon be new practitioners, service providers and educators, out into the world with no knowledge or experience working with people with disabilities (who by the way, they will inevitably encounter!). It is no surprise that the quality of movement programming experienced
by persons with various disabilities in agencies and services is often inadequate, if not entirely poor; and it did not take me long working in the field to discover this for myself.

Shortly after completing my undergraduate degree, I became employed as an instructor therapist (IT) for a provincial agency offering support and therapeutic services to families and children diagnosed with Autism Spectrum Disorder (ASD). I had had no previous experience as an IT prior to being offered this position, however I was told that it was my apparent skills in programming that gave me an edge over other applicants. (I would soon learn that my academic background in physical education was a unique asset to their team as well). An instructor therapist, I learned prior to my first interview, is a practitioner who performs what is called Intensive Behavioural Intervention (IBI)—the delivery of behavioural treatment—to young children with ASD (Hundert, Walton-Allen, Earle-Williams, & Cope-Scott, 2000). IBI is one form of intervention in this population that uses the principles of Applied Behaviour Analysis (ABA)—the field of study which examines the relationship between environment and behaviour (2000). The key premise underlying ABA is that an individual’s behaviour can be modified by manipulating environmental conditions. In other words, by providing specific antecedents (precursors) that elicit a desired behaviour, and consequences to immediately follow, behaviour can be changed and certain behaviour “problems” (for example those socially undesirable, self-injurious or repetitive movement patterns often seen in young children with Autism) can be corrected or extinguished (Hundert et. al., 2000). It is important to understand that ABA is an entire field of study, and there are many techniques and
strategies for teaching behaviour change in individuals with Autism (more on ABA and IBI will be discussed in chapter II). The dissonance that was created for me throughout this work experience was not in any critique of the principles of ABA or its utility in helping individuals with Autism gain and generalize valuable skills. Rather it was in some of the programs and skills an IT is expected to teach, and in the overall lack of physical activity included in clients' individualized programs.

An Instructor Therapist, regardless of academic background and preparation, is responsible for creating, implementing and modifying fine and gross motor programs, as well as to help the child to develop functional and appropriate indoor and outdoor recreation and play skills. I found this is where my skills were an asset to me coming from a background in physical education, and where others were lacking. I had a more sophisticated understanding of such concepts as how the body moves and the physiological consequences of certain stereotypical patterns of behaviour such as toe-walking in individuals with ASD (hypertonic calf muscles, tight Achilles tendons, and balance and gait problems to name a few). I also knew of certain programming strategies and creative games that could be used to target these deficits in clients. Secondly, there was not nearly enough physical activity incorporated as a regimented part of these therapies. The common focus of IBI and many other similar interventions is on teaching academic skills such as receptive and expressive language and numeracy, and “self-help” skills such as toileting and bathing. While the intention is to promote independence and improve the child's overall quality of life, movement—arguably the most important factor influencing one's independence—is currently not a significant component of most behavioural
interventions, in spite of empirical evidence that has established its merits. For example, physical activity has been shown to reduce stereotypic behaviour, increase appropriate responding, and increase the potential for positive social interaction in children with Autism and other developmental disabilities (Todd & Reid, 2006). The ultimate goal of these home-based programs is for the child in service to gain and generalize enough skills in different areas to move on to the next level of ‘education,’ so-to-speak. Generally, children entered the program in which I worked at the pre-school age (between 2-4 years old) and a successful transition would mean they move to a similar school-based or center-based therapy environment where they can begin to learn alongside their same-aged peers by the time they reach the appropriate school age. The ideal transition would be from a home or center-based therapy environment into the elementary school system where they are immersed in more typical learning environments and able to interact with their peers, but with the appropriate services still available to assist them. The resources within schools however are similarly inadequate to provide the necessary quality physical activity opportunities these children need.

Physical education programs in schools are often poor or non-existent (Gallahue, 1993), and educators, educational assistants (EAs) and support staff are not equipped with the skills necessary to appropriately program for children with disabilities in segregated or non-segregated classroom settings. Yet these are the people with whom these learners spend the most time in physical environments. In my time as an instructor therapist I accompanied many clients on days they spent attending their local elementary school in special needs classrooms with similar-aged
peers. This was required as part of their transition process. Once again, what an awakening it was for me to observe these types of learners and the educational assistants and educators who worked with them in physical education class or in various physical activity environments. These were children with attention deficit hyperactivity disorder, defiance disorders, various and often multiple learning disabilities and varying severities of ASD such as my client, and there they were being told to “run 5 laps around the gym and then get a ball and shoot it.” No attention was given to any movement deficits they may have, or to developing necessary fundamental motor skills. No attention was paid to what aspects of the environment could have been modified to alleviate overwhelming and extraneous sensory stimuli or what strategies could have been used to actually conduct some sort of lesson. And certainly, this would not be considered an opportunity to teach positive social interaction and problem-solving skills.

While typical children experience a variety of opportunities each day to participate in many forms of physical activity, children with disabilities are limited by their impairments and differences physically, cognitively, and socially. If these practitioners, educators and other service providers are the individuals who interact most frequently with children with disabilities in physical environments, it should follow that they should be equipped with the skills to maximize this time, and ensure these learners receive the same quality of physical activity programming that would be afforded to their typically developing peers. Functional and expressive movement always tend to fall secondary in priority to other psychological or behaviour-based
interventions, or basic academic and life skills, when this is the area most in need of attention.

A common theme addressed throughout the literature on adapted physical activity (APA) is the idea of having PE specialists in the school system to support staff and students in this capacity (i.e. in these ‘physical environments’), or that ‘movement interventions’ should be directed at PE teachers. The problem with this idealistic notion is that in the province of Ontario, anybody can be a PE teacher. According to regulation 184/97 of the Ontario College of Teachers Act (1996) on “Teachers Qualifications,” an elementary school teacher in Ontario only needs to be certified by the college in ‘general studies;’ they must be able to teach a variety of typical elementary school curriculum subjects from math and science to art, language and of course, physical education. To teach at the secondary school level, a teacher must specialize in at least two different teaching areas. This notion of a “teachable,” is earned with a few extra undergraduate credits in a concentrated subject area, and allows the educator to claim a qualification to teach in this area once employed in the school system. Hardly do four or five extra credits in your undergraduate timetable qualify you as a “Physical Education Specialist;” and even educators applying for jobs in the school system who have undergraduate degrees in physical education are not given priority in hiring over other applicants with a “teachable” in PE. It is difficult to have PE specialists in the school system, if anybody and everybody is considered qualified to teach it. Lest we not forget either that none of those “teachable” credits need to be in any courses related to disability or adapted physical activity, and even educators with a PE background do not require any experience in
disability. So who then in the school system owns the responsibility (and the ability) to program for individuals with disabilities?

One last piece of anecdotal evidence I gathered during my final stages of this research endeavour really elucidated the severity of this problem for me. I was engaged in pleasant conversation with a familiar acquaintance at a social event I attended over the duration of this study, when the conversation turned to the nature of his profession. He had recently completed his teaching certification and had earned an "additional qualification" (AQ) course in Special Education. When I proclaimed my delight and began to inquire as to his experiences with his learners thus far, he insisted he was not at all interested in teaching students with special needs, but that he took the accreditation in order for him to appear more desirable in the hiring process! It is abundantly clear that this accepted notion of a "teachable" in Physical Education, and "additional qualification" courses in special education (i.e. what essentially equates to the structure of the education system in Ontario) are potentially doing more irreparable damage than good, especially when it results in unqualified educators teaching PE to students with disabilities.

As a practitioner I observed the innate ignorance of the importance of physical activity and movement programming to this population of children, and the lack of preparation in this area of the service providers and educators doing the programming that is intended to increase their independence and quality of life. As a student in the school system, I saw the same. Can you really increase independence and quality of life with programs that only minimally address physical activity and movement? Why are our schools and government-funded therapy programs ill-
equipped to provide the best movement programming and PA intervention possible to those who need it? Why is physical activity, the human body and the embodied experience under-estimated and under-appreciated as a tool for improving quality of life in persons (and especially children) with disabilities? I believe this is the case because educators and various cohorts of professional service providers in the field of disabilities are not receiving adequate training and professional development in movement education and adapted physical activity programming.

1.2 Conceptual Orientation

Movement education is a multifaceted, conceptual approach to understanding the human body and human movement. It involves knowing about the different ways in which the body can move and the relationship between the body and the environment. Piaget (Piaget & Inhelder, 1969), states that children learn about their environment through sensory modalities—seeing, hearing, tasting, smelling, touching and manipulating. Children then develop a kinaesthetic intelligence (Hill, 1979); they construct a repertoire of movement patterns through exploration and direct interaction with their surroundings which allows them to conceptualize the world around them (Berrol, 1984). These sensory motor experiences are the first major source of cognitive growth (1984), and in essence an adapting tool throughout the lifespan. This experimentation through expressive movement, where learning occurs through understanding (Hill, 1979) is the foundation of movement education.
Movement education with direct respect to teaching is a pedagogical method that emphasizes the learners' active participation rather than relying on the teacher's presentation of material (Hill, 1979). The teacher's role within a movement education approach is not only to make the curriculum content relevant and appropriate, but also to deliver content in such a way as to encourage children to learn for themselves, and to structure an environment in which problem solving is inherent (Evans, 1979). This should be an environment which promotes a reliance on self-discovery and the use of these sensory experiences to promote meaningful learning (1979).

In movement education, there is no "right" or "wrong" way to move (Sherrill, 1998); movement becomes exploratory and therefore individualized according to the abilities of the mover. I believe that this is important for educators and service providers to know because for this population, movement goals (i.e. these gross motor, fine motor and play skill programs previously mentioned) should always be based on what is functional for the individual—that is based on their needs and movement capacity—rather than what is expected or correct when compared to their typically developing peers. Movement activities and intervention programs should be exploratory and expressive in nature, and allow the individual to develop their own sense of meaning of their environment through movement.

To define adapted physical activity (ADA) succinctly is a slightly more difficult task. It has many meanings dependent upon the context and application, and should be thought of as a philosophy or set of beliefs that guide practice (Sherrill, 1998) rather than a specific, delineated sub-field of physical education or movement.
programming. ADA is defined by the Federation Internationale de l’Activité Physique Adaptee (International Federation of Adapted Physical Activity) as

...a cross-disciplinary body of knowledge directed toward the identification and solution of individual differences in physical activity. It is a service delivery profession and an academic field of study that supports an attitude of acceptance of individual differences, advocates access to active lifestyles and sport, and promotes innovation and cooperative service delivery programs and empowerment systems. Adapted physical activity includes, but is not limited to, physical education, sport, recreation, dance and creative arts, nutrition, medicine, and rehabilitation.

(IFAPA, 2004 as cited in Hutzler & Sherrill, 2007, p.4)

While there are several core areas of knowledge that comprise adapted physical activity (see appendix A), the notion that it is a set of beliefs and principles of practice rather than a hard and fast designation is what makes it flexible and applicable to a variety of different professions and service providers. Granted it is unreasonable to expect educators and service providers like behaviour therapists to also be masters in movement education and adapted physical activity, but it is a reasonable presumption that they make the effort to understand the importance of physical activity to the independence and quality of life of the children they are working with, and that the governing bodies of their professions should seek to provide appropriate professional development opportunities, resources, assistance or
guidance in these areas if and when they are called upon to provide services that are out of their area of expertise.

In order to provide an opportunity for improvements and advancements among these various professional cohorts to take place, it is necessary to determine the needs of service providers in the field of disabilities, and to overcome any barriers that exist when it comes to the inclusion of training in movement education and adapted physical activity in professional development settings. This is my intention with this research.

1.3 Purpose

In the following study I focused the disabilities application to include learning disabilities, behavioural disorders and communicative/sensory disorders (specifically autism). I termed this group “Invisible Disabilities” and referred to it as such throughout the study. The rationale for this term is that these are disabilities that often have less obvious and sometimes difficult to see manifestations. As opposed to other common disabilities among pre-school and school-aged children such as Cerebral Palsy (CP) and mental retardation (MR) which have physical manifestations and impairments that are more obvious and easier to detect. Further rationale for this grouping is that these disabilities share common instructional strategies and require similar environmental modifications when programming in individual or group settings. The term ‘invisible disabilities’ is meant to capture the nature of these disabilities in a figurative sense, and is not intended to imply a
generalization that across all cases of the above-mentioned disabilities one cannot detect a disability or disorder is present. Nor is the use of this term as it applies to this particular grouping meant to preclude other disabilities of a somewhat 'invisible' nature. It simply provides a descriptive means of categorizing a widely heterogeneous group of disabilities. Once again, because there are so many different disabilities and disorders encountered within the school systems and in service agencies and because each individual with each disorder will require individualized programming catered to a differing severity of impairment or deficit, and a different set of strengths and skills, we can't expect practitioners and educators to know everything about everything. It was imperative for me during the conception of this project, to target as many practitioners, and as many children with disabilities as possible with ideas for a potential solution.

The purpose of this qualitative research was two-fold: to explore perceived gaps in the professional preparation of various cohorts of service providers working with individuals with invisible disabilities in physical environments; and to identify challenges related to the inclusion of movement education and adapted physical activity in the training of these professionals. This was achieved through a critical examination of expert responses to an adapted physical activity and movement education curriculum created for intended use as a professional development tool. Two research questions provided the overall framework for investigating this research problem.
1.4 Research Questions

1. What are the specific professional development needs, in terms of physical activity and movement education training, of the various service providing cohorts working with persons with invisible disabilities?

2. What underlying assumptions and societal constraints are operating in the current structure of the training and education of professionals in these settings?

1.5 Theoretical Framework

Addressing these specific concerns, this study employed a critical, qualitative case-centered methodology based in postmodern theory. The rationale for employing a case oriented methodology will be discussed in chapter III among other methodological considerations. However some other theoretical background is needed in order to understand the root of the research problem this study undertakes. There are several key assumptions inherent in traditional qualitative inquiry that guide the researcher from the conception to the completion of their research studies: a) knowledge is subjective in nature and there is not one objective ‘Truth’; b) the researcher learns from participants to gain understanding of their lives but should maintain a certain stance of neutrality; c) society is structured and orderly (Marshall & Rossman, 1999). The research problem under investigation in this study implies that there are tacit norms and standards of practice operating in the current structure of both pre-service education and in-service professional development of service providers and educators in the field of disability; these inferred norms place certain
disciplines and aspects of their job above others, and consequently discourage them from seeking to gain knowledge and skills in movement education and adapted physical activity even if it is relevant to the responsibilities of their job. An alternative (non-traditional) approach to examining this problem is needed to allow for critique of current social norms or 'social order.'

Critical qualitative methodology provides this alternative to examining issues surrounding ablist constructions in the training and education of service providers in the field of disability. There are assumptions that guide researchers in critical qualitative inquiry similar to those guiding traditional qualitative research (Marshall & Rossman, 1999). The first is that research fundamentally involves issues of power; this study examines the power relation between those with invisible disabilities being taught or given therapy by professionals in positions of power and authority. The second assumption is that research report is not transparent, but rather it is authored by a raced, gendered, classed, and politically oriented individual; this is why I felt it pertinent to include a personal narrative on my experiences surrounding this research problem. The third assumption is that race, class, gender and other social identities are vital for understanding experience, and the fourth and final assumption is that historically, traditional research has silenced members of oppressed and marginalized groups (1999). While the intent of this study is not to directly emancipate the marginalized group (children with invisible disabilities whose bodies are being neglected), it is to shed light on the current situation surrounding the lack of movement education and APA in the training and professional development of service providers and ultimately create opportunities for future change to occur.
Critical postmodernism is the theoretical framework utilized in the creation of this study, and in the analysis and discussion of findings. Modernism, the precursor to postmodernism, has provided the dominant versions of political, economic and social practice in Western culture for the last three centuries (Fernandez-Balboa, 1997). Modernism represents a coherent, rational “man” who has sought to control nature through positivistic science and technology and seeks to form a totalizing and universal Truth (1997). Under this social order we have become a capitalistic, profit-driven society in the name of productivity; this has led to an unquestioned reliance on authority and the economic system causing a loss of each individual’s identity (1997). Critical postmodernism rejects the notion of empirical, linear progress derived from the Enlightenment period and provides a theory of cultural criticism that analyzes social problems. This provides new ways of social organization and new cultural meanings and power relations to emerge. The two main ideas that emerged from postmodern theory are: 1) subjectivity (knowledge is contextual; the world is not dichotomous); and 2) knowledge as power (1997).

Undoubtedly many of the modernist attitudes still drive the thoughts and actions of people, organizations and institutions in Western society today. It is difficult to examine a research problem at the heart of this social order with research methods created therein. The foundational principles in postmodern theory provide the rationale for a researcher to examine and critique social problems through alternative means, and assert a challenge to dominant social ideology. It is precisely these new systems of organization and cultural meanings illuminated through
postmodernism that we need within the institutions and organizations responsible for the education and training of service providers in the field of disability.

1.6 Study Design and Scope

As previously outlined, this study will utilize a critical, qualitative, case-based methodology based in postmodern theory to investigate the current structure of pre-service education and in-service professional development of service providers working with individuals with invisible disabilities. The focus of this study is on the lack of movement education and adapted physical activity programming provided in schools and services available to this population due in part to a lack of knowledge and preparation on the part of professionals. This research problem is deeply rooted in the attitudes of much of Western society with regards to disability and chronic illness.

Secondary data, specifically expert responses to a movement education and adapted physical activity curriculum, will be examined. The responses (data) consist of a written evaluation guided by specific pre-determined questions pertaining to each of four sections of the curriculum document. Three levels of analysis—a within-case content analysis, cross-case categorical analysis, and holistic thematic analysis—were performed with subsequent emergent themes discussed in the context of postmodern literature in APA, PE, and Disability Studies.
1.7 Chapter Overview

The following five chapters will address the study and research process in greater description. Chapter 2 provides a detailed background of current literature on several relevant areas pertinent to this study: background on the disabilities included in the 'invisible disabilities' category with particular attention given to unique movement repertoires of each, current interventions, the social model of disability, instructional and programming tools used in curriculum for learners with disabilities and the current 'crisis' of the profession of human movement. Chapter 3 comprises the methodological considerations for this study: explanation and rationale for methodological choices and assumptions, a detailed account of methods used, participant characteristics, ethical considerations, and progression through the analysis process. Chapter 4 details the major findings, while various aspects of the study, including study limitations and meaning and implications of the findings are discussed from a postmodern theorist perspective in chapter 5.
CHAPTER 2
REVIEW OF LITERATURE

This chapter will include five sections presenting the current literature in this area: 1) invisible disabilities, 2) current approaches and interventions, 3) professional development curriculum resource material, 4) adapted physical activity and physical education, and 5) postmodern theory in physical education. The first section provides a succinct but thorough description of each of the four disabilities that comprise the 'invisible disabilities' grouping, with a particular focus on the movement-related components of each disorder; while the second section describes some of the more common therapies and intervention strategies used for children diagnosed with these disorders. The section on curriculum resource material illustrates some of the approaches that should be incorporated into adapted curriculum planning for these populations, and ones that were fundamental in the creation of the curriculum used in this study. The fourth section describes some of the current assumptions and attitudes towards movement and disability in the field of physical education, which is followed by a critical postmodern discussion concerning the human movement profession in the closing section of the chapter.

2.1 Invisible Disabilities

The use of the term “Invisible disabilities” is intended to capture the notion that these are some of the more challenging for educators and service providers to accommodate because they have a hidden component that makes them difficult to
identify. The indications of these conditions are behavioural in nature, and can often mask themselves as other “typical” problems. For example, a child with severe dysgraphia (a writing disorder) may consistently not complete homework and assignments, or cause disruptions during spelling/writing classes. This may appear to the teacher to be a defiance situation, rather than a cause for concern over an apparent disability. For the purposes of this study, the ‘invisible disabilities’ grouped together are learning disabilities (LD), attention deficit hyperactivity disorder (ADHD), developmental coordination disorder (DCD), and sensory and communicative disorders—in particular Autism Spectrum Disorder (ASD).

2.1.1 Learning Disabilities (LD)

The term “learning disability” (LD) is one that has caused a great deal of controversy and debate which is evident throughout the literature. The very broad nature of the word “learning” (which could encompass any number of variables such as who is doing the learning, how the learning takes place, and under what circumstances the learning has occurred) has consequently imposed ambiguous and vague definitions which do not always give an accurate and precise depiction of what a learning disability truly is. The term “learning disability,” coined by psychologist Samuel Kirk in 1962, is traditionally synonymous with the concept of unexpected underachievement—that is to say, with students who do not listen, speak, read, write, or develop mathematics skills commensurate with their potential despite ample and rich learning opportunities (Lyon, Fletcher, Shaywitz, Shaywitz, Torgesen, Wood, Schulte, & Olson, 2001). LD are currently defined in IDEA—the Individuals with Disabilities Education Act of 1970 (Sherrill, 1998)—as a disorder in
which one or more of the areas of psychological processing involved in the comprehension or use of written or spoken language are affected (1998). Kirk (1962) however originally defined LD as

a retardation, disorder, or delayed development in one or more of the processes of speech, language, reading, spelling, writing, or arithmetic resulting from a possible cerebral dysfunction and not from mental retardation, sensory deprivation, or cultural or instructional factors. (Kirk, 1962, p. 263)

The crucial element from Kirk's (1962) original definition not mentioned in the definition in the IDEA is that of the discrepancy between a child's actual achievement and her or his apparent capacity to learn. Other organizations who have further attempted to define LD, such as the National Joint Committee on Learning Disabilities (NJCLD), have identified a similar characterization of this group of disabilities (2006). Four main conceptual elements summarize all of the varied definitions of LD (Lyon et. al, 2001):

1. Heterogeneity

2. An intrinsic/neurobiological nature

3. Discrepancy between learning potential and academic performance

4. Exclusion of cultural, educational, environmental and economic factors or other disabilities
While the second of the above-mentioned concepts indicates a neurobiological etiology of LD rather than one that is environmental in nature, the complexity of the developing brain and the central nervous system have resulted in a limited understanding of the exact manifestations of LD (Sherrill, 1998). Delays may present themselves in different forms, including the more well-known deficits in listening, thinking, speaking, writing, spelling or reading abilities, (1998). Children and adults with LD can also manifest behavioural signs, which may include attention deficits, hyperactivity, conceptual rigidity, inappropriate reactions, and emotional instability (1998). Least well-understood and only addressed in more recent literature on LD are the manifestations of these disabilities relative to movement skill acquisition and motor development.

Children with LD often do not perform motor skills with the expected proficiency of their chronological age peers without LD (Bluechardt, Wiener, & Shephard, 1995; Rimmer & Kelly, 1989; Sherrill, 1998; Woodard & Surburg, 1999; 2001). Although there are many children with a learning disability who do not exhibit any motor difficulties, a substantial portion of individuals with LD manifest some type of motor behaviour problem (Lazarus, 1990; Miyahara, 1994; Woodard & Surburg, 1999). Some individuals with LD will display subtle motor deficits, while others will demonstrate more severe motor deficiencies. Static and dynamic balance is affected in some subtypes of individuals with LD (Miyahara, 1994) leading to pervasive locomotor and postural control problems and physical awkwardness. Other subtypes demonstrate a lack of spatial awareness (1994) and agnosias (perceptual deficits resulting from an inability to recognize sensory stimuli) which
leave them clumsy and uncoordinated (Kurtz, 2008). Individuals may experience difficulty with contralateral or midline crossing movement—those which involve one side of the body crossing over the midline to the other side (Woodard & Surburg, 1999). These types of movements are inherent in complex skill patterns and important postural control tasks, and essential for bilateral coordination (1999). Difficulty or reluctance to cross the midline of the body will likely be a factor that hinders motor skill learning and performance over the course of the child's life (1999). Individuals with LD may also develop what are known as associated “overflow” and/or “choreiform” (twitching) movements (Sherrill, 1998). The reason for these extraneous movements is the individual’s inability to attend to multiple stimuli simultaneously and produce isolated movement responses; reaction and movement times will often be slower in individuals with LD as a result of associated movements (Woodard & Surburg, 1999).

The term learning disability gained rapid acceptance in the late 1960’s and early 1970’s because it addressed a critical need of a concerned population. Prior to the formal identification of LD, children whose failure to learn could not be explained by mental retardation, visual or hearing impairments, or emotional disturbance were previously “disenfranchised from special education,” (Lyon, et. al, 2001, p. 261). Their learning characteristics did not correspond to existing categories of disability requiring special education (2001). Today, learning disabilities is the most frequently identified class of disabilities among students in the public school system; hence the relevance of LD to educators and service providers working with preschool and school-aged children.
2.1.2 Developmental Coordination Disorder

A high percentage of individuals with LD have perceptual-motor, motor coordination and other movement related problems severe enough to warrant a diagnosis of developmental coordination disorder (DCD). DCD is a condition which is characterized by poor motor proficiency that results in a significant impairment to both social and academic functioning (APA, 2000). This essentially means that the general performance of daily activities requiring motor coordination is below the expected level of efficiency given the individual's developmental age and intellectual capacity (Sherrill, 1998). Specifically, the APA's Diagnostic and Statistical Manual 4th Edition (DSM IV) stipulates four criteria for a diagnosis of DCD (Cairney, Hay, Faught, Mandigo, & Flouris, 2005):

1. Significant motor impairment below the age-expected norms
2. Motor problems must result in significant impairment to activities of daily living and/or academic achievement/performance
3. Condition cannot be due to other known physical conditions (e.g. cerebral palsy, muscular dystrophy) or pervasive developmental delay
4. If mental retardation is present, motor impairments must be below the norm (age appropriate) expected for these children

A diagnosis of DCD usually occurs when children are between the ages of six and twelve years old (Barnhart, Davenport, Epps, & Nordquist, 2003) and is one based on the exclusion of other possible factors that may affect movement and motor coordination. Identifiable lesions or pathogens, existing neurological conditions (e.g. cerebral palsy) or intellectual impairments (e.g. Pervasive Developmental Disorder—
Autism) must be ruled out as a potential cause of the motor difficulties (Cairney, et. al., 2005b; Cairney, Hay, Faught, Corna & Flouris, 2006). It is estimated that between 5% and 9% of all school age children meet the diagnostic criteria for DCD (APA, 2000; Kadesjo & Gillberg, 1999; Sugden & Wright, 1998; Wall, Reid, & Paton, 1990); and at an approximate 4:1 ratio of boys to girls (Cairney et. al., 2005b).

Children’s difficulties with coordination can result from a combination of one or more impairments in proprioception (knowing the body’s position in space), motor programming, timing, or sequencing of muscle activity (Barnhart et al., 2003), however the heterogeneous nature of the condition has left little known of the demographic and/or neurological risk factors (Cairney et al., 2005). Hoare (1994) identified five subtypes of individuals with DCD displaying a continuum of varied movement qualities:

- Subtype 1—better gross motor than fine motor skills
- Subtype 2—no generalized visual dysfunction yet problems with kinaesthetic awareness and balance
- Subtype 3—a generalized perceptual dysfunction (difficulty with both kinaesthetic and visual tasks)
- Subtype 4—good kinaesthetic processing; difficulties with visual and dexterity tasks
- Subtype 5—problems with execution of movement

In general, it is difficult to identify the essential components of DCD as deficits can be general or highly specific (i.e. the profiles are so heterogeneous that neither visual
nor kinaesthetic elements are more prevalent or integral to the disorder than the other). This is a common point made in much of the literature as there is a great deal of inconsistency among standardized motor tests used to identify children with DCD. Unfortunately, due to the absence of any one concrete diagnostic test for DCD, the problem is not often diagnosed (Cairney et al., 2005b). This can lead to more damaging labels for this population such as “awkward,” “clumsy” or “lazy” (Hay & Missiuna, 1998; Cairney et al., 2006). The difficulty with diagnosis in DCD is complicated significantly by the extensive overlap with other disorders; approximately 41% of children with attention deficit hyperactivity disorder (ADHD) and 56% of children with learning disabilities (LD) also have DCD (Dewey & Wilson, 2001; Macnab, Miller, & Polatajko, 2001).

The gross motor characteristics of children with DCD include neurological soft signs such as hypotonia (‘floppiness’), persistence of primitive (infantile) reflexes, and immature balance reactions that interfere with gross motor development (Dewey & Wilson, 2001; Schoemaker, Hijkerna, & Kalverboer, 1994). Many fundamental locomotor skills such as running, jumping and hopping have been known to be difficult for children with DCD, which results in lack of participation in sport (Larkin & Hoare, 1991), and lack of physical fitness (O'Brien, Larkin, & Cable, 1994), as well as social isolation and loss of self-esteem (Hoare, 1994). Fine motor skills such as handwriting, drawing, grasping and dressing are similarly affected (Barnhart et al., 2003). Missiuna (1994) examined motor skill acquisition and generalization in children with DCD compared to age-matched peers without DCD and found that although the process and rate of learning is the same as their peers, individuals with
DCD have slower reaction and movement times and take longer to adapt to superficial changes in skill tasks (i.e. difficulty translating a skill to multiple different environments). Individuals with DCD are slower in both the planning and execution of motor tasks (1994). This may be as a result of a more heavy reliance on vision to monitor their movements due to delayed or impaired development of motor control. Children with DCD may also artificially stabilize their joints in order to decrease the complexity of the movement which creates a generally awkward overall appearance (1994).

Regardless of which subtype of DCD a child falls under, or what motor characteristics comprise the individual’s unique motor repertoire, both the gross and fine motor proficiency problems experienced by children with DCD can lead to an inactive or sedentary lifestyle. This in turn increases their chances of developing more chronic health problems as they age (Cairney et al., 2005b). Children with DCD are more likely to be obese (Cairney, Hay, Faught, & Hawes, 2005) and have lower cardio-finess levels than in children without DCD (Faught, Hay, Cairney, & Flouris, 2005). Children with DCD are already less likely to participate in physical activity than those without the disorder (Cantell, Smyth, & Ahonen, 1994; Hands & Larkin, 2002; Schoemaker & Kalverboer, 1994; Wall, 1982) because children with movement problems lack confidence in their physical abilities (Cantell et al., 1994; Schoemaker & Kalverboer, 1994), have a lower sense of self-efficacy towards physical activity (Cairney, et al., 2005c; Hay, 1992), and/or because they are excluded from such activities by their peers (Hay & Missiuna, 1998). Reduced participation in such activity will inevitably lead to disrupted or restricted skill
development, and as a result children with motor impairments (such as those with
DCD) may eventually disengage from habitual physical activity altogether (Cairney
et. al., 2006) In addition to all of these physiological consequences, children with
DCD are more likely than their peers to perform poorly in school, leave school early,
and are at greater risk for emotional and behavioural problems (Cantell et. al., 1994;
Sugden & Wright, 1998). Children with DCD have been observed to require more
reinforcement and encouragement when engaged in learning new movement tasks
(Missiuna, 1994).

Unlike other conditions that cause motoric problems in children such as
cerebral palsy or muscular dystrophy, DCD is often not recognized by parents and
teachers as a disorder requiring special accommodations or interventions (Hay &
Missiuna, 1998). It can often go undiagnosed, and occurs frequently concomitant
with learning disabilities and attention deficit hyperactivity disorder. The result is a
‘hidden’ condition in grave need of concerned and qualified professionals to provide
quality programming and intervention.

2.1.3 Attention Deficit Hyperactivity Disorder

Attention deficit hyperactivity disorder (ADHD) is defined by persistent and
habitual patterns of inattention or hyperactive and impulsive behaviour in children
that is much more frequent and intense than in typically observed children of the
same age and peer group (Sherrill, 1998). It is one of the most frequently diagnosed
childhood disorders, affecting approximately 6% of school-aged children in Canada
(Szatmari, Offord, & Boyle, 1989; Reid, Maag, & Vasa, 1993) and between 5% (APA, 2000) and 20% (Shaywitz & Shaywitz, 1984) in the United States.

ADHD almost never occurs in a pure state (Miranda, Soriano, Fernandez, & Melia, 2008); rather it is typically associated with other psychological and behavioural problems. For example, ADHD is known to overlap frequently with oppositional defiant disorder (ODD) and conduct disorder (CD) (Kroes, Kessels, Kalff, Feron, Vissers, Jolles, & Vles, 2002), and very often children with more specific learning disabilities will be misdiagnosed with ADHD as a higher than average percentage of individuals with LD has ADHD-related problems (Sherrill, 1998). Or conversely, more than half of individuals diagnosed with ADHD have at least one if not several other coexisting disorders or conditions (Miranda et. al., 2008). Globally approximately 70% of children with ADHD present with some type of learning difficulty (Mayes, Calhoun, & Crowell, 2000). Although a diagnosis of ADHD alone does not constitute eligibility for special education services according to IDEA (Sherrill, 1998; Miranda et. al., 2008), three quarters of students receiving special education for behavioural difficulties (Dery, Toupin, Pauze, & Verlaan, 2005), and nearly a fourth of the children in special education programs for LD (Forness & KIavale, 2001), meet the criteria for ADHD. It is thus important to include ADHD in this population of individuals with invisible disabilities because of its prevalence among those with LD and behavioural disorders.

Attention to physical activity programming and movement intervention for individuals with this disorder is often overlooked. The traditional focus with ADHD has been on excessive and hyperactive movement activity as an essential component
of the disorder; for example fidgeting with hands and feet, and excessive running or climbing in situations where it is inappropriate, are among the six hyperactive symptoms listed in the DSM IV as components of ADHD (APA, 2000). While these symptoms are related to movement behaviour in general, they differ significantly in purpose and outcome from specific movement skills in physical activity contexts (Harvey, Reid, Bloom, Staples, Grizenko, Mbekou, Ter-Stepanian, & Joober, 2009). The excessive, hyperactive “movement-related behaviour” (2009, p. 132) associated with ADHD has been used loosely and interchangeably with “movement skills,” (2009, p. 132), and because the excessive movement characteristic of ADHD has historically been seen as problematic, this has consequently hindered the investigation of movement skills and motor proficiency in children with ADHD (Harvey & Reid, 1997).

Motor profiles of children with ADHD in the literature have described poor sensorimotor coordination, erratic activity, and attention difficulties (Sandberg, Rutter & Taylor, 1978; Taylor, 1986, Taylor, Schachar, Thorley, & Weiselberg, 1986), as well as poor balance (Wade, 1976), and generalized motor clumsiness (Luk, Leung, & Yuen, 1991). In their study on the motor performance of children with ADHD aged 7-12, Harvey & Reid (1997) show that the performance of children in fitness and fundamental gross motor skills was below average when compared to the norms of children of similar age and gender, using a variety of standardized published tests for gross motor performance and physical fitness for this age population. In addition, although children with ADHD have often historically been referred to as hyperkinetic (too much movement) in the literature, findings by Harvey
& Reid (1997) also show that some children with ADHD might actually be at risk for being hypokinetic (not enough movement), and conditions such as cardiovascular disease, high blood pressure, high cholesterol and obesity.

Not only are interventions which focus on movement and physical activity needed to improve any weaknesses individuals with ADHD have when performing motor tasks, but research has also shown that exercise has potential efficacy as an alternative to medication in treating patterns of inattention and hyperactivity (Tantillo, Keswick, Hynd, & Dishman, 2002). Researchers and programmers in special education, physical education, therapeutic recreation and recreational programming for children in general should recognize the need for improvement in gross motor performance—particularly locomotor and object control skills (Harvey & Reid, 2005)—and fitness in children with ADHD. While ADHD on its own may not be thought of by most as a “disability” in need of intervention rather than a “condition” that can be managed with medications, because it is commonly found compounding other learning disabilities and disorders in children, it is important that educators and service providers consider ADHD in the interventions and programs they implement with this population.

2.1.4 Autism Spectrum Disorder (Autism)

Autism, also often referred to as Autism Spectrum Disorder (ASD), is the most prevalent of communicative and sensory disorders in the child population. It is a pervasive developmental condition of unknown origin, with extremely heterogeneous behavioural symptoms (Reid & Collier, 2002). Five pervasive
developmental disorders (PDD) comprise the autistic spectrum: Autistic Disorder, Rhett's Syndrome, Childhood Disintegrative Disorder, Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS), and Asperger's Syndrome (APA, 2000; Hundert, et al., 2000; Reid & Collier, 2002). Each disorder is characterized by varieties of qualitative impairments in reciprocal social interaction or communication skills, extraordinary resistance to change in routine, presence of unusual sensory experiences and stereotyped, repetitive patterns of behaviour, lack of symbolic or imaginative play skills, and receptive and/or expressive language delays (APA, 2000; Connolly, 2008; Hundert et al., 2000; Reid & Collier, 2002). A qualitative impairment denotes differentness rather than absence or delay (Mesibov, Adams & Klinger, 1997). Each disorder within the spectrum has both unique characteristics and shared attributes with the other PDDs (all five PDDs are summarized in appendix B), and is placed on a continuum from low to high level of intellectual functioning. Defining features of the disorders can thus frequently change with development, and differ in children of the same chronological age but different developmental age (Reid & Collier, 2002). The infinitely variant continuum of features of the disorder is where the term “spectrum disorder” is derived.

The characteristic impairments of Autistic disorder specifically (summarized in appendix C) are required in specified combinations in order for diagnosis to occur. By the age of three, (Connolly, 2008; Hundert at al., 2000; Reid & Collier, 2002), the child must exhibit at least two impairments in social interaction, one in communication, and one in restricted repetitive and stereotyped patterns of behaviour (APA, 2000; Hundert et. al., 2000; Reid & Collier, 2002). The additional
two characteristics can come from any of these three areas. Many of these characteristics, such as a lack of social/emotional reciprocity and an inability to develop appropriate peer relationships or spoken language (APA, 2000; Hundert et al., 2000) have the potential to severely hinder the quality of life of a child.

Rhett’s Syndrome occurs only in females and is very rare (APA, 2000; Hundert et al., 2000). There is normal motor development early in life, and between 5 and 48 months of age, the rate of head growth decelerates, and previously acquired fine motor skills and social skills are lost (Reid & Collier, 2002). Gait becomes poorly coordinated and eventually independent ambulation is lost and a wheelchair is required (2002). Rhett’s syndrome also involves severe impairment in language and profound intellectual disability (2002).

Childhood disintegrative disorder (CDD), which progresses somewhat similarly to Rhett’s syndrome, is also very rare (Reid & Collier, 2002). It is distinguished by a period of typical development for at least two years, followed by significant loss of acquired skills in at least two of the following areas—language, social skills or adaptive behaviour, bowel or bladder control, play, or motor skills (2002). Functioning also declines in social interaction, communication and behaviour, interests, and activities, and CDD is associated with severe intellectual disability (2002).

A diagnosis of Asperger’s Syndrome (AS) occurs in a similar way to that of Autistic disorder (its specific diagnostic criteria are listed in appendix D). Diagnosis requires impairments in social interaction and repetitive, restricted patterns of
behaviour, but no general delays in language or cognitive functioning (Reid & Collier, 2002). Individuals with Asperger's Syndrome are higher functioning than those with any of the other PDDs; they will often have extensive language vocabularies at a young age and read very well. Often times however they are not aware of social norms which makes appropriate peer interaction difficult in childhood and adolescence. Motor behaviour of individuals with AS has been described in the literature as clumsy and awkward and their motor difficulties may contribute to rejection and social isolation by their peers (APA, 2000; Reid & Collier, 2002).

Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS) is the resultant diagnosis when some criteria of one of the other PDDs are not met and other diagnoses are inappropriate (Hundert et. al., 2000; Reid & Collier, 2002). For example a child may demonstrate features of classic Autism, but onset was later than three years (Reid & Collier, 2002). Enormous heterogeneity of behaviours and developmental profiles of individuals with any of the PDDs makes diagnosis especially difficult (Wing, 1997, 2000). Even within any one of the PDDs, the deficits and behavioural manifestations will vary greatly, and thus determining treatments and interventions is often difficult as well. It is argued however that the principles underlying treatment are the same regardless of the subtypes of ASD (Wing, 1997). In general, research does not provide overwhelming support for the uniqueness of PDD subtypes, i.e. there is great overlap between disorders, which is another reason the "umbrella term" Autism Spectrum Disorder has come to be the advocated term to use (Mesibov, Adams & Klinger, 1997; Szatmari, 2000). This attention to the
difficulty in programming and intervention is important to draw attention to, specifically for the purposes of the following study, as an area in which the effects of this are most widely seen is that of physical activity (PA) participation.

Functional movement skills and motor coordination have been identified as areas of deficit in individuals with ASD (Reid & Collier, 2002; Todd & Reid, 2006). For example, deterioration of movement skills is essential to the diagnosis of Rhett's Syndrome, while repetitive motor mannerisms such as toe-walking and hand-flapping are common in Autistic disorder and Childhood Disintegrative Disorder (CDD), (Hundert et al., 2000). These three disorders are at the low functioning end of the autistic spectrum. Manjiviona & Prior (1995) found that children with ASD, especially those who are high-functioning such as those with Asperger's Syndrome, are not likely to have a single, isolated motor impairment but rather a pervasive motor disability affecting both gross and fine motor skill acquisition. For example, global motor impairments such as difficulty in sequencing movement or performing a sequence of movements (e.g. riding a bike) are common in Autistic children (Wing, 1969). Difficulty with the manipulation of objects, including direction, force and aim as well as speed and accuracy of general tasks, bi-lateral coordination difficulties, generalized clumsiness and lack of kinaesthetic awareness are also common associated features of Asperger's syndrome (Hundert et al., 2000; Manjiviona & Prior, 1995; Reid & Collier, 2002). Essentially qualitative movement deficits exist in all areas within the autistic spectrum.

Through years of persistent observation and movement profiling of participants in a movement camp setting, Connolly (2008) was able to determine
consistent dominances and absences in the movement repertoires of children with ASD. Dominances include fine, sudden movement, limbs kept near the body, flexion of the spine, ipsilateral movement (same arm as leg), toe-walking, uneven gait, balance and coordination problems and general uneven motor skill development. Frequently absent from the motor repertoire of individuals with ASD are midline crossing, firm movement, extension of the hip and spine, mature running pattern, controlled landings, gradual deceleration, contralateral (opposite) arm-leg movement, weight transfer variety, and general contrast in movements (Connolly, 2008).

Children with ASD are at an increased risk for physical inactivity due to the social, behavioural and motor deficits associated with the disorder (Hundert et al., 2000; Pan, 2008; Pan & Frey, 2006; Reid & Collier, 2002; Sherrill, 1998). In addition to delays or deficits in motor skill acquisition, children with ASD also experience low motivation (Reid, O'Connor & Lloyd, 2003), lack of self-monitoring skills (Hughes, Russel & Robbins, 1994), and an inability to generalize learned behaviours across varied environments (Renner, Klinger, & Klinger, 2000; Todd & Reid, 2006) resulting in a natural predisposition to physical inactivity. Difficulties understanding social cues, communicating with others and engaging in problem behaviours severely inhibit an individual's ability to interact appropriately with their environment. These social and behavioural deficits are particularly hindering to PA participation in youth and adolescents with ASD because at this age traditional forms of physical activity occur most often with their peers (Pan, 2008; Pan & Frey, 2006; Rosser-Sandt & Frey, 2005). In addition, weight gain is a common side effect of many medications
used to treat autistic symptoms and mediate maladaptive behaviours (Todd & Reid, 2006), further increasing the need for PA intervention.

For children with ASD specifically, PA participation has been shown to reduce stereotypic, self-stimulatory, and disruptive behaviours, while simultaneously increasing appropriate responding and on-task behaviour (Levinson & Reid, 1993; Powers, Thibadeau, & Rose, 1992; Reid & Collier, 2002). Considering the many positive physical, social and behavioural benefits offered by physical activity participation, the lack of opportunities for children with ASD to participate should represent a legitimate concern. According to Pan and Frey (2006), children with ASD often have few opportunities for extra-curricular physical activity involvement because of the competitive and segregated nature of community-based recreation programs. The diverse nature of the characteristics of ASD makes it next to impossible to categorize children succinctly, thus most children with ASD do not meet eligibility criteria for specialized adapted physical activity experiences such as the Special Olympics. They are not likely to succeed in integrated physical activity settings either, and are therefore left in an “indeterminate state regarding physical activity participation” (Pan & Frey, 2006, p. 598).

In summary, individuals with learning disabilities (LD), developmental coordination disorder (DCD) and attention deficit hyperactivity disorder (ADHD) all experience some degree of movement impairment, and do not perform motor tasks with the same level of proficiency as their non-disabled, typically developing same-aged peers. Similarly individuals with Autism Spectrum Disorder (ASD) display a variety of heterogeneous movement problems, some of which are integral to the
diagnosis of their specific PDD. Movement intervention for the above conditions has not been concentrated on in the literature until only recently. Furthermore, there is an extremely high rate of association between ADHD and developmental coordination disorder, learning disabilities (LD) and autism (Gillberg, Gillberg, Rasmussen, Kadesjo, Soderstrom, Rastam, Johnson, Rotherberger, & Niklasson, 2004). Programming for individuals with LD, DCD and ADHD involve similar content and instructional components as programming for communicative and developmental disabilities (Cook, 2001; Sherrill, 2008; Todd & Reid, 2002). Also, as these four conditions are often found concomitant in one another it is thus important to discuss them in context of one another for the purposes of instruction and intervention.

2.2 Current Approaches and Interventions

Children with these invisible disabilities can gain access to a variety of interventions and support services through government-funded agencies, private organizations, and school and community based programs. Children diagnosed with learning disabilities (LD), developmental coordination disorder (DCD) and attention deficit hyperactivity disorder (ADHD) are most often eligible to receive special education services within an integrated (or ‘typical’) elementary school setting. Intellectual delay in children with Autism however, with the exception of Asperger’s syndrome in which children are high functioning, can be severe enough to prevent children from attending a typical elementary school and require services and
therapies in specially designed environments. A few of the current therapies for children with ASD are discussed in the sections below, followed by several current approaches and strategies used in physical education and adapted physical activity within the school system.

2.2.1 Intensive Behavioural Intervention

Intensive behavioural intervention (IBI) is the form of behaviour modification therapy most commonly chosen for young children with autism (Green, 1996; Schreibman, 2000). It is derived from principles of behavioural psychology and Applied Behaviour Analysis (ABA)—the field of study which examines the relationship between human behaviour and the environment (Hundert et. al., 2000). According to theory in ABA, human behaviour can be broken down into three component parts: an antecedent (or precursor), the behaviour itself, and a consequence (2000). The key premise underlying ABA is that an individual's behaviour can be modified by manipulating environmental conditions. In other words, by providing specific antecedents (precursors) that elicit a desired behaviour and consequences to immediately follow, behaviour can be changed and certain behaviour “problems” (for example those socially undesirable, self-injurious or repetitive movement patterns often seen in young children with autism) can be corrected or extinguished (Connolly, 2008; Hundert et. al., 2000). Figure 2.2 shows a hypothetical developmental trajectory of typically developing children compared to the developmental trajectory of children with ASD. The ultimate goal in providing IBI therapy to young children with ASD “is to increase the slope of their
developmental trajectory (i.e. make it more similar to that of typically developing children),” (Hundert et al., 2000, module 2.1: p.2).

**Figure 2.1 Hypothetical developmental trajectory of typically developing child vs. child with ASD**

The general IBI curriculum is comprehensive in scope (attention to all learning domains) and developmental in sequence (progressive and cumulative).

Every aspect of programming is highly individualized to the learner (Hundert et. al., 2000). Programs focus on skill acquisition in academic and cognitive areas such as receptive and expressive language, literacy and numeracy, but also in self-help skills such as toileting and bathing, and reciprocal social interaction and life skills (2000). Outcomes of IBI therapy are highly variable (Perry, Prichard & Penn, 2006).

Although remarkable outcomes have been reported for a significant minority of children, and most do report an overall improvement, some children’s skills remain relatively stable despite treatment (Lovaas, 1987). Research indicates that the most success with IBI is achieved in children who begin as soon as possible after diagnoses (i.e. as young as possible), and that the best results are in those children who receive
therapy 20-40 hours per week or more (Perry, Prichard, & Penn, 2006). It is also apparent that the quality of what happens in these intervention hours is crucial for success as well (Green, 1996; Perry, 2002).

Generally speaking, instructor therapists (the practitioners who implement the intervention) undergo no specific training relative to movement education or physical activity prior to delivering these programs (which includes teaching gross and fine motor skills), nor do the senior therapists or program coordinators who are responsible for the ongoing creation, supervision and revision of these programs. Researchers have identified practical elements of IBI delivery as important to the success of their children's therapy, such as whether or not skills are generalized across environments and the provision of successful problem-behaviour management strategies (Perry, Prichard, & Penn, 2006). However no research has been conducted on whether or not the educational background and pre-service preparation of IBI professionals delivering these programs impacts the child's success. In other words, if the therapists were knowledgeable in physical education and had some previous training in movement intervention, would children be better able to learn and generalize fine and gross motor skills and recreation and play skills?

Most current programming and interventions for children with disabilities (especially autism) are based in behavioural models. This is because behaviour is the most apparent outward manifestation of many disabilities—ASD, ADHD, LD, etc. (Connolly, 2008). In addition, often times the individuals' movement repertoire is mistakenly observed as "typical" (Reid & Collier, 2002) and physical activity and movement education-based interventions are not incorporated into the individual's
program specifications. In the third article of their series on motor behaviour and ASD, Reid, O'Connor, & Lloyd (2003) connect the field of ABA to adapted physical activity, claiming it is one of the best documented set of intervention techniques used as treatment for individuals with disabilities; “physical activity professionals should be able to apply these principles as well,” (Reid et al., 2003, p. 22). For example, the discrete trial teaching format of instruction, which breaks skills up into their discrete component parts for teaching purposes, is useful for adapted physical activity and recreation specialists in guiding their instruction to include good pedagogy (2003).

Also many other parallels can be drawn between ABA and physical activity, including the use of reinforcement to increase appropriate behaviour (physical activity should have naturally occurring reinforcing consequences—task completion and peer interaction), as well as the idea of using physical or verbal prompts to increase the accurateness of the child’s response to an instruction (2003). More multidimensional therapeutic practices should be created between these behavioural models and PA interventions as they have obvious similarities and common theoretical foundations that would complement each other. Some other current interventions focus specifically on movement strategies and social interaction.

2.2.2 The Miller Method

One alternative method of early intervention for children with autism which contrasts sharply with ABA is called the Miller Method (Miller & Chretien, 2007). The Miller Method is based in the assumption that children learn best through action (or in other words—movement!) and focuses on the interaction between the individual and the environment. While most behaviour-based intervention
approaches target the “deficits” or “dysfunctional” behaviours of the child in order to reduce or eliminate them, the Miller Method focuses on the functional capabilities of the child and utilizes them in targeted functional physical activities in order to promote meaningful interactions between the child and her/his environment (Cook, 2001). “The primary goal of the Miller Method is to develop variety and flexibility in play, social, and daily routines. The method views behaviours that children bring to intervention as abilities that need to be expanded rather than disabilities that need to be removed and replaced,” (Cook, 2001, p. 212).

Intervention in the Miller Method incorporates the use of what are referred to as “systems;” organized behaviour with objects or events that the child produces (Miller & Chretien, 2007). Body systems coordinate sensory capabilities with motor capabilities to serve a particular function such as riding a bike or walking; social systems concern the ways in which people interact with each other such as turn-taking or competing; communication systems concern the integration of words with actions, and so on. This systems approach was created with the intention of respecting the seemingly extraordinary “rituals” that children with ASD commonly develop to understand and relate to the world, and expand them into meaningful repertoires (Cook, 2001). The major piece of equipment used in The Miller Method is the “elevated square” (see figure 2.2); a 21-inch-high wooden structure in the shape of a square with platform bridges connecting four 28-square-inch boxes (2001). Different types of play materials are placed at each corner of the square forming activity task stations (2001). The significance of the elevated square is quite obviously the height; children with ASD are less stable when higher off the ground
given their deficits in body and space awareness, and sensory processing abilities. This presents a challenge for them to continually interact with, and adapt to their environment while engaged in a variety of problem-solving tasks that utilize different systems.

**Figure 2.2 The “Elevated Square”**

![Diagram of the "Elevated Square"](image)

(Cook, 2001, pp. 213)

In addition to the square, other equipment such as mini-trampolines, see-saws, and balance beams for example, can be used to teach sequences and systems.

The main strategies incorporated in the Miller Method include (Cook, 2001):

- Rough play – to increase child’s awareness of self and others
- Teaching “systems” – starting with a simple behaviour or activity such as walking around the square, and varying the system through:
  - Expanding (increasing complexity of) the task or,
Introducing (stopping/creating an obstacle in the task) and encouraging the child to resume the task on their own

- Adding obstacles and varying the activity—different movements, places, people, and objects
- Communicating through sign and spoken language
- Narration—describing what the child is doing as they’re doing it
- Contagion—the tendency of children to get “caught up” in the excitement of the activity they are doing

The Miller-Method of early intervention culminates many of the separate teaching programs outlined in an individual’s IPP (individual program plan) such as social interaction programs, play skill development, and sign language and communication development. It also inadvertently utilizes comparable strategies to IBI therapy such as the extension or expansion of learned skills and the generalization of these skills to novel environments. The main difference between IBI and the Miller Method is that in the Miller-Method, this is all done through physical activity.

2.2.3 Embedded Curriculum

Similar to the Miller Method, Connolly’s (2008) Embedded Curriculum embraces a learner’s strengths or dominances in their movement repertoire, and uses these strengths to target the absences or delays. In this way the programming is always customized to the individual. The targeted delays or absences in the individuals' movement repertoire are determined based on specific developmental
motor milestones typically achieved within the first 12-15 months of an infant's life (see appendix E). For example, an infant typically is able to follow sound and motion at two months old, reach across the midline of the body at six months, hold a seated position independently at 10 months, and walk independently at 12-15 months (Connolly, 2008; Sherrill, 1998). The objective of the embedded curriculum is to create an environment in which the target milestone is embedded within various physical environments, and within various physical activities in which learners participate. For example, midline-crossing is inevitable when pulling on a rope with two hands (as in a game of ‘tug-of-war’). The embedded curriculum is constructed with inclusive activities and environments, and programming is done at a conceptual level rather than with an emphasis on discrete formal skills (Connolly, 2008).

Building a curriculum based on general over-arching movement principles allows for the opportunity to refine movement patterns based on individualized characteristics—overall expanding the movement repertoire and allowing the individual to engage in meaningful, purposeful movement more frequently (2008). Conceptually driven models of learning also allow for better generalization and transfer to other areas of the child’s life,

For example, the concept of “shape” is a deep concept which applies across many kinds of learning. If I understand the shape of my foot, then I can find the correct shape for my shoe; if I understand how “round” works, then I will be able to manage buttons and buttonholes, hats, cereal bowls, lids on jars and bottles, and so forth. If I understand up, down, right and left,
then I will realize that I have a top and bottom half to my body, as well as a left and a right side; I will understand stairs, elevators, high and low, tall and short; I will cross the mid-line of my body, making more complex neurological processing possible. These kinds of learning transfers do not occur when I learn in a context of disconnected, arbitrary or unrelated skills and activities. (Connolly, 2008, p.240-241)

The core of the curriculum is comprised of several component parts: environment, content and process, and instructional strategies (Connolly, 2008). The curriculum environment is structured and predictable; low in excess stimulation but requiring maximal involvement of the body. Thick absorptive and unstable surfaces are used to encourage sustained foot contact with the floor, reduce speed, force continual loss and regain of balance, reduce toe-walking, and stimulate both the kinaesthetic and vestibular systems simultaneously (2008). Dim lighting with few or no patterns on walls and floors, as well as heavy, non-bouncy objects (used for gross motor activity) help to reduce extraneous visual and verbal stimuli (2008). Typical activities include body awareness (core-distal relationships), spinal flexion/extension, pushing, pulling, lifting, dragging, carrying, midline-crossing, intense gross motor activities resulting in muscle fatigue, height/weight-transfers and balances. Connolly (2008) also emphasizes the importance of facilitation in her curriculum; supervision is constant and attentive, wherein all interventions and protocols are dignified and safe. A low teacher-learner ratio (1:1 or 2:1 when
required) is essential in this population. Facilitators ensure that learning occurs across all dimensions: physical, cognitive, social and emotional (2008).

The embedded curriculum (Connolly, 2008) is based on Laban’s movement concepts, summarized in appendix F (Stanley, 1969). Rudolf von Laban (1879-1958) is considered the most influential pioneer in the field of movement education. As an Austro-Hungarian dancer, choreographer and movement theorist, Laban developed a system of thematic analysis to observe and describe human movement (Connolly, 2008; Hodgson, 2001; Stanley, 1969). Laban’s thematic movement notation system is invaluable to this type of curriculum creation because it provides not only a framework for observing, describing, and preserving movement, but also “a logic for therapeutic, and/or pedagogic intervention,” (Connolly, 2008, p. 246). The Laban movement principles provide an important framework not only for professionals involved in physical education or movement interventions, but offer a valuable point of reference to all practitioners who work with children with invisible disabilities in physical environments. A specific section in the professional development curriculum created for the expert evaluations is dedicated to a comprehensive explanation of these movement concepts. Regardless of whether or not they have education or experience in movement education, physical education or the like, the Laban movement concepts are an accessible means for related practitioners to understand the capacity of the human body for movement.
2.2.4 **IEP/IPP**

An IEP (Individualized Education Program) is a written statement for each child with a disability in the school system, which details the child's present performance level, annual performance goals, services to be provided, dates and duration of programs implemented and evaluation criteria to determine if objectives are being achieved (Sherrill, 1998). Organizations which provide intervention or instruction outside the school system create the same type of document called an IPP (Individualized Program Plan). It details such aspects of the intervention as the programs to be delivered and program objectives, dates and duration of service, periodic assessments and so on. The IEP/IPP can be developed in any meeting held between the educational institution/service agency, the teacher, the parents/guardian of the child and wherever possible the child her/himself. The general purpose of the IEP is to document the collective decision made as to the placement of the individual, and the continued progress of the individual in various aspects of the IEP curriculum (1998). IEPs operate on the principle of a *least restrictive environment* (1998), where the learner's abilities and needs are matched to a specific environment—setting, resources, or equipment, etc.—so that the learner has the highest chance of success at a particular task. According to Lee-Tarver (2006), the IEP should be seen as both a product and a process—the product is child centered, whereas the process is centered on the collaboration between teacher, administrator and parent.

Problems with the IEP in the past have been as a result of the concentration of the efforts on the product rather than the process (i.e. teacher/administration-
centered rather than learner-centered). In previous years, only special education teachers and specialists were involved in creating the IEPs for children with disabilities in their schools. However in more recent years, goals outlined in the IEPs are more closely aligned with goals for students without disabilities, and the push towards inclusive classroom instruction versus segregated special education classrooms requires the active involvement of regular education teachers in the IEP process (Huefner, 2000; Cook & Schirmer, 2003). By law, the IEP must encompass physical education. This usually tends to include the type of physical education instruction that is needed, (i.e. regular, adapted or some combination of both), and a description of psychomotor performance and movement skills (Sherrill, 1998).

Lee-Tarver's (2006) survey of regular education teachers' perception of the usefulness of the IEP as a tool for teaching students with disabilities in regular classroom settings describes the attitudes towards inclusion of students with disabilities as impediments to adequate inclusionary practices. Until more recently, teachers have been found to be unwilling to accept a child with a disability into the regular classroom (Lee-Tarver, 2006). Factors contributing to these negative attitudes included teacher experience, gender, experience with children with disabilities, and whether the teacher had taught special education (2006). Obstacles to effective instruction of students with disabilities in regular education settings are deficits in regular education teachers' skill levels, time available for instructional planning and difficulty implementing individualized and/or small group instruction within a large group (Schulte, Osborne, & Erchul, 1998).
Huefner (2000) brings attention to the lack of financial incentives and decreased funding for special education programs, and the lack of required time for additional training and outreach for special and regular education teachers. Overall Lee-Traver's (2006) survey found that regular education teachers found IEPs useful tools in planning and implementing educational goals and objectives for children with disabilities within their classes, and found that these regular education teachers played a definite role in the creation of the IEP. Lee Tarver (2006) also clearly indicated that more training is needed for regular education teacher on the purpose, development and implementation of an IEP. Physical education is only one avenue of development through which this can take place. “It is essential that teachers are provided training and support that would facilitate the acquisition of skills in order to provide services for children with different categories or types of disabilities,” (Lee-Tarver, 1998, p. 271).

2.3 Curriculum Resource Material

2.3.1 ETA

The Ecological Task Analysis (ETA) is another current strategy used in adapted physical activity in the school system. ETA is an approach to movement and physical education instruction that involves analyzing a series of relationships that exist among task goal, learner and environment in holistic functional terms rather than focusing solely on the biomechanics of separate moving parts (Sherrill, 1998). The premise of the ETA is that both assessment and instruction should center on
critical thinking about relationships instead of traditional developmental task analysis procedures that assume orderly, sequential learning progressions (1998). For example changing the size of the ball used to throw to a target or distance the child stands from the target rather than changing the characteristics of the skill itself.

The benefits of using the ETA approach are that it allows the educator or therapist to emphasize individualization of activities to each of the students with whom they work, and also the ETA approach can be implemented in every aspect of teaching: planning, implementing, modifying, and evaluating programs and lessons (Sherrill, 1998). Potential problems with using the ETA approach again reside in the fact that teachers, educators and therapists are not equipped with the necessary skills of being able to analyze and break down movement tasks to be able to use the ETA to their greatest advantage and to the greatest advantage of their learners.

2.3.2 Principles for Managing the Environment

The ETA places an emphasis on the relationship between the learner and the environment in relation to the task he or she is being required to perform. Educators and professionals should have the skills to manipulate and modify conditions in the environment in order to create an atmosphere in which there is the highest probability that meaningful learning will occur. Specific organizational strategies can assist in this process—principles for managing environment (Sherrill, 1998)—which both the Miller method (Cook, 2001) and the embedded curriculum (Connolly, 2008) employ. According to Sherrill (1998): “establishment of a highly structured program, reduction of environmental space, elimination of irrelevant auditory and
visual stimuli, and enhancement of the stimulus value of the instructional materials,” (p. 517) are necessary to engage persons with disabilities in safe and purposeful physical activity participation.

2.3.3 Least Restrictive Environment

Similar to many of the current approaches to managing and teaching children with disabilities, a professional development curriculum must teach practitioners to employ a least restrictive environment (LRE) as is mentioned in the IEP process. LRE requires that the individuals’ abilities are matched with appropriate services and/or resources, and that their freedom and dignity are preserved to the greatest extent possible (Sherrill, 1998). A continuum of interventions must be available for various areas of skill development (i.e. across all learning domains), and the placements must be based on comprehensive assessment and collaborative decision-making by all parties involved in creating the IEP (1998). With school placements and IEP’s for example, the weakness in using the LRE concept is that many times this continuum is not created for physical education—learners are placed in either adapted physical education classes or in integrated regular PE classes, which does not provide enough options for matching students with disabilities with appropriate services. Educators and service providers need to be equipped with the skills to provide a continuum of modifications and adaptations based on the learners’ abilities in all subject matter, but especially in physical education and physical activity.

Several of the interventions and strategies discussed in the sections above (the Miller Method, Embedded Curriculum, ETA, LRE) are based in observation and
analysis of the body, breaking down movement tasks and motor skills into their component parts, creating progressions and modifying tasks and activities based on environmental and contextual factors. All of these skills are valuable in managing movement, however the professionals that employ these methods have inadequate training in order to be able to utilize them effectively.

2.3.4 Curriculum and Physical Education

Gallahue (1993) outlines four phases of motor development in which motor learning occurs during the first 10 years of a child’s life. The reflexive phase is the first of four stages and occurs up until the age of one. Between year one and year two, called the rudimentary movement phase, is when voluntary forms of locomotion, stability and manipulation occur (walking, hopping, jumping and prehension—grasping and reaching). The fundamental movement phase (age 2-7 years) is a period of critical importance to educators and therapists. This is where general skill patterns (e.g. throwing, catching, kicking, striking, jumping, and collecting) are learned and provide the foundation for later development of sport-specific skills. Age seven years and older is when learners begin to apply fundamental movement patterns in more complex and specific form (Gallahue, 1993).

Understanding these phases is valuable to curriculum development and programming for persons with disabilities as much of the concentration of skill development will be in the rudimentary and fundamental movement stages, even if the learner is over the age of seven. As previously outlined, many children with invisible disabilities have extremely delayed or underdeveloped fundamental
movement patterns and may not have achieved rudimentary movement skills, for example varied types of pathways of locomotion. It is important for practitioners and service providers to be aware of the level of skill development their learners are at, and to know the physical, cognitive and affective characteristics of learners when selecting activities (Rink, 1985). In addition, when teaching motor skills practitioners need to recognize which learning modes are essential to the successful performance of a skill for both the presentation of tasks as well as giving feedback (Rink, 1985). This relates to some of the previously mentioned strategies for modification and adaptation of the task and the environment.

Physical education in schools (and physical activity in therapy environments as well) is expensive in terms of facilities, equipment and personnel. In addition, the quality of physical education opportunities at the secondary school level is poor, and there are more opportunities nowadays to participate in organized physical activity outside of school than in past years; all leading to poor PE programs and fundamental problems at the curricular level (Gallahue, 1993; Rink, 1985). An obvious potential for disaster exists when compounding these problems on top of inexperience and lack of skills either with movement (such as with therapists and agency staff), or with disabilities (such as with educators). Quality physical education at all levels is needed before quality physical education for persons with disabilities can be a reasonable goal.

The task of developing goal-oriented, developmentally appropriate physical activity for persons with disabilities thus becomes extremely difficult for some professionals to accomplish. A curriculum provides a long term plan for learner
outcomes and is integrally related to instruction. They can be a valuable tool for programming in any physical activity or physical education setting however more curriculum education needs to be incorporated into teacher preparation and service provision training programs (Rink, 1985).

2.4 Adapted Physical Activity & Physical Education

Several key pieces of legislation throughout the latter part of the 20th century were key contributors to the current state of adapted physical activity programs and PE classes in schools and other service avenues. Probably the most significant of which was IDEA (the Individuals with Disabilities Education Act), which was originally passed in 1970 and has been updated every 3-5 years since then (Sherrill, 1998). It defines “special education” as specifically designed instruction, at no extra cost, to meet the unique needs of the individual with the disability; including instruction in the classroom, home, hospital, or institutional environments, as well as “instruction in physical education,” (1998, p. 84). Interestingly enough, physical education is the only school subject mentioned specifically in the definition, and yet this is the area in which professional development and training are the most needed. There is no specific definition for “adapted physical education” in the legislature.

2.4.1 The Social Model of Disability

The lack of physical activity in persons with any disability can be explained to some extent by the Social Model of Disability, (Pan & Frey, 2006; Shakespeare, 2006). According to this approach, adopted originally during the disability
movement in Britain in 1983 by Mike Oliver (Shakespeare, 2006), “disability” is created entirely by society through social oppression, cultural discourse, and environmental barriers. This model distinguishes the idea of ‘disability’ (social exclusion) from the idea of ‘impairment,’ (physical limitation); the former is structural and public while the latter is individual and private (Shakespeare, 2006). The premise this model implies is that people are disabled by the structure and organization of society, which in the case of physical activity, is often the case. Physical activity opportunities for individuals with disabilities are more affected by social constraints than by the actual impairments of the individuals themselves (Pan, 2008; Pan & Frey, 2006). Theoretical approaches used to examine physical activity in the disability population are based on social-cognitive models that operate on an assumption of reciprocity between individual and environment (Pan, 2008; Pan & Frey, 2006). Individuals with ASD for example, don’t exhibit the same sensory perception and awareness of environment as typically developing children, nor do they have access to or ability to choose various options for physical activity involvement. Non-negotiable structural and architectural barriers prevent such a relationship from existing for those with physical disabilities, and persons with LD or intellectual delay often require an agent or care-giver to negotiate this relationship for them. Therefore, if individuals with disabilities are not able to understand, interpret and interact appropriately in their environment, they will not be able to overcome any inherent barriers to healthy and inclusive physical activity participation.

Wendell (1996) also supports the position that social factors construct disability; she refers to it as “the pace of life,” (p. 37). According to Wendell (1996),
the pace of life—that is the mechanistic, productivity-driven standards of living that are commonplace in modern western society—impacts the social construction of disability through expectations of performance. These expectations are assumed in both the physical structure and the social organization of our society, and thus are reflected in the pedagogic and therapeutic practices of professionals in the field. The structure and organization of society are undoubtedly contributory factors to the construction of disability, but perhaps even more to blame is the way the idea of normalcy is constructed and adhered to. Norms are measured in almost every aspect of contemporary society and thus to understand the disabled body, one compares it to the ‘normal’ body (Davis, 2006). This relates back to Wendell’s (1996) notion of the ‘paradigm citizen,’ and how those who don’t measure up to this unrealistic ideal are excluded from participating in various aspects of society. The “problem” however is not solely the person with the disability, nor can it be entirely blamed on the way society is structured and organized. In actual practice it is the interaction of individual bodies as well as social environments which produces disability. The real problem is the way that normalcy is constructed in society to create this “problem” of the disabled person (Davis, 2006).

The effects of the social model of disability are evident in many practical arenas within our society. For example in the education system, skills required to teach adapted physical activity and manage children with social and behavioural difficulties are absent from teacher preparation programs (Collier & Reid, 2003). Children with disabilities are often taught physical education by special education teachers and educational assistants who are not qualified (Pan & Frey, 2006), and
there are no instructional methods or appropriate guidelines for programming (Todd & Reid, 2006). Data and published studies addressing this need for physical activity interventions in this population are lacking (Pan & Frey, 2006; Rosser-Sandt & Frey, 2005; Todd & Reid, 2006). It is important to bring awareness to such deficiencies through critical research and address how to institute positive change.

The well-documented benefits of physical activity to persons with disabilities include reduced risk of co-existing diseases or conditions, decreased compensatory movement patterns for persons with motor deficiencies, improved motor coordination and muscular development, increased self-esteem, independence and efficiency in performance of ADL, and ideally an improved quality of life overall (Pan & Frey, 2006). Yet previous research exploring PA in children with various disabilities indicates that youth with disabilities are essentially inactive compared to their typically developing peers (2006). In addition to the innumerable amount of studies which compare the disabled and non-disabled populations, the disability population has been further categorized into high-functioning and low-functioning populations (most disabilities have a range in severity from high functioning to low functioning). Children who are diagnosed as low functioning such as those with multiple co-existing conditions or severe behavioural problems requiring formal interventions are often excluded from the literature (Pan, 2008; Rosser-Sandt & Frey, 2005). Qualitative accounts in the literature have relied frequently on parental reports, and/or experiences of service providers. It is evident these are the primary individuals responsible for promotion and implementation of PA programming in this population, and therefore it is necessary to provide these individuals with the
tools they need to successfully develop, implement, modify and evaluate PA programs for children with disabilities.

2.4.2 The Hidden Curriculum

The very nature of how disability is often regarded in our society—as a deviance from tacit ‘norms’ and/or an exclusion of some of its members by the way society is physically structured and organized—means that inherent within our own actions and interactions with each other are implicit intellectual and cultural values and beliefs that reproduce these ideals. The practice of teaching physical education is no exception to these principles. Bain (1990) refers to the ‘codes’ which guide standards of practice in institutions as the hidden curriculum in physical education. Although the concept of the hidden curriculum has been used extensively in educational literature since the early 1970’s to refer to ‘what is taught to students by the institutional regularities, by the routines and rituals of teacher/student lives’ (Weis, 1982, p.3 in Bain, 1990), three more specific themes emerge from an analysis of how the hidden curriculum operates specifically in physical education: meritocracy, technocentric ideology, and construction of social relations.

Meritocracy is a system of organization within a society based on demonstrated talent and ability. Under this principle society rewards those who show competence and adherence; i.e. merit is given to those who perform well and achieve success. Physical education programs demonstrate a complex and sometimes contradictory picture of this meritocratic ideology in that teachers do not focus on student learning to achieve success, but rather direct their planning to provide for student enjoyment
and participation and avoid incidents of misbehaviour (Bain, 1990). This emphasis in PE programs is on order and control rather than achievement, producing children who are conforming, cooperative, orderly, and thus high-achieving. While high athletic performance is a valued commodity, only the elite athletic performers seem to be entitled to quality instructional programs, while the ‘ordinary’ students are assessed on participation, effort and enjoyment (1990). Students learn to fake these behaviours in order to be successful in programs that are merely designed to keep them ‘busy, happy, and good.’ Perhaps an important question to consider is whether or not this meritocratic approach is taking place in many of the current interventions and programs established for children with disabilities such as IBI and special education. Are these programs ultimately designed to produce busy, happy, good children (and consequently busy, happy, good adult citizens) or is real learning actually taking place?

The second theme within the hidden curriculum in physical education is technocentric ideology. Bain (1990) describes technocentric ideology as an ideology in which ends and goals are taken for granted and unexamined, and attention is focused on the development of increasingly efficient and effective means of achieving those goals. The emphasis in this type of technological society is on maximizing productivity and producing measurable outcomes; technocentric education tends to reproduce rather than challenge these existing social arrangements. The most direct impact of the technocentric ideology in physical education is seen in the areas of fitness and exercise. Because fitness provides an outcome that is easily defined and measured, it is often the central justification for physical education programs (as
opposed to play, exploratory movement, developmental motor milestones, games skills, and social interaction which are much more intrinsically important justifications for physical education programs).

The social construction of images of the body, and its capacity for function, are also reproduced and disseminated in technocentric physical education practices; the idea that the body is a machine, meant to be manipulated and exploited by humankind for the sake of performance or appearance. This has lead to an unquestioned adherence to and belief in Western science and medicine in an attempt to keep the body free of illness, disability and death (Wendell, 1996). This is what Wendell (1996) refers to as "the cognitive and social authority of medicine" (p.117). The cognitive authority that doctors in Western society have is the ability to have their descriptions of the world and beliefs taken seriously, while social authority refers to the positions of power they hold within institutions, the social status afforded to them and their professional and social connections (Wendell, 1996). Teachers and the education system, as well as service providers who work with individuals with disabilities often are regarded in the same way as doctors and other practitioners in the medical profession are. Their practices and professional philosophies are taken seriously and adopted by others within their fields or surrounding professions, and they are believed to be qualified and prepared to perform all aspects of their jobs (which in the case of movement programming and adapted physical activity, often they are not).

The third theme Bain (1990) addresses in her analysis of the hidden curriculum in physical education is the construction of social relations. Patterns of
interaction among students, or between teachers and students constitute social practices which may reproduce or challenge existing power relations (1990). Typically current social relations involve a hierarchical relationship in which the teacher maintains power over the students, and certain students are privileged over others. This is particularly true in physical education programs. Students who are more athletically inclined perform better in physical education classes than those who are not, and this elicits a more favourable relationship with the teacher. Similarly, students who are without disability will likely perform in physical education with less difficulty and require less accommodation and personal attention than those with a disability, thus privileging the able-bodied over persons with disabilities. The typical response to this has been to attempt to improve school physical education programmes and focus on improving teachers’ pedagogical skills or redesign the curriculum rather than addressing contextual constraints. Preparing these educators (and likewise other practitioners and service providers) to better adapt to and accommodate disability in their pre-service or in-service training will equip them with the skills to negate some of these contextual and social barriers to physical activity participation.

2.5 Postmodern Theory: Physical Education & Movement

Fernandez-Balboa (1997) speaks directly to the current state of the profession of human movement and physical education; that is one that is in a state of crisis, and struggling to free itself of the oppression of modernist theory. This comes as a
result of the dominant modernist political, economic and social ideologies of Western society—that is we are techno-centric, productivity-driven, and blindly adhere to and/or rely on 'authority' (Bain, 1990; Fernandez-Balboa, 1997; Wendell, 1996). Fernandez-Balboa protests that the human movement profession is not isolated from broader social, political and cultural influences, but is instead related to and affected by them. This in turn shapes the way we understand physical activity, exercise, movement education and our own sense of embodiment. Current professionals in the field of human movement, and what I expect to find—educators and service providers in the field of disability as well—are trained under the influence of modernist practice, yet it has failed to provide professionals with the skills needed to create educational or instructional environments that empower individuals to create meaningful lives and discredit the universal truth about what it means to have a “healthy,” “attractive,” “skilled” body (Bain, 1997, p. 189).

Education should be considered a contextual term; given different value and meaning depending on where and how it is used, and physical educators have the choice and moral responsibility to engage in critical pedagogy (Fernandez-Balboa, 1997). Physical educators need to move towards a “critical literacy” and away from “intellectual and corporeal literacies” (Fernandez-Balboa, 1997, p.123)—that is challenging and rejecting traditional knowledge that implies that those who aren’t “literate” are those who do not fit the dominant ideology. Social critique and transformation are not inherently valued in teacher education programs or as curriculum content in training for service providers. A common theme in curriculum development in disability studies is the notion of student-centered learning. This is
the process whereby students take ownership of their own learning, offer more
critique of course content, and apply knowledge to personal, political and social
contexts. Learning then becomes an *emancipatory process* (Fernandez-Balboa, 1997);
the kind of learning process that should be applied to education and preparation of
practitioners in the field of disabilities. A great deal of theory-based literature
involving physical activity and curriculum focuses on the current structure and
quality of physical education teacher education (PETE) programs (Bain, 1990; 1997;
Capel & Blair, 2007; Fernandez-Balboa, 1997; Schwager, 1997). A major driving
force behind recent reforms in these programs in colleges and universities in North
America is the important relationship that exists between the quality of teacher
education and the quality of student learning that occurs in schools (Metzler &
school (or improving physical education experiences of persons with disabilities in
the schools), requires fundamental changes in university programs, especially in
teacher education. “The challenge for those committed to transformation and critical
theory is to build a curriculum that includes critical reflection as well as professional
skills,” (Bain, 1997 p.191). Thus the foundation for the proposed study: to provide an
opportunity to both explore and facilitate the skills needed for educators,
practitioners and therapists to actively engage in *reflection* as well as *action* in their
professional dealings with persons with disabilities.
3.1 Theoretical Perspective

Examining the current construction of professional development and preparation of those working with special populations in physical environments is a function of challenging current social norms and attitudes on disability. This represents a critical paradigm approach. A paradigm or worldview is “a basic set of beliefs that guide action” (Guba, 1990, p. 17). Crotty (1998) refers to this as the researcher’s “theoretical perspective” and explains that this is the “philosophical stance” (p. 3) that shapes and provides a context for the process, as well as a logical grounding for the significance of the study. The aim of inquiry from a critical theorist’s perspective is the “critique and transformation of the social, political, cultural, economic, ethnic, and gender structures that constrain and exploit humankind,” (Guba & Lincoln, 2004). While critical theory has been characterized as a “radical theory of cultural criticism that analyzes a number of social problems emerging from the Enlightenment” (Fernandez-Balboa, 1997, p. 6), it offers an alternative approach to understanding and interpreting the dominant ideologies behind modern social, cultural, political, and economic institutions and assumptions (Ingram & Simon-Ingram, 1991). Critical theorists essentially pose a challenge to the dominant groups in society, and attempt to erode some of the power they hold over others (Fernandez-Balboa, 1997). In the case of this study, the dominant groups are the ‘stakeholders’ in the institutions and agencies that these professionals work for;
the government who provides the funding to agencies to help children grow to become self-sufficient, productive citizens; the therapists who deliver the programs created by clinicians to help children learn skills that they determine are necessary and important; and the educators in the school system who help children pass as typical, and meet standards set out for them in curriculums created by people who often know very little of their conditions or capabilities. The “others” in this case are the children with disabilities in the school system, in therapy programs and other specialized environments that are often misrepresented, mistreated, and underserved by those whose role is to aide and encourage them.

I am also working under the influence of post-modern theory in my approach to this research. Modernism has dictated the dominant versions of political, economic, and social practices and power relationships in Western civilization for the last three centuries; and whereas modernism has projected standards of rationality, technocentricity, productivity and empirical-knowledge on society all in the name of progress, postmodernism breaks away from the unquestioned adherence to this empirical doctrine and allows new ways of social organization, cultural meanings and power relations to emerge (Fernandez-Balboa, 1997). Critical-postmodern theory utilizes knowledge as power (Foucault, 1980), and through constant internal self-interrogation, analyzes, deconstructs and reforms outdated or oppressive values.

My intention with this research is to examine the current structure of professional development among several professional cohorts who work in a context of disability and physical activity, and critique them in a theory-based discussion citing current post-modern literature on disability and physical education. By
highlighting existing barriers and constraints to expanding the knowledge and preparation of professionals in the field of disability, I will be able to draw connections to the current societal, political and professional norms and standards of practice that govern these service providers in their daily work settings. According to Guba & Lincoln (2004), and Willis (2007), useful and successful outcomes of critical research result in progress over time, and the emancipation of the marginalized individual or group. Professionals in the field of disabilities are in a direct position to provide such emancipatory knowledge to the populations of people they work with, and negate societal barriers to disability through intervention and duty of care. Yet as the literature has shown, many professionals working in all avenues among the special populations are expected to provide instruction and/or intervention in physical environments, yet are unprepared and unable to deliver adequate programming for movement and motor skill acquisition which is necessary to improve quality of life. This inquiry will allow me to determine whether or not the need for transformation of these norms exists, and where the responsibility falls for the emancipation of those involved.

3.2 Epistemology

An epistemology, or epistemological viewpoint, is a theory of knowledge that informs a researcher’s world view. In other words, it is a way of understanding and explaining “how we know what we know” (Crotty, 1998, p. 3). From a critical theory perspective, knowledge is both constructivist and subjectivist in nature (1998). A constructivist approach to knowledge means that what we as a society understand
and believe to be true has directly to do with meanings created within specific social contexts, and ‘knowledge’ exists in relation to socio-cultural norms and subjective (individual) socially-constructed ideals. For example, the traditional scientific method is based on an empirical epistemology; you can only come to know about the world through properly done experiments (Willis, 2007). Whereas a feminist epistemology may argue that much research (and consequently what has been deemed “knowledge”) in the social sciences has been conducted from a male perspective. As the epistemology informs the researcher’s approach to the world, and knowledge is situated in the experiences of the researcher, ‘knowledge’ may take on different meanings and importance when examined from a female vs. male perspective (2007). The same principle applies to knowledge about disability in our society. It will take on different meanings and importance depending on the perspective from which it is taken. Critical theorists believe that current social and political systems distort reality, and instil in individuals a false sense of consciousness that prevents them from seeing the real structure of society (Willis, 2007). The way disability is often regarded in our society, generally by the able-bodied population, is just one example of the detriment that this ‘false consciousness’ has inflicted.

Societal perceptions of disability enable the perpetuation of outdated norms to constrain the education of professionals and service providers in the field of disability. As a disability theorist, Susan Wendell (1996) pays careful attention to how disability is socially and culturally constructed. She makes constant reference to “the paradigm citizen;” that is, the young, healthy, white, Anglo-American, strong, able-bodied male ideal around which most of society is structured and organized
(Wendell, 1996). She points fingers directly at the large amount of disability that is caused by such things as physical architecture, and social expectations of performance and productivity:

Expectations of performance are reflected, because they are assumed, in the social organization and physical structure of a society, both of which create disability. Societies that are physically constructed and socially organized with the unacknowledged assumption that everyone is healthy, non-disabled, young but adult, shaped according to cultural ideals, and often, male, create a great deal of disability through sheer neglect of what most people need in order to participate fully in them. (Wendell, 1996, p. 39)

As a modern Western society we not only perpetuate unrealistic expectations of performance, but also unhealthy standards of appearance and function. This encourages the continued control and abuse of the human body—what Wendell (1996) refers to as the "myth of control," (p.9). She recognizes that we as a society believe it is possible through our own actions and choices to have the bodies we want and to avoid illness, disability and death. Attempting to control and perfect our bodies only leads to rejection, shame and stigma when we fall short of the ideal. Disability is defined therefore within specific societies, and by individuals within social contexts. Wendell’s (1996) perspective on disability is a perfect example of an epistemological perspective which would indulge a critical world view. The
researcher's epistemological perspective and world view in turn inform assumptions and choices regarding methods and procedures (Crotty, 1998).

3.3 Case Study Methodology

The nature and focus of critical theory research is ideological rather than methodological, and therefore research in this paradigm is not limited to a narrow range of formally structured methods (Willis, 2007). The reason for this, as most critical researchers will acknowledge, is that the entire research process from the selection of research topic, to collection and interpretation of data is according to Willis (2007) "...not a value-free activity" (p. 86). This means that each step in the research process is informed and to an extent influenced by the values and assumptions of the researcher; hence the reason I felt it pertinent to disclose my academic background and professional experiences in the introductory chapter of this paper.

Societal values and assumptions in general, not only my own, present an imperative to consider within this research problem. As a variety of contextual factors are likely to contribute to something such as the professional development of service providers in disability, and because a critical-postmodern approach to analysis relies heavily on the critique of these contextual customs, a case study design was the most appropriate methodological choice for this research. Case studies provide several advantages which are useful to critical research (Willis, 2007. p. 240):
1. It allows the researcher to gather rich, descriptive data in an authentic setting.

2. It is holistic and thus supports the idea that much of what we can know about human behaviour is best understood as lived experience in the social context.

3. Unlike experimental research, it can be done without predetermined hypotheses and goals.

Case studies are representative examples of the occurrence of a particular research problem within a group, setting, culture or other larger context. According to Willis (2007), a case study is “an examination of a specific phenomenon such as a program, an event, a person, a process, an institution, or a social group” (p. 238). As Creswell (2007) describes, “…case study research involves the study of an issue explored through one or more cases within a bounded system,” (p. 73). Researchers explore specific ‘bounded cases’ over a designated period of time, and often incorporate the use of multiple different sources of information (e.g. observations, interviews, audiovisual material and documentary analysis) to create a description of a case (a program, event, activity, individual or group of individuals) which exemplifies their research problem (2007). Different types of case studies are suited to different investigative contexts dependent on the size of the case (one individual or several), and also on the intent of the case analysis (2007). A collective case study design was chosen for this research study in which multiple cases (an expert evaluation of a curriculum document) will be used to illustrate different aspects of the research.
problem, and amalgamated to gain a contextual understanding of how the cases form the ‘whole.’

A case study design was the best methodological choice for this study because it is bounded by time (approximately a month-long data collection period) and place (specifically cases in York and Niagara regions of Ontario, Canada), and because it is necessary to examine and give appropriate weight to contextual factors within the analysis given the sociological and pedagogical nature of the research questions. Case study research best answers the “how” and “why” types of research questions over which the researcher has no control (Yin, 1994). According to Yin’s (1994) rubric comparison of single vs. multiple case study designs (appendix G), this is a type-three (multiple-holistic) case study design, as it involves the use of multiple cases, but only one unit of analysis—the experts’ evaluation of the movement curriculum.

In order to create the multiple-holistic case design, a curricular module in movement education and adapted physical activity was created to be evaluated by a panel of experts from different cohorts of professionals working with individuals with invisible disabilities in physical environments. The curricular module is comprised of a range of subject material from different areas of physical education, motor development, and disability studies, and is designed to represent a potential professional development (PD) opportunity. The intent of the expert evaluation employed in the methodology of this study, is to gain valuable feedback about the functionality and feasibility of the potential three-day (24 hour) PD workshop, which is intended to augment the training and qualifications of these various service
providers through theoretical content and practical-application based activities. The expert evaluation is the fundamental methodological component in the design of this study.

3.4 Formative Evaluation

This type of research methodology, evaluation research (Patton, 1990) can generally take on one of two forms: summative evaluation or formative evaluation (Herman et al., 1987). Summative evaluations render judgement on a particular program, policy or product to determine whether or not the idea itself is or is not effective (Patton, 1990). The purpose of summative evaluations is ultimately to appraise specific programs, policies, and products “in order to generalize about the effectiveness of the human action under investigation,” (Patton, 1990, p. 155).

Researchers who utilize summative evaluations typically seek to generalize findings to any future programs, policies, or products with similar goals and potentially across different contexts (1990). Formative evaluation however is limited entirely to a focus on a specific context (1990). “Formative evaluation serves the purpose of improving a specific program, policy, group of staff (in a personnel evaluation), or product. Formative evaluations aim at ‘forming’ the thing being studied,” (1990, p. 156). The aim of this study is precisely that, to form a functional and feasible professional development opportunity focused in movement education and adapted physical activity programming for educators and service providers working with individuals with invisible disabilities in physical environments. Formative evaluators seek to
improve human endeavours (Patton, 1990). While there are many 'human
dependours' involved in the interaction between individuals with disabilities and
persons in positions of authority in our society, the human endeavour I sought to
improve through this research is specifically the ability of service providers and
educators to provide meaningful movement and physical activity intervention. In
other words, formative evaluation does not seek to generalize at all beyond the
specific intervention being studied. “The purpose of formative evaluation is to
improve human intervention within a specific set of activities at a specific time for a
specific group of people,” (Patton, 1990, 156). In the case of this study findings are
only intended to apply to the professionals represented by the experts performing the
evaluations, (IBI instructor therapists, educational assistants and educators). Case
studies or ‘cases’ (i.e. the individual expert evaluations) are used frequently in
formative evaluation research which typically uses only qualitative methods (1990).

Evaluation research is a form of applied research; the purpose of which is to
understand the nature and sources of human and societal problems (Patton, 1990).
Although it may involve varied contextual comparison (such as the cross-case
analysis between expert evaluations in this study), applied researchers seek more
limited generalizations; typically limited to a specific time, place, and condition
(1990). Evaluation research of this nature can be conducted on virtually any explicit
attempt to solve problems or bring about planned change, (1990). While the direct
findings of the study are not intended to emancipate the clients and persons these
professionals are working with, they will provide an opportunity for improvements in
the day to day provision of physical activity programs for persons with disabilities. The potential exists for further development and change in this area to occur.

3.5 Study Design

This study was carried out in three distinct phases. Phase one (pre-data collection), consisted of the creation of the curricular module. The content of the curriculum is comprised of three different information modules: the first focuses on early developmental motor milestones and Laban movement concepts; the second on sensorimotor integration, perceptual motor learning and movement deficits experienced by individuals with invisible disabilities; the third on observing and analyzing movement, planning activity stations, instructional strategies and principles for managing the environment. The three content modules, together with a fourth section which outlines the intended practicum (workshop) experience, formed the complete curriculum document (appendix H). In the second phase of the study (data collection), the curriculum document was evaluated by an expert panel of educators and practitioners across three different professional cohorts. Their subsequent evaluation was subjected to a critical comparative and theoretical examination in the third and final phase of the study (data analysis).

3.5.1 Phase 1: Pre-Data Collection

The creation of the curricular module involved an extensive evaluation and synthesis of current literature on several topics pertaining to movement education, human motor development and physical activity. Each of the three information
modules in the curriculum represents a subject area in need of development and further understanding among these professional cohorts.

The first section of the curriculum document is comprised of two information modules. The first, entitled “Understanding Movement,” provides a detailed explanation of motor milestones and the beginnings of human movement, as well as the three movement categories (stability, locomotion and manipulation). The second information module on “Laban Movement Concepts” is perhaps the most integral piece of the curriculum for providing a new and intricate understanding of movement and the capabilities of the human body. Using Stanley’s (1969) summarization as the primary resource, each Laban movement concept—body awareness, space awareness, effort, and relationships—was broken down in detail with movement examples provided to assist in the explanation of each. Understanding the ways in which the body is capable of moving is the first step in understanding the impact of movement education and physical activity on individuals with movement deficits (i.e. the population of individuals with invisible disabilities with whom these professionals work).

The second section of the curriculum, entitled “Motor Learning and Movement in Invisible Disabilities,” is the heaviest in terms of theory and academic content. The first information module in this section provides definitions of several key concepts necessary to understanding how movement manifests into action: sensation, perception, sensorimotor integration, perceptual motor learning, and praxis (movement planning and initiation). This section also identifies many of the sensory and motor deficits present in individuals with invisible disabilities, such as
visual, tactile and auditory perception problems, ataxia (generalized motor clumsiness) and muscle imbalances as well as some of the affective and behavioural issues these professionals may encounter in this population. The second information module provides two exemplar disabilities (Autism Spectrum Disorder and Learning Disabilities) and depicts the typical motor repertoires of individuals with these disorders.

The third information section of the curriculum, which is titled "Movement Programming," is the practical application component of the curriculum needed to complement the previous two sections. Module 3.1 on "Observation and Movement Analysis," is intended to teach the professional to accurately and critically observe children in physical environments. Charted descriptions of the three developmental domains (physical, cognitive and affective) are included to help the professional identify specific components of movement behaviour as they observe it and to be able to understand the concept of whole-child development (healthy development occurs in all three domains and thus it is important to incorporate aspects of learning in all domains into programming). A detailed description of movement profiling (Connolly, 2008) is provided with the intention of assisting professionals to better observe movement and break it down into its component parts. A template for implementation is included to provide a resource for practical transfer to their work environments. The second information module in this section, "Task Planning," explains the difference between closed and open tasks, and how to plan, refine, extend and modify developmentally appropriate tasks and use instructional strategies targeted to the needs of the individuals they're working with. Finally, "Station
Planning,” provides helpful instructions for planning activity stations and principles for modifying and managing the variables in the environment to ensure active learning occurs.

The fourth section of the curriculum document is organizational in nature, rather than information based. It provides a potential schedule break-down for each of the three days of the workshop practicum (i.e. how this curriculum can be taught in a workshop setting), and includes a detailed sample of activities and sessions using the third day of the workshop as an example. It was important to include this section in the curriculum document so that the professionals could envision if and how this workshop would fit within their current professional development directive, and whether or not it addresses their needs in this area. The pre-data collection phase of this study also included recruiting the sample of participants.

3.5.2 Sample

Purposeful criterion sampling (appendix I) was employed to select the participants for the study; several experts across three different professional cohorts in the field of disabilities. The selected experts work within instructional, therapeutic or programming environments with children and/or adolescents with invisible disabilities (among others), and are in a position to comment on the functionality and feasibility of a theoretical and activity-based curricular module embedded in professional training requirements in service agencies and teacher preparation programs. The expert participants hold positions of authority within their agencies or institutions and have ample knowledge in curriculum development and extensive
practical experience working with persons with disabilities in a variety of contexts.

Table 3.1 provides a summary of the sample demographic characteristics.

**Table 3.1 Sample Demographic Characteristics**

<table>
<thead>
<tr>
<th>Expert</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td>Female</td>
<td>Female</td>
<td>Female</td>
<td>Female</td>
</tr>
<tr>
<td><strong>Geographic Region</strong></td>
<td>York Region</td>
<td>Niagara Region</td>
<td>Niagara Region</td>
<td>Niagara Region</td>
</tr>
<tr>
<td><strong>Professional Cohort</strong></td>
<td>IBI Therapists</td>
<td>Educational Assistants</td>
<td>Educators</td>
<td>Educators</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Special. Ed. Teachers</td>
<td>Teacher</td>
<td>Education</td>
</tr>
</tbody>
</table>

A sample size of four experts was used as these four particular professionals were selected because they offered the best 'real life' manifestations and most useful insights of the phenomenon under study (Patton, 2002). Each expert participant (and consequently their feedback and response to the curriculum) is considered a 'case' in this study. More than three cases were needed in order to obtain adequate data to allow for sufficient cross-case analysis (each expert evaluation is considered an individual case), but a maximum of five cases would also limit the number of professionals from the same context and professional cohort to avoid redundancy in responses to the curriculum. Although it may be worth noting that all expert participants are female, age and gender were not considered influential factors on the outcome or findings. The reason for this is that the majority of professionals who work and teach in the field of disability studies are typically female. As the researcher, I was acquainted with only one of the four expert participants prior to
requesting their participation in the study (Expert #1). The nature of this relationship was strictly professional; she is a former employer and superior with whom there had been no contact for the two years immediately preceding the start of the study. Contact between myself and this individual was re-established specifically for the purpose of recruiting this expert as a participant.

During the pre-data collection phase, email contact was established with all expert participants. The initial email was sent prior to completion of the curricular module to introduce the expert participants to the researcher, to explain the nature of the study and to request their volunteer participation. Email responses were received from all four expert participants agreeing to participate in the study. Follow up emails were sent within several weeks to confirm their continued participation, to explain the expectations of their participation and to establish a time-line that was agreeable between the researcher and all participants that did not interfere with any previous obligations, or personal or work commitments.

3.5.3 Phase 2: Data Collection

The study took place across two separate geographical regions in the province of Ontario; York Region in south-central Ontario, and Niagara Region in southern Ontario. These regions in Ontario were specifically chosen both because of proximity and familiarity to the researcher and convenience for purposeful sampling; three of the expert participants work and reside in the Niagara Region, while the other expert participant works in York Region and resides in a neighbouring region between Niagara and York. The second phase of the study (data collection period) officially
began with the experts' receipt of the completed curriculum document on which they
performed their evaluations. The completed curriculum document was hand-
delivered by the researcher to each expert who worked in Niagara Region (at their
place of employment) on the mutually agreed-upon deadline. Each curriculum
document was colour-printed, stapled and packaged in an 8 ½" x 11" brown
envelope addressed with the expert's first and last name. The top page of the package
was a letter addressed to the experts explaining the purpose and rationale for the
study (appendix J) followed by a list of instructions for performing their evaluations
(appendix K) and a list of questions which corresponded to each section of the
curriculum document (appendix L). An identical package was mailed to the home
residence of the expert residing outside of York Region.

The experts' written feedback and critique of the curriculum document is the
primary source of data collection in this study. This includes both their responses to
specific questions pertaining to the different sections of the curriculum as well as any
written commentary or notes made throughout the curriculum document itself. As
outlined in the given instructions, experts were permitted to handwrite or type their
responses to questions, and in as much detail as they felt was necessary to adequately
answer all parts of the question. Experts were provided with a generic notebook of 8
½ x 11" ruled pages should they have wished to hand write their evaluations. The
completed evaluations (the hardcopy of the curriculum document as well the
notebook and any additional typewritten or handwritten pages containing evaluation
responses) were returned to the researcher for data analysis. Data collection spanned
a seven-week time period, from the day on which all curriculum documents were
delivered to the experts until the final day on which all complete curriculum evaluations were received by the researcher.

3.5.4 Ethical Considerations

As there were no invasive or obtrusive procedures involved, research ethics approval was not formally required for the execution of this study. However there are still several ethical considerations involved. While the expert participants may be well known in their professional communities, and among their colleagues both for their work with children with disabilities and for their role in professional development within their agencies and institutions, it was important to offer them the option of anonymity and confidentiality with regards to their participation in this study. In order to remain consistent and preserve the privacy and integrity of all participants, each expert was assigned a numerical value (1 through 4) and referred to as such consistently throughout all remaining activities in this study, including the reporting and discussing the findings in this paper. In the closing section of the letter to the experts which accompanied the curriculum document in their package, there is an opportunity to give their permission for the researcher to acknowledge them in the final published thesis as contributors to this study. Names of the expert participants who wished to be recognized for their contributions appear in the acknowledgements however I do not deliberately disclose the names of the experts in connection with their specific numerical evaluation. The name of the one expert who indicated that they wished to remain anonymous does not appear anywhere associated with this study.
By providing this letter to all expert participants I was not only able to disclose the rationale for conducting this study, but also my personal position on the subject matter of this research. It is important to disclose my influences and biases as a researcher because the nature of critical research incorporates the researchers point of view in all aspects from the creation and methodology of the study to the analysis and discussion of findings (Patton, 1990): “...qualitative inquiry depends, at every stage, on the skills, training, insights, and capabilities of the researcher...the human factor is the great strength and the fundamental weakness of qualitative inquiry...” (1990, p. 372). By being transparent with regards to my predisposition and announcing from the outset the fundamental assumption on which I’ve based this inquiry, I removed any coercive motivations and allowed the expert participants the opportunity to form their own opinions and determine their own position on the matter. In doing so, the personal reflections and opinions of the expert participants will likely influence their responses to the curriculum document and thus add contextual significance to the data. Depending upon the personal experiences, education, and professional environments of the experts, they may or may not have viewed this research problem as one of tremendous social and political relevance. By situating this problem as one caused by the structure and organization of training within their agencies and institutions, I hoped to place it higher up on their ‘hierarchy’ if you will. I would be remiss if I did not also reveal the ultimate intention of this research endeavour, and that is to bring awareness to the current state of crisis surrounding current interventions and educational programming for individuals with disabilities in physical environments. If I demonstrated to the expert participants that
this problem is one crucially in need of attention and inadvertently persuaded them to give more serious thought and consideration to their responses to the movement curriculum than they would have otherwise, I can't say this was not valuable in the generation of the findings of this study. As stated by Patton (1990), this “human factor” infused in all qualitative inquiry can also by a fundamental weakness of any critical research study. More will be discussed on limitations and researcher bias in chapter 5.

3.5.5 Phase 3: Data Analysis

Focus in the analysis of qualitative data comes from the evaluation research questions generated at the very beginning of the inquiry process, during the conception of the study (Patton, 1990). The purpose of analysis in this study is thus two-fold:

1. To determine both shared and indigenous professional development needs of the different cohorts working with individuals with invisible disabilities;

2. To identify assumptions, constraints and resistances to training and professional development regarding human movement interventions.

While these are ultimately two clear and distinct objectives to accomplish through the analysis of data in this study, the analysis process takes place in several different ‘layers’ (Creswell, 1998) and on each level involved both literal and interpretive readings of the experts’ curriculum evaluations. The first ‘layer’ is a content analysis of each expert’s curriculum evaluation by question, followed by a cross-case categorical analysis of each evaluation in comparison to the others, and finally a
thematic analysis of the patterns that arose from the first two levels of analysis. According to Creswell (1998), case study design is particularly conducive to this type of "layered" (p.36) analysis in addition to the broader implications of the meaning of the case. A schematic representation of the layered analysis process employed in this study is depicted in appendix M and may be helpful to refer to throughout the following description of the analysis process.

At the first layer, a within-case content analysis (Yin, 1989) by question was conducted on the data from each individual case. Content analysis or embedded analysis (Creswell, 1998) is the process of identifying, coding, and categorizing the primary patterns in the data (Patton, 1990). As the expert evaluations were returned either in an electronic document via email or hand-written directly on the question pages or notebook pages provided, the content analysis began by first transcribing the evaluations into identically formatted Microsoft Word® documents (appendix N). Extraneous (non-specific or repetitious) commentary was filtered and parts of the written answers that directly responded to any of the corresponding questions were then summarized into tables; e.g.) tables 3.2 through 3.6 summarize the curriculum evaluation responses from Expert #1 (appendix O-1).
Table 3.2 **Expert Evaluation Summary-Module I Questions**

<table>
<thead>
<tr>
<th>Module 1</th>
<th>Question 1</th>
<th>Clarity and Coherence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>“material was well presented”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“well defined terminology”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“complex”…. “not rudimentary”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>added depth to current understanding of developmental milestones</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question 2</th>
<th>Amount of Material</th>
<th>“manageable amount of material”</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>“definitions though seem obvious are necessary for an appropriate background and understanding”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“definitions are long”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“material is “dry””</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“are all definitions truly necessary?”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I easily understand without feeling ill-equipped”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question 3</th>
<th>Accessible Language</th>
<th>“info is accessible to all in the field…”</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Question 4</th>
<th>Previous knowledge of Material</th>
<th>“None – or minimal (infant development only)”</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>“I do not have previous experience with this material (even in my undergrad). Not covered...necessary and appropriate.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“This is definitely needed in the field”</td>
</tr>
</tbody>
</table>

Table 3.3 **Expert Evaluation Summary-Module II Questions**

<table>
<thead>
<tr>
<th>Module 2</th>
<th>Question 1</th>
<th>Clarity and Coherence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>“Relation to previous material”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“Brought material into context”</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question 2</th>
<th>Amount of material</th>
<th>“…other invisible disabilities other than ASD &amp; LD…too specialized to these two populations”</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>“beneficial to include more”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question 3</th>
<th>Accessible Language</th>
<th>“I really like the language in which this is defined. Very behavioural. Great for ABA’ers to relate to”</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>“Language is very appropriate &amp; would be well received by the ABA professionals”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question 4</th>
<th>Previous knowledge of material</th>
<th>“no previous history with this”</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>“great information provided to expand a lacking area”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“important in what ABA does”</td>
</tr>
</tbody>
</table>

Table 3.4 **Expert Evaluation Summary-Module III Questions**

<table>
<thead>
<tr>
<th>Module 3</th>
<th>Question 1</th>
<th>Relevance to expected duties?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>“very necessary”</td>
<td>“limited knowledge with IBI professionals”</td>
</tr>
</tbody>
</table>

|            | “provide programming in many aspects of movement and motor skills” | “only know to progress from gross to fine motor in programming” |
|            | “this material not covered in the training process” | “paramount in effective curriculum delivery for any IBI therapist of program” |
Question 2 - aware of general development of movement, as well as cognitive and affective components of development
New Information? - DEVELOPMENTAL acronym (Connolly, 2008)
New insights? - Movement profiling
- "All terminology was new to me – I was never taught to look at movement in this manner...
- more structured physical education time is needed
- will utilize individualized task and station planning
- "using the [movement] profile and building on that data"

Table 3.5 Expert Evaluation Summary-Module IV Questions

<table>
<thead>
<tr>
<th>Workshop Structure and Organization</th>
<th>Expert #1 (IBI Therapists)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 1</td>
<td>- &quot;days are too long (“9-4 is ideal&quot;)</td>
</tr>
<tr>
<td>Workshop</td>
<td>- &quot;material is too dense&quot;... &quot;HIGHLY theoretical&quot;</td>
</tr>
<tr>
<td>Structure and Organization</td>
<td>- &quot;workshop is &quot;robust&quot;</td>
</tr>
<tr>
<td>Question 2</td>
<td>- &quot;love the movement profile activity – great idea for really critical thinking and planning&quot;</td>
</tr>
<tr>
<td>Types of Activities</td>
<td>- &quot;activities are very appropriate &amp; serve to apply the theoretical behind it&quot;</td>
</tr>
</tbody>
</table>

Table 3.6 Expert Evaluation Summary-Overall

<table>
<thead>
<tr>
<th>Overall</th>
<th>Expert #1 (IBI Therapists)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 1</td>
<td>- &quot;All of it is useful and practical as each IT in IBI comes from different educational backgrounds&quot;</td>
</tr>
<tr>
<td>Most useful aspects...</td>
<td>- &quot;the basic is necessary&quot;</td>
</tr>
<tr>
<td>Question 2</td>
<td>- &quot;language may be challenging&quot;</td>
</tr>
<tr>
<td>Challenging aspects...</td>
<td>- &quot;scientific in nature which some may find difficult&quot;</td>
</tr>
<tr>
<td>Question 3</td>
<td>- &quot;this curriculum really does fit...&quot;</td>
</tr>
<tr>
<td>Fit with current PD structure?</td>
<td></td>
</tr>
<tr>
<td>Question 4</td>
<td>- &quot;having a government funded program invest 3 days into a movement curriculum may not be feasible&quot;</td>
</tr>
<tr>
<td>Potential constraints to implementation in PD?</td>
<td>- &quot;it will not get approved to occur in IBI currently&quot;</td>
</tr>
<tr>
<td>1-2 days maximum</td>
<td>- &quot;time and money&quot;</td>
</tr>
<tr>
<td>Question 5</td>
<td>- &quot;Different philosophies maybe a constraint in the ABA world...&quot;</td>
</tr>
<tr>
<td>Assumption about Expectations of Professionals?</td>
<td></td>
</tr>
<tr>
<td>- &quot;ignorance&quot; of importance of physical education and movement</td>
<td></td>
</tr>
<tr>
<td>- &quot;I don’t think it has ever been identified as a problem in IBI or has just been assumed it was being implemented effectively&quot;</td>
<td></td>
</tr>
<tr>
<td>- &quot;lack of related professionals telling us it was wrong&quot;</td>
<td></td>
</tr>
<tr>
<td>- &quot;now identified problem in physical programming&quot;</td>
<td></td>
</tr>
</tbody>
</table>
Table 3.7 *Expert Evaluation Indigenous Key Phrase*

<table>
<thead>
<tr>
<th>Summary statement capturing expert’s feedback...</th>
</tr>
</thead>
<tbody>
<tr>
<td>“I don’t think it has ever been identified as a problem in IBI or has just been assumed it was being implemented effectively”</td>
</tr>
</tbody>
</table>

Once the summary tables for all expert evaluations were complete (appendix O) every line within each summary table was coded by colour for key words and phrases pertaining to either of two sensitizing concepts: *needs* or *barriers*. Sensitizing concepts are concepts that the researcher brings to the data which provide “directions along which to look” (Blumer, 1969, p. 148). Both concepts arose as direct responses to the two research questions which guided this inquiry: 1) needs in terms of professional development in movement education and adapted physical activity (APA) of the professional cohorts of service providers working with individuals with invisible disabilities; 2) to identify *barriers* to the inclusion of movement education and adapted physical activity programming in the professional development structure of these institutions and agencies. The purpose of classifying qualitative data during content analysis is to facilitate the search for patterns and themes within a particular setting or across cases, (Patton, 1990). Classifying the data according to these two concepts helped to facilitate the cross-case comparative analysis which comprised the second ‘layer’ of analysis.

The purpose of the categorical analysis between cases is to evaluate similar and dissimilar patterns among the data and gather a sense of how each case begins to form the collective. Sensitizing concepts in this level of analysis are derived from literature-driven typologies—systems of classification operating in disability environments that coincide with ablist norms discussed in the literature—and also
indigenous typologies—systems of organization specific to the contextual
environments of each individual expert. The literature-driven typologies are those
responses from the experts which were expected because they are evident from the
current literature on physical education, movement, adapted physical activity and
disability. The indigenous typology will arise out of the contextual data and place
each expert in a unique category or classification based on their own
feedback/evaluation. At this stage I coded each table again by colour looking for
common (or expected) vs. indigenous categories to appear. The third layer is a holistic
thematic analysis of any themes or patterns that arose from the data during the
previous content and cross-case examinations.

The over-arching intention of the movement curriculum is to evaluate the
ability of service providers working with persons with disabilities to understand and
apply progressive modifications to movement activities in order to simplify them. The
ability to modify tasks toward “passing” (i.e. towards the able-bodied performance of
the skill) is commonly mistaken for the ability to implement individualized and
functional adaptations. This is a difficult skill set to train among these cohorts of
professionals because it requires addressing the fact that they themselves are
believing in, and perpetuating ablist norms—even those who are well-intentioned are
influenced by the notion of the “paradigm citizen” (Wendell, 1996, p.39), and the
inherent misunderstanding that this is a common and realistic ‘ideal’ for all persons.
The curriculum evaluations by the expert participants were the tool used to explore
the degree to which this ability exists, and is, or is not valued among them,
inadvertently exemplifying a larger societal problem. This ‘layered’ approach to
analysis shapes the findings, discussion and conclusion in much the same way that this problem manifests in society. The initial layers constitute the more superficial aspects of the problem, i.e.) the individual educators and service providers providing only minimally beneficial care to the few students or clients they see on a daily basis; while the deeper 'layers' of the analysis signify the more intractable aspects of the issue, such as those values and 'codes' which are deeply rooted in the organization and structure of society as a whole.
CHAPTER 4

FINDINGS

The critical qualitative methodology constructed and described in the previous chapter guides the unfurling of the findings of this study. Findings are presented according to the three-tiered analysis process, with each of the following sections representing the corresponding 'layer' of analysis. The first level of analysis involved grouping coded expert evaluation responses according to the two sensitizing concepts of needs and barriers as described in the previous chapter. These two categories were imposed on the data during the preliminary sorting of responses, however following an inductive analysis of both groupings, several more specific categories of responses arose within each: content, delivery and general cohort needs, and content, delivery and attitudinal barriers. Findings in this section describe these inductive categories in more detail. The second level of analysis involved a cross-case categorical comparison of these new patterns to determine similarities and differences among the data. Findings in this section describe shared needs and common barriers among the professional cohorts as well as indigenous (individual or contextual) needs and barriers between the cohorts. The third and final 'layer' comprises a holistic thematic analysis of the findings from the previous two levels of analysis; i.e.) the underlying themes that present themselves within and across the first two layers. Findings from the third level of analysis are presented in section 4.3 of this chapter however they are also inadvertently the 'meat' of the sociological and political relevance of this study. Thus, the theoretical findings from the third section will be taken up in more detail in the discussion chapter that follows.
4.1 Embedded Content Analysis

The embedded content analysis of the expert evaluations took place in two parts, the first of which consisted of summarizing the expert responses into tables (appendix O) and coding each line of each table for key words and phrases to group them into categories pertaining either to needs or barriers. As the researcher, I imposed these two categories on the data as a first step in the reduction process in order to condense the data to a manageable volume. Another reason for this is to focus the analysis toward directly answering the two research questions outlined at the start of the study. The reduced data on needs and barriers from the content analysis by expert by question is summarized in Table 4.1. Each column within the table represents an expert curriculum evaluation, and summarizes the needs and barriers indicated within each. Also indicated in table 4.1 are both the literature-driven typology that each expert aligns with as well as the indigenous typology resulting from the key contextual phrase from each of their evaluations. The literature-driven typology is the expected characterization of the cohort of each expert given what the current literature on the subject states (i.e. what the literature says we should have expected). The indigenous typology labelling each expert evaluation is the key phrase taken from within each expert evaluation that ‘sums up’ their position or attitude toward this problem. The indigenous typology provides a great deal of contextual information on the stance of each expert and consequently the typical stance of the professional cohort they inhabit. In most cases, the indigenous typologies align almost identically to the literature-driven typology. The indigenous typologies will be
taken up in a critical postmodern discussion of the current literature in the following chapter.

Table 4.1  *Content Analysis (Needs and Barriers) Summary by Expert*

<table>
<thead>
<tr>
<th>Needs</th>
<th>Barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Developmental milestones and movement concepts</td>
<td>- Too much material/overwhelming information content for teachers</td>
</tr>
<tr>
<td>- Terminology with examples</td>
<td>- Too much activity in workshop</td>
</tr>
<tr>
<td>- Basic knowledge and theory</td>
<td>- Too much activity in school curriculum and grade levels</td>
</tr>
<tr>
<td>- Correlation b/w movement and disability</td>
<td>- Devoid of reference to the school curriculum</td>
</tr>
<tr>
<td>- Relationship between IDs &amp; rationale</td>
<td>- ID study (causes misunderstanding and misinformation)</td>
</tr>
<tr>
<td>- Movement related to elementary P.E. curriculum</td>
<td>- Limited amount of PD time</td>
</tr>
<tr>
<td>- Movement profiling</td>
<td>- Not realistic</td>
</tr>
<tr>
<td>- Practical application of theory</td>
<td>- No standards for training EAs across the province</td>
</tr>
<tr>
<td>- Practice in critical thinking and planning</td>
<td>- Too complex/too dense material</td>
</tr>
<tr>
<td>- Basic terminology and background</td>
<td>- Dry material</td>
</tr>
<tr>
<td>- Activity-based</td>
<td>- Too specialized</td>
</tr>
<tr>
<td>- Visual reference material</td>
<td>- Highly theoretical</td>
</tr>
<tr>
<td>- Systematic presentation</td>
<td>- Scientific in nature</td>
</tr>
<tr>
<td>- Use of behavioural language</td>
<td>- Too long</td>
</tr>
<tr>
<td>- Greater interdisciplinarity interaction</td>
<td>- Time</td>
</tr>
<tr>
<td>- Embrace other philosophies and methods</td>
<td>- Money</td>
</tr>
<tr>
<td>- Practical assisting duties (OT &amp; PT)</td>
<td>- Government funded programs (regulated)</td>
</tr>
<tr>
<td>- Visual reference material</td>
<td>- Only need to know what relates to</td>
</tr>
<tr>
<td>- Systematic presentation</td>
<td>- Too much</td>
</tr>
<tr>
<td>- Use of behavioural language</td>
<td>- Too much</td>
</tr>
<tr>
<td>- Greater interdisciplinarity interaction</td>
<td>- Too much</td>
</tr>
<tr>
<td>- Embrace other philosophies and methods</td>
<td>- Too much</td>
</tr>
<tr>
<td>- Practice in critical thinking and planning</td>
<td>- Too much</td>
</tr>
<tr>
<td>- Basic terminology and background</td>
<td>- Too much</td>
</tr>
<tr>
<td>- Activity-based</td>
<td>- Too much</td>
</tr>
<tr>
<td>- Visual reference material</td>
<td>- Too much</td>
</tr>
<tr>
<td>- Systematic presentation</td>
<td>- Too much</td>
</tr>
<tr>
<td>- Use of behavioural language</td>
<td>- Too much</td>
</tr>
<tr>
<td>- Greater interdisciplinarity interaction</td>
<td>- Too much</td>
</tr>
<tr>
<td>- Embrace other philosophies and methods</td>
<td>- Too much</td>
</tr>
</tbody>
</table>
Different elementary P.E. curricula - EAs not able to focus on this aspect of curriculum/education - Most are hired for literacy and numeracy purposes

Regular classroom teachers would not pursue this topic - "Other" focuses to programming and PD (literacy, numeracy, etc.) - Not encouraged by senior administrative staff or MOE - 'Regular curriculum' modified will suffice - More appropriate for P.E. teachers at the high school level

"I don't need to know how my car works to be a good driver" - Too much expectation placed on teachers to know everything - Other areas that require teaching (and PD) - Audience should be P.E. teachers - Need P.E. specialists in the schools to support staff and students in this area

<table>
<thead>
<tr>
<th>Literature-Driven Typologies (Expected)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>G. Reid &amp; C. Sherrill</strong></td>
</tr>
<tr>
<td>- Adapted physical activity</td>
</tr>
<tr>
<td>- Greater crossdisciplinary efforts are necessary</td>
</tr>
<tr>
<td><strong>Fernandez-Balboa</strong></td>
</tr>
<tr>
<td>- Technocentric rationality</td>
</tr>
<tr>
<td><strong>Judith Rink</strong></td>
</tr>
<tr>
<td>- Developing the whole child</td>
</tr>
<tr>
<td><strong>Linda Bain</strong></td>
</tr>
<tr>
<td>- Change in P.E. in schools means major changes in university programs, especially in teacher education</td>
</tr>
<tr>
<td><strong>Semi Linton</strong></td>
</tr>
<tr>
<td>- Disability education across all disciplines, not only in physical education</td>
</tr>
<tr>
<td><strong>Fernandez-Balboa</strong></td>
</tr>
<tr>
<td>- No place in academia (or P.E.) for the body; P.E. profession isolated from social, political and cultural contexts</td>
</tr>
<tr>
<td><strong>Linda Bain</strong></td>
</tr>
<tr>
<td>- Power of resistance to change</td>
</tr>
<tr>
<td><strong>Susan Wendell</strong></td>
</tr>
<tr>
<td>- Myth of Control; Cognitive and social authority of medicine</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indigenous Typologies (Key Phrase)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;I don't think it has ever been identified as a problem in IBI...just been assumed it was being implemented effectively.&quot;</td>
</tr>
<tr>
<td>&quot;I am not sure an EA would be able to focus on this one aspect...most are hired for literacy and numeracy purposes.&quot;</td>
</tr>
<tr>
<td>&quot;Regular classroom teachers will NOT research this topic.&quot;</td>
</tr>
<tr>
<td>&quot;I do not have to know how my car works to be a good driver!&quot;</td>
</tr>
</tbody>
</table>

4.1.1 Needs

The second part of analysis at the content level was to carry out an inductive analysis within each of those two groupings (needs and barriers) for subcategories of responses that may emerge. Three concrete subcategories arose out of the analysis of the needs portrayed by the four expert evaluations: content needs, delivery needs, and general cohort needs.
Content Needs

The category of “content needs” included those responses that related to any academic information or subject material that the experts expressed unfamiliarity with, and specifically what about that subject material (i.e. definitions, terminology, practical applications, etc.) would be necessary to consider when determining the content of such a professional development opportunity. An ‘unfamiliarity’ with content was expressed by the experts in their direct response to question #4 in the sections pertaining to both Modules I and II on motor milestones/movement concepts and sensorimotor integration/motor learning respectively, and question #2 in the section pertaining to Module III on movement programming (see appendix L). If the experts indicated that “knowledge was lacking” (appendix N-3) or they had “no or very little previous knowledge or experience” in this area (appendix N-1) or that this material was “not covered in the training process” (appendix N-1) in either their pre-service education or professional training were included within the category of content needs. All content needs expressed by each expert are presented in table 4.2.

Delivery Needs

A subcategory of “delivery needs” comprised those responses that pertained to the mediums of communication and venues or modes of teaching within the actual potential workshop practicum. For example, a lecture style, interspersed lecture with activity, group activities vs. personal reflection activities, etc. Typically delivery needs were found in expert responses to questions 1, 2, and 3 in Modules 1
and 2 as well as question 2 in the module on the workshop practicum (appendix L) inquiring about the types of activities suggested to include in this type of PD experience. Some examples of responses indicating delivery needs which discuss modes of teaching and methods of delivering material are:

- "very systematically laid out," "I really like the language in which this is defined; very behavioural" (appendix O-1)
- "deliver content in an INTERESTING and INTERACTIVE format;"
  "all theory? Not activity based?" (appendix O-2)
- "information better shared at an in-service" (appendix O-3)

Delivery needs also included responses that pertained to any types or styles of materials used within the workshop practicum to assist with teaching, or materials provided to the attendees as supplementary to the practicum experience. Some examples of needs expressed pertaining to materials used or provided within the workshop are:

- "offer pre-reading packages before a workshop," "needs to be brief and easy to use," "info collected would be informative ‘at a glance’" (appendix O-3)
- "charts/diagrams—really helped in the explanation" (appendix O-2)
- "not sure what the supplementary materials are" (appendix O-4)

All delivery needs expressed by each expert are summarized in table 4.2.
General Cohort Needs

In addition to needs in the areas of content and delivery, three of the four expert participants expressed needs in their curriculum evaluations that are unique to some aspect of their contextual or professional environment but did not fall under either one of the previous two categories. These “general cohort needs” had largely to do with the ‘atmosphere’ within each professional cohort; (i.e. the attitudes and ideologies that are prevalent within their professional environments and standards of practice). For example, expert #1 indicates that “different philosophies may be a constraint in the ABA world” (appendix O-1), while expert #2 expressed that hands-on strategies were preferred over theoretical material: “EAs will always need the content & theory however the job is to use the strategies,” (appendix O-2). The general cohort needs expressed among the educators were to have “phys. ed. specialists in schools that can support both the students and the educators (appendix O-4).

These non-specific needs of the cohorts in general are important to include in the findings of this study because they are indicative of the challenges that exist within the contextual environments of these professionals. A professional development opportunity of this nature, while incorporating both the content and delivery needs indicated by the expert participants, should ultimately aim to serve the broad general cohort needs as well.
Table 4.2 Cross-case Categorical Summary of Needs

<table>
<thead>
<tr>
<th>Needs</th>
<th>Expert #1</th>
<th>Expert #2</th>
<th>Expert #3</th>
<th>Expert #4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content</td>
<td>- Developmental milestones and movement concepts</td>
<td>- Terminology with examples</td>
<td>- Developmental milestones and movement concepts</td>
<td>- All in general (have the basics already)</td>
</tr>
<tr>
<td></td>
<td>- SM-integration, PM-learning and movement deficits in ID</td>
<td>- Basic knowledge and theory</td>
<td>- Sensory integration</td>
<td>- Practical application to current skill set and practices in the classroom</td>
</tr>
<tr>
<td></td>
<td>- Movement programming</td>
<td>- Correlation b/w movement and disability</td>
<td>- Motor</td>
<td>- More context for each topic area</td>
</tr>
<tr>
<td></td>
<td>- Movement profiling</td>
<td>- Relationship between IDs &amp; rationale</td>
<td>- Motor learning/planning</td>
<td>- Relation to school curriculum and grade levels</td>
</tr>
<tr>
<td></td>
<td>- Practical application of theory</td>
<td>- Relation to elementary P.E. curriculum</td>
<td>- Movement analysis and programming strategies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Practice in critical thinking and planning</td>
<td>- Relation to Therapy Assisting duties (OT &amp; PT)</td>
<td>- How to incorporate in an IEP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Basic terminology and background</td>
<td>- Practical application and hands-on strategies</td>
<td>- Movement profiling</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Practical applications</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Rationale</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Clear definitions</td>
<td></td>
</tr>
<tr>
<td>Delivery</td>
<td>- Systematic presentation</td>
<td>- Interesting and interactive format</td>
<td>- Systematic presentation</td>
<td>- More dynamic format</td>
</tr>
<tr>
<td></td>
<td>- Use of behavioural language</td>
<td>- Activity-based</td>
<td>- Brief and easy to use—Tools that provide information 'at a glance'</td>
<td>- Supplementary materials</td>
</tr>
<tr>
<td></td>
<td>- Activities (application)</td>
<td>- Visual reference material</td>
<td>- Pre-reading packages</td>
<td>- Visuals (charts/diagrams)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(charts/diagrams)</td>
<td>- Presented at an in-service</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Visuals (charts/diagrams)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Method of transfer back to school environment</td>
<td></td>
</tr>
<tr>
<td>Cohort</td>
<td>- Greater interdisciplinary interaction</td>
<td>- Hands on strategies</td>
<td>- Schools lack this knowledge base/lack trained professionals</td>
<td>- P.E. specialists in the school system to support students and staff in this area</td>
</tr>
<tr>
<td>(in general)</td>
<td>- Embrace other philosophies and methods</td>
<td></td>
<td>- Movement programming is under-used in educational practice</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Interdisciplinary involvement/cooperation</td>
<td></td>
</tr>
</tbody>
</table>

4.1.2 Barriers

Barriers to the inclusion of movement education and adapted physical activity programming in professional development opportunities for these cohorts were also
expressed in the experts’ evaluations. Similar to the analysis of needs, multiple sub-categories emerged out of the barriers expressed by the expert participants: content barriers, structural barriers, and attitudinal barriers.

Content Barriers

The category of content barriers was comprised of any negative responses within the expert evaluations that described the content of the curriculum (i.e. the nature, amount, organization, and/or presentation of the material, or any specific terminology, concepts or models used throughout). Contrary to content needs, content barriers seemed to appear across a greater number of questions; particularly in questions 1 through 3 in sections on modules I and II, question 1 in the section on module III, and questions 2, 3, and 4 in the section pertaining to the curriculum overall (appendix L). Some examples of content barriers from the experts include:

- “definitions did read long, “material is dry,” “level of difficulty was complex” (appendix O-1)
- “much too complex,” “definition-based—always dry,” (appendix O-2)
- “familiarity with subject matter helps,” “can/may be overwhelming information content for a teacher” (appendix O-3)
- “devoid of reference to curriculum and grade levels,” “all material in the work is relevant because it deals with how we move, but that doesn’t mean that it is all necessary” (appendix O-4)
Depending on the way in which the expert commentary and the responses to the evaluation questions are interpreted, some of the barriers expressed may also amount to needs of the cohort in this area. Thus there may be some overlap between needs and barriers; or in other words, it is possible for the same response to indicate both a need and a barrier simultaneously. All content barriers expressed by each expert are summarized in table 4.3.

*Structural Barriers*

Structural barriers are those responses within the expert evaluations which reflect certain structural and organizational elements of the curriculum, as well as any external influences such as the structural/organizational factors present within their professional environments that present a challenge to the implementation of this type of PD experience for their cohort. Responses pertaining to structural barriers were commonly found in evaluation question #1 in the section on the workshop practicum, as well as questions 3 and 4 in the section on the curriculum overall (appendix L). Some examples of structural barriers expressed by the expert participants follow, while all of the structural barriers expressed by each expert are summarized in table 4.3):

- “days are too long,” “will not get approved to occur in IBI currently” (appendix O-1)
- “time constraints,” “curriculum doesn’t fit” (appendix O-3)
- “a limited amount of PD time and so many areas that need teaching,” “unrealistic” (appendix O-4)
All of the expert participants indicated that *time* and *money* were the predominant structural barriers to implementing this type of professional development opportunity within their professional organizations or institutions. Contrary to both content and delivery needs, and content barriers, structural barriers are rigid, often outside of the individual professionals' realm of control and consequently are more difficult to negotiate. Structural barriers such as lack of time and money (because these resources are dispersed elsewhere) are ultimately a reflection of the attitudes within these organizations and institutions and among these professional cohorts.

*Attitudinal Barriers*

The third category of barriers—attitudinal barriers—are the negative responses in the expert evaluations that pertain to the values that surround the expert participants in their professional environments. Attitudinal barriers are those that generally express an ideological perspective that dominates within their cohort. These were found heavily in responses to both questions corresponding to module III on movement programming and especially throughout the responses to all questions in the section on the curriculum overall (appendix L). Some specific examples of the attitudinal barriers expressed by the expert participants are given below, however all attitudinal barriers expressed by each of the participants are summarized in table 4.3.

- "different philosophies," "ignorance" (appendix O-1)
knowledge only of what relates to the physical education curriculum in elementary school; “interest—most are hired for literacy and numeracy purposes” (appendix O-2)

“I don’t feel…this subject area is understood or encouraged to implement by senior administrative staff in our school board or perhaps the Ministry of Education (MOE),” “more appropriate for physical education teachers at the secondary school level” (appendix O-3)

“everyone seems to want teachers to know everything and that is just not realistic,” “your audience should be phys. ed. teachers,” “I do not need to know how my car works to be a good driver” (appendix O-4)

Once the inductive analysis of both groupings of data (needs and barriers) was complete and no further patterns were discerned, a cross-case comparison was conducted to determine similar and dissimilar patterns within each category.

Table 4.3 Cross-case Categorical Summary of Barriers

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Expert #1</th>
<th>Expert #2</th>
<th>Expert #3</th>
<th>Expert #4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Content</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complex/too dense</td>
<td>Too complex/overwhelming</td>
<td>Too much material/overwhelming information content for teachers</td>
<td>Too much depth and detail for educators</td>
<td></td>
</tr>
<tr>
<td>Dry material</td>
<td>Dry/definition-based</td>
<td>Too much activity in workshop</td>
<td>Not all material is necessary</td>
<td></td>
</tr>
<tr>
<td>Too specialized</td>
<td>Too much theory/very clinical</td>
<td>Lacking info on LD</td>
<td>Devoid of reference to science</td>
<td></td>
</tr>
<tr>
<td>Highly theoretical</td>
<td></td>
<td>Need familiarity with subject matter for understanding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scientific in nature</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Structural</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Too long</td>
<td>Days are too long</td>
<td>Time constraints (too long)</td>
<td>Limited amount of PD time</td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>Too much academic not enough activity and networking</td>
<td>Cost (would have to be free)</td>
<td>Not realistic</td>
<td></td>
</tr>
<tr>
<td>Money</td>
<td></td>
<td>Curriculum doesn’t fit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government funded</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Limited amount of PD time
- Not realistic
- No standards for training EAs
<table>
<thead>
<tr>
<th>Category</th>
<th>Needs and Barriers</th>
</tr>
</thead>
</table>
| Programs (regulated) | - Time (only 2 PD days/year)  
- Cost  
- Regular classroom teachers would not pursue this topic  
- "Other" focuses to programming and PD (literacy, numeracy, etc.)  
- Not encouraged by senior administrative staff or MOE  
- 'Regular curriculum' modified will suffice  
- More appropriate for P.E. teachers at the high school level  
- "I don't need to know how my car works to be a good driver"  
- Too much expectation placed on teachers to know everything  
- Other areas that require teaching (and PD)  
- Audience should be P.E. teachers  
- Need P.E. specialists in the schools to support staff and students in this area |
| Attitudinal - Different Philosophies - Ignorance | - Only need to know what relates to elementary P.E. curriculum  
- EAs not able to focus on this aspect of curriculum/education  
- Most are hired for literacy and numeracy purposes |

### 4.2 Categorical Cross-Case Analysis

The objective of the second level of analysis—a cross-case comparison within each category, was to determine any similarities and differences between the needs and barriers expressed by each expert participant. The first step in this layer of analysis, was to examine the content needs of each expert side by side (refer to table 4.2), followed by the delivery category and general cohort category, and code for needs that appear within multiple expert evaluation responses. Several further reductions of data took place during this phase of analysis, creating the further subcategories of shared needs and indigenous needs, as well as common barriers and indigenous barriers.
4.2.1 Shared Needs

Shared needs arose from both content and delivery areas, and were considered 'shared if they appeared within two or more of the expert evaluations. 

*Shared content needs* were those needs expressed and grouped under the content needs category in the previous level of analysis; again these are needs pertaining to the actual academic material within the curriculum, including terminology, definitions, concepts and models that would be taught in the professional development experience. *Shared delivery needs* were those needs having to do with the methods and modes that might be used to teach the curriculum content in the actual workshop practicum, and with any materials that would or could be used or provided to assist with the comprehension or application of material. Shared content and delivery needs are summarized in Table 4.4; the numbers in parentheses beside each content or delivery need represent the case number which corresponds to the expert who indicated this was as a need within their evaluation of the curriculum.

**Table 4.4 Shared professional development needs across cohorts**

<table>
<thead>
<tr>
<th>Shared Needs: Content</th>
<th>Delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>All content at a basic/general level (2) (4)</td>
<td>Visuals—charts &amp; diagrams (2) (3) (4)</td>
</tr>
<tr>
<td>Developmental Milestones (1) (3)</td>
<td>Systematic presentation—clear &amp; well laid out (1) (3)</td>
</tr>
<tr>
<td>Movement Concepts (1) (3)</td>
<td>Provide supplementary materials (3) (4)</td>
</tr>
<tr>
<td>Movement profiling (1) (3)</td>
<td>Dynamic &amp; interactive format (2) (4)</td>
</tr>
<tr>
<td>Movement programming (1) (3)</td>
<td></td>
</tr>
<tr>
<td>Sensorimotor integration (1) (3)</td>
<td></td>
</tr>
<tr>
<td>Perceptual Motor learning (1) (3)</td>
<td></td>
</tr>
<tr>
<td>Movement deficits in ID (1) (2)</td>
<td></td>
</tr>
<tr>
<td>Terminology (1) (2) (3)</td>
<td></td>
</tr>
<tr>
<td>Context (1) (4)</td>
<td></td>
</tr>
<tr>
<td>What relates to elementary P.E. curriculum (2) (4)</td>
<td></td>
</tr>
<tr>
<td>Practical Applications (1) (2) (3) (4)</td>
<td></td>
</tr>
<tr>
<td>Rationale (2) (3)</td>
<td></td>
</tr>
</tbody>
</table>
4.2.2 Indigenous Needs

Indigenous needs (summarized in table 4.5) are those which had to do with the practical applications of this material and the contextual work environments of each of the expert participants. Indigenous needs were expressed in both content and delivery areas from all four experts comprising the three different cohorts of professionals (IBI therapists, Educational Assistants and Educators).

Table 4.5 Indigenous professional development needs between cohorts

<table>
<thead>
<tr>
<th>Cohort</th>
<th>Content Needs</th>
<th>Delivery Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBI Therapists</td>
<td>Tools for critical thinking and planning</td>
<td>Behavioural language</td>
</tr>
<tr>
<td>Educational</td>
<td>Hands on Strategies</td>
<td>Activity-based</td>
</tr>
<tr>
<td>Assistants</td>
<td>Relation to therapy assisting (OT &amp; PT)</td>
<td></td>
</tr>
<tr>
<td>Educators</td>
<td>What/how to incorporate in IEP</td>
<td>Presented at In-service</td>
</tr>
<tr>
<td></td>
<td>Context for each topic area</td>
<td>Accessible 'at a glance'</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Successful transfer from PD to classroom</td>
</tr>
</tbody>
</table>

4.2.3 Common Barriers

Similar to shared needs, common barriers are those barriers that were indicated by two or more of the four expert participants in their evaluations. Common barriers appeared in all three of the inductive categories from the previous level of analysis: content, structural, and attitudinal. Common barriers are summarized in table 4.5; the numbers in parentheses beside each content, structural or attitudinal barrier represent the case number which corresponds to the expert who indicated this was as a need within their evaluation of the curriculum.
Content barriers are those pertaining to the academic/subject material comprising the curriculum—quantity of material, language used, manner in which it is presented, level of complexity, etc. Content barriers are considered to be flexible because the content of the workshop is ultimately adaptable dependent upon the attendees. Content and presentation can be catered to the needs and contextual environment of whichever cohort(s) or professionals choose to attend, and therefore these barriers can be negated rather simply. Structural barriers however, are those that related in any way to time and financial constraints which are less easily traversed as most have to do with provincial or federal government involvement in terms of regulation and funding. Attitudinal barriers are those barriers which depict the attitude or approach to this area of professional development (movement education and physical activity programming) that each of these cohorts has taken on.

Attitudinal barriers are similar to structural barriers in that they are less easily negated without fundamental change in the early education of these professionals and the principles that guide their practice as a cohort. This is what relates most strongly to the literature, and creates seemingly irresolvable tensions which will be addressed throughout the discussion of these findings in the following chapter. Table 4.6 summarizes the common barriers expressed across the cohorts in these three areas.

Table 4.6  Common barriers to inclusion of movement and physical activity in PD across cohorts

<table>
<thead>
<tr>
<th>Content</th>
<th>Structural</th>
<th>Attitudinal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too much material/ too dense (1) (3) (4)</td>
<td>Too long (1) (2) (3)</td>
<td>Unrealistic (1) (3) (4)</td>
</tr>
<tr>
<td>Too complex (1) (2) (4)</td>
<td>Limited PD time (1) (2)</td>
<td>Other focuses to PD—literacy and numeracy (2) (3) (4)</td>
</tr>
<tr>
<td>Definition-based, dry (1) (2)</td>
<td>Cost (1) (2) (3)</td>
<td>Lack the trained professionals &amp; knowledge base to support this type of PD (3) (4)</td>
</tr>
<tr>
<td>Highly theoretical/ clinical/ scientific (1) (2)</td>
<td>Government funded/regulated (1)</td>
<td>Audience should be P.E. teachers (3) (4)</td>
</tr>
<tr>
<td>Only what relates to elementary P.E. curriculum (2) (4)</td>
<td></td>
<td>Need to know only what relates to elementary P.E. curriculum (2)</td>
</tr>
</tbody>
</table>
4.2.4 Indigenous Barriers

Some of the barriers that were expressed were unique to only one cohort, and based in their contextual differences and individual environments. These indigenous barriers are categorized as being either content or attitude-related, as all structural barriers that were described were common across all four expert evaluations. Table 4.7 summarizes the indigenous barriers described in each expert evaluation.

Table 4.7 Indigenous barriers to inclusion of movement and physical activity in PD between cohorts

<table>
<thead>
<tr>
<th>Cohort</th>
<th>Content Barriers</th>
<th>Attitudinal Barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBI Therapists</td>
<td>Too specialized</td>
<td>Different philosophies (wouldn't “buy into this”)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;Ignorance&quot;</td>
</tr>
<tr>
<td>Educational</td>
<td>Not enough</td>
<td>Not able to focus on this aspect specifically</td>
</tr>
<tr>
<td>Assistants</td>
<td>activity content</td>
<td></td>
</tr>
<tr>
<td></td>
<td>and networking</td>
<td></td>
</tr>
<tr>
<td>Educators</td>
<td>Lacking info on</td>
<td>The regular curriculum modified for SN will suffice</td>
</tr>
<tr>
<td></td>
<td>some disabilities</td>
<td>Not encouraged in this area by senior administration</td>
</tr>
<tr>
<td></td>
<td>/ &quot;ID&quot; may cause</td>
<td>or the Ministry of Education</td>
</tr>
<tr>
<td></td>
<td>misunderstanding</td>
<td>Teachers would not research this topic</td>
</tr>
<tr>
<td></td>
<td>and misinformation</td>
<td></td>
</tr>
</tbody>
</table>

4.3 Thematic Analysis

The findings in the third level of analysis—the thematic analysis—consists of a contextual examination of the patterns that arose from analysis of data at the content and categorical levels. Several themes are woven throughout the nature of this study as a whole, but are specifically evident when looking at specific examples within the earlier findings. The following sections describe each of the themes from this final level of analysis: internal contradictions & irresolvable tensions discusses the seemingly problematic and antagonistic state that exists between the needs expressed by the
expert participants and the similarly self-identified barriers that prevent these needs from ever being met; the section on *paradox & dichotomy* essentially sums up these ongoing internal contradictions and irresolvable tensions and situates them deep in a societal and cultural 'code.' This code embedded in our actions and behaviours is discussed in more detail and context in the following discussion chapter.

4.3.1 *Internal Contradictions & Irresolvable Tensions*

Several internal contradictions are demonstrated within the data from the content and categorical levels of analysis. At the initial content level, analysis was conducted to determine the needs of each of the professional cohorts examined (represented by each of the expert participants) in terms of including a movement education and adapted physical activity training curriculum of this type into their professional development repertoire; or in other words: what was 'good' or useful about the researcher's curriculum. Similarly, the content analysis identified barriers to the implementation of this type of PD experience; or: what 'did not work' what was 'not good' about the researcher's PD curriculum. The categorical analysis highlighted which of these needs and barriers were specific to a distinct cohort, and which ones multiple cohorts had in common. Internal contradictions are individual pieces of the data that were explicitly expressed by the experts in their evaluations, yet they directly contradict one another. For example, the shared content needs listed in table 4.4 above indicate the subject material and aspects of the curriculum which the experts found valuable and said should be included in this type of PD experience, yet the common barriers listed in table 4.6 directly contradict these expressed needs. Some of these internal contradictions are summarized in table 4.8 below. The
irresolvable tensions are those pieces of the data that, while they may not be directly contradictory to each other, they present some obvious inconsistencies. For example, one of the experts negatively commented that the practicum experience seemed to be presented "in a nutshell" for those with "college level training" yet there is "no time" for this type of professional development and the material is "too complex" (appendix O-2). Two common delivery needs (see Table 4.4) mentioned by several professionals were that they would benefit from a dynamic and interactive practicum experience, yet they preferred supplementary or "take-home" materials. These seemingly irresolvable tensions need to be examined and addressed when determining whether or not this type of professional development opportunity would be feasible for these cohorts.

**Table 4.8 Internal Contradictions**

<table>
<thead>
<tr>
<th>Shared Need Expressed</th>
<th>Common Barrier Expressed</th>
<th>Contradiction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material should include: Developmental Milestones Movement Profiling Movement Programming Sensorimotor Integration Perceptual Motor Learning Movement Deficits in ID</td>
<td>Too Much Material Dense/complex/highly theoretical/very clinical/too scientific</td>
<td>All of this material is needed, yet it is too much to handle! The very nature of this material is complex &amp; scientific. It is needed, yet it won't work because it is too dense and theoretical!</td>
</tr>
<tr>
<td>Terminology and definitions Material is definition-based and &quot;dry&quot;</td>
<td></td>
<td>The context (and rationale) needed to understand disability and provide adapted movement programming will not be evident when limited to the P.E. curriculum</td>
</tr>
</tbody>
</table>
4.3.2 Paradox & Dichotomy

The theme of paradox underlies the findings from all levels of analysis in this study. A paradox is a seemingly contradictory statement or idea, yet one that in reality expresses a probable truth. The obvious paradox here is that this type of professional development activity is seen as “very important” and “very necessary” (appendix O-1) and therefore needed, yet it “will not get approved” (appendix O-1) or certain professionals “would not research this topic (appendix O-3), i.e.) there is no time, money or interest to implement it. The professionals want access to all of the material, terminology, strategies and applications, yet they want it accessible merely ‘at a glance.’ Another paradox exists in the attitude of some professionals that this type of professional development experience should be directed towards physical education teachers and specialists; yet in the province of Ontario, P.E. teachers can potentially be any teacher. Who do we target then?

The paradoxical aura that surrounds the findings of this study is cultivated in the dichotomized world that we live in. Dichotomy exists everywhere in our society;
that is that parts of our world are divided into two mutually exclusive and opposing
parts, and one must therefore be preferred over the other: man vs. nature, Eastern vs.
Western philosophies. In the field of disability it is the dichotomy that exists between
the public (accepted) ideal and the private sphere; and in movement and adapted
physical activity, it is the dichotomy of the mind vs. the body. These dichotomies are
largely at work in the professional environments of these cohorts, favouring the ideal
body (and attempting to teach *all* learners how to achieve its structure and function),
and favouring the mind over the body, teaching numeracy and literacy rather than
physical education. These dichotomous values are deeply embedded in the cultural
codes and social relations that dictate interaction in our society.
CHAPTER 5

DISCUSSION

The findings from the layered analysis process presented in the previous chapter provide many valuable insights that require further consideration and discussion. On a superficial level, these findings demonstrate the professional development (PD) needs in terms of movement education and adapted physical activity of each of several cohorts of professionals in the field of disability, as well as the barriers to implementing this type of PD within their organizations and institutions. Findings at this level are useful when considering how to develop and cater a PD experience in order to meet these needs and negate these barriers. However the powerful nature of this data is truly abundant on a deeper level; when discussed in the context of societal and cultural practice, and the reproduction of norms, codes and standards of ability and function. It is important to take up these findings in the context of the relevant literature, which is the purpose of the following chapter, and to examine the findings holistically in order to interpret them, and give them meaning. This will be accomplished throughout the following several sections: major findings, study limitations, reflexivity, and future directions.

In the first section, the major findings from this study are discussed in the context of current postmodern literature in physical education. While the major findings of the study from all three levels of analysis were presented previously, the focus of this section will be on the findings from the thematic analysis: internal contradictions and irresolvable tensions, and paradox and dichotomy. In every study there
are potential weaknesses that must be outwardly acknowledged in order to preserve the credibility and integrity of both the study and the researcher. These are discussed in the section on limitations. Similar to professing any possible flaws in the construction and execution of the study, it is important for the researcher to acknowledge the role she/he played in all aspects of the process. This reflection is necessary particularly in critical research as the researcher imposes her/his own values and beliefs in every aspect of the study process. The final section will provide possible directions and recommendations for future research endeavours in this area.

5.1 Major Findings

5.1.1 Themes

The findings of this study illustrate some very interesting problems with regards to the implementation of movement education and adapted physical activity programming in professional development for practitioners working with persons with ‘invisible disabilities.’ The problems brought to light by these experts in their responses to the curriculum are not only inherent in the structure and organization of their professional spheres, but are consequently perpetuated in the training and education of the professionals themselves. These ‘problems’ were evident throughout the findings, but particularly in the holistic thematic analysis in which themes of internal contradictions/irresolvable tensions and paradox/dichotomy were established from an examination of the content and categorical layers of analysis (thematic findings are outlined in more specific detail in the previous chapter).
Contradictions and Tensions

‘Internal contradictions’ were those pieces of commentary and feedback in the experts’ curriculum evaluations that seemed to directly oppose one another; for example most if not all of the experts stated that the amount and depth of material that comprised the curriculum was needed as none had encountered it beyond a basic level or their own personal experience, yet it was also stated by several experts that this is ‘too much material.’ Two of the experts stated that definitions and terminology are needed for sufficient background and understanding, but within the same evaluations said that the definition-based material in the curriculum was ‘dry,’ and ‘dense.’ This provides further demonstration of the contradictory nature of their feedback. While it is unlikely the experts would have recognized this about their responses during the evaluation process, I’m sure when presented with these statements, they would agree this presents somewhat of a dilemma when determining how a researcher, such as myself, should interpret this feedback. The ‘irresolvable tensions’ were also found throughout each of the expert’s evaluation data; for example in the suggestion from two of the four experts that the audience for this type of professional development activity should be Physical Education teachers. Yet, as has been stated many times previous, Physical Education teachers in the province of Ontario can potentially be anybody (no concentrated undergraduate education in PE is required), and in fact many of the ‘regular classroom teachers’ in the school system currently teach PE as there are very few PE “specialists” in the school system to support staff in this manner. How then, do we determine who the audience for this type of professional development experience should be?
What *seems* to be occurring, and is indicated by these contradictions and tensions, is that many professional organizations and institutions (and consequently the professionals themselves) engage in a continuous game of 'pass the buck' so-to-speak. The very nature of their jobs is demanding, fast-paced and one in which they are continually put-upon by others. In government funded agencies and organizations, such as those in which many IBI instructor therapists work, there is very little 'wiggle room' to seek independent professional development and additional training such as the potential PD curriculum in movement education and adapted physical activity presented in this study. They are under strict regulations in all aspects of their profession, from the amount and type of services they are able to provide, to how the children's programs are structured on paper and executed in therapy sessions, to the nature of the professional development opportunities they participate in. These professionals are responsible not only to the child with whom they work, as well as to the parents of that child and to their superiors in the organization, but the organization as a whole is responsible for demonstrating its continued success and financial efficiency in order to receive continued governmental support. In the school system, educational assistants and teachers often find themselves engaged in perpetual kid-based negotiations day in and day out; the EA's may have very little independent authority in the classroom, and both are responsible to abide by the requirements of the administration and the board. Not to mention, they are responsible to the learners for whom they are there to modify the curriculum content to accommodate their needs. Generally, they receive very little compensation considering the important nature of the work they are required to
do. Educators, while they may have marginal freedom within their own classrooms and lesson plans, are also under constant pressure to meet the expectations of a number of demanding parties. The children themselves must be the first priority of the educator, but also the parents of their students, the administration and board of education for their institutions as well as the Ministry of Education (MOE) which ultimately governs the day-to-day dealings within their profession. All of these professionals are placed in positions where they are constantly faced with trying to balance these innumerable tensions and are asked to prioritize aspects of their professional environment based on the needs of all concerned parties. This is a difficult task even for the best among them, and an unfortunate consequence of being a practitioner or service provider in this type of professional environment, is that inevitably, some aspects of the job are overlooked, or neglected altogether. Certain responsibilities and duties of the job which are not prioritized near the top of list are passed on to another party whose responsibility it is, or whose job it should be to fulfill that obligation.

This is the case with movement education and adapted physical activity programming in both private service agencies and in the school system as a whole. Three of the four experts (all who worked in some capacity within the school system) stated that there are “other” priorities in terms of professional development; that the focus in the school system was on literacy and numeracy and not on movement and physical education. In addition both experts within the cohort of educators specifically described a need to have “physical education specialists” or “trained professionals” in the school system to support staff and students in this capacity. This
deflection of responsibility onto these “other professionals” is precisely what is occurring across the board—professionals (especially those in the school system) are playing a game of ‘hot-potato’ with the obligation they have to provide inclusive and developmentally appropriate physical activity for all students. These “other” focuses to programming are created in response to the needs of these ‘other parties’ (parents, boards, MOE, etc.) and demonstrate not only the typical attitude that is upheld with regard to professional development in this area, but the cultural codes and values about the body that exist and operate within our societal institutions.

Paradox and Dichotomy

A second theme from the thematic findings of this study fits tightly with Fernandez-Balboa’s (1997) discussion of paradox and dichotomy in modern society. Modernism has provided the dominant versions of political, economic and social practice of Western society since the Enlightenment, an intellectual period in history which cultivated the rational, mechanistic and anti-metaphysical creed that still governs our culture today (1997). Under the precepts of modernism, the world has been dichotomized: the West vs. the East, man vs. nature, science vs. metaphysics; and within each binary relationship a hierarchy exists in which one maintains superiority over the other. The West is considered to be civilized and advanced and given the right to conquer, while the East is seen as exotic and primitive and thus should be submissive (1997). Fernandez-Balboa (1997) explains that this dichotomized world is justified under the premise of “unrelenting progress” (p.4), which stands on two modern imperatives: 1) efficiency in organization and 2) humanitarianism. With the increased reliance on science and technology we as a
society have learned to produce as much as possible for as little as possible, while at the same time our society has ‘advanced’ socially in that we have learned to recognize each other as equals. This has created a profound sense of paradox: efficiency of organization necessitates hierarchical structure, yet hierarchical organization is repressive, not egalitarian (1997).

A second paradox of the modern society is that happiness and success are considered individual pursuits, yet the media, the education system and the workplace all serve to increase conformity and decrease any sense of individual identity (1997). Our modern Western society and the cultural practices therein (including the actions and interactions of professionals in contexts of disability and physical activity) are thus intricately woven with paradox and dichotomy; the most prevalent of which in relation to this study, is the dichotomy that exists between the mind and the body.

This dichotomy (and hierarchy) of the mind and the body is present in every aspect of the findings of this study. For example, from the mention of the “other philosophies” that are preferred and adopted within the IBI cohort, to the “other” focuses for programming and professional development (literacy and numeracy) among the cohorts of practitioners in the school system, it is evident that it is the mind that is the priority at the expense of the body. This is abundantly clear not only in the lack of movement and adapted physical activity programming incorporated in interventions for children with disabilities, but the lack of interest, ability, or support for training and professional development for practitioners and educators in this area. The fact that IBI therapy is the most common therapy invested in for children with
ASD speaks volumes about the prevalence of this mind-body dichotomy within our society, otherwise the Miller Method, the Embedded Curriculum or other similar movement and physical activity-based interventions would be the form of intervention supported the most with private and government funding. While the experts from within the education cohort expressed a need to have "physical education specialists" in the school system to assist in this type of programming, it is likely more do to with the notion that educators have enough (and what are considered more important) aspects of academic instruction to worry about without having to be concerned with those which focus solely on the human body.

The underlying paradox of the findings in this study is bred within the paradoxes created by the modern society, and these dichotomies of man vs. nature, science vs. the metaphysical, and the mind vs. the body. Modernist society instils values of progress and productivity and increases reliance on technology and science. This is synonymous with the mind/body dichotomy. We spend our lives (and for some our professions) utilizing science and progress to our advantage—teaching literacy and numeracy, implementing advanced applied behavioural analysis techniques, narrowing the margin of difference between the developmental trajectory of children with disabilities and those without—in order to produce busy, happy, good (and productive!) citizens (Bain, 1990). Yet disability, the 'problem' that creates an interruption in this monotonous cycle, is ultimately a condition of the capacity, appearance or function of the human body.
5.1.2 Knowledge-Power Continuum

Because there are these “other” focuses to programming and professional development, both within the school system and in government funded agencies, the atmosphere surrounding professional development in physical education (let alone movement education and adapted physical activity for individuals with disabilities specifically) is one of obliviousness and indifference. Whether it is intentional disregard or simply a matter of too many expectations and not enough time and resources available to meet them remains to be seen. The indigenous key phrases (summary statements) isolated from each expert evaluation encapsulate the general level of knowledge and the attitude within each cohort toward this type of PD (key phrases from each expert evaluation can be found in appendix N).

The indigenous key phrase made by the expert from the IBI cohort seemed to indicate that they as a profession are ‘unaware;’ that as a result of the lack of cross-disciplinary interaction within their professional dealings, nobody has ever brought this problem to their attention. They “just assumed it was being implemented effectively” (appendix N-1). There may be other peripheral professions who work with individuals with disabilities in physical environments who were not addressed in this study who are also acutely unaware that this problem exists. Some practitioners, such as was demonstrated in the expert evaluation from within the cohort of educational assistants, seem realize that this problem exists but feel as though they have ‘nominal influence’ in this capacity. They may feel that because “most are hired for literacy or numeracy purposes” (appendix N-2), they do not encounter individuals with disabilities in physical environments very often in their
daily professional duties, and/or when they do, that there is little that they can actually do to improve current arrangements or effect change.

Certain professionals may seem apathetic as it appears that perhaps some educators do if they “will NOT research this topic” (appendix N-3), as was stated by one of the experts from within this cohort. Again, educators especially are the cohort of professionals that seem to carry the burden of endless expectation and responsibility with limited means and/or ability. Educators are forced into a professional routine of ongoing intense resourcefulness in order to continually resolve the constant tensions within their professional environment and balance the needs of all invested parties. The result seems to be a sort of learned powerlessness; they never feel as though they can accomplish all that is expected of them, so they adopt an attitude of apathy so as not to carry disappointment and self-doubt. They manage what they can, and perhaps prioritize based on what will “please the masses” (literacy and numeracy) versus what is needed the most (movement education and adapted physical activity).

There are however, professionals that seem to be totally remiss when it comes to the attention that is needed to professional development in movement education and adapted physical activity among these cohorts. Certain professionals may feel that not only is it beyond the scope of their professional obligation, and that there are more needs to be met in a classroom or service environment than can feasibly be accomplished, but also that movement education and knowledge of the functioning human body simply are not important: “I do not have to know how my car works to be a good driver!” (appendix N-4). The preceding metaphor, which was used by one
of the experts in her evaluation of the curriculum, brings forth what is probably not an uncommon perspective among many professionals in these cohorts; that it is not the responsibility of IBI therapists, disability practitioners or educators to know how the body works. Of all the things they (educators especially) are expected to know, it is this knowledge that seems to be expendable.

The indigenous key phrase from each of the expert evaluations is a very important piece of data from this study. It is very telling of the experts’ approach to movement education and adapted physical activity, and it seems to encapsulate what often may be the general ideology held within their respective cohorts. All of the indigenous key phrases seem to speak to common aspects of these professionals’ levels of knowledge in this area and power to implement change within their institutions or organizations. For example, the IBI cohort was labelled as “unaware,” as the expert stated that she did not believe this had ever been identified as a problem within the field of IBI. This seems to imply (and I know from personal experience) that they may likely have a significant degree of power to implement change within their programming structure if necessary, but a minimal amount of the required knowledge in this area. EAs on the other hand, felt as though they had “nominal influence;” that this type of professional development was not applicable to them as they work more in the areas of literacy and numeracy. This potentially implies that they have both little knowledge in the area, and little power to implement change. A third variable in this relationship is introduced when examining the indigenous key phrases from the cohort of educators. Educators in the school system may appear to be “apathetic” because as it was stated by the expert, they would not take interest in
this type of professional development activity. While this implies they may (or may not) have knowledge and/or power to implement change in this area, it also demonstrates a level of ability (or inability) to act. Similarly, the expert representing those responsible for educating educators, stated their indifference within the metaphor “I don’t need to know how my car works to be a good driver;” (i.e. I don’t need to know how my body works to be a good mover—or in effect, to teach others to be good movers). This statement undoubtedly implies these professionals have a significant degree of power and perhaps also some of the required knowledge, but choose not to act on either.

Thus I have represented this three-part relationship schematically in Figure 5.1. This pyramid model comprises all three factors that effect change—knowledge, power, and in/ability to act—and shows the continuum that exists between and among them. In effect, all three elements must be present in order for any potential for actual change in this area to occur. The professionals within these organizations and institutions have to not only have the knowledge required and the power to implement change, but the ability to act with the knowledge and power that they have. Movement education and adapted physical activity programming has not been implemented into the current structure of professional development within these cohorts of practitioners and service providers because one or more of the three aspects that comprise the knowledge-power-action continuum are not a strong enough presence. This may not only be the case on the level of the educator or practitioner, but within the doctrine that governs the institution or profession as a whole.
These approaches and attitudes toward movement education and adapted physical activity do not originate within the professional environments themselves however. Professional cohorts are merely groups of citizens within the same society with common occupational goals; the attitudes and practices that guide the actions of professionals within their cohorts are such deeply ingrained codes within our societal and cultural practice, that they are reproduced through the habits and behaviours of these professionals in their daily pedagogical and therapeutic practice.

Figure 5.1 Knowledge Power Action Continuum
5.1.3 The Hidden Curriculum

There is a negative atmosphere surrounding the idea of incorporating movement education and adapted physical activity into structured interventions and special education programs for individuals with disabilities. Consequently professional development in this area is nearly non-existent among many cohorts of practitioners and educators who work in physical environments with this population. There are cultural 'codes' that operate in our society, and that dictate societal values, behaviour, structure and organization. The structure of training and education that these professionals receive is heavily influenced by these codes; they are so deeply ingrained in societal and cultural practice that they are inadvertently reproduced in the habits and routines of professionals as well. One can see Bain's (1990) analysis of the hidden curriculum in physical education as it operates in the PD structure within these organizations.

For example, Bain's theme of meritocracy is the notion that society places emphasis on control and order, and rewards those who demonstrate both competence and compliance, thus seeking to create the 'busy, happy, good' child. Bain (1990) suggests that physical activity is used to achieve this end—reward the athletes for their high level of performance, but keep all others engaged and on task. IBI therapy follows this mentality through its mechanistic behavioural approach to skill acquisition, seeking to teach children with Autism the social, life and academic skills which are deemed by the organization to be valuable and necessary. Ultimately though, the underlying motive is to extinguish disruptive, inappropriate or socially undesirable behaviours (those behaviours that fall outside the accepted standards or
norms). Whether they are intrinsically happy and engaged in activities and behaviours that are meaningful to them or not is irrelevant, so long as they are 'busy, happy, and good' (Bain, 1990). IBI is the therapy or form of intervention that is most commonly accepted and has shown to work; therefore it carries the most merit, the one that receives the most financial support. The same is true within the education system. Students who demonstrate ability and excel at the tasks and projects they are given, who pass standardized tests of ability and intelligence, and those who play nicely with other children are rewarded. The students who don’t comply or who exhibit socially undesirable behaviours are typically relegated to separate learning environments and provided with a “special” curriculum designed to keep them 'busy, happy, and good.' Movement, which may be a valuable factor in the programming and intervention for these individuals—which may assist them in making sense of the world around them—not does play a role in breaking this cycle.

Bain’s second theme of technocentric ideology—the deeply ingrained mentality that as humans we must maximize productivity and produce measurable outcomes—is evident in the knowledge-power-action continuum that seems to underpin all of the experts’ positions toward this type of PD opportunity. The concepts of knowledge and power are integral to a technocentric society, in which “people are viewed as ‘human resources’ who are educated so as to maximize their productivity, especially their economic productivity” (Bain, 1990, p.23). Ultimately, in all of the professional cohorts represented in this study, economic factors were the predominant barriers to the implementation of movement education and adapted physical activity programming within their current professional development
repertoire. All of the experts pointed fingers at the lack of time and financial
resources available within their organizations and institutions, time and money that
are better spent in other areas of instruction (e.g. literacy and numeracy). The reason
for this is that a child who can read and can write is valued more than a child who
moves well. A child who can read and write will undoubtedly be a more
economically productive citizen than one who cannot.

Technocentric education thus tends to reproduce rather than challenge
existing social arrangements, particularly when it comes to the perceived view of the
human body. Technocentric ideology values Western science and progress
(Fernandez-Balboa, 1997)—the mind over the body—which is why the emphasis in
both the special education system and in private service organizations for individuals
with disabilities (particularly ‘invisible disabilities’), is on academic skill acquisition
and behaviour modification.

5.1.4 Critical Practice/Pedagogy

Postmodernism constitutes a break from modern social practices and requires
the critique of traditional narratives, new ways of social organization and new
cultural meanings and power relations to emerge (Fernandez-Balboa, 1997). The
transition from modern to postmodern principles means that living, teaching and
learning requires new concepts, attitudes and actions; institutions need new schemes;
knowledge productions and ways of validating knowledge need reconceptualising—
one way of knowing or one superior accepted ‘truth’ can no longer suffice (1997).
Educators especially are accepted as the “sole owner of truth” (1997, p.125); whose
role is simply to infuse ‘commonly accepted’ knowledge to students. Knowledge then becomes static, neutral and universal and teaching is merely conditioning and manipulating students (1997). This is indicated in some of the expert responses to the curriculum where they state that there is no interest in this type of experience. This is an indication that knowledge has become static, and the interest among educators is to disseminate—rather than transform—accepted knowledge. This is why, without a critical postmodern approach, these social norms and cultural codes are so easily reproduced within their pedagogical practices. These principles are important to any professionals responsible for transferring knowledge in any aspect of human movement (i.e. these professionals that work in physical environments with children with disabilities), not only those in the profession of PE.

Fernandez-Balboa (1997) argues that physical educators have the moral responsibility to engage in critical pedagogy: develop personal and collective consciousness, treat knowledge as emancipatory, and engage in personal and social transformative action. I would extend this challenge of engaging in critical pedagogy to all educators, and practitioners in any arena within the field of disability.

For many practitioners of PE at all institutional levels [including teacher education], social critique is not considered to be particularly important or relevant to what they do or, while they may consider such analysis to be important, is not work they themselves need to carry out...is not even on the agenda of considerations. (Kirk, 1992, p.1)
I would argue that this lack of social critique is not limited to practitioners of PE alone, but that it exists among and within most modern educational, medical, and therapeutic professions. It has been clearly demonstrated throughout this study, and few would argue, that there are many different cohorts of practitioners and services providers outside the field of PE who also accept some responsibility for intervention or instruction in physical environments. Engaging in critical pedagogy or critical professional practice by examining therapeutic and educational goals for individuals with disabilities in the context of physical environments, and questioning the norms and standards by which success and 'learning' in these populations are measured, is the first step in instituting positive change.

5.2 Limitations

Although the findings of this study offer many valuable insights, like any other it should be reviewed with a caution to any potential limitations. The first limitation of this study concerns the specificity of the sample of expert participants. While IBI therapists, educational assistants and educators do comprise a few cohorts of professionals and service providers that work frequently in physical environments with individuals with invisible disabilities, these are only 3 cohorts of many practitioners that would benefit from this type of professional development opportunity, and who are not represented in this study. For example, individuals who are employed at summer camps where children participate in sports and recreation activities or other activities in physical environments, whether they are
specialized camps for persons with disabilities or typical summer camps open to any and all participants. Undoubtedly they will encounter individuals with learning disabilities or other somewhat ‘invisible’ disorders and they should be prepared and enthusiastic to provide the same quality programming to them as to all other camp attendees. Professionals such as athletic trainers and physiotherapists who work in fitness facilities, rehabilitation settings or other related physical environments may be well versed in the human body and how to keep it looking and working its best, however they may lack knowledge on the impact of disability on the body (especially the disabilities and disorders one often can’t see) and the ability to modify and program for this population as they would any other. The very amount of professionals in different areas who accept some responsibility for the instruction, supervision, assessment and programming of individuals with disabilities in physical environments, as well as the sheer number of disabilities there are within the school systems and agencies and within each disability, the varying degrees of severity and individualized needs in terms of accommodation, service, therapy or rehabilitation, makes addressing all of them within a single study an insurmountable task.

A second limitation of this study is that only one source of data was used—the expert evaluations of the curriculum. Incorporating multiple other sources of data would have substantiated the findings by allowing for triangulation between sources, and helped to increase the credibility of the study. For example, interviews with the expert participants, pre— and post—evaluation, would have allowed for some additional contextual data on the experience of performing the evaluation and provided clarification on any interpretive issues with regards to their feedback.
Interviews with other practitioners or educators within these cohorts may have also helped to confirm the expert responses to the curriculum. A document analysis of pre-service and in-service training and education curriculums for these professions would have added additional support when illustrating the severity of the research problem.

A third limitation to this study is the complexity of the curriculum that was created on which the expert participants performed their evaluations. As a researcher that is not directly involved with all of the cohorts that were represented by the expert sample, I was not personally familiar with every expert's level of education and professional experience. Purposeful sample criteria were broad in nature in that all experts held a supervisory role within their institutions and that they had practical experience in curriculum and professional development. However within each of the professional cohorts selected, the credentials and quality of experience in the field of disability, and/or physical activity will vary greatly. This may have impacted their ability to interpret, comprehend and apply the material in the curriculum, and in effect, the depth and quality of their evaluation.

5.3 Reflexivity

The basic principle of trustworthiness in research is the notion of both the audience and the researcher being assured that the findings of an inquiry are accountable and worth paying attention to (Lincoln & Guba, 1985). Trustworthiness is established by acknowledging both the limitations of the design of a study (as was
done in the previous section), and the biases and assumptions of the researcher. The ‘human factor’ in this research study is undeniable; not only was the motivation and purpose for this study derived from the personal, professional and academic experiences of the researcher, but many aspects in the creation of the study (e.g. curriculum evaluation questions, layered analysis process) are subjective instruments designed by the researcher. In fact, this entire study is based on the major assumption that practitioners and educators often provide programming and intervention for individuals with disabilities in physical environments with very little or no qualification to do so. I made every effort to announce these assumptions outwardly from the start of this study; in the introductory and methodological chapters of this paper, as well as in the letter addressed to the expert participants which accompanied their curriculum evaluation packages. In doing so, I addressed any covert motivations, and provided both the participants as well as the audience of this study the opportunity to fairly assess the credibility and trustworthiness of this study as objectively as possible.

5.4 Future Research Directions

This study examined the potential that exists for implementing movement education and adapted physical activity programming into the professional development repertoires of specific cohorts of practitioners working with individuals with ‘invisible disabilities.’ Three specific cohorts—IBI instructor therapists, educational assistants, and classroom educators—comprised the sample in this study,
and the 'invisible disabilities' grouping (only for the purpose of this study) limited the application to learning disabilities (LD), developmental coordination disorder (DCD), attention deficit hyperactivity disorder (ADHD), and autism spectrum disorder (ASD). Further research in this area should examine the presence of this research problem in other cohorts of professionals, such as athletic trainers, physiotherapists and community recreation and programming staff. An interesting future study might examine how this problem manifests between populations of service providers who are considered to already have knowledge about the body and those who may not, such as between occupational therapists and behaviour therapists.

Given infinite time and resources I would have examined a broader range of disabilities that are present with the school system and within many therapy environments, such as cerebral palsy, Down's syndrome (DS), and mental retardation (MR), and perhaps further categorized them to investigate physical disabilities, developmental disabilities and behavioural disorders. Further research in this area should examine the typical movement repertoires of individuals with these other disabilities, the nature of programming and intervention that they receive and whether or not movement education and adapted physical activity are a significant component of these interventions. Another possible research direction would be to investigate the specific types of physical environments these professionals encounter, as well as the type of interaction they have with individuals with disabilities in their day-to-day job duties (e.g. one-on-one, group, instructional, programming etc.). It may then be possible to cater such a professional development opportunity to
individual cohorts of professionals based in their own contextual environments rather than attempting to address multiple cohorts simultaneously.

Further research in this area could also address this problem through a longitudinal study examining the effects of implementing a professional development curriculum in movement education and adapted physical activity on the learners and clients of the practitioners involved. This type of study should address the transferability of the concepts and skills learned from the curriculum to the practitioner or educator's work environment, and the impact of the professional development experience on interactions between the practitioner and client/learner in physical environments. A longitudinal study like this should report on whether or not participating in a professional development opportunity in this area allows for significant improvements to made to the quality of physical activity programming and movement intervention that these students and clients are receiving, and in turn whether or not an educated and prepared practitioner will see more improvements to quality of life and independence of their learners/clients as a result of movement intervention, than one who is not.

This study illustrates some of the attitudes towards movement and physical activity that are inherent among practitioners and educators who work with individuals with disabilities; and ultimately demonstrates how cultural codes that dictate the structure and organization of society are reproduced within their pedagogical and professional practice. Further research is needed to fully understand the extent to which these cultural codes are operating within professional organizations and institutions that promote services and interventions for persons
with disabilities, and how to encourage a more critical, postmodern approach in which the knowledge or service provided is first and foremost emancipatory for the individual. It is important to understand that cultural norms and standards that are valorized by society are difficult to change, and to truly have a society that is accepting of all people, these norms must be deconstructed and reappraised. Practitioners and educators are seen as persons of knowledge and power in society, and thus they have the moral obligation to engage in critical reflection, as well as action, with regards to the norms and standards they uphold.
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APPENDIX

Appendix A

Core Areas of Subject Knowledge in Adapted Physical Activity (Sherrill, 1998, p.7-8)

1. Individual differences in human growth, development, and function, including ecosystem (person-environment) influences and the neurological bases of motor function.

2. Attitude, interpersonal relations, consulting and communication theory.

3. Law, human rights, and advocacy theory.

4. Scientific foundations of adaptation, including biomechanics, exercise physiology, and motor control theory.

5. Psychosocial foundations of adaptation, including self-actualization, self-concept, motivation, social competence, and behaviour management theory. This area also includes theories and approaches to normalization, integration, inclusion, and least restrictive environment.

6. Service delivery theory, including the traditional bodies of knowledge taught in assessment, curriculum, instruction and evaluation courses.

7. Counselling theory, weaving together sport psychology, rehabilitation counselling, and movement therapy.

8. Adaptation, creativity, and individualization theory, based on a thorough understanding of movement, fitness, sports, games, dance, and aquatics. This area also encompasses the disability sport movement, including sport classifications and the design and adaptation of equipment.

9. Philosophy, history, and problem solving in relation to every core area.
Appendix B

Summary of Pervasive Developmental Disorders (PDDs)

<table>
<thead>
<tr>
<th>PDD</th>
<th>Characteristics</th>
<th>Functional Level</th>
</tr>
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<tbody>
<tr>
<td><strong>Autistic Disorder</strong></td>
<td>• Also known as Kanner’s Syndrome or “Classic Autism”</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>• Fairly rare</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Limited verbal/nonverbal communication skills; absence of social or emotional reciprocity; absence of imaginative play; failure to develop peer relationships; repetitive, stereotyped patterns of behaviours, associated with mental retardation (MR)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Score low on tasks demanding verbal skills and abstract reasoning, but high on tasks requiring memory and visual-spatial or manipulative skills</td>
<td></td>
</tr>
<tr>
<td><strong>Rhett’s Syndrome</strong></td>
<td>• Occurs only in females</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>• Severe degenerative condition</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Deceleration of head growth between ages 5-48 months, loss of previously acquired hand skills between 5 and 30 months</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Loss of interest in the social environment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Appearance of stereotyped hand-wringing or hand washing movements and gait and coordination problems</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Development of severe impairment in expressive and receptive language and psychomotor function</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Associated with seizures</td>
<td></td>
</tr>
<tr>
<td><strong>Childhood Disintegrative Disorder (CDD)</strong></td>
<td>• Rare; only 100 known cases to date</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>• Normal early development to 24 months; onset between 36-48 months but can occur up to 10 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Characterized by rapid neurodevelopmental regression resulting in autistic symptoms</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Occurrence of loss of previously normal language, loss of cognitive and play skills, deterioration of self-help skills, development of stereotyped patterns of behaviour</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• More common in males</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Associated with severe intellectual disability</td>
<td></td>
</tr>
<tr>
<td><strong>PDD-NOS (Not Otherwise Specified)</strong></td>
<td>• Referred to as “atypical autism”</td>
<td>Moderate-High</td>
</tr>
<tr>
<td></td>
<td>• “Milder” form of autism; diagnosis by exclusion of all other disorders in the spectrum</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Clinically significant symptomology but do not meet full criteria for diagnosis of autism</td>
<td></td>
</tr>
<tr>
<td><strong>Asperger’s Syndrome</strong></td>
<td>• Severe, sustained impairment in social interaction, (lack of eye contact, failure to respond to nonverbal cues, lack of self-awareness) coupled with repetitive stereotyped patterns of behaviour</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>• No clinically significant delays in language development, cognitive function, or self-help skills (ex—toiletiing/bathing)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Normal IQ is common; clumsy; lack a sense of humour and have high anxiety</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Possible previous diagnosis of Autistic Disorder; responded well to early interventions</td>
<td></td>
</tr>
</tbody>
</table>

(Hundert et al., 2000; Reid & Collier, 2002; Sherrill, 1998)
Appendix C

Summary of Social, Communication and Behavioural Characteristics of Autism

<table>
<thead>
<tr>
<th>Qualitative impairments in social interaction</th>
<th>Qualitative impairments in communication</th>
<th>Restricted, repetitive, and stereotyped patterns of behaviour, interests and activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Impairment in the use of multiple nonverbal behaviours; eye gaze, facial expression, body postures and gestures to regulate social interaction</td>
<td>• Delay in or total lack of the development of spoken language</td>
<td>• Preoccupation with one or more patterns of interests—abnormal in either focus or intensity</td>
</tr>
<tr>
<td>• Failure to develop appropriate peer relationships/difficulty mixing with other children</td>
<td>• Impairment in the ability to initiate or sustain a conversation with others</td>
<td>• Apparently inflexible adherence to specific, non-functional routines or rituals</td>
</tr>
<tr>
<td>• Lack of social or emotional reciprocity</td>
<td>• Stereotyped, repetitive use of language or idiosyncratic language (echolalia—also called “scripting”)</td>
<td>• Stereotyped and repetitive motor mannerisms—e.g.) hand-flapping/toe-walking</td>
</tr>
<tr>
<td>• Sustained odd play—no functional play but uses objects in a repetitive manner (e.g. stacking or lining up objects)</td>
<td>• Inappropriate laughing or giggling</td>
<td>• Persistent preoccupation with parts of objects/inappropriate attachment to objects</td>
</tr>
<tr>
<td>• Prefers to be alone; aloof</td>
<td>• Not responsive to verbal cues</td>
<td>• “Tantrum” or problem behaviours</td>
</tr>
<tr>
<td></td>
<td>• Lack of spontaneous or social imaginative play appropriate to developmental level</td>
<td>• Uneven gross/fine motor skills</td>
</tr>
</tbody>
</table>

- Delays or abnormal functioning prior to age 3 in at least one of social interaction, language or symbolic or imaginative play
- The disturbance is not better accounted for by Rhett’s Syndrome or Childhood Disintegrative Disorder

(APA, 2000; Hundert et al., 2000; Reid & Collier, 2002)
Appendix D

Summary of Diagnostic Criteria for Asperger's Syndrome

<table>
<thead>
<tr>
<th>Qualitative impairments in social interaction</th>
<th>Restricted, repetitive, and stereotyped patterns of behaviour, interests and activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Impairment in the use of multiple nonverbal behaviours; eye gaze, facial expression, body postures and gestures to regulate social interaction</td>
<td>• Preoccupation with one or more patterns of interests—abnormal in either focus or intensity</td>
</tr>
<tr>
<td>• Failure to develop appropriate peer relationships/difficulty mixing with other children</td>
<td>• Apparently inflexible adherence to specific, non-functional routines or rituals</td>
</tr>
<tr>
<td>• Lack of social or emotional reciprocity</td>
<td>• Stereotyped and repetitive motor mannerisms—e.g.) hand-flapping/toe-walking</td>
</tr>
<tr>
<td>• Lack of spontaneous seeking or sharing of enjoyment, interests, or achievements</td>
<td>• Persistent preoccupation with parts of objects/inappropriate attachment to objects</td>
</tr>
</tbody>
</table>

- Disturbance causes significant impairment in social, occupational, or other areas of functioning
- No significant delay in general language
- No significant delay in cognitive development or development of age-appropriate self-help skills, adapted behaviour, and curiosity about the environment in childhood
- The disturbance is not better described by other PDD or schizophrenia

(APA, 2000; Hundert et. al., 2000; Reid & Collier, 2002)
Appendix E

Developmental Motor Milestones (Age 0-15 months)

<table>
<thead>
<tr>
<th>Chronological Age</th>
<th>Milestone</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Months</td>
<td>Fetal Posture</td>
</tr>
<tr>
<td>1 Month</td>
<td>Chin up</td>
</tr>
<tr>
<td>2 Months</td>
<td>Chest up</td>
</tr>
<tr>
<td>3 months</td>
<td>Reach and Miss</td>
</tr>
<tr>
<td>4 Months</td>
<td>Sit with support</td>
</tr>
<tr>
<td>5 Months</td>
<td>Sit on lap; grasp an object</td>
</tr>
<tr>
<td>6-8 Months</td>
<td>Crawl</td>
</tr>
<tr>
<td>7 Months</td>
<td>Sit alone</td>
</tr>
<tr>
<td>8 Months</td>
<td>Stand with help</td>
</tr>
<tr>
<td>9 Months</td>
<td>Stand holding furniture</td>
</tr>
<tr>
<td>10 Months</td>
<td>Creep</td>
</tr>
<tr>
<td>11 Months</td>
<td>Walk when led</td>
</tr>
<tr>
<td>12 Months</td>
<td>Pull to standing position</td>
</tr>
<tr>
<td>13 Months</td>
<td>Climb stair steps</td>
</tr>
<tr>
<td>14 Months</td>
<td>Stand alone</td>
</tr>
<tr>
<td>15 Months</td>
<td>Walk alone</td>
</tr>
</tbody>
</table>

(Sherrill, 1998, p.443)

Postural Reflexes/Reactions

<table>
<thead>
<tr>
<th>Time in Months</th>
<th>Postural Reflex/Reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Month 1</td>
<td>Kicking actions with feet, waving with hands (gravity)</td>
</tr>
<tr>
<td>Month 2</td>
<td>Head follows sound and motion (colour)</td>
</tr>
<tr>
<td>Month 3</td>
<td>Moving head from side to side (prone position)</td>
</tr>
<tr>
<td>Month 4</td>
<td>Propping self up on hands/arms (prone position)</td>
</tr>
<tr>
<td>Month 5</td>
<td>Core-distal/head-tail relationships (curl &amp; stretch, flex &amp; extend)</td>
</tr>
<tr>
<td>Month 6</td>
<td>Midline crossing</td>
</tr>
<tr>
<td>Month 7</td>
<td>Roll from back to right side &amp; left side, then to prone</td>
</tr>
<tr>
<td>Month 8</td>
<td>Swimming posture (full spinal extension)</td>
</tr>
<tr>
<td>Month 9</td>
<td>Hand and knees creeping</td>
</tr>
<tr>
<td>Month 10</td>
<td>Bear walking (hands/feet)</td>
</tr>
<tr>
<td>Month 11</td>
<td>Moving into and holding a seated position</td>
</tr>
<tr>
<td>Month 12</td>
<td>Pushing up to a stand/assisted and unassisted walking</td>
</tr>
</tbody>
</table>
# Appendix F

## LABAN MOVEMENT CONCEPTS

<table>
<thead>
<tr>
<th>Body Awareness</th>
<th>Space Awareness</th>
<th>Effort</th>
<th>Relationships</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Basic Body Function</strong></td>
<td><strong>1. Personal Space - Kinesphere:</strong></td>
<td><strong>1. Qualities:</strong></td>
<td><strong>1. With Objects:</strong></td>
</tr>
<tr>
<td>bend, curl, stretch or twist</td>
<td>a) 3-dimensional cross</td>
<td>a) weight - firm (strong)</td>
<td>a) manipulative - send/receive/retrain</td>
</tr>
<tr>
<td><strong>2. Body parts can:</strong></td>
<td>b) diagonals</td>
<td>- fine (light)</td>
<td></td>
</tr>
<tr>
<td>a) bend, curl, stretch or twist</td>
<td>c) planes</td>
<td>- heavy</td>
<td>b) nonmanipulative -</td>
</tr>
<tr>
<td>b) lead an action</td>
<td></td>
<td>b) time - sudden (fast)</td>
<td>obstacle/extension/ target/apparatus</td>
</tr>
<tr>
<td>c) be used symmetrically or asymmetrically</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3. Weight bearing:</strong></td>
<td><strong>2. General Space:</strong></td>
<td></td>
<td><strong>2. With People:</strong></td>
</tr>
<tr>
<td>a) support (body parts taking weight)</td>
<td>a) levels - high/medium/low</td>
<td>- sustained (slow)</td>
<td>a) alone</td>
</tr>
<tr>
<td>b) transference of weight</td>
<td>b) pathways - air, floor (straight, angular curved, twisted)</td>
<td>- flexible (wavy)</td>
<td>b) alone in a mass</td>
</tr>
<tr>
<td>c) balance - counterbalance</td>
<td>c) extensions - large, small, near, far</td>
<td>- flow - bound (stopable)</td>
<td>c) partners, small groups, large groups</td>
</tr>
<tr>
<td><strong>4. Body Actions</strong></td>
<td>d) directions</td>
<td>- free (ongoing)</td>
<td>(cooperatively/ competitively)</td>
</tr>
<tr>
<td>a) locomotion</td>
<td><strong>3. Space Words:</strong></td>
<td><strong>2. Emphasize One Element</strong></td>
<td>copy question/answer</td>
</tr>
<tr>
<td>b) elevation</td>
<td>over, under, around, near, far, towards, away from, onto, into, above, below</td>
<td>match action/reaction</td>
<td>mirror dance together</td>
</tr>
<tr>
<td>c) turns</td>
<td><strong>4. Basic Effort Actions:</strong></td>
<td>contrast travel with unison</td>
<td>lead/follow conversation</td>
</tr>
<tr>
<td>d) gestures</td>
<td><strong>4. Using Space:</strong></td>
<td></td>
<td>cannon send/receive</td>
</tr>
<tr>
<td>e) inversion</td>
<td>explore, penetrate, fill, surround, replace</td>
<td></td>
<td>take turns</td>
</tr>
<tr>
<td><strong>5. Body Shapes:</strong></td>
<td></td>
<td></td>
<td>merge/disperse</td>
</tr>
<tr>
<td>pin, wall, ball, screw</td>
<td></td>
<td></td>
<td>meet/part near/far</td>
</tr>
<tr>
<td><strong>6. Symmetrical &amp; Asymmetrical Use of the Body</strong></td>
<td></td>
<td></td>
<td>passing dance to linking</td>
</tr>
<tr>
<td><strong>7. Motion and Stillness</strong></td>
<td></td>
<td></td>
<td>d) Intergroup relationships</td>
</tr>
</tbody>
</table>

(Stanley, 1969, p.39)
### Appendix G

#### Case Study Design Rubric

<table>
<thead>
<tr>
<th>Single Case Designs</th>
<th>Multiple Case Designs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type 1</strong></td>
<td><strong>Type 3</strong></td>
</tr>
<tr>
<td><em>A single case in which there is only one thing being analyzed.</em></td>
<td><em>Multiple cases are being analyzed, however there is only one thing being analyzed with each case.</em></td>
</tr>
<tr>
<td><strong>Type 2</strong></td>
<td><strong>Type 4</strong></td>
</tr>
<tr>
<td><em>A single case in which there are several different things being analyzed.</em></td>
<td><em>Multiple cases are being analyzed, with several things being analyzed respective to each.</em></td>
</tr>
</tbody>
</table>

(Yin, 1994)
Appendix H

Movement Education and Physical Activity Intervention for Invisible Disabilities:
A Professional Development Curriculum for Practitioners

A Graduate Thesis study by: Ashley Hardman

Supervisor: Dr. Maureen Connolly

Committee: Dr. Nancy Francis & Dr. Jay Patterson

Brock University

June 5, 2009.
Introduction

Movement education, based on the unparalleled work of Austro-Hungarian dancer and movement theorist Rudolf Laban (Connolly, 2008; Stanley, 1969), is a conceptual-based approach to teaching, learning, and attitudes about the human body. It is based on the premise that there are overarching “themes” of the moving body—BODY, SPACE, EFFORT, RELATIONSHIPS—that are constant and always present, regardless of the movers, the context, or the activity. (The Laban movement concepts will be unpacked and explained in great detail in module 1 of the following curriculum). This conceptual approach is fundamental to understanding human movement in all forms and at all developmental levels, regardless of an individual’s age, sex, ethnicity, or physical or intellectual capacity. Movement education language is non-pejorative, and therefore can be used in any situation with any mover of any movement capacity. Thus it lends itself remarkably well to assisting teachers in planning appropriate and inclusive activities in a variety of physical education settings; as well it is highly effective to professionals involved in therapeutic interventions. According to Connolly (2008), “this kind of Movement Education-based approach is especially powerful for individuals with developmental delays and/or dramatically idiosyncratic movement and behaviour habits. There is room for the “unusual” or “unmanageable”...,” (p. 236). A conceptual approach to movement allows for variation in responses, and the opportunity to continually refine movement patterns and broaden the movement repertoire of the individual. The emphasis with Laban’s approach to movement is on understanding and contextualizing movement, and developing and refining movement patterns which are relevant to the individual at her/his own skill level and meaningful in their daily environments. This is a dramatic shift from traditional skills-based physical education environments where the emphasis is on one “correct” form of any given skill, and all learners are expected to do the same activity in the same way. Challenging conventionally structured physical education learning experiences is particularly important for the population of individuals this curriculum addresses; those with ‘invisible disabilities.’

For the purposes of this curriculum, I use the term ‘invisible disabilities’ to refer specifically to Learning Disabilities (LD), Autism Spectrum Disorder (ASD), Attention Deficit Hyperactivity Disorder (ADHD) and Developmental Coordination Disorder (DCD). I have grouped together this population of individuals for several reasons, among which is that there is a significant overlap in the manifestations of the motor deficits of these disabilities, as well as programming and intervention strategies. However, the most predominant reason for this grouping is that these disabilities are often among the most difficult for teachers and service providers to identify, manage and adapt to in typical education and learning environments.

It is important to remember that movement is complex and infinitely varied from person to person. Yet it is an inherent part of the way in which all individuals experience the world around them. Teachers, service providers and other professionals in a position to influence learning in movement-related contexts have the potential not only to positively impact the learners’ contact with the world around them on a daily basis, but also to dramatically improve their quality of life. Gaining a general understanding of motor development and movement concepts should be considered an obligation of those providers wishing to provide the highest possible quality of movement programming or physical activity intervention.

While this curricular module does not by any means divulge everything there is to know about motor development, movement education or the relationship between movement and disabilities, it does provide the opportunity for a valuable professional development experience and unlimited potential for further development in this area in the future.

References

MODULE I

Understanding Movement
1.1
EARLY MOTOR DEVELOPMENT

Motor Milestones

The term ‘motor milestones,’ is used to describe the sequenced acquisition of specific predetermined motor skills in the first twelve to fifteen months of an infant’s life. These early movements are prerequisite for later voluntary and more complex movement patterns. The order in which the motor milestones are acquired is the same for all individuals, however the timing (developmental and/or chronological age) at which each milestone is achieved varies from person to person. Timing of acquisition of motor milestones is dependent upon how quickly the central nervous system (CNS) matures and whether or not there are any associated problems; on development of muscular strength and endurance as well as posture and balance; and on the efficiency of sensory processing. Table 1 summarizes the typical developmental progression of motor milestones. Understanding the developmental progression through the motor milestones is important when working with individuals with invisible disabilities because many if not all learners in this population will have associated movement deficits or impairments. These impairments relate to underdeveloped or absent motor milestones.

Table 1: Motor Milestones (Age 0-15 months)

<table>
<thead>
<tr>
<th>Chronological</th>
<th>Milestone</th>
<th>Description &amp; Movement</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Months</td>
<td>Fetal Posture</td>
<td></td>
</tr>
<tr>
<td>1 Month</td>
<td>Chin up</td>
<td>Stability</td>
</tr>
<tr>
<td>2 Months</td>
<td>Chest up</td>
<td>Stability</td>
</tr>
<tr>
<td>3 months</td>
<td>Reach and Miss</td>
<td>Manipulation</td>
</tr>
<tr>
<td>4 Months</td>
<td>Sit with support</td>
<td>Stability</td>
</tr>
<tr>
<td>5 Months</td>
<td>Sit on lap; grasp an object</td>
<td>Stability; Manipulation</td>
</tr>
<tr>
<td>6-8 Months</td>
<td>Crawl</td>
<td>Locomotion</td>
</tr>
<tr>
<td>7 Months</td>
<td>Sit alone</td>
<td>Stability</td>
</tr>
<tr>
<td>8 Months</td>
<td>Stand with help</td>
<td>Stability</td>
</tr>
<tr>
<td>9 Months</td>
<td>Stand holding furniture</td>
<td>Stability</td>
</tr>
<tr>
<td>10 Months</td>
<td>Creep</td>
<td>Locomotion</td>
</tr>
<tr>
<td>11 Months</td>
<td>Walk when led</td>
<td>Locomotion</td>
</tr>
<tr>
<td>12 Months</td>
<td>Pull to standing position</td>
<td>Stability</td>
</tr>
<tr>
<td>13 Months</td>
<td>Climb stair steps</td>
<td>Locomotion; stability</td>
</tr>
<tr>
<td>14 Months</td>
<td>Stand alone</td>
<td>Stability</td>
</tr>
<tr>
<td>15 Months</td>
<td>Walk alone</td>
<td>Stability; locomotion</td>
</tr>
</tbody>
</table>

(Sherrill, 1998, p. 443)
Reflexes and Reactions

An infant's earliest movements, called reflexes, are involuntary changes in muscle tone elicited in response to certain stimuli or environmental conditions (Sherrill, 1998). For example, a baby at 2 months old will turn its head to follow the direction of a certain sound or colour. In typical motor development, reflexes will progressively involve the coordination and control of interacting body parts as the CNS matures. Muscle reflexes can range from very subtle shifts in muscle tension, to completely undesired movements of whole body parts (1998), called overflow movements. Often in individuals with any disability affecting motor control, moving isolated body parts is difficult and overflow movements occur as a result. Reactions are the automatic movement patterns that replace primary reflexes once sufficient practice and repetition of a motor action has occurred (Sherrill, 1998). Reactions develop according to an inborn timetable (progression through developmental motor milestones—summarized in Table 1). Most reactions are life-long and serve to protect the body, or to help maintain equilibrium (static/dynamic balance and stability in body postures).

Movement Categories

Movement is broadly categorized into three different areas of skill development—stability, locomotion and manipulation. As the CNS matures and specific motor skills become evident, a progression through these three areas occurs as well. Stability and postural control develops first, followed by manipulation and locomotor skills.

Stability/Postural Control

Stability movement skills—those movements which help to maintain various body postures and affect balance and overall coordination—form the basis for all other locomotor and manipulative skills. Stability movements are those which occur as the body senses a shift in the relationship of body parts and adjusts to compensate (Gallahue, 1993). Activities of this nature occur in our own personal space (e.g. head control, sitting, standing), and typically develops between 7 to 12 months of age.

Body control and the beginnings of mature movement develop in what is called a cephalocaudal and proximodistal progression (Gallahue, 1993, Sherrill, 1998, Wall & Murray, 1994, Wickstrom, 1983). Cephalocaudal means from the head downwards, while proximodistal means from the midline or center of the body outwards. For example, body and postural control begins first with the elevation of the head, and then the neck and chest by age 2 months (Sherrill, 1998). At birth the center of gravity is high and the trunk of the infant’s body develops prior to the limbs and extremities (Wall & Murray, 1994). In terms of movement, this means that an infant will crawl using gross motor movements and exhibiting control over the arms and knees (closer to the center of the body), before being able to stand
and move in an upright position exhibiting control over the hands, fingers and feet (which are further away from the center of the body). The cephalocaudal and proximodistal progressions demonstrate how the movement repertoire of an individual develops from very gross and general to more specific, fine motor activities (1994).

Along with the motor milestones outlined in Table 1, there are specific markers of postural and stability development as well. Some of these may be previously listed as motor milestones. These are considered developmental milestones but are also indicators of CNS growth and maturation. Table 2 summarizes the postural reactions which occur in the first 12 months of an infant’s life.

Table 2: First year Postural and Stability Reactions

<table>
<thead>
<tr>
<th>Time in Months</th>
<th>Postural Reflexes/Reactions (CNS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Month 1</td>
<td>Kicking actions with feet, waving with hands (gravity)</td>
</tr>
<tr>
<td>Month 2</td>
<td>Head follows sound and motion (colour)</td>
</tr>
<tr>
<td>Month 3</td>
<td>Moving head from side to side (in prone position)</td>
</tr>
<tr>
<td>Month 4</td>
<td>Propping self up on hands/arms (from prone position)</td>
</tr>
<tr>
<td>Month 5</td>
<td>Core-distal/head-tail relationships (curl &amp; stretch, flex &amp; extend)</td>
</tr>
<tr>
<td>Month 6</td>
<td>Midline crossing</td>
</tr>
<tr>
<td>Month 7</td>
<td>Roll from back to right side &amp; left side, then to prone</td>
</tr>
<tr>
<td>Month 8</td>
<td>Swimming posture (full spinal extension)</td>
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<tr>
<td>Month 9</td>
<td>Hand and knees creeping</td>
</tr>
<tr>
<td>Month 10</td>
<td>Bear walking (hands/feet)</td>
</tr>
<tr>
<td>Month 11</td>
<td>Moving into and holding a seated position</td>
</tr>
<tr>
<td>Month 12</td>
<td>Pushing up to a stand/assisted and unassisted walking</td>
</tr>
</tbody>
</table>

(Sherrill, 1998)

Locomotion

Locomotion refers to travelling or moving the whole body in an upright manner vertically or horizontally from one place to another. Crawling, creeping, rolling, running, jumping, etc., are all considered to be fundamental locomotor skills, (Gallahue, 1993). This typically occurs between 10-15 months of age and follows a predictable progression (crawl→creep→stand→walk→run). Again the rate varies across children, (Sherrill, 1998). Locomotion in infants develops in a homolateral to contralateral progression (Sherrill, 1998; Wall & Murray, 1994). Homolateral movements are movements which use parts on the same side of the body—for example the left arm and left leg move together.
**Contralateral** movements are those which occur using parts on opposite sides of the body—for example the right arm moves at the same time as the left leg (as in the arm swing during walking). Contralateral movements are more complex, and require a more mature level of CNS processing. Locomotor movements do not develop automatically, which means they are affected to a great extent by environmental factors such as opportunities for practice and instruction. Failure to develop mature locomotor skills and movement patterns will affect later more specialized (sport/game oriented) skill acquisition (Gallahue, 1993).

**Manipulation**

Manipulation involves being able to receive, control and manoeuvre objects (i.e. sending, receiving, retaining). For example, reaching, grasping, releasing, kicking, throwing and catching are all considered fundamental types of *manipulative* movement. Manipulation skills are essential to purposeful and controlled interaction with objects in our environment, but again, do not develop automatically. Environmental factors such as practice, quality of instruction and encouragement all influence the development of manipulative skills.

**Gross motor** manipulation "refers to movements that involve giving force to or receiving force from objects," (Gallahue, 1993, p. 18). **Fine motor manipulation** emphasizes motor control, precision and accuracy in object-handling tasks or activities, (1993). The reach and grasp is the earliest manipulative motor skill to develop in an infant; this occurs between 3-5 months of age. Sending and receiving typically occur at or older than 12 months of age. Mature manipulation skills are typically acquired after most stability and locomotor skills.

**References**

LABAN MOVEMENT CONCEPTS

BODY AWARENESS

(Stanley, 1969, p. 40-49)

- A sense of body shape, size and function; of different individual body parts and how they work individually as well as in cooperation or in opposition to each other
- A sense of how the body is capable of moving (types of locomotion, speeds, forces from within the body compelling it to move in different ways
- Within the concept of body awareness are separate sub-concepts of:

  1. Basic body functions
  2. Body parts
  3. Weight Bearing
  4. Body actions
  5. Body shapes
  6. Symmetrical/asymmetrical uses of the body
  7. Motion and stillness

1. Basic Body Functions
- All body movements are comprised of variations or transitions between these three basic body functions:
  - **Bend/curl:**
    - E.g.) bow your head; bend your elbow; touch your toes
    - Bend/curl: involves the movement of various parts of the body towards the centre of the body, or for parts of the body to approach other parts of the body; the tendency of the body is to become 'round' or 'ball shaped'
    - The differentiation between bend and curl is the extent of the body to which each involves—i.e. "bend" stresses an action in a particular joint or isolated body part where as "curl" gives a sense of enfolding the whole body or larger segment of it
  - **Stretch:**
    - E.g.) standing tall, reaching up while standing on 'tip toes'
    - Stretching involves the elongation of the spine, or parts on either side of a joint(s) move away from each other; the body becomes either wide or elongated (narrow)
  - **Twist:**
    - E.g.) sit cross-legged on the floor facing square ahead. Reach arms to the right and to the wall behind the body while turning and looking to the wall directly behind
- Twist: involves the rotation of one or more parts of the body against another part which remains fixed or moves in a counter direction

2. **Body parts**

- Body parts can *bend, curl, stretch or twist*:
  - E.g.) opening/closing a fist, flexing/ extending at the elbow, bending down to touch the toes and then reaching up to the sky
  - Any two parts on either side of a joint or joints have the ability to bend (move closer together) and stretch (separate apart), and many body parts of the capacity to twist to some extent as well

- Body parts can *lead an action*:
  - E.g.) reaching into a cupboard to retrieve a dish (the reaching hand/arm leads the action); an overhand baseball throw (the opposite leg to throwing arm steps first into the throwing pattern and leads the action)

- Body parts can *be used symmetrically or asymmetrically*:
  - E.g.) star-jumps in the air, jumping-jacks
  - Body parts on either side of the body can perform the same action, simultaneously using the same pathway in space and effort quality
  - Using the body in this way offers more stability and balance
  - E.g.) writing, walking
  - Paired body parts are used in ways independent of each other
  - Symmetrical and asymmetrical uses of body parts lead the rest of the body into similar types of movement; this allows the body to attain stability or mobility

- Body parts can *meet & part*:
  - E.g.) clapping, jumping jacks, splits, scissor kicks, arms and legs when walking
  - Body parts moving toward or away from one another
  - Some body actions place the emphasis on the point of contact of the meeting/parting—usually the point of contact in this case becomes the extremities of the body limb or body part (as in clapping, jumping jacks, and the arm and leg swing when walking); while in other body actions (such as doing the splits or scissor kicks) the emphasis is on the different body surfaces that meet and part like the inside surface of the legs
  - Think of the body parts as "...instruments or tools such as scissors, pincers, and hammers and so on." (Stanley, 1969, p.43).

3. **Weight bearing**

- **Support**:
  - The parts of the body that are taking and holding the weight of the body
  - Examines the contact of the body with (i.e. *on or from*) the base of support
- E.g.) standing = one or both feet are bearing the body weight; sitting down = the rear end is bearing the body weight; hanging from a gymnastics bar = the hands, knees or even ankles can be bearing the body weight

• *Transference of weight:*
  - Support of the body weight is shifted from one body part to another
  - **This is perhaps the most important aspect of human movement; it is responsible for generating locomotion, and often maintaining balance and stability**

• *Balance:*
  - Maintaining the weight of the body spread equally over the base of support
  - Center of mass in the human body (referred to as our center of gravity) is located generally in the hips
  - When we move we adjust the position of our body to keep the center of gravity directly over the base of support to maintain stability
  - Certain body positions are more *unstable* than others—these are positions in which the base of support is small and it is difficult to hold the base of support steady

4. **Body actions**

• *Locomotion:*
  - Transferring weight from one body part to another in order to move the body through space
  - Types of locomotion vary depending upon the manner in which the weight transference occurs
    - **Roll:** transference of weight from one *adjacent* body part to another e.g.) log roll—from back to left side to front to right side to back, etc.
    - **Step-like:** transference of weight to non-adjacent body parts e.g.) crawling—from right hand and left knee, to left hand and right knee
    - **Jumps/Flight:** body is raised clear off the floor or ground in a moment of flight; body weight is replaced on the same or different body part in a different location in space
    - **Sliding/gliding:** body weight retained on certain body parts while travelling through space e.g.) as in figure skating

• *Elevation:*
  - Springs or jumps that propel the body upward removing weight from supporting body parts
  - In a vertical plane on the spot or as a form of locomotion
  - Raising a body part, e.g.) arm or head with less intensity and suddenness, flight does not result
• **Turns:**
  - On the spot or travelling; full or partial rotations
  - Led by different parts of the body
  - Occur in different directions with different parts of the body used as the base of support
  - Uses the *twisting* function of the body

• **Gestures:**
  - Movement of body parts which are not supporting any body weight e.g.) leg swings, toe taps
  - Function of gestures is often to provide counter-balance to keep the center of gravity over the base of support (maintain stability)

5. **Body shapes**
• The planes and positions of body parts in relation to each other, and to space
• Relate to and incorporate the four basic body functions
- **Pin:**
  - Body is long and narrow; utilizes the *stretch* function
  - Vertical: e.g.) standing on tip toes reaching with both hands towards the ceiling
  - Horizontal: e.g.) laying down with arms and legs together and stretch to the walls in position for a ‘log roll’
  - Can be used in locomotor, elevation, or turning body actions

- **Wall:**
  - Body is flat and wide; can incorporate *stretch* and *bend* functions
  - Can be high: e.g.) standing in “star fish” position with arms and legs stretched away from the body to the peripheral walls; or low: e.g.) in a basketball ‘guard stance’ where body is *bending* at the knees and hips, and arms are *stretched* outwards creating a low, wide, flat body shape
  - Can move (locomotion), jump (elevation), turn or make body gestures in a wall shape

- **Ball:**
  - Body is closed and round; relates to the *curl* function
  - Can be in flight actions: e.g.) ‘cannon ball’ jumps; locomotor actions: e.g.) summersault rolls; or turn in a ball shape

- **Screw:**
  - Uses the *twist* function
  - E.g.) throwing, turning
6. **Symmetrical/asymmetrical Uses of the Body**

- **Symmetrical:**
  - E.g.) standing in 'star-fish' shape, jumping jacks
  - Right and left sides of the body match in shape and simultaneous movement
  - Provides great amount of stability but consequently restricts mobility and locomotion

- **Asymmetrical:**
  - Skipping, walking, galloping, running
  - Body parts on right and left sides of the body are used alternately and/or in opposition to each other
  - Both sides of the body can alternate and be used equally (as when walking) or one side can be emphasized over the other (as in the gallop)
  - Provides greater mobility but less stability and steadiness

7. **Motion & Stillness**

- **Acceleration/deceleration:**
  - Ability of the body to increase or decrease the speed and intensity of [locomotor] movement

- **Agility in gross motor movements:**
  - Addresses all of the above concepts
  - Ability of the body to perform and change basic body functions, shapes and actions, to support and transfer body weight, gain and regain balance, maintain and recover stability, move symmetrically or asymmetrically, start/stop movement gradually or suddenly and increase/decrease the speed and intensity of gross motor body movements

**SPACE AWARENESS**

(Stanley, 1969, p. 49-56)

- Movement takes place in space
- Directional orientation in space can be understood from two perspectives: **general** and **personal**
- In **general space** the orientation is taken from fixed points that exist external to the body; i.e.) “up” and “down” are represented by the vertical plane to the ground or
floor, “frontwards” and backwards” are taken from the front and sides of body and will change dependent on which direction the body is facing, or there can be a specified “front” and “back” of any given room or space

- In personal space the orientation is taken from within the body; i.e. “up” is towards the head and “down” is towards the feet regardless of whether or not the body is positioned in a vertical plane to the earth

- In some circumstances the orientation to space, room or body does not differ

- Space awareness is comprised of:

1. Personal Space
2. General Space
3. Using Space
4. Spatial Mass

1. Personal Space—“Kinesphere”

- Three-dimensional cross
  - The sphere which immediately surrounds the body; taken from the normal standing position of the body forming a three-dimensional cross—up-down; right-left; front-back
  - Up-Down: the length of the body forms the vertical dimension; vertical movements
  - Right-Left: the width of the body lies across one of the horizontal dimensions; moving/turning right and left causes the opening and closing of the body
  - Back-Front: refers to the depth of the body and lies along the 3rd dimension (sagittal); advancing and retreating movements
Picture this cube as the human body; the intersecting directions form a three-dimensional cross.

- **Diagonals**
  - Think of the body as placed in the center of a cube; directional pathways form four diagonals:
    - Front-upper-right to back-bottom-left
    - Front-upper-left to back-bottom-right
    - Back-upper-right to front-bottom-left
    - Back-upper-left to front-bottom right
  - Each diagonal passes through the center of gravity of the body (demonstrated by the central point at which the diagonals intersect)

- **Planes**
  - *Vertical Plane:* formed from a combination of the length and width of the body; a door exists in the vertical plane
    - Most compatible with up and down and sideways movements
    - E.g.) basketball guard
  - *Sagittal Plane:* formed from a combination of the vertical and sagittal (front/back) dimensions of the body; a wheel rotates and moves in the sagittal plane
    - Compatible with forward and backwards locomotion
    - E.g.) bowing, walking, summersault, sitting down or standing up
  - *Horizontal Plane:* made up of a combination of horizontal and sagittal dimensions but does not include vertical (up and down) movements; a table surface symbolizes the horizontal plane
    - Compatible with forward-backward and sideways movements; implies movements performed in parallel or near parallel fashion to the ground
    - E.g.) 'snow angels'
2. **General Space**

- **Levels**
  - *High:* upward toward the ceiling or sky; felt by reaching into the space above the body at standing position and/or jumping
    - In upright body posture *high* levels are those from the shoulders and up
  - *Low:* roughly on or near the floor or ground; felt in bending, rolling or tumbling actions; often involves changing the base of support to a kneeling, sitting or laying down
    - In upright body posture, the *low* level is achieved when working in space from the knees down
  - *Medium:* the space in between the two extremes of high and low; considered the 'normal' range of body movement when reaching in the general space in front and around the body at standing height
    - In upright body posture, the *medium* level is the general space that exists between the shoulders and the knees
  - Continuous movement that guides the body through all three levels requires the greatest balance and expends the most energy

- **Pathways**
  - Through *air*—patterns of the arms, legs, head and trunk formed through general space are vital to some movement activities
    - These patterns often provide symbolic characteristics to movement as well as require higher degrees of control; consequently they often have a more appeasing aesthetic quality in addition to meaningful form—e.g.) waving a streamer in patterns in the air as in rhythmic gymnastics
  - On the *floor*—straight, curving, twisting or weaving pathways of locomotion
    - can be combined with sharp changes of direction to form angular lines
    - different floor patterns utilize different movement qualities (i.e. zig zag patterns are erratic and lively, vs. graceful, thoughtful curving patterns)

- **Extensions in Space**
  - Concerned with the size of the movement shape and the distance from the point of reference
  - Extensions can be *large* or *small* body shapes, and *near* or *far* in distance from the point of origin on the body
Larger extensions tend to involve more body parts in comparison to small ones; under ordinary circumstances most body movement takes place in the small-medium size and distance from the body.

**Directions**

- It is necessary to understand the directions in which the body is capable of moving in order to appreciate the practical effects of the 3-dimensional cross, planes, levels and pathways.
- Directions orientate from a specific *point of reference*, that can exist either within or outside of the body.
  - If the point of reference exists within the body, then the direction the body is facing indicates "front" or "forward;" similarly the general space behind the body indicates "back" or "backwards" and likewise with sideways and up and down directions.
  - If the point of reference exists outside of the body, then direction becomes fixed for that general space, and directions are indicated by their relation to that fixed point; for example "front" may be said to be "the front of the room," in which case "forwards" occurs when moving towards the fixed point; "backwards" occurs when moving away from it, and so on.
- Different body parts lead action in various directions.

3. **Using Space (Space Words)**

- Over
- Under
- Around
- Near
- Far
- Towards
- Away
- From
- Onto
- Into
- Above
- Below
- Beside
- Through
- Explore
- Penetrate
- Fill
- Surround
- Replace

4. **Spatial Mass**

- The amount of space that is taken up or occupied by the body.
- Spatial mass relates to size and body shape (e.g. a wall shape will occupy more space than a pin shape.)
EFFORT QUALITY

(Stanley, 1969, p. 56-67)

- All movement has the potential to exhibit particular emotional qualities; the characteristics of the movement display a 'tone' which is interpreted both by the mover and the observer to convey this specific 'feeling'.
- The way in which movements are performed reflect an inner attitude of the mover; this attitude is evident dependent upon which parts of an isolated movement or series of movements are emphasized.
- Movements, parts of movements, and individual body parts can be emphasized in different ways to create desired movement qualities.
- Effort quality concept involves:

  1. Qualities
  2. Emphasis on one element
  3. Emphasis on two elements
  4. Basic Effort Actions

1. Qualities

- **Weight:**
  - Refers to the amount of muscular tension applied to a particular movement to exert the appropriate force demanded in the movement task; dictated by the inner feeling of the mover.
    - **Firm (strong)**
    - **Fine (light)**
    - **Heavy**
- **Time:**
  - The speed or pace with which movement is produced.
    - **Sudden (fast):** quick and short in duration; exploding movements; e.g.) reflects urgency and hastiness
    - **Sustained (slow):** slow and continuous
    - **Rhythm:** temporal aspect of movement
- **Space:**
  - Refers to how the movement uses pathways in space.
    - **Direct (straight):** movement from one place to another in a straight line; a linear use of space
    - **Flexible (wavy):** non-linear pathways which appear to fill or expand the general space
- **Flow:**
  - Whether the movement has any distinguishable beginning and end point.
    - **Bounded (stoppable):** restrained and carefully controlled; there is a distinct beginning and end to the movement
    - **Free (ongoing):** no distinct beginning and end to the movement; fluid, ongoing motion
2. **Emphasize One Element**

- It can be difficult for an immature mover to recognize the four effort qualities in the context of their day to day movement repertoire. It can be helpful for teaching purposes to emphasize one effort factor at a time in order to clearly understand how each element manifests itself and influences the appearance and characteristics of movement.

3. **Emphasize Two Elements**

- Some movements are characterized by the stress on two effort factors simultaneously.
- E.g.) movements may have a *time-weight* stress:

![Diagram showing time-weight emphasis with four quadrants: Sudden-Firm, Sustained-Firm, Sudden-Fine, Sustained-fine.](image-url)
• E.g.) ... a time-space stress:

E.g.) ... a weight-space stress:
• E.g.) ...a weight-flow stress:

- Flow
- Weight
- Firm
- Fine
- Firm-Bound
- Fine-Bound
- Firm-Free
- Fine-Free

• E.g.) ...a space-flow stress:

- Flow
- Space
- Direct
- Flexible
- Direct-Bound
- Flexible-Bound
- Direct-Free
- Flexible-Free

• E.g.) ...a time-flow stress:

- Flow
- Time
- Sudden
- Sustained
- Sudden-Bound
- Sustained-Bound
- Sudden-Free
- Sustained-Free
4. **Basic Effort Actions**

- Functional or expressive movement tasks are characterized by specific time durations, force involved and the pathway or expansion into space (note the emphasis on 3 effort qualities now). The combination of the three effort elements varies to form 8 specific movement actions which Laban terms "Basic Effort Actions" (Laban & Lawrence, 1947, p. 14-17 as cited in Stanley, S., 1969).

  - **Thrust** = sudden, firm, direct
  - **Press** = sustained, firm, direct
  - **Slash** = sudden, firm, flexible
  - **Dab** = sudden, fine, direct
  - **Float** = sustained, fine, flexible
  - **Flick** = sudden, fine, flexible
  - **Glide** = sustained, fine, direct
  - **Wring** = sustained, firm, flexible

- The effort qualities of movement is significant in terms of differentiating between mechanical movement and activities of daily living

**RELATIONSHIPS**

(Stanley, 1969, p. 67-75)

- The concept of relationships can be explained as: 1) between a mover and an object or 2) between multiple movers.

1. **With Objects**

  - **Manipulative:**
    - Controlling the movement of the object through isolated, intermittent or continuous contact
    - Control of an incoming object (receiving, retaining), or control of an outgoing object (sending)
      - **Receiving** an object involves aligning the body with the object and preparing to absorb the force of the travelling object into the body—e.g.) catching a ball
      - **Retaining** an object involves manipulating it in order to maintain constant contact or possession if in a game scenario—e.g.) dribbling a soccer ball
Sending an object involves applying the necessary force and direction to control its flight and project it towards the desired target through space—e.g.) shooting a basketball

- **Non-manipulative**
  - Adapting movements to a stationary object, and/or utilizing the object to the mover's advantage
  - Involves adapting to or moving with the object in several ways to achieve a desired movement purpose; i.e.) the object can be regarded as an *obstacle, extension, target* or *apparatus*
    - If the object is an *obstacle*, the mover adapts by moving round it
    - If the object is considered an *extension*, its purpose is to augment the natural capabilities of the body
    - The object can be a *target* or *apparatus* to which the mover relates her/his movement

2. **With People**
   - **Alone**
     - Individual is entirely free and responsible for her/his own movement; determines her/his own movement quality—weight, pace and pathway
   
   - **Alone in a Mass**
     - Independent movement among a group of individuals
     - Often occurs in unstructured situations

- **Partners**
  - Two people can interrelate in any movement situation in *cooperative* or *competitive* relationships
  - *Cooperation* can take the form of:
    - Taking turns: individuals are free to make their own movement choices but do so in an alternating manner, sharing equipment, space or time
    - Copying/question & answer dialogue: individuals movements bear a relationship to one another; contrasted or displayed in a variation from one another which gives the perception of an ongoing communication
    - Matching action/reaction: partners match their movement sequences in weight, pace and pathway so that it gives the appearance of one *mirroring* the other
    - Lead/follow conversation: grows from matching movements
    - Meet/part, near/far: coming together and engaging in reciprocal interaction, followed by a separation and cessation of the interaction and distancing of the partners from each other
- *Competition* can utilize the same partner interactions in a contradictory manner

- **Groups**
  - Occurs when more than two people are working together to achieve the same movement purpose, and an interrelationship exists between all group members
  - Spatial relationships vary according to the number of people in the group
  - Contrast between travel and unison—movements can be performed individually within a group movement task (i.e. each individual can perform a different movement ‘part’ of the whole) or all individuals in the group can perform the same movements at the same time, or travel together (unison)
  - Cannons—individuals in the group perform movements or travel independently beginning at different times, but in a successive sequence to one another; (e.g. person 1 starts walking forward; after two steps person 2 starts walking forward while person 1 continues walking forward; after person 2 takes two steps person 3 starts walking forward, so all three movers are now walking forward, and so on...)

- **Intergroup relationships**
  - Can occur cooperatively or competitively, with or without a ‘leader’

**References**


MODULE II

Motor Learning and Movement in Invisible Disabilities
2.1

SENSORIMOTOR INTEGRATION

Movement because it is so often taken for granted in both the able-bodied population and in this population of individuals with invisible disabilities, is not appreciated as an intricate and systematic physiological process. Entire courses in post-secondary programs are needed to elucidate the complexities of the central nervous system (CNS), not to mention the neurological role of the CNS in the selection and production of movement. However, there are rudimentary concepts integral to understanding how movement is created and produced.

Sensation and Perception

Sensation is the input of environmental stimuli into the brain from sensory receptors in all parts of the body. Each sensory modality (i.e. sight, sound, touch, taste, etc.) has its own specialized receptors on sensory organs to receive specific input from the environment. Sensory reception is the process that occurs when a sensory organ is stimulated by an external event. An intricate network of neurons carries the information from these sensors directly to the brain (Gallahue, 1993). The third link in the sensory chain, sensory perception, is the ability of the brain to organize and make sense of this sensory information (Gallahue, 1993; Kurtz, 2008; Sherrill, 1998). The difference between reception and perception is a critical distinction for instructors and educators to be able to make as the majority of movement difficulties and deficits in this particular population occur within this area of the process. Tactile, deep pressure, kinaesthetic, vestibular and visual sensory systems are the most important to motor learning; when delays or atypical functioning occurs, motor development is subsequently affected (Connolly, 2008; Kurtz, 2008).

Sensorimotor Integration and Perceptual Motor Learning

Sensorimotor integration is the organization of sensory information for use (Kurtz, 2008; Sherrill, 1998 in Ayres, 1972, 1980). This involves integrating new input from stimuli with stored information from memory in order to elicit internal responses and initiate movement to achieve the desired motor outcome (Gallahue, 1993). Intrasensory integration refers to the improved function within one sensory system while intersensory integration is the improved function between multiple sensory systems (Sherrill, 1998). Bilateral motor integration is the progressive ability of the two sides of the body to cooperate with and complement each other in order to successfully complete certain motor skills and/or movement patterns.
**Perceptual Motor Learning (PML)** is the "establishment and refinement of sensory sensitivity to one's environment through movement," (Gallahue, 1993, p. 10). It is the process of acquiring knowledge about the self and the environment through integrated sensory processes (sensation, perception, action). PML includes memory, cognition, perceptual-motor skills, sensorimotor integration, decoding, attention, and CNS processing (Sherrill, 1998; Connolly, 2008). A reciprocal relationship exists between motor capacity and perceptive abilities of the brain. Perceptual abilities are learned and movement is an important medium through which this takes place.

**Sensorimotor Deficits in Invisible Disabilities**

Service providers and educators working with populations with invisible disabilities (ID) tend to have a general understanding of the broad characteristic impairments and behaviours of each. Less well understood among these professionals are the deficits of these disabilities relative to movement and motor learning. Inherent in all of these disabilities is an impaired or complete lack of ability to understand and process information about the environment. How one interprets and integrates themselves into the world around them is a bodily experience gained through sensation and perception.

The terms in the previous sub-section can be quite heavy and intimidating without a contextual reference to place them against. What is important to understand is that these separate processes come together to contribute to the production of movement, and that deficits or delays in one or multiple of these processes occurs in individuals with ID. This section of the curriculum discusses movement characteristics of each disorder, and explains them in relation to the Laban movement concepts (body and space awareness, effort quality and relationships) and to the three movement categories (locomotion, stability, manipulation).

**Praxis** is what is known as “the ability to conceptualize, plan and carry out an unfamiliar motor task or motor sequence,” (Kurtz, 2008, pp. 76). This process involves 4 sequential steps:

1. Create a motor goal and think about how to achieve it
2. Intentionally plan and sequence motor actions needed
3. Accomplish movements with precision
4. Generate and respond to feedback regarding the success of the movement (accuracy, speed, etc.)

In individuals with LD, ASD, ADHD, or DCD, problems may exist in any or all of these ‘steps’ of the motor planning process, or in areas of sensory perception and/or motor integration. For example feedback may be uncomfortable or unhelpful, or the individual may experience over/under sensitivity to certain sensory stimuli. The absence of this ability to plan and achieve specific motor outcomes is called apraxia (Kurtz, 2008); while a partial absence of
this ability is called **dyspraxia**. Developmental coordination disorder is often referred as just dyspraxia, or developmental dyspraxia (2008).

*Common sensory perception and praxis problems in this population* (Connolly, 2008; Kurtz, 2008; Sherrill, 1998)

- **Sensory modulation problems**: problems discriminating information and determining what is appropriate and helpful and what is not
- **Visual perception problems**:
  - Tracking moving objects
  - Tracking objects across the midline
  - Tracking at varied distances
  - Extraordinarily broad receptive light spectrum
  - Functional vision problems—affect the *efficiency* of the visual system (e.g., near/far-sightedness)
- **Auditory perception problems**:
  - Discriminating various stimuli
  - Attending to relevant stimuli
  - Extraordinarily broad receptive sound spectrum
- **Tactile perception problems**:
  - Tactile discriminations
  - Overstimulation or tactile ‘stimming’
  - Under-stimulation or tactile ‘craving’
- **Vestibular Perception**:
  - Providing correct information regarding balance & orientation in space
  - Most important system in the regulation of body postures
- **Proprioceptive System (Kinesthetic awareness)**:
  - Comprised of various receptors in joints, muscles and tendons that provide awareness of body position and body movements
  - Generally over-aroused nervous system
  - **Ataxia**: Generalized motor clumsiness related to balance and coordination deficits (strongly correlated to a lack of _kinaesthetic awareness_)
  - Problems with kinaesthetic integration include:
    - **Time**—inability to feel whether body parts are moving or still; inability to feel various speeds
    - **Space**—inability to feel where body parts are in space, the direction in which they are moving and whether body parts are bent or straight, aligned, upright, inverted, etc.
    - **Weight**—inability to feel the amount of force being exerted or the amount of weight being pushed, pulled, lifted or lowered in a movement
    - **Flow**—inability to feel the smoothness or jerkiness of movement, especially in transitions from one speed to another, one direction to another, one shape to another, etc.
o Individuals with ID typically have low muscle tone (hypotonia) or fluctuating muscle tone and poor core trunk strength
o Delayed midline crossing

• Other affective problems that frequently occur:
  – Extreme frustration, task/social avoidance, passive-aggressive behaviours designed to manipulate people or environments to avoid failure
  – Extreme sensory responses to stimuli are a method of coping with overwhelming sensory stimulation (Connolly, 2008)
2.2

MOTOR REPERTOIRES IN ID

While all of the IDs have generalized perceptual motor deficits as outlined in the previous section, more specific common movement repertoire patterns have been identified in Autism Spectrum Disorder (ASD) and learning disabilities (LD).

Autism Spectrum Disorder (ASD)

Common motor manifestations of ASD are disruptions in sensory integration and perceptual-motor functioning (especially executive control of motor functions), exaggerated behavioural and/or physiological responses to sensory input and disintegration of motor function itself (Connolly, 2008). Prevalent movement characteristics in the movement repertoires of individuals with ASD are:

- Fine, sudden movement
- Limbs kept near the body
- Flexed spine
- No arm action unilateral arm-leg action (same arm as leg)
- Toe walking
- Uneven gait
- Static & dynamic balance issues
- Unable to maintain locomotion in certain pathways
- Uneven gross-motor skill development

As mentioned in the information in module I on early motor development, absent or underdeveloped motor milestones tend to dominate the movement repertoire of individuals with ID, and particularly individuals with ASD. Movement characteristics that are often absent from the movement repertoires of individuals with ASD are:

- Midline crossing
- Firm movement
- Extension of spine and hip (this is explains poor posture—goal is to strengthen the extensor muscle groups across the body. Extensors of the neck and back or referred to as the antigravity muscles (Sherrill, 1998), which prevent the body from developing postural patterns pulling the body downward due to gravity)
- Lordosis or 'sway back'—caused by imbalance in abdominal muscles (normal unless appearing in adolescence)
- Running gait—foot plant, recovery, pushoff, and flight
- Controlled landings
- Contralateral arm-leg movements
- Gradual changes in speed (acceleration/deceleration)
- Weight transfer (e.g. proper heel-toe weight transfer in mature walking gait)
- Underdeveloped sensory integration and motor milestones
- Vestibular and perceptual problems
- Underdeveloped gross-motor and body awareness
- Mature ascending/descending patterns (Marking time vs. Alternate feet)
- **Marking time**: same foot always leads
- **Alternate feet**: foot-over-foot pattern; only one foot on a step at a time
- Difficulty sequencing or performing a sequencing of movements in children with ASD—e.g., riding a bike (Manjiviona & Prior, 1995).
- Individuals with ASD (esp. high functioning) and Asperger's syndrome are likely to have a pervasive motor disability affecting both gross and fine motor development as opposed to a single, isolated motor impairment (Manjiviona & Prior, 1995).

When postural problems are evident, muscle imbalances are particularly important to address, as these can lead to compensatory movement problems and maladaptations. An individual develops compensatory problems in their movement repertoire in order to compensate for another movement deficit. For example, if the muscle groups on either side of the spine are not of equal strength, (i.e. one side is ‘too tight’ and the opposing muscles are ‘too loose,’ the spine will be pulled out of alignment by the stronger muscle group, eventually distorting the shape and position of bones (Sherrill, 1998). Another common example is an individual with toe-walking gait, or a persistent “toe-walker.” She/he will develop enlarged calf muscles and tight Achilles tendons at the back of the ankle. This may also lead to excessive flexion of the hips and spine (bending forward) in order to maintain balance and stability when walking.

**Learning Disabilities (LD)**

Learning disabilities have detectable motor deficits called *motor soft signs* (indications). Some typical motor soft signs in LD are:

- Static and dynamic balance deficits
- Overflow and choreiform (twitching) movements
- Generalized awkwardness
- Agnosias (perceptual deficits—inability to recognize sensory stimuli)

Perceptual-Motor weaknesses that are specific to LD are:

- Difficulty decoding; making sense out of their bodies and space
- Finger agnosia; unable to visualize own fingers (e.g. children unable to conceptualize and draw fingers on characters)
- Inability to identify body parts and surfaces
- Inability to make right-left discriminations
- Difficulty in making judgments about body size, shape, and proportions
- Poor spatial orientation; difficulty in estimating distance, height, width, etc.
- Display greater levels of overflow (excess/unnecessary) movements; (e.g. inability to keep one limb still while the other is required to perform an action)—contribute to clumsiness
- Motor proficiency problems in tasks of balance, bilateral coordination and fine motor visual control
- Apraxia
ID Movement Characteristics Summary: Manifestations in Movement Categories

<table>
<thead>
<tr>
<th>Stability</th>
<th>Locomotor</th>
<th>Manipulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Low muscle tone, poor trunk strength and lack of hip &amp; back extension hinders ability to develop stationary and dynamic balance</td>
<td>• Low muscle tone and stability problems hinder development of proper weight transfer—affects ability to transition from one position to another, or develop a sense of control over the body—these individuals will often get “stuck” in positions that feel comfortable or safe, which explains the limitation in areas of space and body awareness</td>
<td>• Difficulty with the manipulation of objects (direction, force, aim/accuracy and speed)</td>
</tr>
<tr>
<td>• Lack vestibular and kinaesthetic awareness</td>
<td>• Deviances from mature gait patterns</td>
<td>• Finger agnosias (LD)</td>
</tr>
<tr>
<td>• Generalized clumsiness</td>
<td>• Immature ascending/descending motor patterns</td>
<td>• Lack fine-motor visual control</td>
</tr>
<tr>
<td></td>
<td>• Decreased speed and accuracy of general tasks</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Bilateral coordination deficits</td>
<td></td>
</tr>
</tbody>
</table>

(Connolly, 2008; Manjiviona & Prior, 1995; Sherrill, 1998)

References


MODULE III

Movement Programming
3.1

OBSERVATION AND MOVEMENT ANALYSIS

The skill of observation plays a critical role in effective teaching and learning. Skilled observation demands visual acuity, movement analysis skills, and the ability to translate movement and visual images into a working oral vocabulary—hence the significance of Laban movement concepts, (Murray & Lathrop, 2005). It involves selection, interpretation, and decision-making as the observer must be able to focus on a single individual's movement response within the context of a changing environment—i.e. one which potentially includes other movers and/or other stimuli (2005). Skilled observation takes into account a number of different factors including the learners and their movement responses, the environment, teachers' knowledge of movement content, and the organization and design of the lesson (2005). General principles to guide the observation of learners' movement:

- **Safety:**
  - Sufficient space, use of apparatus and equipment is appropriate, students are dressed appropriately for the activity and warmed up sufficiently to participate fully in the activity
- **Students' Learning:**
  - Students should remain on task, and the equipment and apparatus as well as other environmental factors construct an environment that is developmentally appropriate for everyone
- **Level of Challenge:**
  - Every student's skill is appropriately matched to the challenge
- **Opportunity for Improvement:**
  - Every student has the required information and opportunity to improve; the opportunity can be enhanced by further altering the task

A simplified grid of the Laban movement concepts provides a foundational framework which serves to focus the construction of appropriate lessons, and guide the teacher in movement observation and analysis. It is interesting to note that almost all provincial physical education curricular guidelines in Canada identify these four movement categories in relation to learning outcomes for students in physical education (Murray & Lathrop, 2005).
<table>
<thead>
<tr>
<th>Body Awareness (What)</th>
<th>Space Awareness (Where)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance</td>
<td>Direction (e.g. up, down, sideways, forward, backward)</td>
</tr>
<tr>
<td>Body parts (e.g. feet, head, knees)</td>
<td>Level (high, medium or low)</td>
</tr>
<tr>
<td>Locomotion, weight transference, flight, rotations</td>
<td>Pathway (e.g. straight, curved, zig-zag)</td>
</tr>
<tr>
<td>Body actions (e.g. stretch, curl, twist)</td>
<td>Plane (door/vertical, wheel/sagittal, table/horizontal)</td>
</tr>
<tr>
<td>Body shapes (e.g. wide, narrow)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Effort (How)</th>
<th>Relationships (With Whom)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time (sudden, sustained, duration, rhythm)</td>
<td>With objects (e.g. over, under, around, send, receive, along)</td>
</tr>
<tr>
<td>Weight (e.g. firm, fine, heavy, strong, light)</td>
<td>With people (e.g. match, mirror, copy, lead, follow, intercept, cannon, unison)</td>
</tr>
<tr>
<td>Flow (e.g. continuous, free, bound, jerky)</td>
<td></td>
</tr>
</tbody>
</table>

(Murray & Lathrop, 2005; adapted from Stanley, 1977)

**Developmental Domains: The Thinking, Feeling, Moving Child**

In order for developmental programming to be effective (in movement as well as other contexts), it is important for the practitioner to understand the child or learner they are working with. There are three broad areas in which development occurs: psychomotor, cognitive and affective. While this curriculum focuses primarily on the “moving child” or the psychomotor domain, understanding the cognitive (“the thinking child”) and affective (“the feeling child”) characteristics of learners will enhance a practitioner’s ability to target or include cognitive or affective deficits in their movement programming. The charts on the following pages summarize the typical developmental characteristics across age groups in each of the three domains.
### Understanding the Whole Child – "Typical Characteristics"

#### The Moving Child (Physical Domain)

<table>
<thead>
<tr>
<th>Pre-School (under 5 yrs old)</th>
<th>Childhood (5-8 yrs old)</th>
<th>Late Childhood (9-12 yrs old)</th>
<th>Adolescence (13-18 yrs old)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross motor skills developed; fine motor skills not developed</td>
<td>Large muscles more developed than small muscles</td>
<td>Major growth spurt</td>
<td>Males reach growth spurt between 11-15 yrs</td>
</tr>
<tr>
<td>Bilateral movements are difficult</td>
<td>Lack muscular endurance</td>
<td>Feel awkward performing skills</td>
<td>Female growth spurt 9-13 yrs</td>
</tr>
<tr>
<td>Poor balance because of cephalocaudal development</td>
<td>Ligaments and bones are stronger</td>
<td>Good fine motor skills</td>
<td>Vast diversity in physical characteristics</td>
</tr>
<tr>
<td>Enjoy moving quickly</td>
<td>Basic motor patterns are refined</td>
<td>Body grows at different rates</td>
<td>Most gross and fine motor skills have been developed, however this varies from individual to individual</td>
</tr>
<tr>
<td>Interested in throwing and catching with different types of balls</td>
<td>Perform motor skills singly</td>
<td>Secondary sex characteristics</td>
<td>Combine motor skills together to play more “adult-type” physical activities and games</td>
</tr>
<tr>
<td>Hand-eye and foot-eye coordination starting to develop</td>
<td>Center of gravity still a little high</td>
<td>Starts to combine motor skills together</td>
<td>Start to become interested in specific types of activities</td>
</tr>
<tr>
<td>Enjoy moving in different directions</td>
<td>Need vigorous activity</td>
<td>Individual difference are distinct due to maturation and experience</td>
<td></td>
</tr>
<tr>
<td>Competent in running and jumping</td>
<td>Visual and tracking abilities improved</td>
<td>Locomotor skills are refined</td>
<td></td>
</tr>
<tr>
<td>Close work tends to be difficult because of farsightedness</td>
<td>Mastered most locomotor activities</td>
<td>Fine motor control is developing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Manipulative skills are slowly developing</td>
<td>Girls tend to be taller and heavier than boys</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Abilities of males and females do not yet differ</td>
<td>Flexibility begins to decrease</td>
<td></td>
</tr>
</tbody>
</table>

### The Thinking Child (Cognitive Domain)

<table>
<thead>
<tr>
<th>Pre-School (under 5 yrs old)</th>
<th>Childhood (5-8 yrs old)</th>
<th>Late Childhood (9-12 yrs old)</th>
<th>Adolescence (13-18 yrs old)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learn through play and exploration</td>
<td>Short attention span</td>
<td>Abstract thought</td>
<td>Complex thought capabilities are present</td>
</tr>
<tr>
<td>Children know their own name</td>
<td>Focus on one aspect of the environment (5 &amp; 6 yr olds)</td>
<td>Rapid processing of visual information</td>
<td>Variety in cognitive abilities</td>
</tr>
<tr>
<td>Do not like loud noises</td>
<td>Rapid development of perceptual abilities</td>
<td>Increased attention span</td>
<td>Attention span generally well developed but does vary from individual to individual</td>
</tr>
<tr>
<td>Learning new words</td>
<td>Enjoy repetition</td>
<td>Conscious of external influences</td>
<td>Variations in response to instructional approaches</td>
</tr>
<tr>
<td>Attention span is very short</td>
<td>Well-developed imaginations</td>
<td>Memory sharpens</td>
<td></td>
</tr>
<tr>
<td>Associate words with objects</td>
<td>Amount of concentration varies</td>
<td>Egocentricity decreases</td>
<td></td>
</tr>
<tr>
<td>Motivated to learn new skills</td>
<td>Want to be involved</td>
<td>Enjoy intellectual activities</td>
<td></td>
</tr>
<tr>
<td>Thought processes are developing</td>
<td>Eager to learn</td>
<td>Enjoy contests</td>
<td></td>
</tr>
<tr>
<td>Well-developed imaginations</td>
<td>Generally lack fear</td>
<td>Thought retention increases</td>
<td></td>
</tr>
<tr>
<td>Memory is slowly developing</td>
<td>&quot;why&quot; is often asked</td>
<td>Discourage easily</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Concepts of time, weight, and space are developing</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Desire approval from adults</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Deals with small bits of information at a time</td>
<td></td>
</tr>
</tbody>
</table>

### The Feeling Child (Affective Domain)

<table>
<thead>
<tr>
<th>Pre-School (under 5 yrs old)</th>
<th>Childhood (5-8 yrs old)</th>
<th>Late Childhood (9-12 yrs old)</th>
<th>Adolescence (13-18 yrs old)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enjoy being hugged</td>
<td>Respond well to reinforcement</td>
<td>Formation of peer groups</td>
<td>Peers are a major source of motivation</td>
</tr>
<tr>
<td>Begin to smile</td>
<td>Respond poorly to criticism</td>
<td>Tension with adults</td>
<td>Identity formation</td>
</tr>
<tr>
<td>Afraid of strangers</td>
<td>Limited capacity to deal with stress</td>
<td>Clubs, gangs and cliques begin to form</td>
<td>Variations in responses to winning and losing</td>
</tr>
<tr>
<td>Fearful of new situations</td>
<td>Egocentric</td>
<td>Becoming aware of gender roles</td>
<td>Tend to be very emotional</td>
</tr>
<tr>
<td>Very emotional</td>
<td>Learning to share and take turns</td>
<td>Role models from community, TV, and movies</td>
<td>Sport and physical activity have the potential to be powerful socializing agents</td>
</tr>
<tr>
<td>Like to be independent</td>
<td>Sarcasm will be perceived as ridicule</td>
<td>Seek peer approval</td>
<td>Enjoy participating with peers</td>
</tr>
<tr>
<td>Seeking adult approval</td>
<td>Friendships shift continually</td>
<td>Establishing values</td>
<td>Morals and values are formed</td>
</tr>
<tr>
<td>Starting to distinguish between right and wrong</td>
<td>May be intimidated by teacher who knows all</td>
<td>Males and females develop separate interests</td>
<td></td>
</tr>
<tr>
<td>Enjoy watching others play</td>
<td>Winning and losing become important</td>
<td>Some gender antagonism</td>
<td></td>
</tr>
<tr>
<td>Do not respond well to authority</td>
<td>Respect “fair” discipline and reinforcements</td>
<td>Desire to be popular and to assert themselves</td>
<td></td>
</tr>
<tr>
<td>Egocentric</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tend to be rough with each other</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Like to play with children</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Developmentally Appropriate Programming

Strategies to guide the creation and implementation of developmentally appropriate programming can be summarized using the acronym: DEVELOPMENTAL (Connolly, 2008).

- Developmental Literature—know the typical characteristics of your participants
- Equipment—fit the equipment to the child NOT the child to the equipment
- Variety—provide a variety of skills and activities for all levels
- Engaging—offer appropriate challenges matched to the skill level(s) of the learner(s)
- Learner Centered—every participant is unique; focus is on learning and behaviour change
- Objectives are Clear—to the learner and instructor; assists in evaluation of the activity
- Progressive in Nature—builds gradually in complexity and level of difficulty
- Meaningful Feedback—positive and constructive feedback; activity itself needs to be meaningful
- Ensure Social Interaction—allow participants to play together if contextually appropriate
- No Danger—make sure environment and activities are safe
- Tasks are Individualised—fit the program to the child NOT the child to the program
- All are Included—avoid elimination activities and provide equal playing time; competition with self
- Large Groups are avoided—small group games increase chances of meaningful participation
**Movement Profiling**

Movement profiling is a systematic method of movement analysis which allows a teacher, coach or therapist to observe a mover over time and across contexts. Connolly (2008), created the movement profile instrument below using the detailed components of each Laban movement concept. Observation and analysis of movement can yield overwhelming amounts of descriptive information about the learner's movement repertoire. Using the below instrument is helpful in reducing the sheer quantity of note-taking during observation periods and may allow practitioners to observe different learners simultaneously, or the same learners in different contexts.

The reference to **frequency** on the instrument refers to **how often** a particular movement trait appears. For example, if watching a learner perform a normal walking gait; does she/he do a proper heel strike (i.e. heel touches the ground first) on each and every step? If not, how often on a scale of 0-5 do they do this? **Quality** denotes a comparison to the **expected** or 'typical' developmental ability of the learner. If they are performing the skill 'on par' with their developmental age, they would score a "0." If the way they are performing the movement skill is below average developmentally, they would score a "-1." And so on. The second page of the instrument allows the observer to describe the absences and dominances in the movement repertoire of the learner, as well as any compensatory movement patterns or other concerns that arise from observation.

Overall, this guide for observing and analyzing movement will assist instructors and practitioners in identifying dominant patterns and missing features from a learner's movement repertoire, and help to construct an accurate movement profile. The movement profile can function as a pedagogic, evaluative, pre-post comparative, training and therapeutic tool (Connolly, 2008).
MOVEMENT PROFILE

<table>
<thead>
<tr>
<th>Frequency</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Never</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Almost Always</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quality</th>
<th>-1</th>
<th>0</th>
<th>+1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>'On Par'</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**BODY**

Whole Body, Shapes and Functions:
- Bend –
- Stretch –
- Twist –
- Curl –
- Gestures –

Weight Bearing:
- Feet –
- Hands and feet –
- Landings –
- Other –

Transfers:
- Sit to stand –
- Stand to sit –
- Rocking –
- Gliding or sliding –

Balance:
- Maintain –
- Regain –

Locomotion:
- Walk –
- Run –
- Jump –
- Hop –
- Skip –
- Creep –
- Crawl –
- Deceleration –

Body Parts:
- Lead/focus –
- Meet and part –

**SPACE**

Levels:
- Low –
- Medium –
- High –

Direction:
- Forward –
- Backward –
- Right/Left –
- Up/Down –

Pathways:
- Direct –
- Indirect –

Reach:
- Close –
- Far –

**EFFORT**

Firm weight –
Fine weight –
Sudden time –
Sustained time –
Bound flow –
Free flow –

**RELATIONS**

Alone –
Partners –
Groups –
Apparatus –
 Implements –
Objects:
- Send –
- Receive/stop –
- Retain/carry –

**Name:** ________________

**Age:** _________

**Disability:** ________________
MOVEMENT PROFILE CONTINUED

Noteworthy details/additional comments –

What dominates the movement repertoire? –

What are the gaps or absences from the movement repertoire? –

Compare/contrast to same age peers with/without similar disability –

Consequences of gaps and dominances –

Recommendations for immediate and long term program intervention(s) / planning –
3.2

TASK PLANNING

Task planning is an under-appreciated skill in many professionals who work with young learners. Task planning becomes all the more important when working with populations of individuals with ID. This curricular module focuses on movement tasks, task progression and effective lesson planning.

Movement tasks are tasks designed to improve the motor performance of the learner (Rink, 1979). Movement tasks can be open or closed (Wall & Murray, 1994).

- **Closed tasks:**
  - Elicit more uniform responses
  - Remove responsibility from the children
  - May save time
  - May focus attention on a specific movement or movement concept
  - Fewer decisions for the learner to make

- **Open tasks:**
  - Elicit individual interpretations of the task
  - Increases the children’s responsibility for their own learning
  - May mean the children spend more time thinking before responding, and encourage exploration and discovery
  - Require a flexible approach to skill development
  - Require good observational skills from the teachers/instructors
  - Learners make more decisions

The following table summarizes open vs. closed tasks and the decisions which may be left up to the learner:

<table>
<thead>
<tr>
<th>Decision</th>
<th>Open task</th>
<th>Closed task</th>
</tr>
</thead>
<tbody>
<tr>
<td>With whom they will work</td>
<td>“make groups of four”</td>
<td>“Count off in fours”</td>
</tr>
<tr>
<td>Where they will work</td>
<td>“move into your own space”</td>
<td>“Stand in your lines”</td>
</tr>
<tr>
<td>What equipment they will use</td>
<td>“select either a ball or a hoop”</td>
<td>“everybody take a large ball”</td>
</tr>
<tr>
<td>How they respond</td>
<td>“move in whatever way you want when the music comes on”</td>
<td>“skip four steps forward and four steps backward”</td>
</tr>
</tbody>
</table>

(Wall & Murray, 1994)
Closed tasks provide more structure, and should be used when either the teacher or the learner is new to each other or when either one is in a new environment. Children with invisible disabilities will benefit from the structure and specificity of desired response of a closed task.

**Types of Movement Tasks / Task Progression:** (Wall & Murray, 1994)

- **Basic tasks:** the starting point of a learning sequence in a lesson, or the first task that is used to initiate simple movement skills (e.g. "run"). Lessons for learners with ID will include more basic tasks than will lessons for older/more mature/more skilled students as this population of learners need frequent changes of activity to maintain their interest and level of motivation (Wall & Murray, 1994). The attention deficits and difficulty with processing sensory information prevent these learners from spending as much time on refining and extending specific movement tasks. Whereas more skilful learners will experience more success and therefore will be motivated to improve the quality of their performance through refining and extending tasks.

- **Refining tasks:** All tasks may be followed by refining tasks. These types of tasks are designed to tell the learner how to improve the skill through hints or teaching cues which focus on execution and quality of performance of the movement task. Theses cues are based on the teacher's observation and analysis of the learner and his/her knowledge of appropriate skill execution (e.g. "be sure to bend your knees when you land"). Refining tasks tend to be more closed because the intention is to focus attention to a specific aspect of the movement task, movement concept or pattern (Wall & Murray, 1994).

- **Simplifying tasks:** reduce the level of difficulty for a learner so that improvement and development are able to take place. This type of task is particularly relevant for this population, and therefore it is important that instructors (therapists and EA's) perfect their ability to simplify movement tasks according to the movement capacities of the learner. There are different simplifying tasks to meet the needs of the learner:
  - Change the equipment
  - Alter the environment
  - Change one dimension of the previous task

- **Extending tasks:** are the opposite of simplifying tasks. Extending tasks build on the initial basic task and increases the level of difficulty and variation of a movement task to meet the learners' newly developed level of competency (i.e. once the learner is able to complete a movement task successfully, the task is extended to further
challenge their newly acquire ability). Movement tasks can be extended in the same ways as simplifying tasks: adjusting the equipment, environment, and movement concepts and/or by combining several skills.

- **Applying tasks:** are used after a movement concept or skill has been sufficiently explored, expanded and practiced. These types of tasks allow the learner to integrate the newly developed motor skill into their motor repertoire through application in different contexts. This provides the learner with a measurement of what skill(s) has been gained and the relevance it has to them in terms of their movement abilities.

Learning themes and tasks must be sequenced in a progressive manner—e.g.) generally progress from exploratory tasks ("run and jump in different ways") to tasks that promote skill development and increased understanding ("run and jump with combinations of one and two feet in take off and landings"). Phrasing tasks in this way encourages children to refine their movements and expand their repertoire. The same principles apply to task planning for individuals with ID. Begin with simple, basic, exploratory task, and continually refine in progressions towards more specific motor goals to improve upon motor deficits.

**Organizing Tasks** (Murray & Wall, 1994)

These are tasks that concern the organizational procedures involved in task planning. These types of tasks involve:

- **Children**—structured or established routines, informal/varied, mixture of both; consider spacing, formations and groups

- **Apparatus and equipment**—appropriate usage, set-up and take-down

- **Time**—maximize learning time through established routines, clear behavioural expectations and preventative discipline (encouraging positive behaviours thereby preventing bad behaviours from occurring)

- **Space**—safety

**Lessons** (Murray & Lathrop, 2000)

- **Lesson objectives:**

  - Objectives ensure lessons are progressive, tasks are structured, accurate observation and effective evaluation
parts of the lesson:

- Part 1: Introduction
  - Basic and refining tasks to review movement skills and warm-up the learners

- Part 2: Concept and Skill Development
  - A mixture of tasks to introduce new concepts and skills and further skill development (the major portion of the lesson)

- Part 3: Culmination
  - Applying and refining tasks are emphasized; provide direct applications for students to demonstrate their ability to apply their newly developed skill

  - Phase 1: exploration of broad movement repertoire
  - Phase 2: combining individual skills
  - Phase 3: beginning of sequence work
  - Phase 4: advanced sequence work

General Instructional Strategies

1. Teach to the preferred modality (auditory or visual learners)
2. Minimize unnecessary external stimuli
3. Limit the amount of relevant stimuli presented at one time
4. Limit the use of prompts (or in cases of children with ASD, use minimal level prompting where appropriate)
5. Teach in a game like environment to facilitate generalization
6. Use reinforcement strategies to encourage on-task behaviours and desired physical responses
7. Task analysis—modify the relationship between the task, the environment and the learner to ensure success at the activity
  - Certain signals from learners will indicate when it is time to change the task: (Sherrill, 1998; Collier & Reid, 1987; Reid et al., 1991)
    - Increase in off-task behaviour
    - Increase in defiance behaviour
    - Increase in self-stimulatory behaviour or ‘stimming’
3.3

STATION PLANNING

Designing Activity Stations

- Many possible entrances and exits; more than one place to begin and end the task
- Involves problem solving or practice of a needed or favourite skill
- Should include gross motor movement, in a firm weight and sustained time focus
- Should include spinal flexion and extension, and body parts other than the feet doing weight bearing
- Aim for midline crossing and backwards movement
- Try to have soft, springy and/or unstable surfaces (within safe parameters—i.e. provide padding and covered surfaces in case of falls)
- Encourage low and high levels
- Aim for a task that can be repeated even if the whole station does not get completed
- Encourage appropriate use of equipment and developmentally appropriate play or participation with equipment and/or with others
- Be prepared to redirect, lift, push, support, [beg...plead...] some of the station must be attempted
- Give literal directions; simple singular tasks; no false choices; use “first... then...” statements
- Avoid unnecessary or unwanted visual stimuli or distractions (i.e. only present the learner with equipment that you are going to use in the station activities)
- Talk the learner through the task; model when necessary and where appropriate

Principles for Managing Environment

A good teaching environment is based upon four principles:

1. Establishment of a highly structure program: a routine that is repeated day after day and leaves nothing to chance; the pattern of activities follows the same sequence during each session, cues and consequences are consistent, etc.

2. Reduction of environmental space: using markers or partitions to limit the vast expanse of play area in certain physical activity settings is helpful; limiting space also limits group size—children in this population function better in groups smaller than 6 people
3. Elimination of irrelevant auditory stimuli: neat, clean, well-ordered play areas, indoor activities or outdoor areas free from extraneous visual stimuli, only equipment in use during the session is visible to the learners, etc.

4. Enhancement of the stimulus value of the instructional materials: extensive and concentrated use of colour and sound can be utilized to maintain the learner's focus on instructional materials

References


THE PRACTICUM
4.1

WORKSHOP MODULES

The content of the curriculum will be arranged and structured into a 24-hour intensive professional development curriculum. Ideally the workshop would be scheduled within the work week whenever and wherever possible. However it could easily be modified and scheduled over two weekends to avoid interference with regular employment activities and obligations. The workshop is handy in that it can be given in any classroom or conference room-type setting, and requires minimal supplies and equipment. It would be beneficial to be able to provide this workshop in a venue that a variety of different professional cohorts could attend the workshop together; this provides a mutual benefit of being able to learn from shared experiences in a variety of contexts, and problem-solve from a number of different types of scenarios. A template schedule follows, as well as a sample of the workshop activities from one of the days (i.e. the typical types of activities professionals would be participating in when taking the workshop).

Day 1

Schedule

8:30-9:00am Discussion of professional preparation and rationale
9:00 -10:30am Motor Milestones & Movement Categories

Break 15 min

10:45am-12pm Laban Part I (Body Awareness)

Lunch 1hr

1-2:15pm Laban Part II (Space Awareness)
2:15-3:30pm Laban Part III (Effort)

Break 15 min

3:45-5:00pm Laban Part IV (Relationships)
5:00pm Wrap Up Day 1
Day 2

Schedule

8:30-9:15am  Review Day 1, Intro to Invisible Disabilities (ID) category
9:15 -10:30am Sensorimotor Integration & Perceptual Motor Learning

Break 15 min

10:45am-12pm Sensory Motor Deficits & Motor Manifestations of ID

Lunch 1hr

1:00-2:15pm  Intro to Observing & Analyzing Movement
2:15-3:30pm  Developmentally Appropriate Programming (Physical Activity)

Break 15 min

3:45-5:00pm  Movement Profiling
5:00pm  Wrap Up Day 2

Day 3

Schedule

8:30-9:15am  Review Days 1 & 2
9:15 -10:30am Practice: observation & movement profiling

Break 15 min

10:45am-12pm  Task Planning

Lunch 1hr

1-1:45pm  Station Planning
1:45-2:45pm  Instructional Strategies & Modification Principles

Break 15 min

3:00-4:30pm  Practice: task & station planning
4:30pm  Wrap Up Day 3
Sample of workshop Activities: DAY 3

8:30-9:15am – Review of Days 1 & 2 Content

- Open Forum (10min)—general questions & concerns from workshop so far...
  
  1. Do you need clarification on any content, or do you wish to review any specific concepts?
  
  2. What was the most useful thing you have learned so far?
  
  3. What was the most challenging concept or material to understand?

- Activity (35 minutes)—Learners break into groups of no more than three people—groups should ideally be comprised of professionals from different cohorts if possible (i.e. one E.A., one teacher, and one IBI therapist, etc.). Using handouts provided (see Appendix A & B), groups will be assigned the following task:
  
  1. Choose one milestone from months 1-7, and another from months 8-15. Design a developmentally appropriate activity for each, for a child age 2-5yrs, 8-11yrs, and 14-17yrs (assume you have ideal space and equipment to work with).

  - **Extending task:** Do the same thing however this time try to design a developmentally appropriate activity specific to each movement category (Review: stability, locomotor, manipulative); select just one age group. For example, if your milestone is midline crossing and the category is stability, some activities may be:
    
    o bending down and touching the opposite hand to foot, while in different levels, body shapes and positions
    
    o hold onto a rope while sitting or kneeling on a scooter board; partner or adult pulls
    
    o walk along a line on the gym floor; pick up the beanbags from one side of the line and place them on the other; use only the right or only the left hand and keep the feet on the line

  - **Extending task:** try modifying the same tasks for *your* work setting or therapy environment (i.e. what equipment do you have available to you?) For example:
    
    o If you work in a home-based therapy environment, you can use masking tape to create lines on the floor, or skipping
ropes; use child’s toys, small canned foods as weighted items to pick up and place from side to side, etc.

- ***The purpose of this activity is to challenge the attendees’ ability to apply motor milestone and movement category concepts from Day 1 and developmentally appropriate programming material from day 2.***

9:15-10:30am – Practice Movement Profiling

- Review (15 min)—Lesson on observation skills (content from pages 32-38 of curriculum)

- Movement profiling activity (1 hr)
  - Workshop attendees will be broken up into 2 smaller groups. 2 stations will be set up with a TV and VCR set up at each.
  - Video footage will be shown of a child performing a repetitive movement sequence over a set period of time (e.g. a child walking forwards, running and jumping over an obstacle, or traversing an obstacle course of various apparatuses). Using the Laban movement concepts (see Appendix C), complete as much of the movement profile shown on pages 37-38 of the curriculum as possible; handouts given as shown (see Appendix C).
  - Each group will have approximately 12-15 minutes to attempt the movement profile at each station and then be asked to switch and attempt the other. The profiles for the two movement sequences shown will be taken up and discussed as a large group.

- If time permits, or for a different perspective, a third “live” example can be done. A volunteer from the group will be given a movement sequence to perform while the others attempt a movement profile from their direct observations. In this case, the video movement sequences would demonstrate motor repertoire with deficits in some aspects of the movement, and the volunteer from the group could perhaps demonstrate a mature movement pattern. This would allow the group the opportunity for comparison, and practice at describing all qualitative areas of the developmental range of the movement pattern.

10:45am-12:00pm – Task Planning

- Instruction (45 min)—Open/Closed tasks, types of movement tasks, organizational tasks, task progression
The lesson will involve the instructor teaching the material in a more formal, but still very interactive exchange; for example, following the instructor's portion of the lesson, attendees may be asked to generate examples of different types of movement tasks they could include in their programming, and then develop a progression from basic to applying tasks.

• Instruction (30 min) - Lesson planning
  • Instruction on how to plan and execute an effective movement 'lesson;' and then a group discussion, using specific examples, of how to modify a lesson to suit their different professional environments.

1:00-1:45 pm – Station Planning

• Instruction (45 min)
  • How to construct an effective, developmentally appropriate station; this encompasses constructing stations using various different types and amounts of equipment based on what is accessible, and how to embed the target milestone or motor goal within the station activities.

1:45-2:45 pm – Instructional Strategies and Modification Principles

• Instruction (25 min)
  • Appropriate and effective instructional strategies that assist all aspects of learning in the ID population such as attention, comprehension, on-task behaviour, self-efficacy, etc.

• Instruction (20 min)
  • Strategies for managing the environment when working with this population of individuals in movement settings

• Activity (15 min)
  • Individually, attendees will create a list of instructing "DO's" and "DON'Ts" based on the above two lessons relative to their own professional environments; if time permits participants can share ideas and conclude with group discussion.
3:00-4:30pm – Practice Task and Station Planning

- Ideally the best setting in which to conduct this portion of the workshop is in a large space such as a school gymnasium, playroom or activity room. If possible it would also be ideal to have access to a variety of equipment, apparatuses and play or household items. This would allow the best practice at task and station planning.

- Activity (1.5hrs)
  - Participants will be broken into smaller groups (ideally of 3-4 people), and again with a mixture of professional cohorts. Each group will be given a specific area, assortment of equipment, and a target motor characteristic/deficit that is considered common in the ID population. Each group will have 45 minutes to construct a station containing a minimum of 3 tasks to address their given motor problem.
  
  - Once all the stations are complete, all participants will reassemble and each group will comment to the whole group on the process of constructing their station—what their embedded/target milestone was; what equipment they were given to work with and how this impacted their ability to construct the station; the tasks they created; teaching/instructional strategies and environment management principles that are relevant to a learner’s success at their station.
  
  - Each small group will then have an opportunity to visit all of the other groups’ stations (4-5 minutes at each station) and try out the tasks they have created. They will be asked to document any constructive criticism, suggestions and positive feedback from each other’s stations (see Appendix D).

4:30pm – Conclusion of Workshop

- Address any final questions or concerns; provide an opportunity for workshop participants to complete an overall evaluation on the level of instruction, the activities, structure, content, pace, and usefulness of the workshop or other aspects of their workshop experience.
4.2

RATIONALE

The motivation to develop a 24-hour in-service professional development experience in movement education and physical activity intervention stems from both my academic background in adapted physical activity and my experience working as a service provider to persons with disabilities in various contexts. A recurring theme throughout both of these times in my academic and professional life is the lack of preparation of professionals in this area which subsequently affects the quality of programming persons with disabilities are receiving. Also the lack of support resources and opportunities available for professionals to improve their ability to provide these aspects of service needs to be addressed.

The content within this curriculum document is a reduction of several months of reading, evaluating, and amalgamating the work of many scholars and experts in the areas of disability studies, adapted physical activity, movement education, and curriculum design. The goal was to develop a robust, but feasible assemblage of material that would provide the "meat" of the professional development course.

Invisible Disabilities—LD, ASD, ADHD, and DCD—were grouped together because of the similarities in both motor and behavioural manifestations and in instructional and modification strategies that work best in interventions. For example, there is an extremely high rate coexisting conditions among children with invisible disabilities. Children with ADHD often present with ‘autistic’ characteristics, and DCD is the most common coexisting condition found in ADHD (Gillberg, et al., 2004). These disabilities all share their most relevant characteristic, and that is that they are disabilities that you cannot "see," (i.e. they do not have any distinguishing physical impairment or malformations as would physical disabilities or mental retardation).

The early motor milestones, Rudolf Laban’s movement concepts, and the processes of sensorimotor integration and perceptual-motor learning are absolutely vital to understanding not only how we move, but the indivisible nature of movement and environment. Specific “gaps” (or deficits) exist in the motor repertoires of individuals with ID, so learning how to observe and analyze movement with a predisposition to these deficits is necessary for effective programming. Building and planning developmentally appropriate tasks and stations is an invaluable skill to teachers, service providers and therapists regardless of the environment in which you’re programming or providing intervention.

The workshop itself was structured into 24-hour (3 day) intensive practicum for several reasons. First and foremost it needs to be long enough to be able to cover all of the pertinent material, yet short enough that it is feasible within the constraints of most work environments—i.e.) 9am-5pm work days, little time for whole-group professional development experiences.

References
Appendix A

Review Activity: Day 3

Task #1: Motor Milestones

Table 1: Motor Milestones (Age 0-15 months)

<table>
<thead>
<tr>
<th>Chronological Age</th>
<th>Milestone</th>
<th>Description &amp; Movement Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Months</td>
<td>Fetal Posture</td>
<td></td>
</tr>
<tr>
<td>1 Month</td>
<td>Chin up</td>
<td>Stability</td>
</tr>
<tr>
<td>2 Months</td>
<td>Chest up</td>
<td>Stability</td>
</tr>
<tr>
<td>3 months</td>
<td>Reach and Miss</td>
<td>Manipulation</td>
</tr>
<tr>
<td>4 Months</td>
<td>Sit with support</td>
<td>Stability</td>
</tr>
<tr>
<td>5 Months</td>
<td>Sit on lap; grasp an object</td>
<td>Stability; Manipulation</td>
</tr>
<tr>
<td>6-8 Months</td>
<td>Crawl</td>
<td>Locomotion</td>
</tr>
<tr>
<td>7 Months</td>
<td>Sit alone</td>
<td>Stability</td>
</tr>
<tr>
<td>8 Months</td>
<td>Stand with help</td>
<td>Stability</td>
</tr>
<tr>
<td>9 Months</td>
<td>Stand holding furniture</td>
<td>Stability</td>
</tr>
<tr>
<td>10 Months</td>
<td>Creep</td>
<td>Locomotion</td>
</tr>
<tr>
<td>11 Months</td>
<td>Walk when led</td>
<td>Locomotion</td>
</tr>
<tr>
<td>12 Months</td>
<td>Pull to standing position</td>
<td>Stability</td>
</tr>
<tr>
<td>13 Months</td>
<td>Climb stair steps</td>
<td>Locomotion; stability</td>
</tr>
<tr>
<td>14 Months</td>
<td>Stand alone</td>
<td>Stability</td>
</tr>
<tr>
<td>15 Months</td>
<td>Walk alone</td>
<td>Stability; locomotion</td>
</tr>
</tbody>
</table>

Task #2: Postural Reflexes/Reactions

<table>
<thead>
<tr>
<th>Time in Months</th>
<th>Postural Reflexes/Reactions (CNS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Month 1</td>
<td>Kicking actions with feet, waving with hands (gravity)</td>
</tr>
<tr>
<td>Month 2</td>
<td>Head follows sound and motion (colour)</td>
</tr>
<tr>
<td>Month 3</td>
<td>Moving head from side to side (prone position)</td>
</tr>
<tr>
<td>Month 4</td>
<td>Propping self up on hands/arms (prone position)</td>
</tr>
<tr>
<td>Month 5</td>
<td>Core-distal/head-tail relationships (curl &amp; stretch, flex &amp; extend)</td>
</tr>
<tr>
<td>Month 6</td>
<td>Midline crossing</td>
</tr>
<tr>
<td>Month 7</td>
<td>Roll from back to right side &amp; left side, then to prone</td>
</tr>
<tr>
<td>Month 8</td>
<td>Swimming posture (full spinal extension)</td>
</tr>
<tr>
<td>Month 9</td>
<td>Hand and knees creeping</td>
</tr>
<tr>
<td>Month 10</td>
<td>Bear walking (hands/feet)</td>
</tr>
<tr>
<td>Month 11</td>
<td>Moving into and holding a seated position</td>
</tr>
<tr>
<td>Month 12</td>
<td>Pushing up to a stand/assisted and unassisted walking</td>
</tr>
</tbody>
</table>
Appendix B

Helpful movement concepts for Months 1-12

Month 1: Gestures, gliding/sliding on back & front, beanbag “piling” on body parts (arms & legs) while on back, aquatics (push-pull with arms)

Month 2: Kites, ribbons, aquatic toys, hiking activity (follow leader; scavenger hunt; camera—photo sequence), visual schedules, fine motor tasks involving touch and recognition

Month 3: Gliding/sliding on front (benches, slides, mats); leaning prone on wedge mats; swimming on front with flotation assist

Month 4: Weight bearing on hands and torso; use of mats and shapes; gliding/sliding; low level creeping

Month 5: rock and rolling; shapes and functions (weight bearing)

Month 6: Body parts meeting and parting; using implements; ropes; hanging by the hands

Month 7: Log rolls (wedge mats); low levels, shapes & functions (pen & screw shape); large extensions reaching on back across body

Month 8: Gliding/sliding; front floating with head out of water

Month 9: Travelling on parts other than feet only; low levels

Month 10: Travelling on parts other than feet only; low levels

Month 11: rocking; weight bearing; motion and stillness

Month 12: Weight bearing; motion and stillness
# Appendix C

## Movement Profiling Practice—Day 3

### Handout #1—Movement Concepts Summary Chart

<table>
<thead>
<tr>
<th>Body Awareness (What)</th>
<th>Space Awareness (Where)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance</td>
<td>Direction (e.g. up, down, sideways, forward, backward)</td>
</tr>
<tr>
<td>Body parts (e.g. feet, head, knees)</td>
<td>Level (high, medium or low)</td>
</tr>
<tr>
<td>Locomotion, weight transfer, flight, rotations</td>
<td>Pathway (e.g. straight, curved, zig-zag)</td>
</tr>
<tr>
<td>Body actions (e.g. stretch, curl, twist)</td>
<td>Plane (door/vertical, wheel/sagittal, table/horizontal)</td>
</tr>
<tr>
<td>Body shapes (e.g. wide, narrow)</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Effort (How)</th>
<th>Relationships (With Whom)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time (sudden, sustained, duration, rhythm)</td>
<td>With objects (e.g. over, under, around, send, receive, along)</td>
</tr>
<tr>
<td>Weight (e.g. firm, fine, heavy, strong, light)</td>
<td>With people (e.g. match, mirror, copy, lead, follow, intercept, cannon, unison)</td>
</tr>
<tr>
<td>How (e.g. continuous, free, bound, jerky)</td>
<td>-</td>
</tr>
</tbody>
</table>

Murray & Lathrop, 2005

### Handout #2—Movement Profile Worksheet

**Observing and Analyzing Movement**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>____________________</td>
<td>Age: ____________________</td>
<td>Disability: ____________________</td>
<td>Notes only date/adjacent comments: ____________________</td>
<td></td>
</tr>
</tbody>
</table>

**Body**

<table>
<thead>
<tr>
<th>Whole Body, Shape and Function:</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand</td>
<td>Stretch -</td>
</tr>
<tr>
<td>Toe</td>
<td>Toe -</td>
</tr>
<tr>
<td>Curls</td>
<td>Curls -</td>
</tr>
<tr>
<td>Gaiting</td>
<td>-</td>
</tr>
<tr>
<td>Weight Bearing:</td>
<td>-</td>
</tr>
<tr>
<td>Feet</td>
<td>Front -</td>
</tr>
<tr>
<td>Hands and Feet</td>
<td>Lifting -</td>
</tr>
<tr>
<td>Other</td>
<td>-</td>
</tr>
<tr>
<td>Transition</td>
<td>-</td>
</tr>
<tr>
<td>Start to Stop</td>
<td>Forward -</td>
</tr>
<tr>
<td>Ending</td>
<td>Backward -</td>
</tr>
<tr>
<td>Gliding or Shifting</td>
<td>-</td>
</tr>
</tbody>
</table>

**Space**

<table>
<thead>
<tr>
<th>Level</th>
<th>Low -</th>
</tr>
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<tbody>
<tr>
<td>Medium</td>
<td>Medium -</td>
</tr>
<tr>
<td>High</td>
<td>High -</td>
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<tr>
<td>Orientation</td>
<td>Forward -</td>
</tr>
<tr>
<td>Backward</td>
<td>Backward -</td>
</tr>
<tr>
<td>Right/Left</td>
<td>Right/Left -</td>
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<tr>
<td>Pathways</td>
<td>-</td>
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<tr>
<td>Direct</td>
<td>-</td>
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<tr>
<td>Indirect</td>
<td>-</td>
</tr>
<tr>
<td>Reaction</td>
<td>Close -</td>
</tr>
<tr>
<td>Far</td>
<td>Far -</td>
</tr>
</tbody>
</table>

**Effort**

| Firm weight             | - |
| Firm/weight             | - |
| Illusione                | - |
| Sustained time           | - |
| Speed                    | - |
| Force                    | - |

**Relations**

| Alone                   | - |
| Partners                | - |
| Science                 | - |
| Approach                | - |
| Implantations           | - |
| Objects                 | - |
| Send                    | - |
| Receive/carry           | - |

(Connolly, 2008)
### Appendix D

**Station and Task Planning Experience**

**Feedback Form**

<table>
<thead>
<tr>
<th>Station</th>
<th>Motor Milestone or target motor deficit</th>
<th>Activities/tasks within station &amp; equipment used</th>
<th>What was done well?</th>
<th>What was overlooked?</th>
<th>General Comments</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>
“30 Things in 30 Minutes”

Games Skills

1. Locomotor—forwards, backwards, right, and left
   a) Walking, running, skipping, hopping, jumping, bear walking, creeping, “bum walk,” and crab walking
   b) Try all of the above at different speeds (sustained, fast, comfortable)
   c) Try all of the above while carrying an object of choice; then 2 objects
   d) Try linking above tasks together
      ***No races against each other; try “beat the clock” or “beat your distance”***

2. Non-locomotor—starting and stopping all of the above locomotor activities (this teaches acceleration and deceleration)
   a) Sudden (quick)
   b) Sustained (slow)

3. Manipulative (sending, receiving, and retaining)
   a) Throw for distance; right arm, left arm, both arms, arms overhead, arms below chest—use different sized and weighted objects and run and collect all the objects
   b) Roll for distance; right arm, left arm, both arms, different objects
   c) Kick for distance; right leg, left leg
   d) Throw, roll, kick while walking forward, while running forward
   e) Sending to self (receiving)
   f) Toss and catch—seated, standing, moving
      i. 2 hands to 2 hands
      ii. Right hand to 2 hands
      iii. Left hand to 2 hands
      iv. Right hand to right hand
      v. Right hand to left hand
      vi. Left hand to left hand
      vii. Left hand to right hand
   g) Small group “Hot Potato”—standing, sitting
   h) Small group “Over/Under”
   i) In partners, pass around back (stand back to back or sit back to back)
   j) Toss high enough that you can turn around before catching
   k) Towel catching in partners
   l) Kick ball gently; run and stop the ball with feet
   m) Travelling while controlling an object (retaining)—walk or run while moving forwards, backwards, right or left
      i. With stick and quoits
      ii. With stick on bean bag
      iii. With badminton racquet and birdie
      iv. With balloon or beach ball tapping
      v. While kicking a ball
“30 Things in 30 Minutes”

Fine Motor Skills; Flexibility and Relaxation

1. 10 Ziploc Bag tasks @ 2 minutes each (20 minutes)
2. Medicine ball roll on the body—child is face down or face up. Roll the medicine ball on back, arms, legs, and chest (always avoid breasts, buttocks, and genitalia)
3. Bean bag pile on the body—child is face down or face up. Pile bean bags along arms, upper back, upper chest, and front and back of legs. Count as you go. Decide at what number the child will spill the bean bags
4. Towel Pull A—knot a towel or knot 2 towels together. Sit opposite each other in a tuck or straddle; pull until you can lay on your back, then go the other way
5. Towel Pull B—Knot a towel or knot 2 towels together. Adult pulls child in slow circles or zig zags, child grasps the towel with 2 hands—the child can be on back, seated, or on right or left sides
6. X’s and O’s—Make an X shape and then curl into an O shape
   a) Standing
   b) Sitting
   c) On back
   d) On right side
   e) On left side
7. Hamstring stretch—child on back, raise right leg straight, gently push and hold, then repeat on the left leg
8. Knee drops—right and left; on back (on own or assisted)
9. Back extension—use medicine ball under chest, or towel lift assist (child is face down)
10. Hip extension—use medicine ball under right leg, then left leg, or towel left assist (child is face down)
11. 2 hands to one leg, bent or straight; right leg then left leg
"30 Things in 30 Minutes"

Body Awareness/Educational gymnastics

1. Benches (Somatic Square)
   a) Travel forwards, backwards, left, and right on:
      i. Feet
      ii. Hands and feet
      iii. Hands and stomach (or right or left side)
      iv. Feet and butt (front and back)
      v. Feet, butt and back (front and back)
   b) Do the above while maintaining control of an object
   c) Do the above changing at each corner
   d) Do the above (except the sliding) with obstacles—medicine balls, hoops, shapes
   e) Turn around on one spot—do this at the corners
   f) Go from stand to tuck to stand—do this at the corners
   g) Walk around a partner without falling off—try at corners
   h) Leap frog along the bench; then off
   i) Pull along the bench with a towel

2. Trestles and Ladders
   a) Hang, release, and land on feet
   b) Climb along low ladder using hands and feet; try higher
   c) Climb along high ladder using hands—keep feet off floor
   d) Climb over trestle turning around at the top
   e) Go through trestle without touching the floor
   f) Roll over low bar; land on feet
   g) Hang under bar; raise knees to a tuck position—hold 3-5 seconds
   h) Hang under bar using arms and legs (hands and feet)
   i) Jump up and grasp bar; hang for 3 seconds
   j) Long hang; star shape or X shape

3. Generally
   a) Practice positions—over, under, around, in beside, behind, near, far, through
   b) Practice landings from various heights
   c) Practice moving at the low level
   d) Practice holding balance positions on feet and hand combinations of body parts
"30 Things in 30 Minutes"

Spring or Bounce Apparatus (e.g. large crash mat & mini-tramp)

Crash Mat
1. Lay on back, belly, right side, left side; do log roll from one end to the other
2. From lying on belly do an arm push up, knee push up, whole body push up
3. From laying on back, raise legs, touch toes, bend knees, and drop them to right side and then left side
4. Sit on bed of mat and move from tuck, to pick, to pike, to straddle, then back to tuck
5. Sit on bed, roll onto your back and come back to a sit
6. Stand on feet, walk around the perimeter of the mat
7. Walk from one end to the other forwards
8. Walk from one end to the other backwards
9. Walk from one end to the other sideways left, then sideways right
10. Walk from one end to the other forwards then backwards
11. Stand, squat, then stand again
12. Stand, sit, then stand again
13. Stand, sit, roll onto back, come back to a sit, then stand again
14. Stand, sit, straddle, lay on back in star shape, come back to a sit, then stand again
15. Stand, squat, lay on stomach, make a star shape, back to knees, to squat, then stand again

Mini-Tramp
16. Controlled bounce on 2 feet; stop bounce
17. Slightly higher bounce on 2 feet; stop bounce
18. Bounce at comfort level; 4 quarter turns—try clockwise and counter clockwise
19. Bounce at comfort level; 2 half turns—try clockwise and counter clockwise
20. Bounce at comfort level; 1 full turn—try clockwise and counter clockwise
21. Create a shape sequence (e.g. bounce on mini-tramp, then onto mat; walk to mini-tramp, onto mini-tramp, then onto mat; run to mini-tramp, onto min-tramp, then onto mat)
Appendix I

Purposeful Sampling Criterion

- Minimum 10 years experience working with persons with disabilities
- Minimum 5 years experience in a position responsible for the supervision, training and/or professional development of staff and/or the education of future professionals in the field
- Minimum of 5 years in curriculum development
- Minimum of one participant from each of three professional cohorts:
  - Teachers/Educators
  - Educational Assistants
  - IBI Therapists
- Need not be experts in physical education or movement programming
- Male or female
- Any age
- Any demographic profile
- Any level of physical ability
Appendix J

Letter to Experts

June 5, 2009.

Dear Experts,

Thanking you for your generous cooperation and willingness to participate in this study. I assure you that your contributions, specifically your written feedback on the enclosed document, will provide invaluable contextual data without which this study would have no foundation or relevance. You have gained extensive experience in your professions as teachers, service providers and therapists, and now fulfill a role which assumes responsibility for the training, supervision and ongoing support of new and fellow professionals in your field. This familiarity with the preparation and training of future professionals within your specific cohorts is the reason I have called on you to lend your expertise to this research.

Professionals working with individuals with various disabilities are often expected to perform duties that fall outside the parameters of their area of expertise, even beyond their training and job requirements. Specifically, they are frequently called upon to provide physical activity programming, physical education, or movement interventions under varied circumstances without really having had appropriate training or education in these areas. Not only are professionals such as yourselves and the future practitioners you train placed in these positions without having an adequate academic background, they often also lack relevant practical experience in managing and modifying environmental factors in movement-related contexts. While it may be true that educational assistants, teachers and behaviour therapists often perform at a level that already exceeds the level of preparation they have, there is still an obligation to provide the highest quality of care/service/therapy/education possible to learners and clients.

Physical activity and movement education are addressed only minimally, or not addressed at all in professional preparation programs and training curricula. Yet these structures provide what is deemed appropriate preparation for these professionals by their governing organizations and institutions. Perhaps there is no room for pre-service training in movement education and physical activity intervention. What would be preferable is an in-service professional development opportunity that provides professionals with the necessary academic content and the resources and practice they need in order to provide a high quality of service or intervention. Thus it is important to determine the needs of professionals working with persons with disabilities in this capacity, and tailor this professional development experience accordingly. My intention with this study and with your evaluations of the enclosed curriculum is to ascertain whether or not this curricular module in movement education sufficiently addresses this gap in professional preparation.

I am very grateful for your involvement in this worthy pursuit. I look forward to your responses.

Sincerely,

M.A. Candidate
Applied Health Sciences
Brock University
Appendix K

Instructions for Completion of Expert Evaluations

1) I recommend a preliminary reading of the document to get a sense of the content prior to making any criticisms or beginning your feedback. This will help you gain an understanding of unfamiliar academic material and relate this subject matter to your daily work.

2) During your second and more thorough reading of the curriculum, appraise its utility. Comment throughout the document on the information that is included in each module; for example, you may choose to highlight, or make notes in the margins when you encounter points of relevance, material that is unclear or problematic, or when the material prompts a question or idea of your own. Please note the nature of your feedback should be content oriented, rather than on organization and pedagogy within the workshop practicum (section IV). The latter was not a major focus when constructing the curriculum.

3) Respond to the enclosed questions that correspond to each section of the curriculum. Your responses to these questions will form the substance of your ‘expert evaluation.’ Please answer them in whatever length and detail you feel is adequate to speak to all aspects of the question. You may respond in the notebook provided, or attach your own hand-written or type-written pages. (I only ask that you type your responses if you have concerns about the legibility of your handwriting).

The more thorough you are able to be, the more rich and robust data you are providing. I hope to have all of the evaluations returned to me by no later than Friday, June 26th, 2009. However, if you should complete your evaluation before this time, please contact me and I will arrange to retrieve them from you as soon as possible. You may contact me by email at: ah02jl@brocku.ca, or by telephone at: (905) 227-6814 with any questions or concerns at any time, or to notify me that you have completed your evaluation.

In my final graduate thesis dissertation, I wish to acknowledge (by name) all those who have contributed to my study. As the expert evaluators of the curriculum, you will have played a critical role and I would like that to be known to my readers. Please advise me in the space below of how you wish your name and position to appear in my thesis.

Thank you again, and happy reading!

~Ashley Hardman

I give my permission to have my name appear in the acknowledgements

I wish to have my participation in this study remain anonymous

Name and position as you wish it to appear in the acknowledgements:
Appendix L

Curriculum Evaluation Questions

Answer the following questions pertaining to the professional development curriculum you have just read. Please answer in the notebook provided or attach your own hand-written or type written pages.

Module I: Motor Milestones and Laban Movement Concepts

1. Comment on the clarity and coherence of the material presented on early motor milestones and Laban movement principles. Assess the level of difficulty of this material (Is it too complex? Is it rudimentary compared to your professional repertoire? Etc.)

2. Comment on whether there is an appropriate amount of material? (Was there too much? Not enough?) What parts if any were either excessive, or lacking?

3. Are the language and the manner in which the information was presented accessible to you, and in your opinion, to others in your field who have similar background, education or experience?

4. Describe any previous experience or knowledge of this material you had prior to reading this curricular module. How does the content of this module align with those previous experiences/previous knowledge?

Module II: Sensorimotor Integration, Perceptual Motor Learning and Deficits in ID

1. Comment on the clarity and coherence of the material presented on sensory and motor learning processes, and deficits in Invisible Disabilities. Assess the level of difficulty of this material (Is it too complex? Is it rudimentary compared to your professional repertoire? Etc.)

2. Comment on whether there is an appropriate amount of material? (Was there too much? Not enough?) What parts if any were either excessive, or lacking?

3. Are the language and the manner in which the information was presented accessible to you, and in your opinion, to others in your field who have similar background, education or experience?

4. Describe any previous experience or knowledge of this material you had prior to reading this curricular module. How does the content of this module align with those previous experiences/previous knowledge?

Module III: Movement Programming

1. In what ways is this material relevant to the expected duties of professionals such as teacher, EAs, IBI therapists or others in your field?
2. Detail any new information you encountered in this portion of the curriculum and any information that you have been exposed to previously. What new insights did the information you were familiar with provide when given in a movement context?

Workshop Practicum

1. Please comment on the structure and organization of the workshop template. Is it feasible and manageable? Is it realistic? –Why or why not?

2. Please comment on the types of activities that would take place in the actual workshop (see Day 3 sample of workshop activities in section IV of the curriculum). Discuss aspects such as variety, practicality, relevance, interaction, etc.

Over All

1. What aspects of this curriculum are most helpful or useful to you specifically in terms of professional development? Respond in the context of your specific professional cohort.

2. What components do you anticipate would be challenging for future professionals in your cohort?

3. How does this movement curriculum fit into your current structure of professional development? What suggestions or potential changes would you offer to make it more accessible or feasible to your cohort and work environment?

4. What potential constraints do you see with the implementation of this program into professional development and training for teachers/therapists/educational assistants etc. in the future?

5. Is the inherent assumption made about the expectation placed upon practitioners to provide movement-related programming and intervention with a lack of preparation to do so truly warranted? Is this over-exaggerated or misunderstood problem?
Appendix M

Layered Analysis Process

Figure 1. Framework for data analysis.
Appendix N-1

Expert #1 Curriculum Evaluation: IBI Cohort

Module I: Motor Milestones and Laban Movement Concepts

1. Comment on the clarity and coherence of the material presented on early motor milestones and Laban movement principles. Assess the level of difficulty of this material (Is it too complex? Is it rudimentary compared to your professional repertoire? Etc.)

The clarity and coherence of the material was well presented as I am unaware of this physical development milestones in this depth – level of difficulty was complex enough for professionals or anyone implementing this curriculum – well defined terminology
– not rudimentary for me but maybe for physical education teachers or those in the school system

2. Comment on whether there is an appropriate amount of material? (Was there too much? Not enough?) What parts if any were either excessive, or lacking?

Amount of material was good.
– Definitions though seem obvious are necessary for an appropriate background and understanding – if not a review for some curriculum implementers.
Definitions did read long—I imagine all are necessary and serves as the foundation—reader friendly but dry © sorry. Though I see where you are coming from. It’s like defining all ABA jargon before the application process. Dry but necessary—you wrote this well as I easily understand without feeling ill-equipped.

3. Are the language and the manner in which the information was presented accessible to you, and in your opinion, to others in your field who have similar background, education or experience?

I think the info is accessible to all in the field if looking for it. You have it very systematically laid out (well referenced).
- This is definitely needed in the field—I do not have previous experience with this material (even in my undergrad at Ryerson [University] ECE program – in child development classes) Not covered... so yes—necessary and appropriate.

4. Describe any previous experience or knowledge of this material you had prior to reading this curricular module. How does the content of this module align with those previous experiences/previous knowledge?
None – or minimal (infant development only) gross/fine motor—this is very detailed—well defined (are all definitions truly necessary?)—just a question.. 😊

Module II: Sensorimotor Integration, Perceptual Motor Learning and Deficits in ID

1. Comment on the clarity and coherence of the material presented on sensory and motor learning processes, and deficits in Invisible Disabilities. Assess the level of difficulty of this material (Is it too complex? Is it rudimentary compared to your professional repertoire? Etc.)
I completely agree with your opening statement re: post-secondary education. May want to elaborate on what programs it is necessary or would be beneficial for & why.😊
I really like the language in which this is defined. Very behavioural. Great for ABA’ers to relate to...Teachers on the other hand – maybe more difficult (Different terminology).

2. Comment on whether there is an appropriate amount of material? (Was there too much? Not enough?) What parts if any were either excessive, or lacking?
-Great relation back to mod [module] 1. Brought material into context.
-Could be flushed out with other invisible disabilities other than ASD & LD.
-Why those two?—would it be beneficial to include more for curriculum—maybe too specialized to these 2 populations

3. Are the language and the manner in which the information was presented accessible to you, and in your opinion, to others in your field who have similar background, education or experience?
Language is very appropriate & would be well received by the ABA professionals

4. Describe any previous experience or knowledge of this material you had prior to reading this curricular module. How does the content of this module align with those previous experiences/previous knowledge?
No previous history with this—well minimal...great information provided to expand a lacking area but sooo important in what ABA does.
Module III: Movement Programming

5. In what ways is this material relevant to the expected duties of professionals such as teacher, EAs, IBI therapists or others in your field?

IBI Therapists—Very necessary as we program for many motor movement programs—limited knowledge with IBI professionals—we know to work from gross to fine motor—the info in MODULE 1 was very necessary for an IBI therapist to know as this is not part of the training process. & defined in an ABA way.

This is paramount in effective curriculum delivery for any IBI therapist or program.

6. Detail any new information you encountered in this portion of the curriculum and any information that you have been exposed to previously. What new insights did the information you were familiar with provide when given in a movement context?

-I was aware of the overall, general development of physical movement (due to my ECE background—not IBI) as well as the cognitive and affective but only generally this was a great break down in an organized chart (great quick reference format)

-The DEVELOPMENT (Connolly, 2008) acronym was new to me—not sure if I like it or place any value in that piece—how does it really fit as a tool for the curriculum (very abstract relation to the work Development)

-LOVE the data sheets for movement profiling—very relevant and new to me—I would like to use this!

-All terminology was new to me—I was never taught to look at movement in this manner it’s very interesting.

-New insights for me would be to have a more structured physical education time including the aspects needed for the individual when thinking of task & station planning.

-Using the profile & building on that data.
Workshop Practicum

7. Please comment on the structure and organization of the workshop template. Is it feasible and manageable? Is it realistic? -Why or why not?

STRUCTURE of the day (all days)
- From my personal experience running trainings/workshops 8:30-5 is too long of a day. 9-4 is ideal or 9:30-4 anything above that – you will lose your audience & interest
- Breakdown is great though – makes sense but it is HIGHLY theoretical so a long day of this material is too dense.
- I like the group activity early in the day and evenly spaced throughout the day – lecture & group activities
- You may want to do Mon, Wed, Fri – give homework if possible & have the learners give you more back the next session & a chance to review material – because it is so robust.

8. Please comment on the types of activities that would take place in the actual workshop (see Day 3 sample of workshop activities in section IV of the curriculum). Discuss aspects such as variety, practicality, relevance, interaction, etc.

I love the Movement Profile activity – great idea for really critical thinking and planning
- Lecture – Task Planning
  10:45-12 – could be delivered more interactively due to the time block (before lunch – think of the EO...😊 – people tend to zone out – make them active and they won’t be thinking of their stomachs
  Dito with right after lunch – lecture (lunch coma)
  - Great placement of long activity from 3-4:30 – they may not need 45 min to do this task; ½ hour tops
  - The activities are very appropriate & serve to appiy the theoretical [material] behind it
  - You may want to run this with a pilot group prior to final submission – dry run for really good tweaking of the actual days & activities
6. What aspects of this curriculum are most helpful or useful to you specifically in terms of professional development? Respond in the context of your specific professional cohort.

All of it is useful & practical as each IT in IBI comes from different educational backgrounds – the ‘basic’ is necessary & so is the push for real understanding in applications.

7. What components do you anticipate would be challenging for future professionals in your cohort?

Some of the language may be challenging – though it is very behavioural it is also very scientific which some may find difficult.

8. How does this movement curriculum fit into your current structure of professional development? What suggestions or potential changes would you offer to make it more accessible or feasible to your cohort and work environment?

I think this curriculum does really fit – however – having a government funded program invest 3 days into a movement curriculum may not be feasible – you may have to have different versions or condensed curriculums based on feasibility of the agency or service provider.

As nice as it would be to have 3 days – it will not get approved to occur in IBI currently – 1 day-yes 1.5 yes 2 Maybe 3-NO...

9. What potential constraints do you see with the implementation of this program into professional development and training for teachers/therapists/educational assistants etc. in the future?

The only constraints would be time & money needed to access this curriculum – if modified would remove potential barriers.

-Different philosophies maybe a constraint in the ABA world but that is always a factor for anything.
10. Is the inherent assumption made about the expectation placed upon practitioners to provide movement-related programming and intervention with a lack of preparation to do so truly warranted? Is this over-exaggerated or misunderstood problem?

I think ignorance of the programming or science behind the physical movement program is alive & well. Once a provider is provided with this info — you have to take it into consideration when programming. I don’t think it has ever been identified as a problem in IBI or has just been assumed it was being implemented effectively —Due to lack of related professionals telling us it was wrong —hence ignorance to the now identified problem in physical programming.
Expert #2 Curriculum Evaluation: Education Assistant Cohort

Module I: Motor Milestones and Laban Movement Concepts

9. Comment on the clarity and coherence of the material presented on early motor milestones and Laban movement principles. Assess the level of difficulty of this material (Is it too complex? Is it rudimentary compared to your professional repertoire? Etc.)
   Much too complex – see workbook note – How much theory would the EA need to know to perform their duty?
   Definition-based – always dry!
   Giving examples always helps to understand the terminology

10. Comment on whether there is an appropriate amount of material? (Was there too much? Not enough?) What parts if any were either excessive, or lacking?
    Depending on the delivery mode – over a 1 day workshop—overwhelming – over a 15 week course—fine
    Again—very dry material
    Would you expect the EAs to learn this? Memorize terminology? As background information? If so -- it is well presented.
    I like the charts/diagrams – really helped in the explanation.
    -If presented in a workshop?? How would you teach? Motivate the EA to learn this?
    *Your content and research is very well researched
    It is always my issue as a college professor to find the balance in a 2-3 hour lecture to deliver the CONTENT in an interesting and INTERACTIVE format
    *some of this is really related to the Therapy Assisting aspect of the job as well—working under the direction of the OT/PT
    Therapists plan for the child

11. Are the language and the manner in which the information was presented accessible (understandable?) not sure what you mean? to you, and in your opinion, to others in your field who have similar background, education or experience?
    Yes—terminology is always important
    *EAs will always need the content & theory, however the job is to use the strategies.
12. Describe any previous experience or knowledge of this material you had prior to reading this curricular module. How does the content of this module align with those previous experiences/previous knowledge?
   I have taught a course for EAs – Leisure Lifestyles which touch base on some of this content – much more basic – related to the phys ed curriculum in elementary school
   *EAs roles are all about knowing the basic theory and most importantly applying it to that specific child and their needs – strategies and what works for that child that day

Module II: Sensorimotor Integration, Perceptual Motor Learning and Deficits in ID

1. Comment on the clarity and coherence of the material presented on sensory and motor learning processes, and deficits in Invisible Disabilities. Assess the level of difficulty of this material (Is it too complex? Is it rudimentary compared to your professional repertoire? Etc.)
   Only 2 identified and explained

2. Comment on whether there is an appropriate amount of material? (Was there too much? Not enough?) What parts if any were either excessive, or lacking?
   Only 2 identified and explained
   Correlation between the area of movement & the disability not clearly stated

3. Are the language and the manner in which the information was presented accessible to you, and in your opinion, to others in your field who have similar background, education or experience?

4. Describe any previous experience or knowledge of this material you had prior to reading this curricular module. How does the content of this module align with those previous experiences/previous knowledge?
   Strong knowledge in disabilities
Module III: Movement Programming

13. In what ways is this material relevant to the expected duties of professionals such as teacher, EAs, IBI therapists or others in your field? Roles are very different for each as is the training and education. EA’s must have knowledge, but mostly be able to utilize strategies.

14. Detail any new information you encountered in this portion of the curriculum and any information that you have been exposed to previously. What new insights did the information you were familiar with provide when given in a movement context?

I think there is a great need for the knowledge and theory and I do see the relationship you are trying to make. I am not sure an EA would be able to focus on this one aspect as much as you think.

Workshop Practicum

15. Please comment on the structure and organization of the workshop template. Is it feasible and manageable? Is it realistic? –Why or why not?

8 hour days = Very long for a workshop

I would...suggest a shorter day—most of your team will have shut down by 4 at the latest even with breaks

College level training – your practicum seems to be – “in a nut shell”

-2 days theory

-1 day interaction & application of the theory

Although the theory is very important – it is very dry and information based – which is fine if you were conducting a lecture based course...

Workshops imply I think to most...

Learning, activity, fun, networking, un, lunch, a day from work, Learning!

If you try to cram too much academic without more of the other, I think you will lose my cohort after day 1 – my personal opinion—
16. Please comment on the types of activities that would take place in the actual workshop (see Day 3 sample of workshop activities in section IV of the curriculum). Discuss aspects such as variety, practicality, relevance, interaction, etc.

I like your format and breakdown of time, however I would suggest knowledge—application (example)—practice in the group—evaluation/reinforcement model (for all 3 days)

*I would also suggest a shorter day – most of your team will have shut down by 4 at the latest even with breaks

Will be difficult to motivate at end of the day! – maybe a more hands on activity (last session at end of day 1)

All theory? Not activity based? (re: Day 2 of workshop practicum)

Would have liked to have seen a breakdown of days 1 and 2 [not only day 3] – seems very clinical/theory based? Long day if so! Could lose participants?

RE ACTIVITY ON DESIGNING AN ACTIVITY FOR A MILESTONE:
- Opportunity to share with other groups?
- What is the role of the trainer? Observation? Assistance?
- Evaluation – how do they know if what they have done is correct?

Is there a daily evaluation? Opportunity to adjust as you go?

Over All

11. What aspects of this curriculum are most helpful or useful to you specifically in terms of professional development? Respond in the context of your specific professional cohort.

Definitely the hands on concepts and strategies for success

12. What components do you anticipate would be challenging for future professionals in your cohort?

The content and theory – would not really require that depth; although interesting

13. How does this movement curriculum fit into your current structure of professional development? What suggestions or potential changes would you offer to make it more accessible or feasible to your cohort and work environment?

1 day would be more doable
Less theory – more interaction and tasks or examples

14. What potential constraints do you see with the implementation of this program into professional development and training for teachers/therapists/educational assistants etc. in the future?

Time/cost – at present only 2 days/year are devoted to PD?
Interest – most are hired for numeracy & literacy purposes

15. Is the inherent assumption made about the expectation placed upon practitioners to provide movement-related programming and intervention with a lack of preparation to do so truly warranted? Is this over-exaggerated or misunderstood problem?

It is a wonderful assumption. Again, see #4.

**Summary of In-Document Feedback**

- Research for the disability section is weaker – I do not feel that I can make a strong connection as to why you fell this group in particular can benefit as opposed to a child with say diabetes or who is obese
- “good relationship” next to paragraph 1 of introduction – “good relationship between the movement theory and activities for the student with disabilities” (from notebook notes)
- “invisible disabilities” – the term? Did you make this up? or reference??
- “The groups you cite as having ID are quite different – maybe discuss this area a bit more – define?? I thought this was a weak area – not really sure what the relationship is between LD, ASD, ADHD etc. – maybe you will do this in the next section??
- “liked paragraph #3 [introduction] – shows the humanistic side of a very factual report”
- “excellent research and identification of key elements—that is the strength of the thesis as I see it.”
- “your passion for this group is evident”
- “excellent idea to have several experts from different professional backgrounds reflect on your work”
- “group of people who are indentified as requiring this information is well thought out”
- “you want to teach that in a 3 day workshop?” next to the following sentence in the rationale (section 4.2) of the curriculum: “The content within this curriculum document is a reduction of several months of reading, evaluating, and amalgamating the work of many scholars and experts in the areas of disability studies, adapted physical activity, movement education, and curriculum design.”
Appendix N-3

Expert #3 Curriculum Evaluation Questions (Educator Cohort)

Module I: Motor Milestones and Laban Movement Concepts

1. Comment on the clarity and coherence of the material presented on early motor milestones and Laban movement principles. Assess the level of difficulty of this material (Is it too complex? Is it rudimentary compared to your professional repertoire? Etc.)
   - very clear – informative
   - well laid out
   - easy to read & apply to population of students I deal with personally
   - clearly understand “missing milestones”

5. Comment on whether there is an appropriate amount of material? (Was there too much? Not enough?) What parts if any were either excessive, or lacking?
   - although a lot of material is did pertain & explain clearly the topic

6. Are the language and the manner in which the information was presented accessible to you, and in your opinion, to others in your field who have similar background, education or experience?
   Yes to me personally – no to teachers – I do not feel “regular” classroom teachers would research a SN [special needs] child’s needs/background to this degree *Information better shared at an inservice!

7. Describe any previous experience or knowledge of this material you had prior to reading this curricular module. How does the content of this module align with those previous experiences/previous knowledge?
   I have worked with the “special needs population” for over 30 years, however not “directly” within a physical education development. Physical development, both occupational and physical therapy is an important daily programming piece that needs to be incorporated in a daily academic day (IEP). Students I support (I support the front line staff) need “trained” staff to assist them to function or strive to teach independence in functioning with independent life skills. These early developmental stages are a critical base for my students. Quite often these skills have to be accommodated with less “physical ability” students
Module II: Sensorimotor Integration, Perceptual Motor Learning and Deficits in ID

5. Comment on the clarity and coherence of the material presented on sensory and motor learning processes, and deficits in Invisible Disabilities. Assess the level of difficulty of this material (Is it too complex? Is it rudimentary compared to your professional repertoire? Etc.)
- clear definitions & information presented
- familiarity with subject matter helps

6. Comment on whether there is an appropriate amount of material? (Was there too much? Not enough?) What parts if any were either excessive, or lacking?
- appropriate amount for clarification – ASD students are my focus not LD students, perhaps LD students info was lacking?

7. Are the language and the manner in which the information was presented accessible to you, and in your opinion, to others in your field who have similar background, education or experience?
Yes to me the information is accessible – regular classroom teacher will NOT research this topic

8. Describe any previous experience or knowledge of this material you had prior to reading this curricular module. How does the content of this module align with those previous experiences/previous knowledge?
Working closely with OT’s & PT’s on a daily basis affords me valuable information & program development in this area. Presently we are trying to equip every school with “Multi Sensory Rooms” to meet students (SN) sensory needs (however on a small scale).

Module III: Movement Programming

17. In what ways is this material relevant to the expected duties of professionals such as teacher, EAs, IBI therapists or others in your field?
Although [in] my opinion movement programming is extremely important in the daily programming for a student with special needs, as a school board we lack the “trained professionals” to assist staff with this more “intense” yet necessary area of “Physical Education & Programming.” Schools lack this knowledge base – thank goodness for the accessibility for SNAP programs as this “exposes staff” to the needs of movement analysis & programming. Sorry to report, not much is transferred back to home school environment.
18. Detail any new information you encountered in this portion of the curriculum and any information that you have been exposed to previously. What new insights did the information you were familiar with provide when given in a movement context?
   -Loved the visuals (Murray & Lathrop), Developmentally Appropriate Programming (Connolly)
   -Movement profiles are laid out well, easy to read & info collected would be informative “at a glance”

Workshop Practicum


   Unfortunately with the time constraints & “other” focuses to programming by a regular classroom teach[er] – they would not participate – perhaps “PE Teachers @ HS” might.

4. Please comment on the types of activities that would take place in the actual workshop (see Day 3 sample of workshop activities in section IV of the curriculum). Discuss aspects such as variety, practicality, relevance, interaction, etc.
   -well organized information however a large amount of activity “busy” & can/may be overwhelming info[rmation] content for a teacher

Over All

16. What aspects of this curriculum are most helpful or useful to you specifically in terms of professional development? Respond in the context of your specific professional cohort.
   -early development of movement concepts (1)
   -motor learning/planning (3) & sensory integration (2)

17. What components do you anticipate would be challenging for future professionals in your cohort?
   -Implementing movement programming with untrained staff
18. How does this movement curriculum fit (1) into your current structure of professional development? (2) What suggestions or potential changes would you offer to make it more accessible or feasible to your cohort and work environment?
-1- sorry it doesn’t fit
-2- make it more accessible—shorten it—offer “free P.D. Development” to school boards during PD Days or after school

19. What potential constraints do you see with the implementation of this program into professional development and training for teachers/therapists/educational assistants etc. in the future?
It needs to be brief & easy to use—although information is critical, the staff will not realize that @ first—perhaps the idea of pre reading packages provided before a training

20. Is the inherent assumption made about the expectation placed upon practitioners to provide movement-related programming and intervention with a lack of preparation to do so truly warranted? Is this over-exaggerated or misunderstood problem?
It is my opinion that movement related programming is under used in our education practice. Staff need to rely on “trained prof[essionals]” such as “SNAP,” OT, & PT personnel to provide programming & resources pertinent for “their” student
I don’t feel a clear/practical understanding of this subject area is “understood” or “encouraged to implement” by senior administrative staff in our school board or perhaps the Ministry of Education (MOE). In an “all inclusive” model board as ours, students are exposed to “regular curric.” & then modified to their abilities when needed. Seems there are accommodations made to “reach/complete” the regular grade curric. rather than incorporating more of a specialized/focus based development of skills/movement that a child with special needs need to develop.

Perhaps a pilot project needs to be arranged with a target group of student who have special needs yet are included (contained) within a regular class/school environment. Program “all” students in target class within a “movement development” aspect—would be interesting to see if “other” needs arise from the “regular learner” vs. “special learner”

⇒ Mmm—interesting thought!!!
Summary of In-Document Feedback

- Underlining key words and concepts within definitions and explanations
- Turned-down page corners @ Module I (1.2 – Body Awareness); Module II (title page); Module IV (title page); The Practicum (title page); Appendix A;
- Word “advanced” beside movement concept of agility in gross motor movements
- Words: “ASD students” beside: “extreme sensory responses to stimuli are a method of coping with overwhelming sensory stimulation (Connolly, 2008)
- “*Excellent visual” pg. 32: (Murray & Lathrop, 2005)
- Word “correct” next to four bracketed lines in Rationale section (words underlined as below):

“A recurring theme throughout both of these times in my academic and professional life is the lack of preparation of professionals in this area which subsequently affects the quality of programming persons with disabilities are receiving. Also the lack of support resources and opportunities available for professionals to improve their ability to provide these aspects of services needs to be addressed.”
Appendix N-4

**Expert #4 Curriculum Evaluation: Educator Cohort (Teacher Education)**

Module I: Motor Milestones and Laban Movement Concepts

8. Comment on the *clarity* and *coherence* of the material presented on early motor milestones and Laban movement principles. Assess the level of difficulty of this material (Is it too complex? Is it rudimentary compared to your professional repertoire? Etc.)
   The material initially was somewhat difficult to sort (see comments on hard copy) the rest just seemed like a summary of a larger document

9. Comment on whether there is an appropriate *amount* of material? (Was there too much? Not enough?) What parts if any were either excessive, or lacking? If you have the three days you could cover the material the question is what would you leave out if you didn’t. Or what could you provide in a different format for educators to look at another time??

10. Are the language and the manner in which the information was presented *accessible* to you, and in your opinion, to others in your field who have similar background, education or experience?
    Again the presentation was like a summary. I am not sure how this would be translated into a message for educators????

11. Describe any previous experience or knowledge of this material you had prior to reading this curricular module. How does the content of this module align with those previous experiences/previous knowledge?
    Very little outside of my own personal knowledge but it seems very straightforward

Module II: Sensorimotor Integration, Perceptual Motor Learning and Deficits in ID

9. Comment on the *clarity* and *coherence* of the material presented on sensory and motor learning processes, and deficits in Invisible Disabilities. Assess the level of difficulty of this material (Is it too complex? Is it rudimentary compared to your professional repertoire? Etc.)
   See comments from above and remember that you do not want the educators to major in this stuff but get the general idea and see who they can put it into
what they are already doing. When I teach about Brain Injury I do not teach then what a neurophysiologist knows, just what they need to and how it relate to their practice and skill set.
More specifically, as I have already said rethink the ID stud. It is ok to discuss some deficits that may present in certain conditions and that may result in a students needing more intervention but the way you have it classified can lead to more misunderstanding and misinformation than need be

10. Comment on whether there is an appropriate amount of material? (Was there too much? Not enough?) What parts if any were either excessive, or lacking?

11. Are the language and the manner in which the information was presented accessible to you, and in your opinion, to others in your field who have similar background, education or experience?

12. Describe any previous experience or knowledge of this material you had prior to reading this curricular module. How does the content of this module align with those previous experiences/previous knowledge?

Module III: Movement Programming

19. In what ways is this material relevant to the expected duties of professionals such as teacher, EAs, IBI therapists or others in your field?
All of the material in the work is relevant, because it deals with how we move but that doesn’t mean that it is all necessary. I do not have to know how my car works to be a good driver!

20. Detail any new information you encountered in this portion of the curriculum and any information that you have been exposed to previously. What new insights did the information you were familiar with provide when given in a movement context?

Workshop Practicum

5. Please comment on the structure and organization of the workshop template. Is it feasible and manageable? Is it realistic? —Why or why not?
This does not look at all like a workshop to me so I am assuming that it is a work in progress. It is merely an outline of what will be covered?? I am not
sure how the activities will fit in or how the information will be presented, what the supplementary materials are etc.

6. Please comment on the types of activities that would take place in the actual workshop (see Day 3 sample of workshop activities in section IV of the curriculum). Discuss aspects such as variety, practicality, relevance, interaction, etc.

Over All

21. What aspects of this curriculum are most helpful or useful to you specifically in terms of professional development? Respond in the context of your specific professional cohort.

I think that it would be helpful to have more introduction and context setting for each piece. Do not assume even the most rudimentary knowledge. Certainly after all my training this information is new to me! The charts are good and very helpful. The difficulty in designing a workshop will be paring down to the essentials and being able to ensure that the educators can relate the information to what they actually can do with the students.

22. What components do you anticipate would be challenging for future professionals in your cohort?

I think that each has a particular type of information and none strike me as any more difficult than others.

The section on ID though needs to be reworked. Talk about types of disabilities in general noting a few examples and then state that these types of difficulties can be present. I would get rid of the whole ID term.

23. How does this movement curriculum fit into your current structure of professional development? What suggestions or potential changes would you offer to make it more accessible or feasible to your cohort and work environment?

The goal of a three day session is unrealistic. I recognize that you have a passion for this and letting teachers know but so do individuals who work with students with Acquired Brain Injuries, selective mutism, ADD, mental health issues..... Everyone seems to want teachers to know everything and that is just not realistic. I would argue that your audience should be phy ed teachers, but
in a province where that can be anyone that is a problem. I would try for a one day session and supplementary materials. (really good straightforward, used friendly materials)

24. What potential constraints do you see with the implementation of this program into professional development and training for teachers/therapists/educational assistants etc. in the future?

As I said above a limited amount of PD time as so many areas that need teaching.

25. Is the inherent assumption made about the expectation placed upon practitioners to provide movement-related programming and intervention with a lack of preparation to do so truly warranted? Is this over-exaggerated or misunderstood problem?

I think that realistically within an 8 month period educators get the maximum amount of information possible. Of course there is an expectation for life-long learning but do think that there is a lot to be covered in terms of needs within a classroom. I think that most teachers know the basics but would benefit from the information provided. Really we need to have phys ed specialists in the schools that can support both the students and the educators.

As for EA’s thee are no standards for training across the province. But you also have to remember for those who do have training it focuses on specific needs such as toileting etc. as for programming that is the responsibility of the teacher and they should be our audience.

Additional Comments

General Comment: While I understood the need for the in-depth background material presented as a majority of the work I did not understand how this translated into the workshop/in-service. As I am sure you know you would not be able to take the information in the format presented and utilize it as a workshop.

If the intent of the work is to present the information then it needs to be in a much more dynamic format. It is essential, of course that in a graduate level work, the background research and information be covered and provided but this presentation of background should not be confused with what is presented to educators. The format would be dramatically different.
Secondly and perhaps more importantly, I am VERY concerned about your use of the term ID. Within the ID category you have named types of disabilities that can be visible and left out other invisible ones. There is also a tendency to make an assumption that all students with these types of disabilities have these types of difficulties and this is not true. My concern, coming from the perspective of someone who has been in the field of special education for many years, is that this type of categorization with the use of labels causes more damage than it is worth. I would be comfortable with you saying that at times students with such conditions as ADD etc will experience difficulties with certain types of motor activities. To say that they all do is a gross overstatement and not in keeping with the direction in which the field is moving. There are many children who experience these types of difficulties who do not have a label or diagnosis as well.

It reminds me a little of the focus on boys literacy, which is very popular. By using the label Boys there is this idea that boys learn in a certain way and that we have to teach them to match this certain way of learning. The inherent danger in that is, that while a lot of boys learn that way, some don’t, and guess what some girls learn that way. When you put the label girls and boys on the learning it confuses things when the focus should be on type of learner. The same is true here when you say children with autism need this or that then is it all and only them???? I strongly suggest that you reexamine all of the sections that deal with this and change your orientation and terminology.

Finally the whole thing seems to be devoid of reference to the curriculum or grade levels??? How would an educator tie this in and where? These will be the things that educators are wondering about.

Summary of In-Document Feedback

- Difficulty with the grouping of “invisible disabilities”
- “use the word ‘educators’ rather than teachers”
- The words “not clear” written next to the following bracketed passage from module 1.1 of the curriculum: “Understanding the developmental progression through the motor milestones is important when working with individuals with invisible disabilities because many if not all learners in this population will have associated movement deficits or impairments. These impairments relate to underdeveloped or absent motor milestones.”
• “Suggest highlighting key sentences for scanning e.g...” [expert underline the first sentence of the paragraph on movement categories]

• “should there be an intro paragraph linking – explaining body awareness – space awareness – effort quality”

• “I am really having difficulty with your use of ID – there are many other disabilities that are invisible or can be, such as ABI or DD and some that you have listed in particular autism can be visible”

• Circled “invisible disabilities” in the following sentence from module 3.2 of the curriculum (task planning): Children with invisible disabilities will benefit from the structure and specificity of desired response of a closed task. And underneath it wrote the following comment: “They can but they can also benefit from choice”

• Building and planning developmentally appropriate tasks and stations is an invaluable skill to teachers, service providers and therapists regardless of the environment in which you’re programming or providing intervention. Expert then wrote: “The fundamental question is does it make a difference to the learning to do these things?”
Appendix O-1

Evaluation Summary Tables—Content Analysis

**Expert #1: IBI**

<table>
<thead>
<tr>
<th>Module 1</th>
<th>Expert #1 (IBI Therapists)</th>
</tr>
</thead>
</table>
| Question 1  
*Clarity and Coherence* | -“material was well presented”  
-“well defined terminology”  
-“complex”... “not rudimentary”  
-added depth to current understanding of developmental milestones |
| Question 2  
*Amount of Material* | -manageable amount of material  
-“definitions though seem obvious are necessary for an appropriate background and understanding”  
-definitions are long  
-material is “dry”  
-“are all definitions truly necessary?”  
-“I easily understand without feeling ill-equipped” |
| Question 3  
*Accessible Language* | -“info is accessible to all in the field...”  
-“very systematically laid out” |
| Question 4  
*Previous knowledge of Material* | -“None – or minimal (infant development only)”  
-“(I do not have previous experience with this material (even in my undergrad)...*Not covered...*necessary and appropriate.”  
-“This is definitely needed in the field” |

<table>
<thead>
<tr>
<th>Module 2</th>
<th>Expert #1 (IBI Therapists)</th>
</tr>
</thead>
</table>
| Question 1  
*Clarity and Coherence* | -Relation to previous material  
-“Brought material into context” |
| Question 2  
*Amount of material* | -“...other invisible disabilities other than ASD & LD...too specialized to these two populations”  
-beneficial to include more |
| Question 3  
*Accessible Language* | -“I really like the language in which this is defined. Very behavioural. Great for ABA’ers to relate to”  
-“Language is very appropriate & would be well received by the ABA professionals” |
| Question 4  
*Previous knowledge of material* | -“no previous history with this”  
-“great information provided to expand a lacking area”  
-“important in what ABA does” |
### Module 3

<table>
<thead>
<tr>
<th>Expert # 1 (IBI Therapists)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Question 1</strong>&lt;br&gt;<em>Relevance to expected duties?</em></td>
</tr>
<tr>
<td>- “very necessary”</td>
</tr>
<tr>
<td>- “limited knowledge with IBI professionals”</td>
</tr>
<tr>
<td>- provide programming in many aspects of movement and motor skills</td>
</tr>
<tr>
<td>- only know to progress from gross to fine motor in programming</td>
</tr>
<tr>
<td>- this material not covered in the training process</td>
</tr>
<tr>
<td>- “paramount in effective curriculum delivery for any IBI therapist of program”</td>
</tr>
<tr>
<td><strong>Question 2</strong>&lt;br&gt;<em>New Information? New insights?</em></td>
</tr>
<tr>
<td>- aware of general development of movement, as well as cognitive and affective components of development</td>
</tr>
<tr>
<td>- DEVELOPMENTAL acronym (Connoly, 2008)</td>
</tr>
<tr>
<td>- Movement profiling</td>
</tr>
<tr>
<td>- “All terminology was new to me – I was never taught to look at movement in this manner...”</td>
</tr>
<tr>
<td>- more structured physical education time is needed</td>
</tr>
<tr>
<td>- will utilize individualized task and station planning</td>
</tr>
<tr>
<td>- “using the [movement] profile and building on that data”</td>
</tr>
</tbody>
</table>

### Workshop Practicum

<table>
<thead>
<tr>
<th>Expert # 1 (IBI Therapists)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Question 1</strong>&lt;br&gt;<em>Workshop Structure and Organization</em></td>
</tr>
<tr>
<td>- days are too long (“9-4 is ideal”)</td>
</tr>
<tr>
<td>- lose audience attention and interest</td>
</tr>
<tr>
<td>- “material is too dense”... “HIGHLY theoretical”</td>
</tr>
<tr>
<td>- workshop is “robust”</td>
</tr>
<tr>
<td>- like the combined lecture and group activities</td>
</tr>
<tr>
<td><strong>Question 2</strong>&lt;br&gt;<em>Types of Activities</em></td>
</tr>
<tr>
<td>- “love the movement profile activity – great idea for really critical thinking and planning”</td>
</tr>
<tr>
<td>- “activities are very appropriate &amp; serve to apply the theoretical behind it”</td>
</tr>
<tr>
<td>Question 1</td>
</tr>
<tr>
<td>------------</td>
</tr>
<tr>
<td>-“All of it is useful and practical as each IT in IBI comes from different educational backgrounds”</td>
</tr>
<tr>
<td>-“the basic is necessary”</td>
</tr>
<tr>
<td>-“push for real understanding in applications”</td>
</tr>
<tr>
<td>Question 2</td>
</tr>
<tr>
<td>-“language may be challenging”</td>
</tr>
<tr>
<td>-scientific in nature which some may find difficult</td>
</tr>
<tr>
<td>Question 3</td>
</tr>
<tr>
<td>-“this curriculum really does fit...”</td>
</tr>
<tr>
<td>Question 4</td>
</tr>
<tr>
<td>-“having a government funded program invest 3 days into a movement curriculum may not be feasible”</td>
</tr>
<tr>
<td>-“it will not get approved to occur in IBI currently”</td>
</tr>
<tr>
<td>-1-2 days maximum</td>
</tr>
<tr>
<td>-“time and money”</td>
</tr>
<tr>
<td>-“Different philosophies maybe a constraint in the ABA world...”</td>
</tr>
<tr>
<td>Question 5</td>
</tr>
<tr>
<td>-“ignorance” of the importance behind physical education and movement programming</td>
</tr>
<tr>
<td>-“I don’t think it has ever been identified as a problem in IBI or has just been assumed it was being implemented effectively”</td>
</tr>
<tr>
<td>-“lack of related professionals telling us it was wrong”</td>
</tr>
<tr>
<td>-“now identified problem in physical programming”</td>
</tr>
</tbody>
</table>

**Summary statement capturing expert’s feedback...**

“I don’t think it has ever been identified as a problem in IBI or has just been assumed it was being implemented effectively”
### Appendix O-2

**Expert #2: EA**

<table>
<thead>
<tr>
<th>Module 1</th>
<th>Expert #2 (EA Program)</th>
</tr>
</thead>
</table>
| Question 1  
*Clarity and Coherence* | - “much too complex”  
- “definition based – always dry!”  
- give more examples to help understand terminology  
- more theory than EA needs to perform their duty |
| Question 2  
*Amount of Material* | - depends on the delivery mode; deliver CONTENT in an interesting and INTERACTIVE format  
- overwhelming for a 1-day workshop; appropriate over a 15-week course  
- “very dry material”  
- “…charts/diagrams – really helped in the explanation” |
| Question 3  
*Accessible Language* | - “yes—terminology is always important”  
- “EAs will always need the content & theory, however the job is to use the strategies” |
| Question 4  
*Previous knowledge of Material* | - “I have taught a course for EAs—Leisure Lifestyles which touch base on some of this content – much more basic”  
- knowledge only of what relates to the physical education curriculum in elementary school  
- “some of this is really related to the Therapy Assisting aspect of the job as well—working under the direction of the OT/PT”  
- “EAs roles are all about knowing the basic theory and applying it to that specific child and their needs” |

<table>
<thead>
<tr>
<th>Module 2</th>
<th>Expert #2 (EA Program)</th>
</tr>
</thead>
</table>
| Question 1  
*Clarity and Coherence* | - only 2 invisible disabilities identified and explained |
| Question 2  
*Amount of material* | - “correlation between the area of movement & the disability not clearly stated”  
- more on relationship between various ID (between LD, ASD, ADHD etc) |
| Question 3  
*Accessible Language* | |
| Question 4  
*Previous knowledge of material* | - “strong knowledge in disabilities” |
<table>
<thead>
<tr>
<th>Module 3</th>
<th>Expert #2 (EA Program)</th>
</tr>
</thead>
</table>
| Question 1  
*Relevance to expected duties?* | -“EAs must have knowledge, but mostly be able to utilize strategies” |
| Question 2  
*New Information? New insights?* | -“I think there is a great need for the knowledge and theory”  
-“I am not sure an EA would be able to focus on this one aspect as much as you think” |

<table>
<thead>
<tr>
<th>Workshop Practicum</th>
<th>Expert #2 (EA Program)</th>
</tr>
</thead>
</table>
| Question 1  
*Workshop Structure and Organization* | -“8 hour days = very long for a workshop”  
-“college level training – your practicum seems to be – ‘in a nut shell’”  
-“although theory is very important – it is very dry and information based – which is fine if you were conducting a lecture based course…”  
-“if you try to cram too much academic without more of the other, I think you will lose my cohort after day 1” |
| Question 2  
*Types of Activities* | -like the format  
-“All theory? Not activity based?”  
-“seems very clinical” |

<table>
<thead>
<tr>
<th>Overall</th>
<th>Expert #2 (EA Program)</th>
</tr>
</thead>
</table>
| Question 1  
*Most useful aspects...* | -“Definitely the hands on concepts and strategies for success” |
| Question 2  
*Challenging aspects...* | -“The content and theory – would not really require that depth; although interesting” |
| Question 3  
*Fit with current PD structure?* | -“1 day would be doable”  
-“less theory – more interaction and tasks or examples” |
| Question 4  
*Potential constraints to implementation in PD?* | -“time”  
-“cost”  
-“at present only 2 days/year are devoted to PD”  
-“interest – most are hired for numeracy & literacy purposes” |
| Question 5  
*Assumption about Expectations of Professionals?* | -“It is a wonderful assumption. Again, see #4”  
-“group of people who are identified as requiring this information is well thought out” |

**Summary statement capturing expert’s feedback...**

“I am not sure an EA would be able to focus on this one aspect...most are hired for numeracy & literacy purposes”
# Appendix O-3

**Expert #3: Educator**

<table>
<thead>
<tr>
<th>Module 1</th>
<th>Expert #3 (NCDSB)</th>
</tr>
</thead>
</table>
| **Question 1**<br>Clarity and Coherence | - "very clear – informative”  
- "well laid out”  
- "easy to apply to population of students I deal with”  
- "clearly understand ‘missing milestones’” |
| **Question 2**<br>Amount of Material | - "a lot of material” |
| **Question 3**<br>Accessible Language | - "yes to me personallyh – no to teachers”  
- "I do not feel “regular” classroom teachers would research a SN [Special Needs] child’s needs/background to this degree”  
- "Information better shared at an inservice” |
| **Question 4**<br>Previous knowledge of Material | - "...worked with the ‘special needs population’ for over 30 years, however not ‘directly’ within a physical education [environment]”  
- "physical development...is an important daily programming piece that needs to be incorporated in an IEP”  
- "these early developmental stages are a critical base for my students” |

<table>
<thead>
<tr>
<th>Module 2</th>
<th>Expert #3 (NCDSB)</th>
</tr>
</thead>
</table>
| **Question 1**<br>Clarity and Coherence | - "clear definitions & information presented”  
- "familiarity with subject matter helps” |
| **Question 2**<br>Amount of material | - "appropriate amount for clarification”  
- info on students with LD is lacking |
| **Question 3**<br>Accessible Language | - "yes to me”  
- "regular classroom teachers will NOT research this topic” |
| **Question 4**<br>Previous knowledge of material | - "working closely with OT’s [occupational therapists] and PTs [physiotherapists] on a daily basis affords me valuable information & program development in this area”  
- "presently we are trying to equip every school with “Multi-Sensory Rooms” to meet the [Special Needs] students sensory needs” |
<table>
<thead>
<tr>
<th>Module 3</th>
<th>Expert # 3 (NCDSB)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Question 1</strong>&lt;br&gt;Relevance to expected duties?</td>
<td>- &quot;...in my opinion movement programming is extremely important in the daily programming for a student with special needs&quot;&lt;br&gt;- &quot;as a school board we lack the &quot;trained professionals&quot; to assist staff with this more intense yes necessary area of Physical Education and programming&quot;&lt;br&gt;- &quot;schools lack this knowledge base&quot;&lt;br&gt;- thank goodness for the accessibility of other physical activity programs for students with special needs... &quot;as this exposes staff to the needs of movement analysis and programming&quot;&lt;br&gt;- &quot;not much is transferred back to home school environment&quot;</td>
</tr>
</tbody>
</table>
| Question 2<br>New Information? New insights? | - "loved the visuals (Murray & Lathrop), Developmentally Appropriate Programming (Connolly)"
- "movement profiles"
- "info collected would be informative 'at a glance'" |

<table>
<thead>
<tr>
<th>Workshop Practicum</th>
<th>Expert # 3 (NCDSB)</th>
</tr>
</thead>
</table>
| **Question 1**<br>Workshop Structure and Organization | - "yes" it is feasible<br>- it is "probably" manageable<br>- "time constraints"<br>- "other" focuses for programming and professional development (literacy, math, environmental studies, etc.)
- teachers would be unlikely to participate
- more appropriate for Physical Education teachers at the secondary school level |
| **Question 2**<br>Types of Activities | - "a large amount of activity"
- "can/may be overwhelming information content for a teacher" |
<table>
<thead>
<tr>
<th>Overall</th>
<th>Expert #3 (NCDSB)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Question 1</strong>&lt;br&gt;Most useful aspects...</td>
<td>- “early development of movement concepts (1)”&lt;br&gt;- “sensory integration (2)”&lt;br&gt;- “motor learning/planning (3)”</td>
</tr>
<tr>
<td><strong>Question 2</strong>&lt;br&gt;Challenging aspects...</td>
<td>- “implementing movement programming with untrained staff”</td>
</tr>
<tr>
<td><strong>Question 3</strong>&lt;br&gt;Fit with current PD structure?</td>
<td>- “it doesn’t fit”&lt;br&gt;- “make it more accessible – shorten it”&lt;br&gt;- “offer free professional development to school boards during PD days or after school”</td>
</tr>
<tr>
<td><strong>Question 4</strong>&lt;br&gt;Potential constraints to implementation in PD?</td>
<td>- “…needs to be brief and easy to use”&lt;br&gt;- “although [this] information is critical, the staff with not realize that at first”&lt;br&gt;- “offer pre-reading packages before a workshop”</td>
</tr>
<tr>
<td><strong>Question 5</strong>&lt;br&gt;Assumption about Expectations of Professionals?</td>
<td>- “…movement related programming is under used in our education practice.”&lt;br&gt;- “…classroom teachers would not pursue information pertaining to movement milestones or movement concepts UNLESS, it was brought to their attention at some type of inservice offered by student support services”&lt;br&gt;- “…teachers are ‘stretched’ to meet academic requirements for so many other areas...an academic area that would suffer would be the area of physical education”&lt;br&gt;- “Staff need to rely on [other] ‘trained professionals’ such as OT &amp; PT personnel to provide programming &amp; resources pertinent for their student”&lt;br&gt;- “I don’t feel a clear/practical understanding of this subject area is understood or encouraged to implement by senior administrative staff in our school board or perhaps the Ministry of Education (MOE).”&lt;br&gt;- “students are exposed to regular curriculum modified so students can reach/completeness the regular grade curriculum rather than incorporating more of a specialized [curriculum for] development of skills and movement”&lt;br&gt;- “rationale for providing PD to these professionals due to a lack of preparation to program adequately in physical environments, and lack of PD opportunities in this area is “correct””</td>
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**Summary statement capturing expert’s feedback...**

“regular classroom teacher will NOT research this topic”
### Expert #4: Teacher Education

<table>
<thead>
<tr>
<th>Module 1</th>
<th>Expert # 4 (Faculty of Ed, Brock U)</th>
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</thead>
<tbody>
<tr>
<td>Question 1</td>
<td><em>Clarity and Coherence</em></td>
</tr>
<tr>
<td>- &quot;material initially was somewhat difficult to sort&quot;</td>
<td></td>
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<tr>
<td>- &quot;seemed like a summary of a larger document&quot;</td>
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</tr>
<tr>
<td>Question 2</td>
<td><em>Amount of Material</em></td>
</tr>
<tr>
<td>- &quot;if you have the three days you could cover the material&quot;</td>
<td></td>
</tr>
<tr>
<td>Question 3</td>
<td><em>Accessible Language</em></td>
</tr>
<tr>
<td>- &quot;presentation was like a summary&quot;</td>
<td></td>
</tr>
<tr>
<td>- &quot;I am not sure how this would be translated into a message for educators?&quot;</td>
<td></td>
</tr>
<tr>
<td>Question 4</td>
<td><em>Previous knowledge of Material</em></td>
</tr>
<tr>
<td>- &quot;very little outside of my own personal knowledge&quot;</td>
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<tr>
<td>- &quot;seems very straightforward&quot;</td>
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<thead>
<tr>
<th>Module 2</th>
<th>Expert # 4 (Faculty of Ed, Brock U)</th>
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</thead>
<tbody>
<tr>
<td>Question 1</td>
<td><em>Clarity and Coherence</em></td>
</tr>
<tr>
<td>- &quot;rethink the ID stud...the way you have it classified can lead to more misunderstanding and misinformation than need be&quot;</td>
<td></td>
</tr>
<tr>
<td>Question 2</td>
<td><em>Amount of material</em></td>
</tr>
<tr>
<td>- &quot;remember that you do not want the educators to major in this stuff but get the general idea and see how they can put it into what they are already doing&quot;</td>
<td></td>
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<tr>
<td>- &quot;teach just what they need to know and how it relates to their practice and skill set&quot;</td>
<td></td>
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<tr>
<td>Question 3</td>
<td><em>Accessible Language</em></td>
</tr>
<tr>
<td>Question 4</td>
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<thead>
<tr>
<th>Module 3</th>
<th>Expert # 4 (Faculty of Ed, Brock U)</th>
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<tbody>
<tr>
<td>Question 1</td>
<td><em>Relevance to expected duties?</em></td>
</tr>
</tbody>
</table>
| - "all of the material in the work is relevant, because it deals with how we move but that doesn’t mean that it is all necessary."
| - "I do not have to know how my car works to be a good driver!" |
| Question 2 | *New Information? New insights?* |
| - "Certainly after all my training this information is new to me!" |
### Workshop Practicum

<table>
<thead>
<tr>
<th>Question 1</th>
<th>Expert #4 (Faculty of Ed, Brock U)</th>
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</table>
| **Workshop Structure and Organization** | -“does not look at all like a workshop to me...”  
- the information needs to be in a much more dynamic format |

<table>
<thead>
<tr>
<th>Question 2</th>
<th>Expert #4 (Faculty of Ed, Brock U)</th>
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<tbody>
<tr>
<td><strong>Types of Activities</strong></td>
<td>-“I am not sure how the activities will fit in or how the information will be presented, what the supplementary materials are etc”</td>
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</table>

### Overall

<table>
<thead>
<tr>
<th>Question 1</th>
<th>Expert #4 (Faculty of Ed, Brock U)</th>
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</table>
| **Most useful aspects...** | -“helpful to have more introduction and context setting for each piece”  
-“the charts are good and very helpful” |

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<thead>
<tr>
<th>Question 2</th>
<th>Expert #4 (Faculty of Ed, Brock U)</th>
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</thead>
</table>
| **Challenging aspects...** | -“Do not assume even the most rudimentary knowledge”  
-“the difficulty in designing a workshop will be paring down to the essentials and being able to ensure that the educators can relate the information to what they actually can do with the students”  
-section on ID needs to be reworked; do not use term Invisible Disabilities  
-whole curriculum is devoid of reference to school curriculum or grade levels; this will be what educators are wondering about |

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<thead>
<tr>
<th>Question 3</th>
<th>Expert #4 (Faculty of Ed, Brock U)</th>
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</table>
| **Fit with current PD structure?** | -“Everyone seems to want teachers to know everything and that is just not realistic”  
-“...your audience should be phys ed teachers, but in a province where that can be anyone that is a problem” |

<table>
<thead>
<tr>
<th>Question 4</th>
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</table>
| **Potential constraints to implementation in PD?** | -“The goal of a three day session is unrealistic”  
-“a limited amount of PD time and so many areas that need teaching”  
-“realistically within an 8 month period educators get the maximum amount of information possible”  
-“...there is a lot to be covered in terms of needs within a classroom” |

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<tr>
<th>Question 5</th>
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</thead>
</table>
| **Assumption about Expectations of Professionals?** | -“I think that most teachers know the basics but would benefit from the information provided”  
-“Really we need to have phys ed specialists in the schools that can support both the students and the educators”  
-“As for EA’s there are no standards for training across the province” |

### Summary statement capturing expert’s feedback...

“I do not have to know how my car works to be a good driver!”