

Disability-related Simulations: If, When, and How to Use Them in Professional Development

Sheryl Burgstahler, Ph.D. and Tanis Doe, Ph.D.
University of Washington

Abstract: Increasing numbers of students with disabilities participate in mainstream pre-college classes in preparation for higher education. Many educators and administrators have limited knowledge about specific accommodations that can facilitate learning for students with disabilities. Professional development has the potential to increase their knowledge and skills in this area. Simulations of disability experiences, such as completing tasks while covering eyes or sitting in a wheelchair, have sometimes been used to show learners what it is like to have a disability. This form of training has been criticized as inappropriate in the context of emerging paradigms of disability studies, which leads to the question: “Is the use of disability-related simulations ever appropriate?” In this article, we explore positive and negative aspects of disability-related simulations; paradigm shifts regarding approaches to disability studies; implications for training educators and administrators, and examples of disability awareness activities that maximize positive outcomes.

Key Words: postsecondary, simulations, training, disability awareness

Introduction

Despite the participation of increasing numbers of students with disabilities in mainstream pre-college and postsecondary classes, many educators and administrators have limited knowledge about legal issues, resources, and specific accommodations that can facilitate the learning of these students (Burgstahler, 2002; Burgstahler & Doe, in press; Dona & Edmister, 2001; Leyser, Vogel, Wyland, & Brulle, 1998; National Center for the Study of Postsecondary Educational Supports, 2000a, 2000b; Thompson, Bethea, & Turner, 1997). Effective professional development for faculty and administrators may result in increased success for students with disabilities in classroom participation and degree completion.

Training for educators and administrators has taken on many forms, including lectures, workshops and experiential learning. For many years, simulations of disability experiences, such as completing tasks while covering eyes or sitting in a wheelchair, have been used to *show* adult learners what it is like to have a disability. However, the use of this popular form of training has been criticized as inappropriate in the context of emerging paradigms of disability studies (French, 1992; Scullion, 1996). Is the use of disability-related simulations ever appropriate? In this article, we explore positive and negative aspects of disability-related simulations; paradigm shifts regarding approaches to disability studies; implications for training educators and administrators; and examples of disability awareness activities that maximize positive outcomes.

Simulation as a Learning Tool

A simulation creates a representation of elements of reality to develop a learning activity so participants develop skills, gain knowledge or change their attitude about that reality (Duke, 1986; Hertel & Millis, 2002). Learner-centered and engaging, these “problem-based units of learning are set in motion by a particular task, issue, policy, crisis, or problem” (Hertel & Millis, p. 18). During a simulation, participants “carry out functions associated with their roles and with the settings in which they find themselves. The outcomes of the simulation are not determined by chance or luck. Instead, participants experience consequences that follow from the actions” within the simulation (Hertel & Millis, p. 19). Ideally, the experiences of participants are as realistic as possible.

Simulations are often used to help organizations and individuals tackle challenging issues more quickly and in less risky ways than in real life experiences (Wenzler & Chartier, 1999). Whether delivered in face-to-face meetings or via computers, simulations can provide an engaging learning strategy within academic, organizational and business settings (Hunter & Clark, 1977; Randel, Morris, Wetzel, & Whitehill, 1992). In most simulations participants are given specific roles to play. Examples of simulations include medical education programs that employ computer-based simulations for developing surgical techniques and airplane pilots who “fly” maneuvers in simulator machines before attempting them in the air. In the social sciences and humanities, mock trials, and games are used to develop critical thinking and practical problem solving skills (Karraker, 1993).

Simulations have been found to stimulate interest in a topic and the desire to learn more (Brendemeier & Greenblat, 1981). They are reputed to change perspectives, increase empathy, increase self-awareness, and increase tolerance for ambiguity (Brendemeier & Greenblat). However, a specific simulation experience is not the same for every participant. What any single learner might experience depends on a great number of factors the instructor cannot control. These factors may include the similarity between the simulation experience and the participant’s anticipation of the experience, and the cognitive styles, previous experiences, and personality types of participants and instructors. Critics of simulations often point to the lack of valid tools to measure specific outcomes of these experiences (Remus, 1991).

A second criticism of simulations is that even carefully designed tools that measure intended learning may neglect to measure unintended learning, sometimes referred to as the hidden curriculum, that is potentially quite negative (Gay, 2000). For example, in simulations dealing with attitudes towards cultural differences, ethnocentricity, bias, and phobias can actually be reinforced instead of reduced (Bruschke, Gartner, & Sieter, 1993). An evaluation of an intercultural communications simulation called *BAFA BAFA* (Shirts, 1973) found evidence of a positive change in enthusiasm for learning, an intended result, and an increased ethnocentrism, an unintended result (Bruschke, Gartner, & Seiter). The simulated experience triggered negative and reactionary attitudes toward other cultures, and did not allow for more positive changes that might come from extended interaction across cultures (Bruschke,

Gartner, & Seiter). In all types of simulations there is a risk of long-lasting unintended negative results.

Models of Disability

Social workers, medical doctors, special education teachers, disabled student service administrators, vocational rehabilitation counselors, and other professionals have historically focused on an individual's functional limitations and on accommodations specific to the individual in certain environments. Scholars in the field of disability studies have termed models, ideologies, paradigms, and theoretical frameworks based on this focus as *individual*, *medical*, or *functional-limitations* (Abberley, 1995; Gill, 1987; Hahn, 1988; Jones, 1996; Swain & Lawrence, 1994). In general, individuals who adopt this perspective hold a person's inadequacies responsible for disadvantages that they may experience. The focus of a professional who intervenes is on curing, rehabilitating, and accommodating the individual rather than on changing the individual's environment (Hahn, 1988).

In contrast, the *social* or *minority group* models of disability, which have gained credibility in many fields, argue that disadvantages associated with disabilities are primarily imposed by negative attitudes and systemic discrimination that result in system-wide barriers to information, communication, and the physical environment (Gill, 1987; Hahn, 1988; Jones, 1996; Oliver & Barnes, 1998; Swain & Lawrence, 1994). Proponents of these models of disability challenge perspectives that regard disability as simply an individual's medical problem or personal tragedy. Instead, they view people with disabilities as citizens with civil rights to full access to information, education, public programs, employment, and transportation. Similarly, *interactional* models promote the idea that the interaction between the individual and the environment determines if a disadvantage exists at all. For example, inaccessible facilities create barriers for those who use wheelchairs for mobility, but with appropriately designed ramps, elevators, and physical spaces, the person using a wheelchair is not disadvantaged in this environment when compared to non-wheelchair-users.

Individual, *social* and *interactional* models are consistent with recent legislation such as the Americans with Disabilities Act of 1990, which promotes the participation of individuals with disabilities in the most inclusive settings possible, but also mandates that reasonable accommodations be provided as needed. This legislation promotes both systemic change and individual accommodation.

In educational environments, different models of disability play out in the contrast between providing accommodations and implementing universal design. Individual or functional limitations models are most prevalent in postsecondary education where the disability services counselor recommends specific adjustments to the learning environment for a particular student. Typical accommodations provided by the institution to an individual student with a disability include the provision of extended time on tests, printed materials in alternate formats (e.g., Braille, large print, electronic), sign language interpreters, and assistive technology. They all center on the limitations

and needs of the individual student that result from his/her specific disability in relationship to a given learning activity, program, or service. In inaccessible situations, the student with a disability may provide his/her own accommodations as well, such as selecting courses in accessible classrooms, using assistive technology, and allocating extended time to complete reading assignments.

In contrast, proponents of *social* and *interactional* models of disability and of *universal design* suggest instructors and service providers consider diverse characteristics of potential students as they develop their curriculum, information resources, physical environment, programs and services, rather than wait until a student with a disability enrolls in a course or expresses an interest in participating in a program or entering a facility. They should consider the many characteristics of potential participants and make design decisions that produce environments and resources accessible to individuals with a broad range of abilities, disabilities, interests, and other characteristics (Bar & Galluzzo, 1999; Burgstahler, 2001; *Universal design for learning*, 2003; *What is universal design*, 2003). For example, if instructors provide all course materials on a website that employs universal design principles, their course materials will be accessible to almost anyone. Hence, a student who is blind and uses speech output technology will not need to request accommodations. As another example, a student who requires extra time on tests in many classes, may not need an accommodation in a course where the instructor gives take-home tests, in part, to address the variety of speeds at which his students complete their tasks. Employment of universal design principles thus reduces, but does not eliminate the need for “individualized” disability-related accommodations. For example, it is not reasonable to have a sign language interpreter in every class, but it is appropriate to provide interpreters in a class where a student who is deaf needs this particular accommodation.

Disability-Related Simulations

Some scholars and practitioners, including the authors of this paper, believe that in order to maximize the inclusion of individuals with disabilities in all life activities, (a) society must create accessible environments, (b) individuals with disabilities must develop strategies for dealing with functional limitations imposed by their disabilities, and (c) program and service staff must provide reasonable accommodations for people with disabilities. They warn that disability-related simulations as often practiced (a) promote functional limitations models of disability, but ignore social and interactional models of disability, (b) develop a sensitivity to functional limitations but do not provide an awareness of accommodations that, in some cases after a learning period, increase functionality over time, and (c) ignore altogether the impact of developing a more inclusive environment through employment of universal design principles. Simulations, as often used in disability awareness training, involve “trying on” a physical, sensory, or cognitive impairment for a limited amount of time, and are sometimes followed by a discussion to explore what is learned (French, 1992; Scullion, 1999). Examples of these activities include nurses getting into wheelchairs to “see how it feels” (Scullion), architects with blindfolds navigating through buildings, and educators being assigned disabilities and asked to perform academic tasks like completing a test, performing a lab

activity, or taking notes (Semple, Vargo, & Vargo, 1980).

The popularity of disability-related simulations may be due, in part, to how these often lively, entertaining activities engage learners (Clare & Jeffery, 1972; French, 1994). Simulations can create discourses about people with disabilities and social reactions to disability (Kiger, 1992). However, outcomes might also be detrimental. In actuality, most disability-related simulations are designed to result in negative feelings. By *disabling* participants and simulating problematic experiences, given their new limitations (Clare & Jeffery, 1972; French, 1992), participants learn how difficult it is to maneuver a wheelchair, how frustrating it is to be unable to hear or read, how frightening it is to be visually impaired, or how impossible it is to participate in activities without the use of their hands. They focus on what people with disabilities cannot do rather than on what they could do with appropriate access, technology, or skills. Critics of these types of simulations do not deny there are some difficulties associated with living with disabilities. However, they object to simulations that represent only a negative experience rather than a whole, contextual one.

Disability-related simulations, as typically practiced, do not do a good job of "simulating" the disability experience at all. They neither examine the reality of disability nor show how to resolve disadvantages experienced in society (Wilson & Acorn, 1979). Because a participant's "impairment" is for a short period of time, there is no chance for the learner to truly experience real physical limitations, chronic pain or cognitive limitations. More importantly, there is no opportunity for a participant to learn strategies to succeed, given the limitations imposed by disability and society. A person who is blind for 30 minutes will be disoriented. Someone living as a blind adult is able to navigate in familiar situations and even unfamiliar settings after receiving appropriate training. Likewise, pretending to be hearing impaired for ten minutes does not allow time for acquiring lip-reading or sign language skills. Sitting in a wheelchair for twenty minutes does not allow time to develop the upper arm strength necessary to operate a wheelchair efficiently. If the content of the simulation is not a true representation of a given reality, then that simulated experience cannot be expected to allow participants to gain insight into that reality.

Criticisms of disability simulations reach far beyond the limitations of actually simulating a "real" disability. Critics argue that in showing people the negative and difficult experiences of disability in such a way, simulations reinforce individual and medical models of disability. "By reproducing the frustrations of being deprived of sight, hearing, or mobility without the training and socialization that minimize these problems, these exercises [it is argued by critics] reinforce harmful attitudes about disability and disabled people" (Pfeiffer, 1989, p. 53). The experience may reinforce a belief that people with disabilities cannot do basic things such as travel independently, work, or attend school (French, 1992), and that having a disability is a state worse than death (Richardson, 1990). Rather than dismantling stereotypes, such simulations may reinforce these myths as well as feelings of sympathy for people with disabilities. Participants in disability-related simulations may even become frightened by the experience. This limitation of the simulation experience can have undesirable consequences. For example,

through a simulation, a faculty member may learn about the challenges faced by a person who uses a wheelchair for mobility, but that faculty member might also conclude that a disability is so intolerable and limiting that s/he might subsequently become less willing to recommend students with this type of disability for a position in their field.

Another limitation of typical simulations is that focusing only on the disability of the individual does not point to the ways the design of the environment discriminates against people with a wide range of differences (Donaldson, 1980; Siperstein & Bak, 1980). This approach "neglects the significance of the built environment, social policies and what some consider to be institutionalized 'disablism'." Inasmuch as the focus of simulations remains at an individual level, political and social structures are not implicated as possible contributing causes of disability" (Scullion 1996, p. 501). For example, simulating the "view" of a web page using a text-to-speech system can demonstrate challenges faced by people who are blind. If the simulation ends without discussing how web pages can be designed to be accessible to visitors who are visually impaired, participants could be left with the notion the disability causes lack of access. This outcome is consistent with the individual or medical model of disability. Instead, proponents of social and interactional models and of universal design point out the web page designer, not the disability, created barriers through poor, inaccessible design. If universal design principles were employed when the web page was being developed, a visually impaired visitor can experience the full benefit of the content. This analysis of the construction of the problem as well as of the solution is more consistent with emerging social and interactional models of disability.

A Successful Simulation

One example of a simulation experience judged successful by the instructor incorporated sustained contact between students and the instructor, who is a wheelchair user. This management professor used a simulation with his students and reported the results of the exercise over a four-year period by conducting a content analysis of student journal entries. The purpose of the exercise was to help students to understand the stigmatization of people with disabilities rather than understand disability itself. One student at a time volunteered to simulate having a mobility impairment by sitting in a wheelchair. The rest of the learners observed how the university community responded to that person.

Students took turns in the wheelchair while conducting basic tasks such as entering buildings, eating in the cafeteria, and using the elevators. The person sitting in the wheelchair discussed the experience with the group, and the class shared what they observed. An extensive analysis of student journal entries concluded the exercise succeeded in improving attitudes about disability. Specifically, participants learned people tended to act in patronizing and demoralizing ways towards people in wheelchairs, and expected that a wheelchair user could not independently perform tasks. For example, student observers in the class were criticized by students not in the class for not "helping" the student in the wheelchair. Through these simulation experiences, students were able to identify stereotypes and myths they held, learn basic facts about

disability, and form realistic perspectives on how people with disabilities are treated as a result of societal attitudes, not as a result of the condition itself (Pfeiffer, 1989).

Guidelines for Creating Effective Simulations

While some scholars argue that simulations of disability should never be used (Finkelstein, 1991; French, 1992), we feel carefully designed simulations are effective learning tools in specific situations. Well-designed simulations also reduce potential negative consequences, while they ensure participants explore accommodation strategies, as well as the design of resources and environments that minimize barriers for people with disabilities. Based on a review of the literature and the experiences of the authors, the following suggestions are offered to those who wish to use simulations that maximize positive outcomes for educators and administrators.

State Objectives Clearly

Make it clear to participants at the beginning of the activity what they will do and what they are expected to learn. "Unless the simulation is prefaced with a clear discussion of why we are doing this and what we hope to learn and is followed by a conscientious debriefing about critical thinking processes and values, norms and social change, the simulation has merely served as recreation" (Karraker, 1993, p. 136).

Ensure Voluntary Participation

Allowing people to decline participation eliminates reluctant or resentful participation, maximizes positive outcomes, and creates a sense of safety and trust. Those who choose not to participate may learn just as much from observing the experiences of others and critiquing the simulation activity.

Illustrate Challenges and Solutions Related to Both the System and the Individual

Avoid focusing exclusively on challenges imposed on individuals by a disability, and avoid comparing one disability experience to another in ways that devalue people. In particular, avoid activities that lead to conclusions such as "this disability is far worse than that one," or "I could never live with X, but I could handle Y." Use concrete examples to illustrate both barriers and strategies for overcoming barriers for people with disabilities (Westwood, Vargo, & Vargo, 1981). Some strategies should highlight solutions employed by an individual (e.g., the student's use of assistive technology to access a computer); others can show solutions implemented by other individuals (e.g., accessible Web page design). Make sure when participants learn about the disability experience they learn how people with disabilities cope with inaccessible environments and negative societal attitudes through advocacy, technology and interpersonal skills.

Demonstrate the Value of Universal Design

Simulations and debriefing discussions should examine the way in which a well-designed environment or activity can maximize access for everyone and minimize the need for individual accommodations. A simulation can be used as an opportunity to share information about how civil rights legislation, accessible design of technology and facilities, and inclusive social practices empower people and ensure equal opportunity. “[Administrators], teachers, and curriculum planners should examine learning outcomes closely and consider their role in tackling discrimination...” (French, 1992, p. 263).

Include Consumers in Planning and, When Possible, Delivery of the Simulation

Consult people with disabilities when developing simulations and, when possible, involve them in the delivery, debriefing, and evaluation of simulation activities (Scullion, 1999). By interacting with people with disabilities, learners may realize some of their own assumptions about people with disabilities are not based in reality and that people with disabilities are more similar than they are dissimilar to people without disabilities. By hearing from someone who has experience in being disabled, being discriminated against, and developing coping mechanisms, the learner may be able to understand some of challenges faced by people with disabilities and, more importantly, how these challenges may be successfully addressed. While a training activity involving a person with a disability is not as valuable as long-term contact, it can initiate a consciousness shift for people previously unfamiliar with disability issues (Biordi & Ooermann, 1993). However, when a person with a disability participates in a training activity, it should be made clear that one person cannot represent the views and experiences of all people with the same type of disability, and certainly cannot represent people with all types of disabilities.

Support Positive Attitude Change

Even though it can be awkward, participants should be encouraged to bring up personal beliefs or assumptions, even if negative, without fear of negative repercussions. Such disclosures can help all participants learn what underlying thoughts often inform discriminatory or exclusionary practices. Personal disclosure of changed attitudes provides a good role model to participants. Even for leaders who themselves have disabilities, it is useful to explain how their previous attitudes might have been disempowering. Some may be able to share their changed attitudes about people with types of disabilities other than their own. Training facilitators should point out that with changes to legislation, knowledge, and design, new perceptions about disability could emerge. Learners should leave with both knowledge and attitudes that support the rights of people with disabilities to participate in society. Presenters should be prepared to recognize and handle situations where a simulated disability experience convinces faculty that students with disabilities are not suited to participation in postsecondary programs and careers in their field; when this situation occurs, potential universal design considerations and accommodations should be discussed as well as the essential functions of specific careers within a field of study.

Debrief Thoroughly and Reflectively Acknowledge Discomfort.

An important part of successful simulation activities is a full and meaningful debriefing to disengage participants from what is sometimes an emotional experience, as well as to sort out what was learned (Jones, 1995; Livingston & Kidder, 1993). During debriefing, participants can discuss what they felt and experienced and then reframe new knowledge and attitudes within the context of intended outcomes, perhaps replacing old attitudes and understandings with new. If faculty participants have unanswered questions, fears, and technical difficulties from simulations, they may deal with them in the debriefing instead of carrying them to the classroom. "Some people find the discovery process painful, which is an experience common to all forms of equality training. This is to be expected when exposing societal oppression and the part an individual participant could have unconsciously played in it" (London Boroughs Disability Resource Team, 1991). Trainers should acknowledge that learning about disability and difference can be uncomfortable. Allowing for written responses as well as discussion in small groups and with a larger group may ensure that each person has a chance to reflect on what happened in the simulation, and on what was learned from it.

Examples of Disability Awareness Activities that Maximize Positive and Minimize Negative Outcomes

The following two examples of simulations maximize the positive and minimize the negative outcomes for participants regarding attitudes and knowledge about disabilities.

Example One: Simulation of Computer and Web Access for Students who are Blind

Objective. To increase knowledge of assistive technology and accessible Web design for people who are blind.

Activity. Turning off the graphics-loading feature of your Web browser can simulate the experiences of students who are blind accessing a website, since their speech output systems read only the content presented as text on the screen. Instruct participants to access websites understandable (e.g., universally designed) in this mode and also those that are not. Then have participants access the same sites with the graphics-loading feature of their Web browser turned on.

Debriefing. Discuss the experiences of participants in the activity. They should be encouraged to share how, in the inaccessible site, key content could not be accessed when the graphics-loading function of their Web browser was turned off, and how gaining content from the accessible site in this mode was not difficult. Explain that their experiences were similar to those of individuals who are blind and using text-to-speech technology that can only access text-based elements of a website. Pointing out that the accessible site is a demonstration of universal design, ask how the universal design of a site can benefit people who are not blind (e.g., those using slower, older technology). If possible, have a student who is blind and uses text-to-speech technology and who is not a student of any of the participants demonstrate how he/she can listen to a synthesized

voice as it reads text content on the screen. The student should use the system to read the content of the same websites that the participants accessed to show, with speech output, how easy it is to gain content from an accessible site and how some content at an inaccessible website is not available to a visitor who is blind. Encourage participants to ask questions about the assistive technology as well as about the design characteristics of an accessible website. Alternatives such as Braille output can be discussed as well as the application of text-to-speech technology for people with other types of disabilities (e.g., specific learning disabilities).

Example Two: Simulation of Hearing Loss

Objective. To increase faculty knowledge about the impact of hearing impairments on learning and their ability and willingness to incorporate instructional approaches that maximize access to learning for students who are hearing impaired.

Activity. Have participants listen to a tape-recorded mock spelling test and write down the words they hear. On the tape, common words are altered in volume and clarity to represent three types of hearing loss and amplification. One level represents a high frequency loss; some consonants are missing or made difficult to hear. Another level represents a conductive loss where all sounds are reduced in amplification, but somewhat detectable. The third level simulates how sound might be perceived through a hearing aid that amplifies (and distorts). When the spelling test is complete, present the correct answers on an overhead projection system or whiteboard, demonstrating how someone with a hearing impairment may misunderstand spoken words, but have access to them in an alternate, visual format.

Debriefing. The discussion that follows should deal with frustrations associated with straining to hear, and getting wrong answers. Address the need for good acoustics, amplification suited to the individual, and alternative forms of communication (e.g., lip reading, printed documents, and electronic mail). Some specific information about lip-reading, captioning, and technical aids could also be discussed. Participants should be able to ask questions about the mechanics of hearing, but the discussion should be directed at what can be done in a class to ensure a student who has a hearing loss is fully included and has an equal opportunity for success compared to students with hearing abilities within the typical range. The invisible nature of being hearing impaired should also be incorporated to reveal how faculty members might react if they think a student is not paying attention, when the issue is a hearing loss. If individuals who are hearing impaired are involved in delivering this training exercise, they could share how they learn best, alternative methods of accommodation, and answers to questions.

Conclusion

Negative outcomes from the use of poorly designed simulations include unintended attitudinal shifts, increased anxiety about working with individuals with disabilities, and misunderstandings about disability experiences. However, with appropriate designs, careful facilitation, open discussion, and involvement of people with disabilities, negative consequences of simulations can be avoided. Appropriate use of

simulations and other exercises can demonstrate the relationships between the environment and individuals with a variety of characteristics, and can show how universal design and appropriate accommodations can enable and empower people with disabilities.

Dr. Sheryl Burgstahler directs project DO-IT (Disabilities, Opportunities, Internetworking and Technology) at the University of Washington. DO-IT promotes the success of students with disabilities in postsecondary programs and careers. DO-IT employs technology to help young people with disabilities achieve success in postsecondary education and careers. It sponsors programs that increase the use of assistive technology and promote the development of accessible facilities, computer labs, electronic resources in libraries, Web pages, educational multi-media and Internet-based distance learning programs.

Dr. Tanis Doe is a trained sociologist who works in education and advocacy with and for people with a range of disabilities. She acts as an external evaluator and research consult for several DO-IT projects at the University of Washington. Her Ph.D. is from University of Alberta in Sociology of Education and she completed a Fulbright session at the University of Washington School of Public Health. She was also the director of the NIDRR funded Research and Training Center for Independent Living and Disability Policy in Oakland California. In her spare time she performs wheelchair ballroom dancing.

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