Assistive Technology in Higher Education

Objectives
This Presentation Will Include Information About:
- Hidden Disabilities
  - Learning Disorders
  - AD/HD
- Assistive Technology for LD & AD/HD
- LD & AD/HD in Higher Education
- Laws
- Disability Support Services
- Web Accessibility

Hidden Disabilities
What are they?
- Students whose impairment is immediately apparent are in the minority. The majority have what are sometimes known as “hidden disabilities”.
- These are physical or mental impairments that are not readily apparent to others. They include:
  - learning disabilities
  - depression
  - epilepsy
  - AD/HD
  - mental illness
  - mild brain injuries
  - autism

Learning Disabilities
- A learning disability is a permanent disorder that interferes with integrating, acquiring, and/or demonstrating verbal or nonverbal abilities and skills.
- Frequently, there are some processing or memory deficits.
- The disorder is often inconsistent, and each individual has a unique set of characteristics.
Learning Disabilities

- Students who are diagnosed with learning disabilities have deficits which interfere with the ability to process information in one or more of the following areas:
  - thinking
  - reading
  - writing
  - spelling
  - speaking
  - mathematical calculations
  - reasoning

Learning Disabilities

- Contrary to what many believe, a learning disability is not an intellectual deficit.

- Individuals with learning disabilities commonly have average or above-average intelligence (IQ).

- Approximately 80 percent of those with learning disabilities have been described as reading disabled.

Learning Disabilities

- Dyslexia
  - is the most common and best-known type of learning disability.
  - is characterized by problems in reading, spelling, writing, speaking, or listening.
  - may cause impairment in reading comprehension and reduced reading experiences, which may disrupt growth of vocabulary and background knowledge.

  - About one-third of those who have learning disabilities also have AD/HD.

Learning Disabilities

- Attention Deficit Disorders
  - Neurobiological disorders that interfere with a person's ability to sustain attention or focus on a task and to control impulsive behavior.

  - The prevalence of AD/HD in adults is thought to be around 4.4%
Attention Deficit Disorders

- The most common behaviors fall into three categories:
  - Inattention - have a hard time keeping their mind on any one thing and may get bored with a task after only a few minutes.
  - Hyperactivity - always seem to be in motion; they cannot sit still and may feel constantly restless.
  - Impulsivity - seem unable to curb their immediate reactions or think before they act.

AT for Learning Disabilities and AD/HD

- Because students with AD/HD share many of the same accommodation strategies as students with LD, the two disorders are frequently combined when describing their assistive technology strategies.

  - Speech Recognition refers to computer software programs which are programmed to recognize your voice. Text is read into a microphone which the computer stores as speech files.
  - a great help to those who have problems with writing because of spelling problems, processing problems, or who just can't master typing.

Attention Deficit Disorders

- Students with these disorders may have problems sustaining attention for long periods of time, may be easily distracted and make careless mistakes rushing through work.

AT for Learning Disabilities and AD/HD

  - Optical Character Recognition (OCR) is the opposite of speech recognition. The computer takes written text and turns it into spoken language. You need a scanner, computer, the software program, which needs to have a large store of speech files.
    - perfect technology for a very slow reader who wants to read more complicated written text.
  - Computer Flow Charts turn ideas into a picture or flow chart, referred to as cognitive mapping.
    - provides a great tool for visual learners who are having trouble outlining or organizing their ideas for presentations or for writing.
Higher Education

- Nearly 25 years of special education law have enabled many qualified students with disabilities to graduate from college preparatory high school programs and enter institutes of higher education.
- A nationwide rise is being reported in the numbers of students with disabilities in college classrooms. The greatest increase is seen in students with hidden disabilities such as learning disabilities, AD/HD, and psychiatric disabilities.
- Students with LD and AD/HD account for approximately 29% and 21% (respectively) of reported disabilities of students with disabilities in higher education.
- Section 504 of the Rehabilitation Act of 1973 protects the rights of persons with handicaps in programs and activities that receive federal financial assistance. Section 504 protects the rights not only of individuals with visible disabilities, but also those with disabilities that may not be apparent.

Higher Education - Section 504

- "No otherwise qualified individual with handicaps in the United States . . . shall, solely by reason of her or his handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance,..."
- Section 504 regulation defines a qualified individual with handicaps for postsecondary education programs as a person with a handicap who meets the academic and technical standards requisite for admission to, or participation in, the college's education program or activity.
- A college has no obligation to identify students with handicaps and is required to inform applicants of the availability of services, and the procedure to secure services.
- After admission the college may make confidential inquiries as to whether a person has a handicap for the purpose of determining whether certain academic adjustments or auxiliary aids or services may be needed.

Disability Support Services

- The unit or office responsible for determining accommodation eligibility and for arranging/providing accommodations to students with documented disabilities.
- It is important to understand that not every student with a disability requires accommodations. It is equally important to understand that even though two individuals may have the same disability, they may not require the same accommodations.
- In post-secondary settings, it is the student's responsibility to request in advance any individual assistance.
In TN approximately 15% of population between the ages of 21-64 have a disability.

The Office of Disability Services at UT reports approximately 850 students with (permanent) disabilities.

The mission of the Office of Disability Services is to provide each student with a disability an equal opportunity to participate in the university’s programs and activities. This mission is accomplished by:

1. Creating a physically accessible, programmatically accessible and attitudinally accessible community where people are judged on their abilities, not their disabilities.
2. Promoting the development of a climate for everyone at the university that is conducive to learning, personal growth, acceptance, and appreciation of everyone without regard to disability.

Tips for Faculty

- Create a welcoming environment.
- Incorporate Universal Design into teaching.
- Hold students to the same standards as others.
- Ask students about their strengths and difficulties.
- Have textbook and other print material requests in early, to assist ODS with alternative formatting.
- Maintain confidentiality at all times.
- Include a disability statement on all course syllabi.

Syllabus Disability Statement

All instructors are at UT are encouraged to include in their syllabus a statement inviting students with disabilities to meet with them in a confidential environment to discuss making arrangements for accommodations.

Reasons:

- this statement both normalizes the accommodation process and helps to create a positive and welcoming environment for students with disabilities.
- the statement creates a collaborative vehicle for making legally mandated accommodations.
- it serves as a reminder to students who need the accommodations that these arrangements need to be made.
Depending on the student’s disability, he or she may be eligible to use assistive technology on quizzes, exams, and out-of-class assignments. The student completes an Assistive Technology evaluation with the ODS Student Support Services coordinator in order to determine what technology would be appropriate. ODS does not provide copies of the software to the student, but will assist the student with learning how to use the software. Some of the software is also available in computer labs across the campus.

Survey of higher education institutions regarding their assistive technology deployment practices

- Screen Reader – 94.4%
- Screen Magnification Software – 93.1%
- OCR/Reading Solutions - 94.4%
- Speech Recognition – 91.7%
- Word Prediction Software – 66.7%
- Mouse Alternatives – 83.3%
- Hands-Free Speech Input –12.5%
- Writing Tools (software-based) – 54.2%

Survey Conducted by North Carolina State University, 2001

Kurzweil 3000

- reads scanned materials and imported files while improving reading comprehension, speed and fluency.
- includes highlighting, writing and study skills to aide in composing writing assignments.

Inspiration 7.0

- an outlining tool designed for people who are visual learners.
- helps you create a picture of your ideas or concepts by using icons and clipart that then can be quickly prioritized and re-arranged.
- the visual diagram then can be converted into a standard outline.

Acquisition of assistive technology is considered to be...
Co-Writer 4000

- Improves sentence structure by predicting words that make sense in the context of a particular sentence.
- The software also has the capability to change the background and text color of the document meeting various visual needs by students with disabilities.

Dragon Dictate

- Speech to text software
- Allows the user to dictate up to 160 words per minute while changing the speech into text in the Windows based application.

Write OutLoud

- Word processing program with spell-check and a homonym checker
- Gives the user the capability to hear letters, words or sentences while they write
- Allows the user to change the pitch, intonation, speed and voice of the software.

Read and Write Gold 8.0

- Designed for students with a varying degree of reading and writing difficulties
- Includes word prediction, screen reading, homonym support and 180,000-word dictionary with spell-check
- Available in all computer labs on campus.
UT ODS - Assistive Technology

What Is Available?

- **DANA AlphaSmart**
  - Hand-held device with the comfort and access of a full-size keyboard
  - Include features that help to develop organizing and planning skills

- **Franklin Dictionary**
  - Portable electronic dictionary and thesaurus that has over 100,000 words and 500,000 synonyms
  - Has a spell correction feature which allows a person to enter words by how they sound

- **Coby Noise Canceling Headphones**
  - Digital noise canceling stereo headphones
  - Noise reduction level: 12dB at 300Hz

- **VictorReader Vibe**
  - An MP3/CD player with the ability to play audio books in digital format

- **Books in Audio Format**
  - If approved, students may request their textbooks in audio format from ODS.
  - Students who utilize this accommodation may also borrow equipment from ODS so that they are able to effectively listen to the books in audio format.
  - Students are required to purchase the print copy of the textbook, and must return the audio version of the book and any equipment that was borrowed to ODS at the end of the semester.

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- **Testing**
  - Extended test time provides students with additional time to complete exams and quizzes (not an unlimited amount of time).
  - Alternative testing environment allows students to test outside of the classroom, either with the professor in a distraction-reduced environment, or at the ODS Testing Center.

- **Note-taking Assistance**
  - If approved for this accommodation, students will work with professors to locate an appropriate note-taker in their classes.
  - ODS gives the student a “note-taker request card” that has information for both the professor and the future note-taker on it that will help to facilitate the process of obtaining a note-taker for the student with a disability.
  - The person requesting assistance is not identified to the note-taker.
Web Accessibility & Usability

- The design of websites and web pages so that persons with and without disabilities can access online content to the greatest extent possible.
  - Web accessibility includes making web pages readable and usable by persons who use various assistive technologies such as screen readers or learning assistance software.
  - Usability refers to performance, ease of use, and understandability of web-delivered content.
- Both accessibility and usability are necessary for effective websites.

Conclusion

- Students with hidden disabilities face a number of obstacles once they are admitted to college, but assistive technology can increase, maintain, or improve the capabilities of individuals with learning disabilities, AD/HD, or other cognitive challenges.
- The American with Disabilities Act (ADA) and the Individuals with Disabilities Act (IDEA) has mandated academic access in all areas of education for students with disabilities.

Student Responsibilities:
- meet the essential qualifications and institutional standards.
- inform ODS of accommodation needs and provide appropriate documentation in a timely manner.
- talk with professors about accommodations in the classroom, as needed.

Web Accessibility & Usability

- While it is a federal (and often state and local) policy to ensure that websites are accessible, web accessibility & usability is simply good design.
- It is a significant example of universal design, maximizing access to classroom instruction and resources.

Conclusion

- The keys to improving academic outcome and achievement in students with hidden disabilities are:
  - access to universities and their programs.
  - availability of reasonable accommodations.
  - appropriate support and resources.
References

- UT Office of Disability Services
- LD Resources - www.ldresources.com
- The Faculty Room - a space for faculty and administrators at postsecondary institutions to learn about how to create classroom environments and academic activities that maximize the learning of all students, including those with disabilities. http://www.washington.edu/doit/Faculty/
- Attention Deficit Disorder Association - http://www.add.org/