2009

Analytical Decision-making Model for Addressing the Needs of Allied Health Students with Disabilities

Susan Roush
University of Rhode Island, roush@uri.edu

Nancy Sharby

Citation/Publisher Attribution

Sharby, N., & Roush, S. E. (2009). Analytical Decision-making Model for Addressing the Needs of Allied Health Students With Disabilities. *Journal of Allied Health, 38*(1), 54-62.
Available at: http://ingentaconnect.com/contentone/asahp/jah/2009/00000038/00000001/art00009

Analytical Decision-making Model for Addressing the Needs of Allied Health Students with Disabilities

COMMENTARY

▲ Analytical Decision-making Model for Addressing the Needs of Allied Health Students with Disabilities

Nancy Sharby, PT, MS, DPT
Susan E. Roush, PhD, PT

The purposes of this article are to (1) review the literature on students with disabilities (SWD) in higher education with a particular focus on allied health and related professions, and (2) propose an analytical decision-making model for assessing students' needs and providing reasonable accommodations in allied health education. Increasing numbers of SWD are entering higher education, but the rate of success for these students is lower than the rate for their nondisabled peers. A multitude of factors impact SWD, including the direct effects of the disabilities on learning and performing essential functions, academic and clinical faculty knowledge of the impact of disability in educational settings and their experience implementing accommodations, and the impact of legislation and institutional policies on service delivery. While all of these are important, the most critical issues appear to be academic and clinical faculty knowledge about how to address disability-related challenges in the educational environment and the support of SWD by those faculty. The proposed analytical decision-making model will assist allied health faculty in assessing students' needs and providing reasonable accommodations. This, in turn, will enable allied health faculty to support SWD to meet essential components while upholding academic integrity and meeting the requirements of the law. J Allied Health 2009; 38:54–62.

AN INCREASING NUMBER of students with disabilities (SWD) are participating in postsecondary education. In 1978, only 3% of college students reported a disability, with that number rising to 10% in 1998.[1,2] More recent data from 2003–2004 by the National Center for Educational Statistics show that 11.3% of all students who pursue postsecondary education have a disability.[3] That number is expected to rise by 14% in the coming years.[3] There is also evidence of increasing numbers of SWD in allied health education, at least in physical therapy. The Federation of State Boards of Physical Therapy saw an increase from 1% to 4% of new graduates requesting disability-related accommodations on the licensure examination from 2000 to 2005.[4]

Unfortunately, college SWD fail or drop out at rates greater than that of their nondisabled peers.[1,5,6] There is variation in these data, however, because attendance and graduation rates vary by programmatic level (i.e., graduate school, 4-yr undergraduate programs, 2-yr programs, and vocational programs), and graduation rates are higher at state as opposed to private institutions.[3] There is evidence, however, that those who successfully graduate have similar employment profiles as nondisabled graduates.[7] At the postsecondary level, across all areas of study, SWD face additional obstacles and barriers compared with their nondisabled peers. One of the most significant factors associated with success for SWD is the pedagogical knowledge and skill that enable faculty to support these students.[1,2,8–11]

Compared with the significant body of literature on all postsecondary students with disabilities, the literature focusing on education for SWD in the health professions is unfortunately extremely limited. A growing number of articles from nursing and medical literature, however, provide a rich background to inform developing allied health education. SWD can be presumed to exist in allied health fields[12]; however, published research could only be found for SWD in physical therapy,[13–16] occupational therapy,[8] and social work.[17–19] For example, in 2001, the majority of physical therapy schools surveyed had one or more students with physical, sensory, or learning impairments.[13] Glen-Maye and Bolin[17] reported that 91.5% of social work programs surveyed in 2005 had students with psychiatric disorders and 88% of the schools reported providing accommodations for them. Data suggest that the most common disabilities seen across all college students are psychiatric disorders, learning disabilities (LDs), and attention-deficit/hyperactivity disorder (ADHD).[20] This will be elaborated on in later sections.

The first purpose of this report is to review the literature on SWD in higher education with a particular focus on allied health, medical, and nursing professions. Topics to be covered include characteristics of college SWD, the legal foundation and logistics of delivering support services to these students, and successful accommodations. This literature, however, provides little specific guidance for assessing

Dr. Sharby is Associate Clinical Professor of Physical Therapy, Northeastern University, Boston, MA; and **Dr. Roush** is Professor of Physical Therapy, University of Rhode Island, Kingston, RI.

Received April 24, 2008; revision accepted August 6, 2008.

Address correspondence and reprint requests to: Dr. Susan E. Roush, Physical Therapy Department, University of Rhode Island, Independence Square, 25 West Independence Way, Kingston, RI 02881. Tel 401-874-5626; fax 401-874-5630; e-mail roush@uri.edu.

the impact of impairments in the classroom or clinic and no guidance in identifying reasonable accommodations that support meeting the essential components of a course while simultaneously upholding academic integrity and meeting the requirements of the law. The second purpose of this report, therefore, is to propose a decision-making model for assessing the needs of SWD and providing them with reasonable accommodations in allied health education

Characteristics of Students with Disabilities Who Attend College

While physical disabilities are the most obvious, LDs and psychiatric disorders are the most prevalent on college campuses.[21,22] Studies report that 40%[21,23] to 50%[24] of college SWD have an LD. In another study,[22] 38% of all college students indicated they were so depressed it was difficult to function at times, while 10% reported they had been diagnosed with depression. Considering data on allied health students, in a 2001 study of physical therapy students with disabilities,[13] 73% reported an LD, while 31% reported back injuries. The next most common impairments were in the areas of hearing and vision. Psychiatric disorders were not included in this latter study.

The degree of disability present will be contingent on many factors, including the presentation of the impairment, availability of compensatory strategies, and demands of the environment. Thus, a thorough analysis of impairments, essential functions, and reasonable accommodations is critical. While not every student with a disability can be successful in every environment, with creativity, adaptive equipment, and support by aides or others, many SWD can be academically successful.[10] Indeed, there are many anecdotal reports of medical and allied health professionals who have successful careers while using accommodations for various disabilities.[8,25–31] The discussion that follows will briefly describe characteristics of the major disability categories seen in college SWD and how each may impact students' learning. Students with Asperger's syndrome are not included in this review. Asperger's syndrome is a condition on the autism spectrum, and students with this condition have only recently begun to appear in appreciable numbers on college campuses. The data on college students with this complex disorder are just beginning to appear,[32,33] and coverage of such is beyond the scope of this report.

Physical and Sensory Disabilities

Allied health professionals must possess a high degree of physical and technical skill that may be compromised with a disability. A salient issue when accommodating physical and sensory disabilities is whether SWD need to perform all of these physical and technical skills if they are capable of performing the most essential or vital skills. This may be possible if skills that cannot be performed can be delegated to others.[30] Altering the physical environment, purchasing special equipment, adjusting schedules, and changing job responsibilities are also possible accommodations for physical and sensory impairments.

Learning and Attention Disabilities

As previously stated, LDs are the most common impairments reported by college students.[21] Due to improved educational supports in primary and secondary education, these numbers have been steadily increasing.[1,6,9,34] The increase in prevalence, however, has not necessarily translated into greater understanding of these conditions. One factor that may contribute to this lack of understanding is that they are "hidden" conditions that do not present with readily observable signs. Further, like physical disabilities, LDs come in many forms with widely differing symptoms so that each student presents with his or her own constellation of challenges.[23] LDs are defined as "a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning or mathematical skills."[35] They typically cause a discrepancy between what the student is capable of learning and their performance in some academic settings and may appear as functional deficits in note taking and presenting information orally as well as remembering and organizing information.[36,37] Additional behaviors associated with LDs in classroom or clinical environments are presented in Table 1.

Unfortunately, LDs may be perceived to be under the student's control or fabricated to access special privileges.[9,34,38] The discrepancy between intelligence and performance may be misleading to faculty who might wrongly assume a student is lazy or has poor work habits.[36] Contrary to some thinking, LDs do not disappear if the student "works harder." Indeed, a qualitative study reported that faculty at a large research university expressed "deep mistrust" concerning the identification and accommodation of students with LDs and often did not differentiate between students with LDs and students who were unprepared.[36] They were also deeply concerned that accommodating specific learning needs would diminish academic integrity.[9,36] Concern has also been raised by nursing faculty that accommodating LDs would compromise patient safety.[37] Regardless of the reason, faculty have been shown to be more willing to provide accommodations for students with physical or sensory problems than those with LDs.[9]

Some students with LDs are not identified until they reach college.[1] Many LDs are language based, and the demands to process language increase as students reach higher academic levels. Effective note taking, another important learning tool, may be inadequate in students with LDs to support the more demanding language functions of college material.[6,36] These concerns may be even more acute for allied health students because of the traditionally rigorous nature of these programs, including the need to learn the new language of medical terminology.

TABLE 1. Classroom and Clinic Behaviors Potentially Associated with Learning Disabilities

Weak verbal/auditory or visual memory
Poor auditory discrimination or verbal comprehension
Verbal problem-solving difficulties such as case discussions, in class, or lab activities, but does well on written assignments (do not automatically assume they are cheating)
Does better with observation or demonstration than listening to verbal instruction
Reading disorders, including comprehension and speed
Difficulty communicating effectively in writing, poor spelling
Narrative disorganization in written work
Difficulty writing papers
Over-focusing on details
Difficulty categorizing, generalizing, or analyzing information
Cognitive inflexibility; concrete, rigid thinking; may not be able to develop or evaluate alternative solutions
Distinguishing important from unimportant information
Perceiving cause-and-effect relationships
Screening out nonessential stimuli, easily distracted
Unable to sustain attention for task completion
Poor attention to details, makes careless mistakes
Avoids tasks that require sustained mental effort
Difficulty organizing and sequencing activities, tasks, ideas, and information
Challenged to sustaining attention to tasks and lectures
Generalizing skills from one task and situation to another
Inability to listen to lectures and take notes at the same time
Impaired social skills and reading social cues

ADHD is another disability that has received a great deal of lay notice, usually associated with the concomitant use of stimulant drugs such as methylphenidate (Ritalin). ADHD is associated with the inability to screen out irrelevant stimuli and selectively attend; it can occur with or without symptoms of hyperactivity. Unlike LDs, which may not become apparent until learning at later stages in a student's academic career, ADHD symptoms must occur before the age of 7 yrs.[37] Lack of attention often creates difficulty with memory because of the need to pay attention to remember. Organizational skills are often impaired as well. The student with ADHD often finds it is difficult to attend to the multiple details that are essential to writing a paper or report, taking notes, keeping track of assignments, keeping the work area neat, and completing tasks on time.[21] These are skills that have great significance in health care settings.

Psychiatric Disorders

Mental illnesses are a broad range of conditions affecting an individual's cognition, emotions, mood, judgment, behavior, and physiology.[39] Contrary to popular perceptions, mental illness is common. At any given time, 26% of the U.S. population or 57.5 million people older than 18 yrs have a diagnosable mental illness. Less than 10%, however, have a serious mental illness such as major depression, bipolar disorder, or schizophrenia.[40]

Colleges and universities are seeing unprecedented numbers of students with psychiatric disorders,[41,42] many of whom are reluctant to come forward to reveal their illness or ask for accommodations due to shame or fear.[43] This is a particular problem in colleges because the late teens and early 20s are when many of these mental illnesses first emerge.[22,42,44] Indeed, an estimated 20% of college freshmen fit the definition of needing psychiatric care.[44] These conditions include depression, anxiety, eating disorders, substance abuse disorders, and various other self-destructive behaviors.[42] Possible explanations for this increase in mental health conditions among college students include more students who are vulnerable to the stresses presented by life on a college campus and more students arriving with a preexisting mental health condition.[42]

Classroom, clinic, or social settings may present a level of stimulation that is overwhelming for the student with mental illness, making it difficult to function effectively. Faculty may see a student who is having difficulty concentrating, focusing, remembering, or handling frustrations or challenges. Students with depression may appear sad and listless, have low energy, and appear to be "unmotivated." A student with anxiety may worry excessively, seek high levels of reassurance, or be a perfectionist with unrealistically high expectations for themselves. Additional symptoms of psychiatric disorders that may be demonstrated in a classroom or clinical setting are listed in Table 2. While these are all significant behaviors that can adversely affect patient care or work skills, with good treatment, mental illnesses can be well managed with reduction or amelioration of symptoms.[45]

In addition to having an appreciation of the impact impairments can have on college students, it is important for educators to understand the legal foundation of how disabilities are accommodated on college campuses.

Key Legislation and Disability Support Services

In 1973, the first federal law that directly assisted SWD was passed. The Rehabilitation Act of 1973, including key provisions in Section 504, protects individuals with disabilities who are "otherwise qualified" from discrimination by federally supported entities including a "college, university or other post-secondary institution, or a public system of higher education."[46] This act was followed in 1990 by the Americans with Disabilities Act (ADA), which strengthened the provisions of Section 504 and extended the sanctions against discrimination to all entities, not just those that received federal dollars.[47]

Two components of Section 504 of the Rehabilitation Act and the ADA have particular importance to educators: essential functions and reasonable accommodations. Essential functions, also known as technical standards, are key to determining who is qualified to gain admission to a program of higher education, graduate from an academic program, or

perform a job. They do not dictate how a skill needs to be accomplished, but rather describe the outcomes that are "essential" to performing the task. In an academic program, essential functions provide a mechanism to assess a student's ability based on evidence. The challenge for educational programs is to determine what are truly essential functions and whether every student needs to perform every task associated with a particular profession or whether some tasks can be deemed nonessential.

Although many medical schools believe that all graduates must have the skills to practice in all medical settings, others have chosen to admit students who would be able to work in some, but not all, specialty areas. They believe that all medical school graduates should not be expected to perform all technical skills, although some essential functions are universal to all settings and must be achieved by all graduates.[27,31] The Association of American Medical Colleges has identified five technical standards that a physician must meet to graduate from medical school: observation, communication, examination and procedures, conceptual skills, and behavioral/social skills.[48] Some nursing faculty also believe that "delegation is an acceptable accommodation."[30] In the studies previously cited, there is general agreement that critical thinking and problem solving, compassionate and professional behavior, and effective communication and patient relationships are essential to all professions surveyed.

In allied health education, this conversation has just begun. In physical therapy, some have argued that only students who can perform all the essential functions in every specialty area of practice should be admitted[25] or should graduate.[14] Research in the profession, however, found that educators believe that only practicing safely, ethically, and being able to communicate effectively were essential functions.[15] This research also showed support for the delegation of tasks—that assessment skills were more highly valued than treatment skills.

Disability Support Services

Through Section 504, colleges and universities are required to provide support services for SWD "within reason" and the institution is responsible for the cost. The ADA adds that postsecondary institutions must "provide any reasonable accommodations" to support SWD for all education opportunities and services that are available to their nondisabled peers. In most higher education settings, an office of disability support coordinates these services. This office usually assumes the responsibility to verify disabilities according to established criteria and to work with faculty to provide reasonable accommodations.[10] To receive a reasonable accommodation in postsecondary education settings or in associated clinic affiliations, the student must present evidence of a disability, inform the school or clinical site in advance that they have a disability and will require accommodations, and formally request accommodations.[10,47] In college, unlike high school, accommodations are not automatically provided to all students who qualify, and students must register with the disability support office and make a request. Many students choose to attempt college without the supports they received in high school and do not inform the appropriate office.[1] In this case, they are not entitled to retrospective accommodations for coursework that they completed poorly or have failed.[47] Clearly, the accommodation process is not informal or capricious.

Table 2. Classroom and Clinic Behaviors Potentially Associated with Psychiatric Disabilities

Stress intolerance or emotional lability
Impaired interpersonal function
Impaired work or school performance, especially if episodic
High-risk behaviors (drinking, drug use, unsafe sex)
Screening our environmental stimuli
Sustaining attention, focus, or attention
Maintaining stamina
Handling time pressures and multitasking
Interacting with others
Responding to change
Receiving and responding to negative feedback
Physical complaints and pain that have no apparent cause
Moodiness and/or irritability
Agitation or restlessness

Modified from: Academic adjustments. Boston, Center for Psychiatric Rehabilitation, Boston University, June 30, 2002. Available at: www.bu.edu/cpr/jobschool/acad_adjust.html. Accessed Jan 15, 2009.

Collaborative Decision-making Model

Several models for implementing the ADA are offered in the literature.[16,25,49] Hendrickson et al.[16] offer a three-step model: (1) develop essential functions of the curriculum, (2) discuss with the student his or her limitations and potential accommodations, and (3) determine which accommodations are acceptable to the student and the institution. Francis et al.[25] suggest a service model that depends heavily on collaboration among the campus disability services office, faculty, and a clinician. They also suggest bringing in legal counsel. Given the numbers of college SWD, the cost of engaging university council in discussions for every student, however, could be prohibitive. Additionally, legal involvement may inadvertently facilitate an unnecessarily adversarial environment. The third model[49] is based on concepts developed by Essex-Sorlie[50] and offers more detail, but it is limited to students with LDs.

These proposed models do not provide a pragmatic framework for developing and implementing the accommodations. Based on the reviewed literature and the authors' experiences with SWD, we propose using a more comprehensive paradigm. Using the proposed analytical decision-making model as a framework for problem solving in the

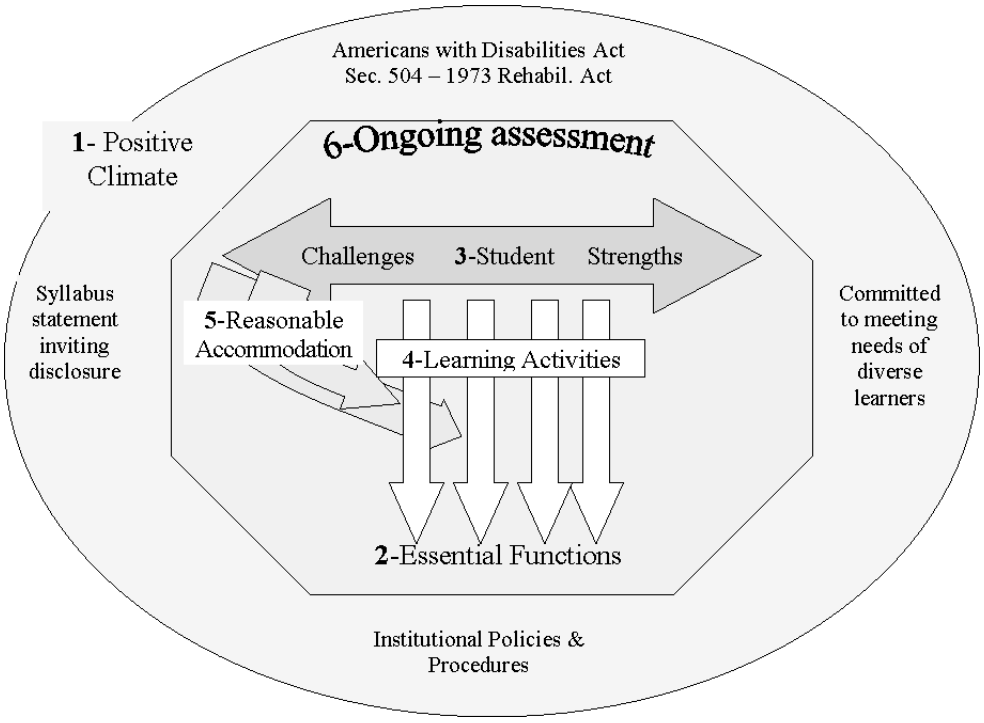

FIGURE 1. Six-step collaborative decision-making model.

accommodation-making process moves beyond the letter of the law. It also incorporates the belief that ADA accommodations cannot be effective unless all stakeholders hold positive attitudes that will enable them to view SWD with high regard and believe in a flexible approach to achieving mastery of essential functions. The model is conceptualized in Figure 1 and maximizes the potential that decision making related to SWD is evidence based and that accommodations offer appropriate supports but do not compromise the standards of practice or the essential nature of the educational program. While developed from the perspective of allied health education, it is generalizable to all postsecondary students. A description of each component of the model follows.

Positive Climate

The process of supporting SWD begins long before a student submits to a faculty member an office of disability services–endorsed accommodation request letter. The law and institution-specific policies and procedures provide the background from which all accommodations are made; faculty knowledge of these can increase efficiency, assure equitable treatment among students, and facilitate communication.[10] The most significant factors identified with academic success, however, are the attitude and support of faculty who interact with students who are disabled.[1,8,9,11,24,28,51–53] Negative faculty attitudes have been reported as contributing to preventing students from applying to nursing programs[52] as well as students failing to ask for accommodations[8,25] and succeed on clinical placements.[8,52] Given these circumstances, it is important for faculty to be informed about students' needs and to be able to offer accommodations nonjudgmentally.[11,53,54]

In the classroom or clinic, the first step to making appropriate accommodations is to provide a positive climate. This will encourage SWD to feel comfortable openly discussing their learning needs and to feel safe asking for help.[55] Fortunately, attending workshops targeting perceptions, knowledge, and concerns can have a positive impact on faculty members.[55–57] Another step is including a statement on course syllabi encouraging students to request accommodations from disability services.[6] A final suggestion is to announce at the beginning of each semester the intention to support all students to learn to their full capacity and offer to discuss concerns.[37,54]

Identify Essential Functions or Technical Standards

Similar to the law and institutional policies and procedures, essential functions are not modifiable for a given student. They are the outcomes of an educational program that cannot be compromised, even if a disability is present. Outcomes that are essential components are indispensable skills that will need to be performed by competent practitioners and "can be defined based on faculty expectations, program philosophy, and educational setting."[25] Essential functions should be documented and made available to students in both general information and application materi-

als. The following questions may help to identify essential functions: What tasks may reasonably be delegated to an assistant in clinical settings? What assessment techniques can be modified to measure learning without compromising the nature of the course? What is the evidence that the traditional way of teaching or assessing these skills is the most effective?

Consider the following example from an occupational therapy clinical skills course. Before graduation, the student must be able to evaluate a patient with neurologic dysfunction and plan an appropriate intervention in a timely manner. Would it be acceptable for the student to bring brief, written notes into the lab sessions or examination situations? This raises the question as to whether the essential function is the ability to remember all of the special tests or to understand the indications for each test, how to perform it, and how to interpret the results. Is it appropriate for the SWD to perform all the tasks listed above and then direct a classmate acting as an assistant to perform the intervention? Performing tasks in a limited time frame may also be challenging for many SWD. The decision to allow the student more time to accomplish tasks in school should consider the future demands of the clinic. If the clinic will expect interventions to occur in a restricted time frame, then extended time is not ultimately a reasonable accommodation because it alters the essential nature of the course expectations, but allowing more time early in a student's learning may be appropriate.

Identify Students' Challenges and Strengths

This third step begins the collaborative component of the decision-making model. Faculty should meet with each student who discloses a disability and ask him or her to identify anticipated challenges. The performance expectations of the course should be explained and students encouraged to reflect on what specific activities will be challenging and what accommodations will help them succeed. This conversation is one that requires a nuanced understanding of disability law. Students are not required, or necessarily encouraged, to disclose their disability diagnosis to a faculty member, and the formal accommodation request will not include this information. Instead, only the requested accommodations can be discussed. It does not matter why a student takes longer to read and process information; the key is identifying the challenge and accommodating it in the classroom as appropriate. Consider the example of a student who is very bright and able to successfully integrate course information and develop creative interventions. This student, however, needs extended time to process information, which can compromise his or her ability to demonstrate problem-solving skills in a practical examination.

SWD, of course, have individual strengths, and many have developed effective academic compensatory strategies. For example, students may use assistive technology or have developed better auditory than visual memory. One student with dyslexia found that he could remember concepts most easily if he converted them into "pictures" in his head. He was able to recall information perfectly if he was granted extra time to translate the "pictures" back into words. He was talented at communicating with patients in language they could understand and in developing treatment ideas. Other students who disclose their disability diagnosis to faculty, of course, may not have a full understanding of how the diagnosis specifically impacts their learning.

Analyze Learning Activities

Learning activities are the bridge between students and their ability to achieve essential functions. Lecture, readings, discussion, lab demonstrations and practice, written assignments, reflection exercises, projects, and written, oral, and practical examinations are examples of learning activities. It is likely that only some of these learning activities will need to be reasonably accommodated for any individual student. It is likely that there are many effective ways to teach or assess course material.[55] Consider, for example, a clinical course that utilizes cases and the difficulty it will present for a student with an LD. The student does not participate in the group problem-solving case discussions with peers, which may appear as disinterest or lack of attention. Because of earlier discussions, the faculty member may know that the student needs more time to process and decides to give all the students the cases the day before the lab to prepare in advance. This should not present a barrier to maintaining the academic integrity of the course and may in fact help everyone in the class.

Determine Reasonable Accommodations

There is ample evidence that providing accommodations to SWD can promote student success.[1,8,9,25,44,58–60] While faculty have significant flexibility in developing reasonable accommodations, they may not refuse a request for accommodations, provided the student has provided the appropriate documentation.[6,11,47] Further, for students who are required to do field placement or clinical work, reasonable accommodations will be applied in these settings as well.[25] Making accommodations in a clinical setting may be more complicated because each student's abilities will need to be matched to the essential functions of each potential site. Because there is considerable variability among the essential functions at different sites, however, there are many possibilities to find a placement whose requirements match the student's abilities.

Accommodating a disability is an individualized process. This is such a fundamental aspect of accommodating a disability that the law specifically calls for "case-by-case" consideration.[47] The process must take into account the needs of the student, practical considerations of the specific learn-

TABLE 3. Suggestions for Reasonable Accommodations that May Be Warranted Depending on a Particular Student's Needs and Disability

Change of location for examinations/private test setting
Priority parking
Elevator key to access campus facilities
Access to a quiet area for composure and stress reduction
Note taker or tape recorder
Modified seating arrangement
Beverages allowed in class (e.g., for thirst resulting from medication)
Textbooks on tape
Test accommodations
Alternative formats for students to demonstrate course mastery
Use of computer software programs or other technical assistance
Flexibility in determining full-time status
Assignment assistance during hospitalization
Detailed course outline clearly conveying course expectations (e.g., objectives, material to be covered, requirements/expectations, grading procedures, examination dates, and due dates for written assignments).
Develop a positive student-faculty relationship by showing interest; a good relationship facilitates achievement; be encouraging and supportive
Meet with the student to arrange how authorized accommodations will be implemented, clarify concepts, and discuss class progress
Highlight major concepts and terminology orally or visually
Offer study questions that indicate the relative importance of content as well as the format of possible test questions
Critique early drafts of papers in advance
Extend time for class work when appropriate
Modifications of examinations such as additional time, isolation, oral vs. written, or essay vs. objective
Use a variety of visual and auditory methods to present information; this will help all students, not just those with a disability
Provide continuous feedback with weekly assignments or quizzes, meetings, or e-mails

Modified from: Ekpone PM, Bogucki R. *A Postsecondary Resource Guide for Students with Psychiatric Disabilities*. Washington, DC: George Washington University Health Resource Center. Available at: www.heath@gwu.edu/files/active/0/resource_guide.psyc.pdf; and *A Handbook on Educational Access: A Faculty Guide to Reasonable Accommodations Students with Disabilities*. Richmond, VA: Virginia Commonwealth Univ. Available at: www.students.vcu.edu/dss/dss_faculty. Both accessed Jan 15, 2009.

ing environment, and the essential functions that must be mastered.

As previously stated, requests for accommodations will most likely come from the campus disability support office. Several reasonable accommodation strategies are typically used by disability support offices, and these are listed in Table 3. Faculty are key partners with disability services in developing and providing accommodations[7,11] and should appreciate that these formal requests initiate the conversation about accommodations but do not conclude it. Accommodations adjust how someone performs an essential task and are often good teaching strategies that assist all students.[55] For example, SWD have reported that courses that provide structure, direct instruction, and clear and consistent expectations support their learning. Also, allowing adequate time to learn, practice, and take examinations is also extremely helpful.[6] Whatever the accommodation, they do not lower academic expectations, alter the essential nature of the educational activity or academic program, present a health or safety risk to themselves or others, or cause undue hardship to the program.[10,47,61]

It is most efficacious if accommodations are developed via consultation with the student, the institution's disability resources office, and other faculty,[11] which can also help expand the repertoire of accommodations beyond the standard few such as allowing more time for tests. An excellent source for work site accommodations that can be useful for clinical affiliations is the Job Accommodations Network.[62] Also, a comprehensive treatment of reasonable accommodations in clinical education is available.[63]

While most accommodations are not costly, they may require additional time from the faculty or clinical instructor, which can create indirect costs and, in physical therapy at least, the potential perception of the students as a burden.[14] These findings echo concerns raised by faculty throughout higher education,[38] with concerns about accommodations compromising academic integrity also salient.[60] Faculty must respond to accommodation requests in a manner that is both legal and fair. At the same time, with the increasing numbers of SWD in higher education, it is inefficient to attempt to treat each situation as totally unique. A systematic, structured approach to this challenge will produce results that are consistently more efficient, effective, and successful.

Implement and Assess

All members of the teaching team, including teaching assistants and lab instructors, should implement reasonable accommodations in a consistent manner. As the semester progresses, the impact of each accommodation on the student's progress should be monitored. Indeed, assessment and modification as needed are overarching principles in providing accommodations. It is important to remember that reasonable accommodations are not static tools but should be monitored and adjusted as needed**.** As a course progresses, there may be unanticipated challenges. Conversely, the student may need less help than originally anticipated. An instructor is always allowed the freedom to creatively address the student's learning needs and develop new solutions. It is important to make adjustments as the course progresses to maximize the effectiveness for accommodations to facilitate student success.

Conclusions and Recommendations

Historically, SWD have been underrepresented in higher education, including in allied health education. Limited

faculty knowledge on the impact of disabilities in the education environment, inexperience with developing and delivering accommodations, and the lack of decision-making models are contributors to this problem. While disability support services on campuses may be helpful in supporting students' needs, faculty must be creative in developing effective individual accommodation strategies to meet the learning objectives of allied health curricula. A six-step model for analyzing each student's situation and needs in the context of legal standards and university policies has been proposed. We advocate its implementation to assist educators to meet the needs of each learner and improve our ability to add well-qualified and diverse graduates to our professions.

References

1. National Council on Disability: People with disabilities and postsecondary education. Sep 15, 2003. Available at: www.ncd.gov/newsroom/publications/2003/education.htm. Accessed Jul 30, 2008.
2. Koch L, Hennessey M, Ingram A, et al: Faculty learning communities to promote full inclusion of students with disabilities on college and university campuses. *Rehabil Educ* 2006; 20:191–200.
3. National Center for Educational Statistics: Washington, DC: NCES, U.S. Dep of Education. Available at: www.ces.ed.gov/fastfacts/display. Accessed June 10, 2008.
4. Ingram D, Harrison J, Marshall K: Testing accommodations granted on the National Physical Therapy Examinations. Presented at American Physical Therapy Association, Combined Sections Meeting; Feb 9, 2008, Nashville, TN.
5. Graham-Smith S, Lafayette S: Quality disability support for promoting belonging and academic success within the college community. *Coll Stud J* 2004; 38:90–99.
6. Tincani M, Improving outcomes for college students with disabilities: ten strategies for instructors. *Coll Teach* 2004; 52(4):128–133.
7. Shaw SS, Dukes LL: Performance indicators for postsecondary disability services. *J Dev Educ* 2005; 29(2):10–19.
8. Velde BP, Chapin MH, Wittman PP: Working around "it": the experience of occupational therapy students with a disability. *J Allied Health* 2005; 34:83–89.
9. Burgstahler S, Doe T: Improving postsecondary outcomes for students with disabilities: designing professional development for faculty. *J Postsec Educ Dis* 2004; 18:135–145.
10. Thomas S: College students and disability law. *J Spec Educ* 2000; 33:248–258.
11. Scott SS, Gregg N: Meeting the evolving education needs of faculty in providing access for college students with LD. *J Learn Dis* 2000; 33:158–167.
12. McManus S, Shoaf L: Strategies for students with hidden disabilities in professional school. In: Getzel EE, Wehman P, eds: *Going to College*. Baltimore: Paul Brooks Publishers; 2005: pp 163–178.
13. Rangel A, Wittry A, Boucher B, et al: A survey of essential functions and reasonable accommodations in physical therapist education programs. *J Phys Ther Educ* 2001; 15(1):11–19.
14. Ward S, Ingram D, Mirone J: Accommodations for students with disabilities in physical therapist and physical therapist assistant education programs. *J Phys Ther Educ* 1998; 12(2):16–21.
15. Ingram D: Opinions of physical therapy education program directors on essential functions. *Phys Ther* 1997; 77:37–45.
16. Hendrickson S, Lyden S, Tarter C, et al: Implementation of the Americans with Disabilities Act into physical therapy programs. *J Phys Ther Educ* 1998; 12(2):8–15.
17. GlenMaye L, Bolin B: Students with psychiatric disabilities: an exploratory study of program practices. *J Soc Work Educ* 2007; 43:117–132.
18. Lightfoot E, Gibson P: Universal Instructional Design: a new framework for accommodating students in social work courses. *J Soc Work Educ* 2005; 41:269.
19. Baron S, Phillips R, Stalker K: Barriers to training for disabled social work students. *Dis Soc* 1996; 11:361–377.
20. Gordon M, Keiser S: A no-nonsense guide for clinicians, educators, administrators and lawyers. In: Gordon M, Keiser S, eds: *Accommodations in Higher Education Under the Americans with Disabilities Act (ADA)*. DeWitt, NY: GSI Publications/Guilford Press; 2000: pp 98–170.
21. George Washington University Heath Resource Center: Available at: www.heath.gwu.edu/node/64. Accessed Jul 30, 2008.
22. Ekpone P, Bogucki RA: Postsecondary resource guide for students with psychiatric disabilities. Washington, Dc: George Washington University Heath Resource Center. Available at: www.heath.gwu.edu/files/active/0/resource_guide_psyc.pdf. Accessed Jul 30, 2008.
23. Mason A, Mason M: Understanding college students with learning disabilities. *Pediatr Clin North Am* 2005; 52:61–70.
24. Kolanko KM: A collective case study of nursing students with learning disabilities. *Nurs Educ Perspect* 2003; 24:251–256.
25. Francis N, Salzman A, Polomsky D, et al: Accommodations for a student with a physical disability in a professional physical therapist education program. *J Phys Ther Educ* 2007; 21(2):60–65.
26. Carroll SM: Inclusion of people with physical disabilities in nursing education. *J Nurs Educ* 2004; 43:207–212.
27. Manders K: Disabled medicine. *CMAJ* 2006; 174:1585–1586.
28. Steinberg A, Iezzone L, Conill A, et al: Reasonable accommodations for medical faculty with disabilities. *JAMA* 2002; 288:3147–3154.
29. Woods E: When its the physical therapist who has the disability. *PT Magazine* 1993; 1(6):42–47.
30. Arndt M: Educating nursing students with disabilities: one nurse educator's journey from questions to clarity. *J Nurs Educ* 2004; 43:204–206.
31. Association of Academic Psychiatrists: Recommended guidelines for admission of candidates with disabilities to medical school. *Am J Phys Med Rehabil* 1993; 72:45–47.
32. Glennon TJ: The stress of the university experience for students with Asperger syndrome. *WK: J Prevent Assess Rehabil* 2001; 17:183–190.
33. Dillon M: Creating supports for college students with Asperger Syndrome through collaboration. *Coll Stud J* 2007; 41:499–504.
34. Wolinsky S, Whelan A: Federal law and the accommodation of students with LD: the lawyers' look at the BU decision. *J Learn Dis* 1999; 32:286–291.
35. National Joint Committee on Learning Disabilities: *Collected Perspectives on Issues Affecting Learning Disabilities: Position Papers and Statements*. Austin, TX: Pro-Ed; 1994.
36. Ganschow L, Philips L, Schneider E: Closing the gap: accommodating students with language learning disabilities in college. *Topics Lang Disord* 2001; 21:17–37.
37. Selekman J: Nursing students with disabilities. *J Nurs Educ* 2002; 41:334–339.
38. Jenson JM, McCrary N, Krampe K, et al: Trying to do the right thing: faculty attitudes toward accommodating students with learning disabilities *J Postsec Educ Dis* 2005; 17:81–90.
39. Drench M, Noonan A, Sharby N, et al: *Psychosocial Aspects of Health Care*. Englewood Cliffs, NJ: Prentice Hall; 2007.
40. National Institute of Mental Health: Statistics. Available at: www.nimh.nih.gov/health/statistics/index. Accessed Jul 30, 2008.
41. Sharpe MN, Bruininks BD, Blacklock BA, et al: The emergence of psychiatric disabilities in postsecondary education. *National Center on Secondary Education and Transition Issue Brief* 2004; 3(1):1–6.
42. Cook L: Striving to help college students with mental health issues. *J Psychosoc Nurs Mental Health Serv* 2007; 45(4):40–44.
43. Turner T: Hurt by stigma. *Nurs Stand* 2005; 20:32–33.
44. Collins ME, Mowbray CT: Higher education and psychiatric disabilities: survey of campus disability services. *Am J Orthopsychiatry* 2005; 75:304–315.

45. American Psychiatric Association: *Diagnostic and Statistical Manual-IV Text Revision*. Washington, DC: American Psychiatric Association; 2000.
46. U.S. Department of Health and Human Services: Your rights under Section 504 of the Rehabilitation Act. 2006. Available at: www.hhs.gov/ocr/504.pdf. Accessed Jul 30, 2008.
47. U.S, Department of Justice: Americans with Disabilities Act of 1990. 2007. Available at: www.usdoj.gov/crt/ada/pubs/ada.htm. Accessed Jul 30, 2008.
48. Reichgott MJ: Without handicap: issues of medical schools and physically disabled students. *Acad Med* 1996; 71:724–729.
49. Rosebraugh C: Learning disabilities and medical schools. *Med Educ* 2000; 34:994–1000.
50. Essex-Sorlie D: The Americans with Disabilities Act: II. Implications and suggestions for compliance for medical schools. *Acad Med* 1994; 69:525–535.
51. Shevlin M, Kenny M, McNeela E: Participation in higher education for students with disabilities: an Irish perspective. *Dis Soc* 2004; 19:15–30.
52. Wright D, Eathorne V: Supporting students with disabilities. *Nurs Stand* 2003; 18(11):37–42.
53. Sowers JA, Smith M: Nursing faculty members' perceptions, knowledge and concerns about students with disabilities. *J Nurs Educ* 2004; 43:213–218.
54. Rohland P, Erickson B, Mathews D, et al: Changing the culture: a collaborative training model to create systemic change. *J Postsec Educ Dis* 2003; 17:49–58.
55. Fox JA, Hatfield JP, Collins TC: Developing the curriculum transformation and disability workshop model. In: Higbee JL, ed: *Curriculum Transformation and Disability: Implementing Universal Design in Higher Educatio*n. Minneapolis: University of Minnesota; 2004: pp 23–40.
56. Sowers JA, Smith M: Evaluation of the effects of an in-service training program on nursing faculty members' perceptions, knowledge and concerns about students with disabilities. *J Nurs Educ* 2004; 43:248–252.
57. Brosrand HL: Tilting at windmills: changing attitudes toward people with disabilities. *J Rehabil* 2006; 72:4–9.
58. Fostnaugh M: From paternalism to advocacy: patient empowerment. *PT Magazine* 1997; 70:70–77.
59. Woods E: When the student has the disability. *PT Magazine* 1993; 1(6):44–49.
60. Marks BA: Jumping through hoops and walking on egg shells or discrimination, hazing and abuse of students with disabilities. *Nurs Educ* 2000; 39:205–210.
61. Grossman PD: Making accommodations: the legal world of students with disabilities. *Academe* 2001; 87(6):41–46.
62. Job Accommodations Network: *Employer's Practical Guide to Reasonable Accommodations Under the Americans with Disabilities Act (ADA)*. Available at: www.jan.wvu.edu. Accessed Jul 30, 2008.
63. Sharby N, Roush SE: The application of universal instructional design in experiential education. In: Higbee JL, Goff E, eds: *Pedagogy and Student Services for Institutional Transformation: Implementing Universal Design in Higher Education*. Minneapolis: University of Minnesota; 2008: pp 305–320.