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## ***The Accommodating Workplace: Making Room for Sensory Disabled Employees***

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# The Accommodating Workplace: Making Room for Sensory Disabled Employees

By Mr. Fred S. Rice, Mr. Shoji Nakayama and Mr. David P. Heiser

Imagine three applicants for a new position in your organization. You are the Human Resource Development manager and an influential member of a staffing team currently charged with finding an operator for a newly created position. All of the applicants meet the minimum expectations identified for the job but one individual simply stands out. Carol (fictitious) graduated from an elite university. Her work and educational history provide an example of continuous occupational and personal growth. To help validate your impressions, Carol's references tell of how she has performed beyond expectations, exhibits a fantastic attitude, demonstrates leadership in the work setting, and is respected and admired by her co-workers. You invite Carol for an interview and discover that she has a vision impairment that may affect her ability to perform the job without some sort of accommodations. You have read some of the literature on hiring disabled persons but do not know enough about the subject to make an informed decision in this matter. What is your next step?

## **The Value of Human Capital**

An organization exists to enhance the wealth and wellbeing of its stakeholders. The success of any organization is based on a variety of factors, but it is increasingly dependent on a combination of the knowledge, skill, ability, and motivation of its employees. Most organizations are facing an increased challenge to demonstrate how they value their human component. People are the only asset of an organization that is an active resource; in order to generate value, all other resources are

passive in that they require human interaction (Fitz-enz, 2000). Worker productivity is essential in maintaining a successful organization. Performance is at the heart of all issues an organization faces and superior employee performance is the key to maintaining a successful organization (Rummler & Brache, 1995). The value of human capital to an organization is often a non-financial expression derived from a combination of the characteristics and traits individuals bring to the job, the abilities and attitudes of employees towards learning and adapting, and the drive and motivation of individuals to achieve their goals and help others to do the same (Fitz-enz, 2000).

## **A New Workforce**

A challenge for many organizations in the near future will be to obtain and maintain adequate human capital to remain viable. One effective means of improving the value of a workforce is to constantly devise and implement strategies to enable individual employees to become more productive. Another means is to hire persons with the necessary knowledge and motivation to perform and achieve at a high level. In order to improve the value of their human capital, many organizations have proactively worked to diversify by acquiring talented employees from an expanded definition of the labor market.

There are approximately 50 million individuals in the United States who have some type of disability (U.S. Census Bureau, 2003), making them the largest minority group in the country (Chambers, 2002; Cohen,

2002). Two thirds of disabled people who can work do not, making them also the group with the largest unemployment rate in the country (Cohen, 2002). People with disabilities are just as likely to have the knowledge, skills, and motivation necessary to be productive in a variety of job areas (Davies, 2003). In having to adapt to or overcome their disability, many disabled individuals have developed and demonstrated a motivation to succeed; and it is precisely because of this drive that they often have the traits necessary to exceed performance expectations.

Many disabled individuals lived productive lives prior to becoming disabled and continue to exhibit successful personal and work lives even after the onset of their impairment. In fact, approximately 78% of all disabled people in the United States did not obtain their impairment until after age 20 and 50% became disabled after age 40 (Hinton, 2003). A recent survey reported that 72% of disabled persons who are unemployed would like to be employed but identified employer misunderstanding of disabilities and abilities as the most common barrier to employment (Hinton, 2003).

The potential talent pool in those with disabilities is too great for an employer to ignore simply because of a lack of understanding or the unwillingness to create new work settings to include and accommodate highly qualified yet disabled employees. Maximizing the performance of all employees should be the focus of employers who want a successful, competitive organization, despite functional limitations of its employees. Regardless of disability status, the performance of all employees may be enhanced with appropriate accommodations implemented in combination with sincere concern for their success on the job.

### ***Understanding Compliance***

Accessibility legislation essentially began in 1968 with the Architectural Barriers Act (ABA). The ABA required that all federal buildings be accessible

to those with disabilities. Following the ABA in 1973, the Rehabilitation Act made it illegal to discriminate against those with disabilities in regards to federally funded programs. In 1988, the Technology-Related Assistance for Individuals with Disabilities Act was enacted to support the states in providing assistive technology to those with disabilities.

In 1990, the landmark Americans with Disabilities Act (ADA) moved to address discrimination issues of the disabled on a grand scale. The ADA was modeled after the Civil Rights Act of 1964 and the Rehabilitation Act of 1973 and allowed disabled individuals who feel they have been discriminated against to request a jury trial and to receive punitive damages in the private sector. In specific terms of employment, the intent of the ADA is to give people with disabilities the chance to be hired and productively participate in the workforce by mandating employers to focus on their skills rather than their disability. The ADA is basically divided into five titles:

- Employment (Title I) – Employers with 15 or more employees must provide reasonable accommodations to protect the rights of individuals with disabilities in all aspects of employment.
- Public Services (Title II) - Governmental instrumentalities must provide access to services, programs, and transportation to people with disabilities which are available to people without disabilities.
- Public Accommodations (Title III) – Access for individuals with disabilities must be provided in new construction of public facilities and privately owned transportation systems, or modified (if it is an existing structure) to provide access to individuals with disabilities.
- Telecommunications (Title IV) - Telephone service for the general public must include devices to assist those with a hearing impairment.

- Miscellaneous (Title V) - Harmful behavior against those attempting to assert their rights under the ADA is specifically prohibited.

### **Qualifying Disability.**

An important concept of the ADA is that of a qualifying disability. The ADA defines disability as a physical or mental impairment that substantially limits one or more major life activities (Wilhelm, 2003), such as hearing, seeing, walking, breathing, or speaking. Furthermore, “major life activities” are defined as caring for oneself, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, and working (Elsberry, 2002) and “substantially limits” is defined as unable to perform a major life activity that the average person can perform (Wilhelm, 2003). An employee or job applicant with a qualifying disability is an individual who, with or without reasonable accommodation, can perform the essential functions of the job in question. In addition, an individual with a qualifying disability is protected under the umbrella of the ADA.

The U.S. Supreme Court has narrowed the scope of major life activities in recent court cases by ruling that correctable disabilities such as using hearing aids, eyeglasses, contact lenses and hypertension medication for high blood pressure do not normally qualify for protection under the ADA (Elsberry, 2002). Correctable disabilities are not automatically excluded, but must be evaluated on a case-by case-basis.

*Sensory disabilities.* According to the U.S. Census Bureau (2002, August 22), sensory disabilities include “blindness, deafness, or a severe vision or hearing impairment.” There are an identified 442,894 individuals with sensory disabilities between the age of 5 and 15 years old, 4,123,902 between the age of 16 and 64, and 4,738,479 age 65 and older (U.S. Census Bureau, 2003, May 14). Given a U.S. population of 257,167,527, those with a sensory disability comprise approximately 4% of the total population or 9,305,275

individuals 5 years of age and older (U.S. Census Bureau, 2003, May 14). The potential impact to the labor market of individuals who possess some type of sensory disability includes a presence of 8,862,381 or 4.2% of the U.S. population age 16 and older (U.S. Census Bureau, 2003, May 14).

### **Reasonable Accommodation**

Employers must provide reasonable accommodation to employees who have qualifying disabilities under the ADA. Accommodations are basically modifications to assist employees in performing their job. Reasonable accommodation may include such things as improving access to facilities and locations within a facility, restructuring a job, modifying work schedules, reassigning qualified employees to an open position that may be better suited for them, acquiring new or modifying existing equipment, reworking training materials, and modifying work stations.

An employer is required to make an accommodation to the known disability of a qualified applicant or employee unless it would impose an undue hardship on the operation of the employer's business (Colbridge, 2002). Undue hardship is defined as an action requiring significant difficulty or expense when considered in light of factors such as an employer's size, financial resources, and the nature and structure of its operation. An employer is not required to lower quality or production standards to make an accommodation, nor is an employer obligated to provide personal use items such as glasses or hearing aids.

*Sensory accommodations.* The use of computers and other sensory media technologies have become the norm in the world today. Virtually every organization uses computers, phones, faxes, Intranets and the Internet to exchange, store, and manipulate information and to inform and train their workforce. These technologies have many positive benefits for employers, but individuals with sensory disabilities are more challenged in their use of such items and subse-

quently may not see the same benefit level as others. Section 508 of the amended Rehabilitation Act of 1973 went into effect in 2001. Basically, section 508 mandates accessibility to the Internet and government electronic media sources by both disabled government employees and those in the general public who may have disabilities. This has also begun to move into the private sector, as there have already been several court cases where companies have been sued because of inaccessible company websites or inability to use organizational tools that are available to the general public (Ziff Davis Media, 2002).

In terms of someone with a sensory disability, potential accommodations an employer may be required to make could include assistive technology. This may involve a teletypewriter (TTY) text phone system; captioning of streaming video conferences and TV monitors; video transcription software; a vibrating text pager; larger fonts on websites and documents; a Braille Embosser with Text Print Option that prints Braille to text and text to Braille; a Braille Keyboard that converts text to tactile Braille; Internet/PC Screen Reader software that converts PC text on a monitor to audio; and a speech to text unit that converts voice to text files and text into Braille (Cohen, 2002; Davies, 2003; Drew, 2003). Because assistive technologies are becoming so readily available for those with sensory disabilities, it is much easier and more inexpensive for organizations to equip their facilities with accommodations that will allow sensory disabled employees to maximize their performance.

Although the implementation of assistive technologies can be critical to the success of sensory disabled employees using office hardware and software, it may not enable them to conduct Internet transactions if the Internet environment does not support access functionality (Coonin, 2003; Yu, 2002). A great deal of time and resources will continue to be wasted unless the concept of universal design on the Internet is utilized; because individual workstations will not be able

to satisfactorily access and navigate websites unless they are designed to be accessible, no matter what assistive technology is employed on the individual computer workstation (Yu, 2002). Persons who have low or no vision, or who are hard of hearing, or who may be unable to use a mouse due to mobility and/or vision problems need websites that have been designed with accessibility in mind (Coonin, 2002).

*Examples of design considerations include providing captions or transcripts for audio, the use of the ALT tag of LONGDESC attribute for images, summarizing charts and graphs, careful use of frames and tables, markup content with proper structural elements (the use of Cascading Style Sheets is recommended), providing alternative content for scripts, applets, and plugins, and enabling navigation with keyboard command alone. (p. 209)*

For example, in order for Carol, the vision-impaired applicant in the opening scenario, to be effective in operating the company computer software and hardware systems, her employer would have to provide the appropriate assistive technology: maybe some screen reader software. However, if she is to be effective in accessing and navigating the company web site for any job-related purpose, the site must be compliant with Section 508 accommodations. The good news, however, is that if both conditions are met, Carol would be able to access and navigate the website as well as any non-disabled worker.

### **Beyond Compliance**

Although we have been focusing on making reasonable accommodations for the ADA qualified disabled, a grander focus may be to examine human performance in general and not limit the strategy to just trying to find a place in the organization for disabled employees. According to Eichstaedt (1993), people are not created equal, each person is quite probably disabled in some fashion and each person has an array of limitations. Eichstaedt (1993)

adds that a disability occurs when there is a limitation that negatively affects achievement of some societal or workplace expectations. Indeed, some disabilities may be quite obvious while others are more subtle, but Eichstaedt (1993) states that the question to examine is what accommodations can be provided to all employees, regardless of their disabilities and shortcomings, to improve their performance? The inability to see or hear at what is considered to be a normal level, does not necessarily translate to limitations in workplace knowledge, skill, attitude, and ability. Individuals with sensory disabilities are no less likely to be competent in a wide-ranging number of occupations and tasks as those without a sensory impairment.

One principle that may help organizations pave the way for accommodating all employees in the physical and virtual workplace is that of universal design. This principle provides guidelines in considering designs that are functional and accessible to all, without the need for adaptation or specialized design (Coonin, 2002). These guidelines are dictated by seven principles: (a) equitable use - the design is useful and marketable to people with diverse abilities; (b) flexibility in use - the design accommodates a wide range of individual preferences and abilities; (c) simple and intuitive use - use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level; (d) perceptible information - the design communicates necessary information effectively to the user, regardless of the ambient conditions or the users' sensory abilities; (e) tolerance for error - the design minimizes hazards and the adverse consequences of accidental or unintended consequences; (f) low physical effort - the design can be used comfortably and efficiently, with a minimum of fatigue; and (g) size and space for approach and use - appropriate size and space is provided for approach, reach, manipulation, and use, regardless of user's body size, posture, or mobility (Dorsa, 2002).

An example of universal design could be wide, automatic entrance doors. The door makes the location accessible by wheelchairs and also for other patrons with strollers or customers with their arms full of packages. In this sense, by designing for all, everyone benefits. This same principle, applied to office workspace and the company website, can be an effective means of going beyond strict legal compliance in creating an inclusive environment.

Referring once again back to Carol, the vision-impaired applicant in the opening paragraph; according to her resume, references, and academic transcripts, she has the ability to succeed on the job with accommodations. To benefit from her talent, an employer would need to focus on her abilities, not her disabilities. This is a key concept in moving beyond the letter of the law in terms of compliance. The performance of this applicant, given the proper support, should soar and serve as a model to other employees that hard work coupled with the drive and persistence to succeed will result in grand achievements. The real key is to think beyond compliance and be proactive in creating an organization that anyone, disabled or not, would want to work in because of the conscious attempt to view individuals on the basis of performance potential and accomplishment, rather than any other factors.

#### **Hiring and Proactive Accommodation**

Employee recruitment is an essential part of the success of any organization, and recruitment strategies can be critical. Individuals with disabilities must be given a chance but enticing them to apply and interview is not always easy, due to past negative experiences (Davies, 2003; Hinton, 2003). In order to go beyond compliance in terms of hiring persons with sensory disabilities, some suggestions include:

- Meet potential applicants where they are. This means networking with agencies and organizations that provide services to those with sensory disabilities. Posting of physical job advertisements in Braille is also beneficial to those with blindness or limited sight.

Advertise open job positions in newspapers, magazines, and newsletters that cater to the sensory disabled.

- Ease the interview process. Make sure to hold interviews in accessible locations and make sure this is mentioned to all interviewees in advance. Provide a list of general questions that the interviewer may ask and focus the questions on job performance and performance enhancement. Never ask questions about disabilities or overcoming limitations and if you are unsure of just what questions you may ask, check with your legal department.

In terms of accommodation, think proactively. Examine your organization from the standpoint of a person with sensory disabilities and begin making some changes. Thinking beyond compliance means not waiting until someone with a sensory disability is hired to learn about available accommodations. It means starting to make modifications in anticipation of hiring. In order to hire the best person for the job, you need to do more than simply find them. They must also want to work for you. New paradigms in hiring and proactive accommodations are excellent first steps in building a talented workforce.

#### **Attitude as a Barrier**

Moving an organization beyond compliance means more than just proactively providing performance accommodations throughout the workplace, it also has to do with an organization's culture and the attitudes of management and workers towards the disabled. No matter what accommodations are incorporated, if the underlying feeling within an organization is negative or standoffish towards the disabled, it has not moved beyond mere legalities. Lee (1996) reported in a survey of 500 New Jersey employers, that two factors contributed to the attitudes of employers about hiring and employing individuals with disabilities. The first was the size of the employer's

business, and second was whether or not disabled individuals had ever worked at that particular workplace previously. Many of the fears employers have about hiring disabled individuals, such as cost of accommodations, possible litigations, sub par performance, and attitudes of employees without disabilities, are simply not present at the larger companies who have hired disabled employees (Davies, 2003; Lee, 1996). Interestingly, results from a later study using interviews with 119 employers in Japan indicated similar findings (Omori & Tomiyasu, 1998). Even though the legal incentives for hiring individuals with disabilities in Japan are slightly different than in the U.S., the study reported the presence of disabled workers in the workplace is important in both countries for the improvement of employers' attitudes about disabled workers' abilities (Omori & Tomiyasu, 1998). This indicates that many of the negative attitudinal perceptions about individuals with disabilities in the workplace are in fact groundless, and once more individuals with disabilities secure employment and retain jobs successfully, these negative attitudes may no longer exist.

Successful diversity management includes strategies designed to break down attitudinal barriers in the workplace, and some of these same strategies may apply to attitudes towards individuals with disabilities. Diversity within the workplace is often times discussed in terms of race and gender, and sometimes religion and sexual orientation. However, individuals with disabilities comprise the largest minority group in the United States (Chambers, 2002), and are often not included in discussions of diversity. Certainly, there are some different legal issues due to laws like the ADA and section 508 of the Rehabilitation Act of 1973 but many benefits of supporting and promoting a multicultural organization apply equally to an organization that is proactive in its inclusion of disabled individuals. Cox (2001) defines diversity as "...the variation of

social and cultural identities among people existing together in a defined employment or market setting" (p. 3). Although diversity can initially reduce the effectiveness of communication and increase conflict among workers, when well managed it can improve the performance of organizations in a number of ways (Cox, 2001). With the ability to draw upon the diverse background of employees, employers can benefit by: (a) improving problem solving, (b) increasing creativity and innovation, (c) increasing organizational flexibility, (d) improving the quality of personnel through better recruitment and retention, and (e) improving marketing strategies (Cox, 2001). In addition, employees with disabilities can relate better to customers with disabilities; who represent a \$1 trillion market (Chambers, 2002).

After conducting usability studies of the Internet, Nielsen (2002) discovered that people with disabilities had a good impression of those companies that accommodated their special needs. Moreover, those same people indicated that they spread negative feedback to their family and friends about a company who they feel discriminates against disabled users (Nielsen, 2002). Therefore, the relationship between an individual with a disability and an organization has potential consequences beyond just the legal ramifications.

The fact that the Equal Employment Opportunity Commission (EEOC) enforces statutes relating to discrimination in all forms strengthens the premise that disability issues are similar to other diversity issues in many ways. Organizations that begin moving in the direction of proactively managing disabilities will fulfill a valuable role within the marketplace and society as a whole and help create a more positive attitude towards the employment of individuals with disabilities.

## References

Chambers, L. (2002). Making our office accessible for disabled workers. *Office Solutions*, 19(5), 26-28.

- Cohen, S. (2002). High-tech tools lower barriers for disabled. *HR Magazine*, 47(10), 60-65.
- Coonin, B. (2002). Establishing accessibility for e-journals: A suggested approach. *Library Hi Tech*, 20(2), 207-220.
- Cox, T. (2001). *Creating the Multicultural Organization*. San Francisco, CA: Jossey-Bass.
- Davies, K. R. (2003). Untapped resources. *Credit Union Management*, 26(20), 36-
- Dorsa, E. (2002). An introduction to universal design: A hand tool project. *The Technology Teacher*, 61(8), 27-35.
- Drew, J. (2003). Assuring home-based access to Web degree programs for the physically disabled. Ohio: Kent University.
- Eichstaedt, C., & Kalakian, L. (1993). *Developmental adapted physical education*. New York: Macmillan Publishing.
- Elsberry, R. B. (2002). The disabilities law continues to evolve. *Electrical Apparatus*, 55(6), 58-60.
- Fitz-enz, J. (2000). *The ROI of human capital*. New York: AMACOM.
- Hinton, C. A. (2003). The perceptions of people with disabilities as to the effectiveness of the Americans with Disabilities Act. *Journal of Disability Policy Studies*, 13(4), 210-220.
- Lee, B. (1996). Legal requirements and employer responses to accommodating employees with disabilities. *Human Resource Management Review*, 6(4), 231-251.
- Nielsen, J. (2002). Failing to cater for the disabled. *New Media Age*. 1,17. Retrieved May 27, 2003 from Info Trac Web database.
- Omori, T., & Tomiyasu, Y. (1998). Employers' attitudes towards workers with disabilities in Japan. *Journal of Vocational Rehabilitation*, 11, 103-112.
- Rummler, G. A., & Brache, A. P. (1995). *Improving performance: How to manage the white space on the organizational chart*. San Francisco: Jossey-Bass.

U.S. Census Bureau. (2002, August 22). Definition of disability items in Census 2000. Retrieved June 17, 2003, from <http://www.census.gov/hhes/www/disable/disdef00.html>

U.S. Census Bureau. (2003, May 14). Disability status: 2000 - Census 2000 brief. Retrieved June 17, 2003, from <http://www.census.gov/hhes/www/disable/disabstat2k/disabstat2k.txt.html>

Wilhelm, S. (2003). Accommodating mental disabilities in higher education: A practical guide to ADA requirements. *Journal of Law and Education*, 32(2), 217-237.

Yu, H. (2002). Web accessibility and the law: Recommendations for implementation. *Library Hi Tech*, 20(4), 406-419.

Ziff Davis Media. (2002). And web site for all (accessible web design). *PC Magazine*. NA. Retrieved May 27, 2002, from the Info Trac Web database.

