

Solutions for Including Individuals with Disabilities

Modifying Physical Activities to Include Individuals with Disabilities: A Systematic Approach

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To make inclusion developmentally appropriate, teachers need to adjust the task and environment to suit students' abilities.

Meeting the needs of individuals with disabilities in inclusive physical activity settings can be a challenge. Constraints related to equipment, class size, curriculum, and the various ability levels of individuals with and without disabilities can influence the success or failure of participants and instructors. This article describes the components of a systematic approach to addressing the needs of individuals with disabilities in an inclusive physical activity setting. Special attention is given to understanding how the instructor can control the environment and tasks to meet the needs of the participants. A novel game example is used to demonstrate the suggested approach to making modifications and adaptations that are meaningful, generalizable, and fun.

Systematic Approaches

When determining activity modifications or adaptations, it can be helpful to apply Newell's (1984) model of constraints. This model describes learning as an outcome of interactions (or relationships) among the individual learner, the environment, and the tasks. The individual determines the need for specific activity modifications through his or her *structural constraints* (e.g., body structure, abilities) and *functional constraints* (e.g., behaviors, motivation). Environmental influences relate to aspects of the immediate surroundings, such as playing softball outside on an open field versus playing the game in a gymnasium with a hardwood floor. Environmental influences also include sociocultural aspects, such as a large group activity, a small group activity, or the performance of an individual activity in front of peers. Task influences relate to the goals, rules, and specific equipment used during the activity.

Each individual comes to the activity with his or her own structural and functional constraints and responds to how the instructor designs the environment and structures the tasks. Understanding the functional and structural constraints demonstrated by the individual enables the instructor to make modifications to the environment and/or adaptations to equipment or rules to ensure the participant's success. The instructor's recognition of how the environment and the tasks influence performance is essential to meeting the participant's unique needs.

To understand the power of the environment and tasks on behavior, recall a time when you walked onto an elevator that was filled with strangers. What was the first

thing you did? Did everyone remain quiet? Did they maintain their respective distance, look down, or have limited eye contact? Now imagine yourself entering a large open space where everyone is participating in an activity you enjoy. How would your behavior differ in the two environments? You have not changed, yet your behavior has changed simply because the environment and the tasks around you have changed considerably. Like students in a physical education class or participants in a large group recreational activity, your behavior is often a product of a combination of the environment where you are engaged and the tasks that you must accomplish. In addition, your natural abilities to interpret, navigate through, and interact with the environment and tasks often determine the extent of your success.

For some individuals with and without disabilities, managing both the environment and the tasks during physical activities can be difficult and can create a barrier to success. Such individuals may have difficulty interpreting and navigating the steady stream of information and situations they encounter. With diligent planning, however, instructors can provide all individuals with an appropriate balance of challenging activities and successful progression through a comprehensive curriculum or activity sequence. Understanding what the instructor controls (the environment and the tasks) affords great opportunity to create meaningful modifications or adaptations to address the participant's needs (Gagen & Getchell, 2004).

The Environment

When the physical activity setting is a physical education lesson, one aspect of the environment that influences the student's performance is his or her placement in a least restrictive environment (LRE). The special education process requires an individualized assessment of motor skills and fitness levels (Individuals with Disabilities Education Improvement Act, 2004). Subsequently, if the student qualifies for special education services, the individualized education program (IEP) team develops goals and benchmarks and the services that will foster their achievement, and then the IEP team determines the student's placement. Placement refers to the setting in which the student will receive the services that will promote progress toward the goals and benchmarks. The placement must be the learner's LRE, which is determined from a continuum of placements and includes the necessary supports, supplementary aids, and services (Block, 2000). Regardless of the placement, supports, supplementary aids, and services, there is often an additional need for the service provider(s) (e.g., general physical educator, adapted physical educator, paraprofessional) to modify the learning environment or adapt the tasks in order for the student to be safe, successful, and challenged during physical education.

There are many other ways that the environmental design of an activity affects the performance of all individuals during physical activity. The dimensions or size of the playing area, the surface texture, the noise level, and even lighting can greatly influence the individual's motor performance.

An example of how environmental design shapes behavior can be seen in a standard traversing wall, an increasingly popular component of physical activity programs (Mittelstaedt, 1997).

A traversing wall is often brightly painted, has ample hand holds, and contributes to the design and use of the indoor gymnasium. In essence, the traversing wall says to participants, "Climb". The environment sends a powerful message to the participant; yet, for many individuals the task constraints of actually climbing on a vertical traversing wall (lifting and holding one's body weight while coordinating hands and feet with opposition to move laterally in one direction) are too difficult, or may even be impossible to perform. Although the climbing wall holds and patterns can be changed, the tasks of climbing may remain too difficult and need modification. Without modifications to the environmental design or the tasks, the constraints of climbing often lead to a participant's failure to complete any portion of the activity.

The Tasks

Tasks, often referred to as activities, are what is taught or offered and what is expected of participants during the physical activity. They include performance goals, and they are influenced by the size, shape, and weight of equipment. Tasks can be presented on a full continuum from simple to very complex activities, goals, or equipment.

A task analysis is very helpful when matching the tasks within a physical activity to the capabilities of a participant. The task analysis may indicate aspects of the activity that could be changed or adapted to meet the participant's needs, such as changing the equipment, the time allowed to complete the activity, the force or speed used during the activity, or the rules of the more traditional form of the activity (Kasser, 1995; Kasser & Lytle, 2005). Refer to table 1 for adapted physical activity resources that can be helpful when determining appropriate task adaptations.

Changing Environmental and Task Influences

When selecting environmental modifications or task adaptations, the instructor should evaluate the potential effects of those changes on the activity and the participant. The following questions, modified from Kasser (1995), should be considered:

1. Will the participant be able to engage in the activity sufficiently?
2. If it is an inclusive activity, will all participants feel successful as a result of their involvement?
3. If it is an inclusive activity, will all participants feel challenged during the activity?
4. Will the activity motivate participants to continue engaging in physical activities?

Additionally, Lieberman and Houston-Wilson (2002) suggest that the modifications and adaptations be made with the participants' input and by giving them as many choices as possible.

Table 1. Adapted Physical Education Resources

Position Papers

- Physical Education for Infants, Children, and Youth with Disabilities (<http://www.aahperd.org/aapar/template.cfm?template=positionpapers.html>)
- A Position Statement on Including Students with Disabilities in Physical Education (<http://www.aahperd.org/aapar/template.cfm?template=positionpapers.html>)

Professional Organizations

- American Alliance for Health, Physical Education, Recreation and Dance (<http://www.aahperd.org>)
- American Association for Physical Activity and Recreation (<http://www.aahperd.org/aapar>)
- Adapted Physical Activity Council (www.aahperd.org/aapar/template.cfm?template=councils_societies.html#1)
- Council for Exceptional Children (<http://www.cec.sped.org>)
- National Consortium for Physical Education and Recreation for Individuals with Disabilities (<http://www.uwlax.edu/sah/ncperid>)
- International Federation of Adapted Physical Activity (<http://www.ifapa.biz>)

Professional Listserv

- ADAPT-TALK (www.spotime.com), then go to Discussion Groups, then go to ADAPT-TALK to subscribe)

Book Publishers

- AAHPERD
- Benjamin Cummings
- Brookes
- Burgess
- Cooper
- Holcomb Hathaway
- Human Kinetics
- Kendall/Hunt
- McGraw-Hill

Journals and Publishers

- Adapted Physical Activity Quarterly (Human Kinetics)

Journals and Publishers (cont)

- JOPERD (AAHPERD)
- Palaestra (Challenge Publications)
- Strategies (AAHPERD)
- Teaching Elementary Physical Education (Human Kinetics)

Web Sites

- Adapted Physical Education National Standards (<http://www.cortland.edu/apens>)
- Camp Abilities and info on visual impairments (<http://www.campabilities.org>)
- International Center for Disability Resources on the Internet (<http://www.icdri.org>)
- International Paralympic Games (<http://www.paralympic.org>)
- National Center on Physical Activity and Disability (<http://www.ncpad.org>, then to NCPAD News and subscribe to the newsletter)
- National Consortium for Physical Education and Recreation for Individuals with Disabilities; includes information about the APENS exam (<http://www.uwlax.edu/sah/ncperid>)
- National Disability Sports Alliance (www.ndsaonline.org)
- National Sports Center for the Disabled (www.nscd.org)
- Special Olympics (<http://www.specialolympics.org>)
- Texas Woman's University Project Inspire (<http://www.twu.edu/inspire>)
- Web site for K-12 teachers with a section devoted to adapted physical education (<http://www.pecentral.org>)
- Web site for physical education teachers with a section devoted to adapted physical education (<http://www.pelinks4u.org>)

Adaptive Equipment Vendors

- Abilitations (<http://www.abilitations.com>)
- Flaghouse equipment (www.flaghouse.com)
- Flaghouse activity guides (<http://www.flaghouse.com/activityGuides.asp>)
- Gopher (www.gophersport.com)
- S & S Worldwide (<http://www.ssw.com/sports>)
- Sportime (www.sportime.com)

It Rocks! An Example of Environment and Task Modifications

When including individuals with disabilities in a dynamic activity such as traversing, the modifications that can be made are limited. For example, the environment (the traversing wall) is static and typically cannot be adjusted except on an incline. Hand holds can be larger or arranged in such a way that they are closer together to accommodate

limited reach or endurance; however, these modifications may not accommodate each individual's needs. Although these modifications are appropriate and demonstrate how the environment and task may be controlled to enhance the individual's performance, some individuals may still be unable to perform the task of lifting their body weight off the floor and coordinating their movements to move laterally along the wall.

Table 2. *It Rocks!* Activities

1. Students spread out along the entire length of the wall, with both hands and both feet on colored wall and floor spots. Students choose a direction they wish to move in. Teacher calls out the color and right/left hand/foot combination that students must follow. Teacher should encourage students to reach high and low as they problem solve (moving around other students) and move in the desired direction, always keeping one hand on the wall. If a student releases both hands from the wall, the student has essentially “fallen” and must start the game from the beginning.
2. Place a group at each end of the game wall. Group A will use only red and green spots to move towards Group B’s starting point. Group B will only use yellow and blue to move toward Group A’s starting point. Students should move methodically and purposefully.
3. Students traverse along the *It Rocks!* wall in one direction; add set numbers or sequences of moves, increasing or decreasing color combinations used (one or two colors only), use various shapes, progress from high to low or low to high, or instruct students to use only right or left hand/foot combinations.

Figure 1. Students Use *It Rocks!*

Increasing the size of the *It Rocks!* spots or the proximity of multiple spots provides a balance of challenge and success.



It Rocks! is a series of developmental lead-up activities for programs that include traversing and climbing; see table 2 for three examples of the activities. The unique design of the *It Rocks!* activity (i.e., multicolored round spots stuck to the wall and floor) enables individuals of all ages and abilities to participate in group and individual challenges (figure 1). A task analysis of *It Rocks!* suggests the activity promotes individual growth through crossing midline, muscular endurance, flexibility, eye-hand and eye-foot coordination, spatial awareness, balance, and stability, much like a traversing wall (Attarian, 1999; Hyder, 1999). It also affords participants the opportunity to visually plan, communicate, and team build; thus, the possible outcomes of *It Rocks!* are identical to the possible outcomes observed with a traditional traversing activity. Individuals participating in the *It Rocks!* activity can also engage in cognitive strategies with their peers who are simultaneously climbing an adjacent traditional traversing wall (figure 2).

It Rocks! affords the instructor greater flexibility within the environment and the tasks to accommodate unique learners. For example, wall spots are fixed to the wall with adhesive Velcro and can be moved around quickly to accommodate a wide range of ability. In addition, floor spots are easily moved closer or farther away from the wall to accommodate all levels of ability. The farther away the spots are

Figure 2. Using *It Rocks!* for Inclusion

Using both *It Rocks!* and a traditional traversing wall may accommodate all ability levels.



from the wall, the more difficult is the task of maintaining balance. Adjusting the distance of the spots also affects the difficulty of lateral movement or the ability to reach and cross midline. Participants may also be given a cognitive task, such as choosing only two colors for the spots they will use to traverse or counting each touch by foot or hand. Instructors of an inclusive physical activity can provide *It Rocks!* and a traditional traversing wall to meet the needs of all participants.

Conclusion

Understanding how the task and environment interact is integral to ensuring that individuals with disabilities have positive and successful experiences during physical activities. Since instructors control the dynamic aspects of the task and environment, it is up to them to adjust and match the environment and the tasks to the participants’ abilities. “Changing the environmental and task variables is the fundamental key to creating developmentally appropriate activities that match the student abilities” (Williams, 2003, p. 24). Ultimately, physical activity modifications should lead to meaningful experiences that teach or reinforce functional skills, which lead in turn to more challenging activities and skills that can be applied to other activities and other settings.

The *It Rocks!* example demonstrates how all individuals can participate in a traversing activity while challenging themselves on either the traditional wall or the *It Rocks!* wall. *It Rocks!* affords the instructor greater flexibility in the design of the environment while promoting task involvement for all ability levels. Physical activity instructors should remember that it is not always necessary to completely change traditional activities for inclusion purposes. All people need adequate exposure to activities that help them progress through the required curriculum or program of choice. Therefore, modifications should be made only to the extent necessary to meet the needs of the individual with a disability (Collier, 2005).

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professionals can control the environment and physical activity tasks to meet the needs of learners with disabilities.

Part one of this feature concludes with "A Practical Plan for Managing the Behavior of Students with Disabilities in General Physical Education," by Barry Lavay, Ron French, and Hester Henderson. This article describes how to develop a behavior plan that empowers the individual with a disability and how to manage the teaching environment in a positive manner.

In part two, in the March *JOPERD*, Martin Block, Aija Klavina, and Wayne Flint share practical ideas and strategies on "Including Students with Severe, Multiple Disabilities in General Physical Education." Since including these students in physical education classes is the greatest challenge for physical education professionals, these ideas should be very helpful to them.

Next, "Including Children with Autism in General Physical Education: Eight Possible Solutions," by Jiabei Zhang and Ann Griffin, focuses on an increasingly important topic. Autism is the fastest growing disability category; consequently, many more students with autism are being included in physical education classes and recreation programs. This article presents eight ideas on how to fully and successfully include them in the physical activity curriculum.

In "Transitioning Children, Youths, and Young Adults with Disabilities," Sherry Folsom Meek, Ruth Nearing, and Renae Bock discuss the provision of transition services, which include recreation and leisure activities, to individuals with disabilities as mandated in the federal Individuals with Disabilities Education Improvement Act of 2004.

The feature concludes with "Promoting Leadership in Physical Education and Recreation," in which Lauren Lieberman, Katrina Arndt, and Sara Daggett offer ideas for providing positive leadership opportunities for students with disabilities in a variety of physical activity settings.

The articles in this special feature of *JOPERD* focus on full inclusion of individuals with disabilities. Each article first reviews the literature and then shares ideas and information on how physical education and recreation professionals can best work with and include individuals with disabilities in their classes and programs. While each article presents many ideas for positively including individuals with disabilities, it is important to note that not all ideas will be successful for all individuals. Thus, professionals will need to determine, through trial and error, which strategies will result in a positive outcome for their students and programs. However, it is most important for physical education and recreation professionals to realize that while working with individuals with disabilities may be challenging, it is also a very rewarding experience for everyone involved: for the professionals as well as for individuals with and without disabilities.

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