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Theory and practice in adapted physical education

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PART IV
Adapted physical activity

Introduction
Many physical educators realize that the educational process is intricately tied to health and developmental parameters (e.g., motor, physical, affective, cognitive, etc.) integrated into school curricula. Students with disability, for instance, show an increased risk for poor health due to sedentary lifestyles and are routinely deprived of opportunities to practice sports and engage in exercise programs. Segregation’s insidious effects reach well beyond school environments, limiting access for individuals with disability and, due to society’s discriminatory attitudes, impact every aspect of our complex communities.

Pedagogical practices are continuously influenced by politics, human rights movements, globalization of messages, cultural differences, and economic constraints. Societal and individual beliefs sometimes have contradictory influences in the context of schools and institutions and in different countries. On the one hand, on many occasions beliefs have become political movements that have positively impacted laws and school policies, methods, technology, and accessibility. Conversely, cultural beliefs often have reinforced stereotypes and prejudice against disability that can make entire societies resistant to change. Worldwide, these “mixed” contexts result in academic training that is disjointed, reflecting a reality of economic and cultural bias.

The issues of diversity and inclusion in the field of education require new theoretical viewpoints to meet the demands of the twenty-first century. In Chapter 14, I present a dynamic systems perspective and apply it to contexts of practices in adapted physical activity (APA) (e.g., developmental and recreational activities, sports activities, etc.). A goal of this chapter is to explain how to promote and facilitate full participation in various programs of physical activity for students with disability. In APA teaching contexts, it is vital that teachers follow principles of maximum participation and non-sedentary engagement. As the main guiding requirement for developing teacher and professional competencies, the principles of dynamic systems theory can help educators design meaningful pedagogical practices for PE activities. This chapter reconciles medical knowledge and advances and scientific evidence, with disability rights recommendations, to meet rehabilitative and educational needs, whether in clinical settings, in sports, or in APA programs. In this chapter, I provide a discussion of how the educational context reflects a self-organizing system (e.g., a PE class in action), with sub-systems (e.g., teachers, staff, students, all of which are immersed in an immediate, ever-changing learning environment), openly
exchanging a flow of patterned energy (i.e., information) and dynamically cooperating and affecting each other. Using dynamic system concepts, I illustrate examples of cooperative solutions and attitude constraints, using the disability rights paradigm.

In Chapter 15, Advances in disability and motor behavior research, Rosa Angulo-Barroso and Teri Todd define the concept of disability from a biopsychosocial standpoint. From a motor behavior perspective, the authors discuss the complex phenomenon of an individual with disability, constrained by motor tasks, who is interacting with the environment. The authors introduce current theories that explain developmental changes in motor performance. They offer a task analysis model (e.g., Gentile’s two-dimensional taxonomy of motor skills) to explain how motor skills can accommodate individual constraints and ensure success. Following Gentile’s taxonomy, motor skills are divided into two broad categories: body orientation in quiet and dynamic tasks, and object manipulation. They discuss how to increase difficulty levels to sequence skill progressions appropriate to an individual’s potential. To introduce critical components of designing a PE practice or task, Chapter 15 content is divided into six key elements of motor behavior: (a) attention and (b) motivation as part of the person’s intrinsic characteristics, (c) demonstration, (d) feedback, (e) amount and distribution of practice, and (f) variability and specificity of practice. The authors summarize research findings in the areas of motor behavior (i.e., development, control, and learning) to demonstrate their potential applications in the field of APA.

When inclusion in schools became a major human rights issue, much of the world responded positively to international organizations that emphasized the adoption of the new disability rights paradigm, even changing their country’s legislation to reflect this innovative approach. Although in some countries disability rights is a reflection of diversity in political, economic, and cultural issues and impacts the education of individuals with disability, many countries continue to use the traditional medical model of disability, practicing segregation policies in their school systems. In Chapter 16, I collaborate with a group of distinguished international scholars to report the major strides in higher education curricular development that recently have occurred throughout the world (North, Central, and South America; Europe, Asia, Africa, and the Middle East). We trace how many societies and their institutions (e.g., schools, legislative systems, and political and economic situations, among others) have shaped new demands for diversity in teaching and service delivery. Some countries, such as those in Europe and North America, historically have been leaders in developing assertive policies regarding APA professional competencies, as illustrated in their official standards in APA and in inclusion policies.

The inclusion model’s focus on welcoming students with disability into the regular classroom is a theoretically and pedagogically sound approach to the education of all students. Teachers’ training, beginning at the preservice level, is critical to successful inclusion. Lauren Lieberman and Martin Block – Chapter 17, Inclusive settings in adapted physical activity: a worldwide reality? – introduce a debate about the inclusive curriculum. They discuss theoretical paradigms and pedagogical practices within the context of political and economic situations that span from local to worldwide perspectives. Coming from an inclusion perspective in modern schools, as well as from the broader sense of health promotion, critical issues for discussion include how to combine resources, knowledge, and experience – from both general and special education – to successfully provide a comprehensive, appropriate education to all children, with and without disabilities.

Indeed, worldwide, inclusive legislation is gradually becoming a reality. However, research shows that, almost universally, there is a common barrier to the practice of inclusion in school, regardless of a region’s socioeconomic status. That is, teachers and students without disabilities simply do not feel prepared to include students with disability. Furthermore, the absence of assertive policies related to teacher training still is the teacher’s main complaint in international
surveys. To assist teachers in providing quality experiences, Lieberman and Block contextualize inclusion issues within the Theory of Planned Behavior, discussing possible solutions for inclusive practices, using examples from different cultures.

In synthesis, this Adapted Physical Activity section, in an attempt to contextualize APA pedagogy and practices from an international perspective, runs the risk of appearing to present more problems than solutions. My international experience in the field of APA and my long-time interest in dynamic systems concepts indicate that positive solutions for teaching PE in inclusive (or non-inclusive) contexts can emerge from critical, far-from-ideal situations (e.g., poverty). What future teachers and professionals in APA need to understand is that learners are unique, and their educational environments often are skewed by cultural and economic restrictions, and by their individual experiences with being disabled or not. They need to understand that, although we have theoretical foundations and recommendations for practice, there is no single solution for effectiveness. As educators, each of us is a critical part of a diverse, ever-changing system (the teaching-learning environment) and can act in very powerful ways to enhance the educational environment for all participants.

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In the physical education (PE) field, whether specifically in adapted (APE) or not, a developmental-behavioral model strongly influences the body of knowledge, and, consequently, the pedagogical practices of teachers and professionals. More recently, the body of knowledge in adapted physical activity (APA) has incorporated a complex systems conceptual approach to explain and improve pedagogical practices, particularly APE in inclusive settings. However, in the educational context of schools and institutions, the reality of pedagogical practices has “evolved” along with politics, human rights movements, globalization of messages, cultural differences, and economic constraints. Additionally, the deep influences of societal and individual beliefs have reinforced stereotypes and prejudices against disability. In this chapter, I will first introduce complex system concepts from a dynamic systems perspective to explain practices in APE (e.g., developmental and recreational activities, sports activities, etc.). Then, I will critically discuss issues that can adversely affect educational practices, in particular, physical education (i.e., medical model of disability, poverty, and stereotypes). I will conclude by describing how complex systems concepts are integrated into disability issues in the PE social context of inclusive schools, with particular emphases on human rights, cultural (e.g., violence), and economic situations (e.g., poverty).

Knowledge, attitudes, and APE practices

The foundations of core knowledge in the APA area constitute many varied knowledge components. For example, teachers may stress legislation, historical aspects of the area, human rights, situations and consequences of exclusion, biological and psycho-social foundations, and so forth, all aimed to promote and facilitate full participation in sports and many formats of physical activity for students with disability. In school settings, the reality of inclusion requires PE teachers and APA specialists to expand their perceptions about diversity and be accountable in their commitment to education for all students. Physical educators employ practices that are aligned with pedagogical principles, core knowledge about the learning phenomenon, developmental
bases of children and youth, and philosophical and scientific foundations inherited from social sciences, psychology, health, and human biology.

**Paradox:** Although school PE is struggling with materializing inclusion and with high rates of sedentary lifestyle, a new generation of young Brazilian students with disability is being encouraged to engage in sports programs at school. Although no guarantee of year-round sport opportunities exists, they have been captivated by incentive programs by the Brazilian Paralympic Committee:

- Since 2006, the Brazilian Paralympic Committee has successfully organized the School Paralympics for elementary and high school students nationwide.
- In 2012, 1,200 athletes from 24 states gathered in the city of São Paulo to compete in one of the largest games for young students with disability (www.cpb.org.br/).
- The most recent national games for non-disabled students had nearly 3,000 participants. These competitions began in 1969 (Brazil, 2013).

Pedagogists are required to bridge the enormous gap between theory and practice. This is true when working with and educating students with disability, whether in general physical education or as specialists in APA.¹

Besides achieving the goals of academic excellence, pedagogical methods continue to evolve in many different cultures to meet diversity, inclusion legislation, and demands for life-long integration in society (e.g., forming a family, raising children, having a professional career, community leadership, being fit and healthy, and so forth). Moreover, educating heterogeneous groups of students requires the management not only of school policies, curricular content, and teaching tools and methods, but also adjusting the beliefs of diverse groups (including those of the teacher). To fully understand why pedagogical practice has been inefficient in addressing diversity in the sense of full and efficient student participation, it is important to take into consideration the greatest barriers in human behavior and institutions themselves: attitudes and exclusion.

**Is there a possibility for a new theoretical viewpoint in the name of diversity?**

Slay (2002) claimed that a learning environment is a *socio-technical complex system*. As an open system, human physical activity can be conceptualized as a *dynamic system*, organized to reflect task-constrained learning, and is inseparable from environmental and socio-cultural factors. The disability condition is a multilayered organism constraint that continuously responds to task demands, whether successfully adapting or not. The same logic can be applied to age, gender, body proportions, past experiences, etc. These are all elements (i.e., organism/intrinsic constraints) of a diverse, unique learner.

A pedagogical theory relies on curriculum success that, in turn, is materialized through the learning process of pupils (Cunningham, 1992). According to Mennin (2010), learning results in continuously evolving adaptive responses. A school curriculum – considered a set of teachers’ instructions, models, and pedagogical efforts working in cooperation with students – prompts contexts of endless problems and solutions and reflects self-organization of this complex system: the context of teaching-learning.

Whether from an inclusion perspective of modern schools or from a broader sense of health promotion, APA is a field in which individuals provide pedagogical opportunities to one another (i.e., from a teacher’s perspective, student-to-student, or from the school’s perspective). These members – while interacting during a learning experience – reflect self-organizing systems (e.g., a
Theory and practice in APE

PE class in action) and subsystems (e.g., members of the class immersed in a continuously changing environment) that are openly exchanging the flow of patterned energy (i.e., information), dynamically cooperating, and affecting one another. The dynamic systems perspective can be described from many points of view: the student, the teacher, the moment-to-moment interaction between a student with disability and a peer without disability within a task context or constraint, or the entire class dynamic. Such (deliberate) descriptions (by someone who is aware of the class context or its participants) take place in different time scales: an instant, the duration of a given task, a given developmental stage, or any other arbitrary timeframe.

According to Mauerberg-deCastro and Angulo-Kinzler (2001), the dynamic systems approach emphasizes the importance of heterarchical multiple subsystems and provides a unified analysis of the emergent behavior (i.e., learning something; mastering a skill; coping with rejection; showing concern for others, etc.). This means that individuals’ priority, hierarchy, biological functions, and social interactions lose their validity as individual issues and give place to a holistic understanding of learning and adaptive behavior embedded in the actual task environment. For example, a young child with Down syndrome can exhibit difficulties in walking and, when going upstairs, she may decide to crawl instead of walk. However, if she is determined to carry a baby-sized doll along, going upstairs might force her to stand in order to hold the doll while completing the journey. The developmental pressure is not always based on the most effective practice of the behavior (e.g., walking), which can be mastered through practice; instead, a moment of decision can be of critical meaning to a behavior’s emergence. The doll in this example becomes a critical context to the Down syndrome child’s walking. Furthermore, the task becomes more complex when she steps up a staircase while managing the weight and size of this relatively large load (i.e., the baby-sized doll).

Pedagogical practices for meaningful PE activities for all

An adapted PE program put into practice is a subsystem (a sequence of instructions logically selected) embedded in a larger system (i.e., the context of the school as institution, its curriculum, and pedagogical methodology). Physical contexts are manipulated and relatively controlled by the teacher (for safety reasons and motivation enhancement), yet the rate of interactions among students is variable. Such teaching strategies are continuously changing as a class session progresses.

Exchanges between teacher and students are bounded by rules of cooperation. As a pedagogical practice materializes, these rules cannot be simplified based on typical individuals, even though typically developing students also are complex and unique. While a number of commonalities between individuals exist (e.g., order of milestones in common stages of motor development), the stochastic nature of students’ interactions (i.e., not completely predictable moment-to-moment) provides a context for uncertainty in teaching. It is common for children with autism to express their perception of instructions differently than typically developing children, as well as to resist changing environments. Non-disabled children usually adapt to their autistic peers’ ways of communicating and responding to others, and modify their own expectations and responses accordingly. Yet, adaptation continuously evolves in this ecosystem (i.e., the classroom, including the student with autism) and, hopefully, committed and skilled teachers are able to convey information that is useful to control and facilitate learning.

In order to best instruct students with disabilities, teachers must manage the teaching context by “juggling” relationships to achieve cooperation, utilize technology and physical resources and the environment to enhance students’ skill acquisition, and continuously assess the results of their efforts while implementing curricula. Teachers often adapt inclusive
PE classes through the modification of instructions, variations of task requirements, and, sometimes, through the use of peer tutoring models (Klavina & Block, 2008; Lieberman & Houston-Wilson, 2009), etc. (Figure 14.1). It is important to remember that all students are more engaged when a task’s goal is clear (e.g., going from point A to point B; hitting a target ten times, etc.). Many PE curricular activities have clear and obvious goals: for example, sports. The process of achieving goals occurs, essentially, through competition – against oneself, or against someone else.

Competition can be observed in PE class, especially when students reach the teen years and feel the need for affiliations and social affirmation. Sports inherently include these components. Teachers (and coaches) of students with disabilities must take the opportunity to teach moral values, and, through sports, promote respect for rules, acceptance of adversaries’ successes, how to cope with failure, exploit opportunities for showing the determination to “try again,” winning with responsibility, fair play, and the development of leadership.

The presence of students with disability in an inclusive school setting provides the ideal opportunity for everyone to experience and express positive attitudes, and ultimately to develop friendship. Teachers should appreciate the fact that diverse students – with and without disability – comprise a dynamic system, one that can be an amazing context in which educators can learn how to teach. They help to define the educator’s purpose.

Physical educators, as well as any other educator, must realize that their practices instantaneously affect not only class dynamics, but, in the long term, students’ lifestyle choices and attitudes. Each and every student is part of a unique culture, and, as they interact, they exchange experiences that affect one another. Teachers should determine educational, developmental, health-related, and, often, therapeutic goals when teaching in inclusive contexts (or in adapted physical activity or individualized PE programs). Regardless of who the learners are, there are significant and meaningful demands for effort/exertion, developmental challenges (again: be brave), activity environment: risk taking vs. safety issues, competition is not the opposite of cooperation: teaching moral values, brave and sociable teachers for brave and sociable students, heterogeneous/cooperative groups (e.g., peer tutor model), teaching APE in the inclusive school: Managing a complex system, success vs. failure (inevitable), behavior management compliance vs. autonomy, significant and meaningful demands for effort/exertion.

Figure 14.1 The management of a PE class requires finding solutions that are born within the system’s dynamics. The system’s collective elements are: students (their culture, values, history, expectations, courage with the unknown, compliance and autonomy, etc.), the teacher (his or her pedagogical choice for practice, experience, resilience to challenges, flexibility, cooperative relations with the institution, peers, and students, etc.) and the PE tasks or PE content (developmental value of activities, embedded rehabilitation potential, meaningful exercise requirements, predicted task success/failure rate, etc.)
principles that guide professional activities in any teaching context. Sherrill (2004) introduced several principles in APA. She claimed that, based on the developmental status of students and their adaptive potential, teachers must provide a safe activity environment; select activities that are functionally relevant for a variety of motor skills (ecological validity); and promote positive contexts for socialization, fun, and altruistic relationships.

The systematic physical activity program or PE class should manipulate rates of practice, task variability, levels of task difficulty, and other factors that facilitate or compete with behavioral outcomes. Teachers are able to exert influence on how students increase or lower their levels of motivation and arousal, and on how they focus attention. Teachers manipulate task requirements to increase physical efforts and improve tolerance to fatigue. Furthermore, teachers understand that, collectively, these factors make the class dynamics almost impossible to predict, and yet, they can establish appropriate goals and efficiently manage the group based on their teaching experiences, creativity, sensitivity, awareness, and goodwill. It is a wonder how this “ecosystem” of relations, stochastic, yet somewhat predictable, apparently flows into order (Figure 14.2).

Whatever the chosen activities in a PE program, it must provide a certain level of freedom, enjoyment, and be flexible to stimulate creativity. Sometimes pleasure and joy are lost during those activities that emphasize repetition or restricted participation (one based on the adult’s perception of target learning). Gestures or performance requirements such as those that occur in sports can be quite individual, but, eventually, given meaningful and motivating practice opportunities, individuals self-organize actions. Movements or actions in sport or other PE activity are restricted by the (bio)mechanics of the target skill (e.g., presence of a physical

Figure 14.2 Diverse skills: students finding a single solution for a collective task (photo: D. F. Campbell, 2013)
disability), or restricted by the task goal (e.g., adapting target skill to the task, such as when playing sitting volleyball). Because teachers are part of dynamic settings (students, class material/equipment, task at hand), they need to be actively engaged with demonstrations, clearly and objectively communicate instructions that are accessible, be consistent with rules and participation requirements, and provide (when necessary) physical support for safety and touch contact for encouragement.

There are many cultural, social, and legal issues surrounding how teachers actively engage a class of students in instruction. In APE, these issues are part of the educational process and cannot be ignored. Sometimes, family members, students, school administrators, and peer teachers can work cooperatively to identify the best strategies for implementing pedagogical methods with coherence and best practices, and in modifying methods for students with disabilities.

APA teachers often struggle to find appropriate teaching strategies that are politically correct and inclusive of students with disability. For example, because, in general, students with spinal cord injury have issues with body image, these can become more evident in a swimming class. In the health section of a PE class, a sensitive teacher must discuss with the entire class issues about the biased, unrealistic media standards about looks and “being cool” (Campbell, 2015; Seabrook, McChesney, & Miller, 2001). The same PE curricula require PE teachers to educate all students about medical needs, healthy habits, and being fit; the disability topic in such contexts cannot be ignored. Teachers can invite a student that has a disability to take an active role in educating peers about his and other disability conditions. This tutoring context helps to empower all students, as well as the teacher.

Such practical contexts and assumptions often are recognized as a local dynamic of those involved (students, teachers, and associated helpers such as para-educators). As a dynamic system, teaching and learning processes also reflect previous influences that go beyond the classroom to curricular planning. Traditionally, curricular planning has followed or has been influenced by theoretical approaches and models of practices in rehabilitation. In this case, even in inclusive settings, the traditional (and often criticized) medical model is a great influence on the educational system worldwide.

In the past, the medical model of disability was perhaps the greatest barrier to the development of a democratic, human rights-centered approach. However, in some countries today as well as some Brazilian regions, segregated education still prevails, whether due to economic reasons (e.g., many countries in Sub-Saharan Africa and South America) or by social choice (e.g., Hong Kong, Indonesia, Saudi Arabia). This model likely influences how educators, and, in particular, physical educators, deliver APA services and teach students with disabilities (Elsheikh & Alqurashi, 2013; Kurniawati, Minnaert, Mangunsong, & Ahmed, 2012; Mauerberg-deCastro, 2007; Sit, Lindner, & Sherrill, 2002; Peresuh & Barcham, 1998).

Therefore, educators need to be familiar with medical conditions and technological advances that are incorporated into the routine of living with a disability. Another issue that educators need to be knowledgeable about is the influence that media plays in multicultural settings, such as in inclusive schools, and, broadly, on inclusive environments (Campbell & Mauerberg-deCastro, 2011).

In the history of disability rights, a variety of events have reinforced the belief that individuals who do not meet certain societal patterns (e.g., behavioral or even aesthetic appearance) or expectations (e.g., independence, self-reliance, even economic success), should be “outcasts.” This belief is seated in the medical model of disability (Figure 14.3), which insidiously influences attitudes that justify exclusion.
Integration of medical advances and science to serve rehabilitation and APA

Educators and physical educators in many parts of the world have begun to embrace spontaneous, creative, and enriching teaching-learning environments for students with developmental problems (Block, 2015; Lieberman & Houston-Wilson, 2009; Mauerberg-deCastro, 2011; Winnick, 2000). Medical advances in science, the modernization of methods of treatment, and a complex multidisciplinary relationship among various professionals dealing with health and rehabilitation have affected the traditional medical model’s influence and are becoming increasingly more widespread across disciplines. For example, in Europe, the traditions of clinical psychology, neuropsychology, and psychiatry have merged into new disciplines. One such area is the French psychomotricity, which is a specialized professional field first established in the Hospital of Salpetrière in 1950 (Brunelle & Beauchesne, 1983). Psychomotricity became a popular method for teaching young children in pre-schools because of its emphasis on psychomotor development. The rapid developments within the psychomotricity field resulted in pedagogical applications, particularly for students with learning “inadaptations.” In the 1970s, the National Centers of Psychomotor Formation, endorsed by the French National Ministry of Education, began the certification of educators and physical educators using psychomotricity as a means for providing psychopedagogical help (i.e., the Psychopedagogical Help Group, GAAP, according to Brunelle and Beauchesne, 1983).

Today, the medical field is benefiting from new scientific knowledge about disabilities, resulting in shifting influences and new conceptual frameworks about disability. Such knowledge has affected programs, treatment protocols, and policies, and has even influenced the way in which entire communities perceive disability. For example, when the media uses neutral or positive language to disseminate news about medical conditions of people with disability or health impairment, this exerts positive influences on attitudes and increases the general population’s acceptance towards these individuals. Recently, such dissemination of information has occurred
via TV programs (e.g., news story-telling, soap operas, miniseries, mainstreaming Paralympics and other sports practiced by disabled athletes, etc.), the Internet, school forums, integrated sports tournaments, all giving positive visibility to the issue of disability (Inimah, Mukulu, & Mathooko, 2012). This positive dissemination of information influenced the World Health Organization's decision to redefine the measurement and classification systems (i.e., IFC – International Classification of Functioning, Disability and Health) associated with disability. The IFC has contributed to an understanding of disability that goes beyond the notion of biological or clinical dysfunction and includes positive aspects of body functions, activities, roles in society, and environmental facilitation within the context of disability (WHO, 2011).

**Institutions’ support and facts**

The practice of sports represents a positive tradition for institutions and entire cultures, and reflects not only the prestige of elite sports, but promotes the benefits of health and rehabilitation for almost everyone (DePauw & Gavron, 2005; Vanlandewijck et al., 2007). Sports participation for many students starts in school, yet students with disability may be largely ignored or dismissed from PE classes, even when an institution provides only a few options in a curriculum that must comply with legislation and inclusion policies. Worldwide, particularly in countries with emerging economies, many students with disability are provided with medical excuses or are denied access to physical education under the premise that they are “unfit” due to disability. However, an increasing range of physical education services is a growing reality, thanks to incentives, inclusive programs, and legislation by many local and international organizations. See, for example, existing international recommendations about inclusion by the United Nations’ World Programme of Action Concerning Disabled Persons (United Nations [UN], 2010). Also, there is a growing body of national legislation in the U.S. (e.g., the Individuals with Disabilities Education Act, United States Government, 2002; Winnick, 2000) and organizational policies such as 60 minutes of daily physical activity for children and adolescents, recommended by the U.S. Department of Health and Human Services (United States Government, 2002).

In APE/APA, the U.S. national certification program, Adapted Physical Education National Standards Project [APENS] (National Consortium for Physical Education and Recreation for Individuals with Disabilities, 2008), the 2008–2010 European Standards in APA (EUSAPA) project (Klavina & Kudláček, 2011), the Thematic European Network on Adapted Physical Activity (DePotter et al., 2003), and Special Olympics provide clear guidelines for APE practices and reform worldwide. Special Olympics, with 80,000 sport and physical activity events year-round, reaches 4.4 million people with intellectual disabilities in 170 countries (Special Olympics, 2015). Outstanding resources are available to support and promote APE programs of excellence via literature, conferences, and online support (e.g., Adapted Physical Education Assessment Scale II, Society of Health and Physical Educators [SHAPE], 2015).

According to Bouffard and Reid (2012), the movement toward *Evidence-Based Practice and Adapted Physical Activity (EBP)* in the field of APA has received ample support by scholars who have attempted to demonstrate the efficiency and effectiveness of various forms of interventions, or of other positive outcomes from APA practice. Although for Bouffard and Reid (2012), *best practice* is a debatable concept, it guides organizations and even governmental policies (*No Child Left Behind*, United States Government, 2002).

Indeed, the need for APE programs is on the rise, particularly in U.S. school systems. Zhang (2011), using a market-based perspective and U.S. national reports (i.e., 27th Annual Report; USDE, 2007; Kelly, 1995), analyzed employment rates of APE teachers and APE services for students with disabilities in public schools across the nation. The results showed that, in the U.S.,
employment of fully certified APE teachers fills only 24% of the need, leaving a 76% shortage nationally of APE teachers with full certifications.

Incorporating a democratic, complex system approach to pedagogical practices

In modern societies, services are now bridging hybrid and holistic paradigms in order to provide health, wellness, rehabilitation, and education to individuals with disabilities (Mauerberg-deCastro, 2001, 2006, 2007; Roush & Sharby, 2011). For example, international programs such as the UN (2001), UNICEF (2015), and WHO (2011) defend disability and civil rights. Emerging principles for the “normalization” and social role valorization of people with disabilities (Wolfensberger, 1972), and the disability movement (e.g., Special Olympics, International Paralympic Committee) have played a special role in inspiring new ways of intervention and education, promoting equal opportunities for all.

In APA, success in delivering physical activity and sport relies on professionals sensitive to human rights and with a critical view that nurtures the adaptive potential of individuals. These professionals facilitate and transform through experiences with their students and athletes, both with and without disabilities. In such a democratic context, individuals’ transformative experiences reflect a model of positive social-political commitment to diversity.

The social model of disability

The social model of disability is widely advocated through civil rights movements, international unified concepts of inclusion, and disability movements. It is a model that focuses on the human rights of minorities, and, according to Disabled World:

The social model of disability sees the issue of “disability” as a socially created problem and a matter of the full integration of individuals into society. In this model, disability is not an attribute of an individual, but rather a complex collection of conditions, many of which are created by the social environment. Hence, the management of the problem requires social action and is the collective responsibility of society at large to make the environmental modifications necessary for the full participation of people with disabilities in all areas of social life. The issue is both cultural and ideological, requiring individual, community, and large-scale social change. From this perspective, equal access for someone with an impairment/disability is a human rights issue of major concern. (Disabled World, 2015, n.p.)

The social model of disability does not dismiss the importance of biomedical practices used to reduce the effects of impairments and to adapt assistive technology (WHO, 2011). In this sense, adaptive processes are emergent from organism constraints (e.g., organism functions modified by intervention, or the use of devices for assistive mobility or to achieve sport excellence, and so forth) and range from the individual to social environment constraints (e.g., an entire community dismantling stereotypes to ensure rights and equality for all). Figure 14.4 illustrates a series of intrinsic constraint factors related to an individual with disability and a series of environmental constraints (extrinsic) within social, political, and even physical contexts that interplay as dynamic interactions in the social model of disability.

A society’s propensity to form stereotypes is one of the consequences of a negative understanding of disability (Campbell & Mauerberg-deCastro, 2011). The medical model of disability historically reinforced a variety of such stereotypes, including concepts about health.³
Concepts related to stereotypes about disability affect all people, including individuals with disability themselves. For example, students with intellectual disability are at the highest risk for rejection by peers when compared with those with other types of disability (Varughese & Luty, 2010). Moreover, individuals with physical disability, for example, tend to be annoyed with the possibility that others would perceive them as having intellectual limitations (Mauerberg-deCastro, 2011).

Being physically active can prevent many complications related to disability. In fact, a sedentary lifestyle doubles the risk for disability for everyone. Consequences of a sedentary lifestyle often result in higher rates of obesity, mental health disorders, and poor cardiovascular fitness (Walsh, Kerr, & van Schrojenstein Lantman-de Valk, 2003). This is particularly true for students with intellectual disability, who, according to Silva, Santos, and Martins (2006), have significantly higher risk for developing obesity than their non-disabled peers. Weight gain adds another opportunity to be stereotyped, besides those associated with disability, and increases chances for bullying.

A majority of children with disability are further compromised educationally by many factors. They may experience constant health problems affecting attendance, segregation or being subjected to improper educational methods, participation in inclusive settings in which bullying is routine, and expectations for low academic performance and lowered standards and requirements, among other problems. Uneducated families with a member with disability will struggle harder than an educated family. In poverty, knowledge about opportunities and civil rights is not easily accessible.

Both oppressive and transformative situations are an integral part of students’ individual experiences. Education is a process of shaping these situations towards a cooperative, coping, sharing, constructive, and transformative social experience. In teaching, some negative situations are impossible to eradicate. Collective states of a school class are filled with “ups” and
“downs” during social learning interactions; students (disabled and not disabled), working with their teachers, forge their identities to a great extent by being a part of these “states” (Figure 14.5).

Although individuals can be thought of as part of many communities and with many roles, each affects her or his community in various ways. The disability condition is the result of many interactive factors or constraints (e.g., age, an individual’s history, physical and psychological strengths and weaknesses, growing up in poverty versus abundance, cultural influences, etc.). Collectively, many constraints and opportunities exert an impact on identity formation and affiliations.

James Charlton and South African fellows Michael Masutha and William Rowland (Charlton, 1998) introduced the slogan, “Nothing about us without us,” the 1990s, to voice their deep concern with the fact that individuals with disability were historically dismissed from participating in decision making policies and voicing their choices in a variety of contexts (e.g., education, sports, family affairs, work force), among other issues.

**Educators’ untold reality**

An integral part of every educator’s pedagogical perspective should be the critical understanding of the reality of disability and the impact of the prevalent association of disability with poverty and inadequate educational environments – even when inclusive. Physical educators,
for example, often rely on scarce sources of funding for developing their PE programs, whether in schools or other kinds of institutions.

In many cultures, PE is improvised and dismissed from school curricula, and obeying laws related to inclusion, developing resources, and teacher in-service training are not priorities (Bines & Lei, 2011; Mauerberg-deCastro, 2006). In developing countries' schools, PE teachers often are faced with classes that reflect not only the diversity of students' motor skills but situations that range from simple problems (e.g., placing a ramp for access of a wheelchair) to serious ones (e.g., programs to prevent and resolve violence towards disability; delivering safe PE classes to prevent harm to students with disability) (Kim, 2013; Orunaboka & Nwankwo, 2011). In such communities, PE teachers often teach outdoors or in non-fixed locations (Onyewadume, 2007; Orunaboka & Nwankwo, 2011). In Brazil, disabled students in PE classes approach their teachers with a variety of problems that reflect their daily struggles to attend school and to deal with violence (Albino, Zeiser, Bassani, & Vaz, 2008; Castro, Vaz, Oliveira, & Pinto, 2013). PE teachers teaching in schools in poor neighborhoods often must confront and assist students both with and without disabilities, deal with life-consuming issues such as hunger, domestic violence, and peer bullying. PE teachers also deal with the effects of poverty on families and their disabled students. These concerns include students being tired due to extensive demands of work or home chores, abuse by parents, or coming to PE wearing improper clothes, perhaps without shoes, or suffering from poor hygiene, and untreated illnesses (Devries et al., 2014; Mushoriwa, 2001; Onyewadume, 2007).

PE teachers often are restricted due their institution's economic problems. Teachers may teach without sport equipment appropriate for use by students with disabilities, inadequate PE facilities with limited or no accessibility for students with disability. Without trained assistants (or para-educators) to help with individuals with special needs, teachers must manage large classes while attempting to meet the needs of students with disabilities. In some locations, inadequate security permits outlaw gangs to operate inside schools, while the general population's ignorance about disabilities in general often results in oppression and violence toward disabled people (Mauerberg-deCastro, 2007).

Often, in school curricula, administrators and other educators place less importance on PE classes relative to their overall contribution to academic achievement (Petrie & lisahunter, 2011). Inconsistencies also occur in recognizing the value of core theoretical physical activity and sports knowledge as it relates to health. Brazilian school curricula in many states require that PE teachers allocate one hour to teaching theoretical concepts out of their two weekly contact hours (Mauerberg-deCastro et al., 2013). Introducing theoretical content in PE does not help recognition of PE as an academic field if students do not have opportunities or the initiative to engage in actual and meaningful PE practice.

### Inclusive and regular PE contexts: something is not working

Whether or not a methodological approach is theoretically sound for PE in school, reality of teaching is another matter. Unfortunately, for Brazilian students (and for others from different countries), engagement with physical activity is dangerously low. For example, Brazilian youth, including those who are disabled, are less and less engaged in physical activity, exposed to a fast-growing incidence of obesity, and increasing metabolic diseases. The incidence of overweight Brazilian males has tripled since the 1970s, from 18.5% to 60%. Obesity quadrupled, from 2.8% to 12.4%. Women's overweight and obesity values have doubled (IBGE, 2010). Children 5–9 years old are overweight
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(34%) or obese (14%) (UNECLAC, 2010). Currently, inactive lifestyle shows that 60% of Brazilian children and youth are sedentary. There is a problem with PE in school in this country. Regardless of methods or philosophical approaches, worldwide, in industrialized countries children and youth are suffering the consequences of a sedentary lifestyle. School PE is failing to engage students in a meaningful exercise regime.

A study by Bejerot, Edgar, and Humble (2011) revealed that poor motor skills are strong risk factors for students to become targets of school bullying. Further, students with disabilities are likely targets of psychological (75%) and physical (2%) forms of violence, or both (23%). These victims, according to this study, can become bullies as well (28% of the cases). Individuals in inclusive settings are extremely vulnerable to violence.

In Brazil, teacher who are incapable of class management authority and discipline resort to ignoring students and withdrawing rather than intervening during situations of violence that occur among students. This allows them to be exposed to the tyranny of bullies and leaves them defenseless in situations that lead to injuries and pain inflicted by others (Arendt, 1992). The result of violence is a sense of victimization by students.

The PE class can be a paradoxical context. On the one hand, in well-taught and well-managed classes, students feel free to enjoy themselves, develop social awareness, and cultivate and enrich their learning communities. Indeed, positive PE experiences result in more socially adjusted students. While on the other hand, an unskilled teacher may not be able to prevent violence, causing student discomfort. Roman and Taylor (2013) found that a teacher’s lack of PE experience was associated with student victimization from bullying. The question is, then, how can teachers transform PE from a negative context of victims and tyrants into a positive experience for all, particularly for students with disability, who frequently are the objects of deeply rooted stereotypical attitudes?

Physical educators are confronted with complex social contexts. Diverse students manifest a range of needs, desires, previous experiences, perceptions, and opinions of others along with varying skill levels (motor, social, cognitive, and emotional) (Bredahl, 2013). Teachers who are sensitive to complex interactions can build a positive environment that reflects school policies, protects students’ vulnerabilities to conflict and violence, provides peer support, builds on family dynamics, and marshals economic resources. Together, these complex factors play into the reality of teaching practices and toward the goals of developing an inclusive and successful curriculum.

Final considerations

Although the political scenario and policy making in the field of PE have evolved to embrace diversity, the daily reality of teaching, in large part, has not. While inclusive programs are expanding globally, there is a universal trend toward complaints from PE teachers who feel they are unprepared to deal with students with disability. However, from moment to moment the teaching process includes both positive and negative components. A class can simultaneously have students who apply themselves and others who do not. From moment to moment, this, too, can change. Wise, committed teachers are aware of such challenges. This is the dynamic
system principle of adaptation and occurs whether or not a student has a disability. Too, the wise, committed teacher knows that learning is not linear. A class of students – and the teacher – comprise a non-deterministic, quasi-random, self-organizing, collective system. PE teachers are more likely to figure out solutions to conflicting scenarios in inclusive settings if they take an active role within this system. For example, young students seem to enjoy lessons in which their teachers join with them in playing games just for the sake of teaming with someone so good. Teen students might prefer to have a class visitor who demonstrates excellence in a sport, for example. Athletes with disability are perfect candidates for this role. Creative teachers actively lead their students to discover solutions to problems. These teachers do not excuse themselves when students are lost in the beginning of the process of learning something.

It is impossible to ignore the importance of history when dealing with individuals with diversity. All individuals (e.g., students, teachers, staff) are affected by institutional traditions and policies, moral values and societal expectations, life goals, resources and technology, legacies of political oppression, and an ever-changing (globally influenced) society. Moving from the traditional “medical model” to rights- and diversity-based thinking about disability can cause a change in views. No longer is disability treated as a medical condition to be cured. People with disabilities are included rather than treated as outcasts. However, some educators have not yet caught up with these social and political changes. Teachers and educators will continue to be challenged to truly embrace these policies, enhancing the effectiveness of their teaching to include and care for individuals with disability.

Reflective questions for discussion

1. What are the major differences between the medical model of disability and the social model of disability?
2. Although the medical model of disability is considered the greatest barrier to the development of a democratic, human rights-centered approach, discuss other problematic issues regarding access and quality of education for all students, including those with disability, from an international perspective.
3. Briefly discuss organism/intrinsic constraints of a student with disability (e.g., cerebral palsy) in an APA context (e.g., playing soccer), and specify how a teacher might manipulate the teaching environment to promote success in learning.
4. Discuss how the teacher, students with and without disability, the school system (including planned curricula), and society (e.g., parents, messages via TV) comprise a dynamic system in the context of teaching-learning.

Notes

1 The term adapted physical activity (APA) is an umbrella concept to broadly define the professional and pedagogical activity of physical educators in general. APA encompasses the physical activity delivered in the school context and, herein, is adopted as adapted physical education (APE).
2 In many European countries and in the United States, schools have introduced a mandatory “non-touch” policy to discipline the routine of teachers and students of all ages in order to control harassment, bullying, and other perceived negative events associated with physical contact (Farlow, 1994). In general, this policy is quite controversial from the perspective of “touch withdrawal.” Physical contact for certain age students, condition of disability, behavioral situations with students, safety issues, or simply social acquaintance are important, necessary, and sometimes, unavoidable. In PE settings in different parts of the world, there are
cultural and legal aspects that vary extensively. In some countries, not touching a student during instruction might be considered unsafe and, even, a sign of dislike, discrimination, or confrontation. And, quite often, physical activities require students to touch or physically contact each other.

3 According to Peterson, Puhl, and Luedicke (2012), physical educators (e.g., PE teachers, coaches, and in-training PE teachers or coaches), particularly male teachers and coaches, who display negative attitudes towards overweight students, tend to recommend weight control based solely on appearance instead of objective measures of health and physical performance.

4 According to the UN 2001 Statistical Database on Disability, an estimated 1.7% of the world’s population has some kind of disability; 0.7% of this total consists of children under 14 years old (Filmer, 2008; UN, 2001). Today, determining the prevalence of disability within the population is much more complex because about one third of people with disability are older individuals. Rates of disability are much higher among those aged 80–89 years, increasing 3.9% each year after this. By 2050, experts predict that nearly 20% of the global population 60 years or older will be disabled (UN Enable, 2012). According to the UN Enable 2010 WPA report, in most countries, at least one person out of ten is disabled, and at least 25% of any population is adversely affected by the presence of disability. Furthermore, wars, refugee camps, and epidemics of disease make the scenario of incidence of disabilities much more prevalent. This world reality has an economic implication. Indeed, poverty is highly correlated with disability. Whether a country is economically developed or developmentally challenged, the combination of limited income and cost of living has a greater impact on the lives of families of people with a disability as compared to the rest of the community (WHO, 2011). As adults, half of individuals with disability are unemployed, need help from social programs and charity, and most live in poverty and isolation (Filmer, 2008). People with disability have increased risk for poor health due to sedentary lifestyle, resulting in lack of opportunities for practicing sports and exercise (Martinez-Leal et al., 2011; McKeon, Slevin, & Taggart, 2013).

5 Paulo Freire’s critical theory, endorsed by the nation’s Ministry of Education, was largely integrated into the socio-anthropological body culture approach in Brazilian PE school curricula.

References


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