

# VI ASSISTIVE TECHNOLOGY



Empower Yourself!

# INTRODUCTIONS

## WHO AM I?

- VI AT Consultant for Region X ESC
  - Support 12 TVIs & their students
  - Provide VI AT trainings/workshops
  - Maintain VI AT inventory for district lending
  - Provide VI AT technical assistance to regional TVIs
    - Software
    - Hardware
    - VI AT Evaluation Assistance

## WHO ARE YOU?

- Current position
- # Years working within VI field
- Biggest frustration with technology

# WHY DOES ASSISTIVE TECHNOLOGY MATTER FOR STUDENTS WITH VISUAL IMPAIRMENTS?

- ACCESS TO THE GENERAL CURRICULUM
- EXPANDED CORE CURRICULUM
  - JVIB June 2011 (Wolffe & Kelly) found that Assistive Technology has a statistical correlation to future employment
  - JVIB February 2013 (Zhou et al) found that computer competency is a predictor of future employment, and that any transition curriculum must focus on computer skills training
- TRANSITION



# ASSISTIVE TECHNOLOGY TODAY

## Students:

- Fewer than 50% of academic students with visual impairments are using assistive technology
- 42% High School (JVIB 2011 Kelly, S.M.)
- 36% Elementary & Middle School (JVIB 2009 Kelly, S.M.)

## TVIs:

- On 2013 regional TVI needs survey of new teachers (0<5 years), the number one area of need was ASSISTIVE TECHNOLOGY
  - 53% TVIs lack confidence in their ability to teach AT to their students (JVIB 2011 Zhou et al.)
  - Only consider themselves proficient with 25% of AT competencies
- (JVIB 2011 Zhou et al.)

# STRENGTHS VS WEAKNESSES

## TVI Weaknesses

- Braille literacy & applications
- AT for MIVI
- Prescribing, assessing, & recommending AT devices
- The use of almost all AT devices besides CCTVs, magnifiers, telescopes
- Teaching students how to access information
- Handling problems with materials
- Teaching internet use

## TVI Strengths

- CCTVs
- Handheld/stand magnifiers
- Telescopes

# WHY DO WE LET TECHNOLOGY INTIMIDATE US?

- Ever changing caseloads
- Use it or lose it
- There is too much out there to learn
- Just when you learn it, it changes
- The cavalry is NOT coming...takes too long to get answers
- As educated professionals, we are used to knowing it all, and uncomfortable with the unknown...



111 COMPETENCIES....



JVIB 2009 Smith et al.

# FOUNDATIONS OF ASSISTIVE TECHNOLOGY

## Foundations of assistive technology

Upon completion of a teacher training program, the teacher of students with visual impairments should possess knowledge of

|      |  |                  |
|------|--|------------------|
| C1.  | The history of the development of assistive technology (AT) devices and software for individuals with visual impairments.  | Basic            |
| C2.  | Individuals with Disabilities Education Act (IDEA) rules and regulations related to AT devices and services, assessment, and inclusion in the Individualized Education Program (IEP).            | Proficient       |
| C3.  | Assistive technology components of state and federal legislation (such as Section 504 and Section 508 of the Rehabilitation Act, Americans with Disabilities Act, the Assistive Technology Act). | Basic            |
| C4.  | The federal definition of AT devices and services.   | Proficient       |
| C5.  | The requirements for documentation of AT.  | Proficient       |
| C6.  | The difference between AT devices categorized as "no tech," "low tech," and "high tech."   | Proficient       |
| C7.  | Laws regarding copyright and licensing of software, including shareware and freeware.  | Basic            |
| C8.  | Local, state, and federal laws that govern the purchasing of AT.   | Basic/proficient |
| C9.  | Both federal and state transition requirements and the vocational rehabilitation process as it relates to AT.  | Basic/proficient |
| C10. | The concept of universal design as it relates to AT for individuals with visual impairments.   | Basic            |

# DISABILITY RELATED AT

## Disability-related assistive technology

Upon completion of a teacher training program, the teacher of students with visual impairments should possess knowledge of

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|------|---|---------------------|
| C11. | The visual, auditory, tactile, motor, and cognitive skills necessary to access various types of AT.   | Basic               |
| C12. | The effects of low vision on the use of AT (such as lighting, contrast, size, and glare).   | Proficient          |
| C13. | Braille literacy and its application in providing effective AT services.  | Advanced/proficient |
| C14. | The effects of deaf-blindness on the use of AT.   | Proficient/advanced |
| C15. | General AT for individuals with disabilities other than visual impairments (such as switches, software that provides scaffolding supports, augmented communication devices, and picture-based symbols). |                     |
| C16. | The use of AT as part of the expanded core curriculum, including independent living devices.  | Basic<br>Proficient |

Upon completion of a teacher training program, the teacher of students with visual impairments should possess the ability to

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|------|---|------------|
| C17. | Use effective evaluative practices in collaboration with a multidisciplinary team to determine what technology would best assist the student in accessing the educational curriculum. | Proficient |
| C18. | State the advantages and disadvantages of AT for potential users with various degrees of vision.  | Proficient |
| C19. | Identify a variety of AT devices (such as software, hardware, and peripheral devices) for students with various visual abilities, ages, and cognitive abilities.                      | Proficient |

# USE OF ASSISTIVE TECHNOLOGY

|      |  |                  |
|------|--|------------------|
| C20. | Use screen-reading software and make adjustments to its basic features.  | Proficient/basic |
| C21. | Use screen-magnification software and make adjustments to its basic features.  | Proficient/basic |
| C22. | Use braille-translation software and make adjustments to its basic features.   | Proficient/basic |
| C23. | Use braille-translation software for Nemeth code translation.  | Basic/proficient |
| C24. | Use various closed-circuit television systems.   | Proficient/basic |
| C25. | Use various personal digital assistants or braille notetakers.   | Proficient/basic |
| C26. | Use digital recorders and make adjustments to their basic features.  | Proficient/basic |
| C27. | Use digital Talking Book players and digital e-book recorders (including downloading e-books) and make adjustments to their basic features.                                | Proficient       |
| C28. | Use braille embossers and make adjustments to their basic features.  | Proficient       |
| C29. | Use scanners and optical character recognition software systems and make adjustments to their basic features.  | Proficient/basic |
| C30. | Use a refreshable braille display and its accompanying software (screen-reader software).  | Proficient/basic |
| C31. | Use common technology skills (those practiced by the general population) as they support learning of students with visual impairments.                                     | Proficient       |
| C32. | Use a standard braillewriter, a unimanual braillewriter, and extension keys.   | Proficient       |
| C33. | Use electronic braille devices.  | Proficient       |
| C34. | Use tactile graphic devices.   | Proficient/basic |
| C35. | Use a talking four-function calculator, a talking scientific calculator, and a software-based talking calculator.  | Basic/proficient |
| C36. | Operate a talking dictionary and a software-based talking dictionary.  | Proficient/basic |
| C37. | Make modifications to general education technology (such as a microscope or telescope) for students with visual impairments.   | Proficient/basic |
| C38. | Use handheld and stand magnifiers, monoculars, and telescopes.   | Proficient       |
| C39. | Identify various nonoptical devices that are available for students with low vision.   | Proficient       |
| C40. | Describe the advantages and disadvantages of various types of lighting devices.  | Proficient       |
| C41. | Produce simple tactile graphics using the following methods of production: collage, tooled, Thermoform, microcapsule paper and heat fuser, and computer-generated graphic. | Proficient       |

# INSTRUCTIONAL STRATEGIES FOR AT

|      |   |                  |
|------|---|------------------|
| C42. | Teach concepts related to the basic installation of AT devices, including managing cords and plugs.                                     | Basic/proficient |
| C43. | Teach concepts related to the basic maintenance of AT devices.  | Basic/proficient |
| C44. | Provide instruction in AT devices in purposeful ways and in authentic environments.   | Proficient       |
| C45. | Teach the student to use troubleshooting techniques.  | Proficient       |
| C46. | Provide sequenced instruction regarding technology as it relates to transition and employment.  | Proficient       |
| C47. | Teach students with visual impairments about resources for obtaining AT devices and services.   | Proficient/basic |
| C48. | Use appropriate educational strategies for the development of age-appropriate concepts and motor development appropriate for use of AT. | Proficient       |
| C49. | Develop lesson plans that incorporate the use of AT.  | Proficient       |
| C50. | Know differences in AT instruction for students with visual impairments along with other disabilities.                                  | Proficient       |
| C51. | Teach students with visual impairments in one-on-one situations, small groups, and large groups.  | Proficient       |
| C52. | Collect formative data and adjust lessons accordingly on the basis of the student's needs.  | Proficient       |

# LEARNING ENVIRONMENTS

Upon completion of a teacher training program, the teacher of students with visual impairments should possess the ability to

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|------|--|------------|
| C53. | Articulate the visual features of learning environments as they affect instruction and the use of AT.  | Proficient |
| C54. | Assess and recommend AT devices for specific learning environments (such as in the classroom and gymnasium).   | Proficient |
| C55. | Analyze the visual (such as lighting and glare), auditory (such as sound distractions and noise pollution), and physical environment to determine appropriate modifications of AT devices. | Proficient |
| C56. | Teach the student to adapt the learning environment to his or her needs.   | Proficient |
| C57. | Teach the appropriate social skills when using technology in various environments.   | Proficient |

Upon completion of a teacher training program, the teacher of students with visual impairments should possess knowledge of

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|------|---|------------|
| C58. | The least restrictive environment and the use of AT in different placements.  | Proficient |
| C59. | Strategies to involve the student with visual impairments in the class while still using AT.                              | Proficient |
| C60. | The dynamics of the physical arrangement of the classroom (including ergonomic issues) and their impact on the use of AT. | Proficient |
| C61. | How to use AT across environments.  | Proficient |
| C62. | The need for portability and limitations of portability of specific AT devices for students in various environments.      | Proficient |

# ACCESS TO INFORMATION

|      |   |                     |
|------|---|---------------------|
| C63. | Teach students with visual impairments the use of AT for access to information in the classroom.  | Proficient          |
| C64. | Teach students with visual impairments to produce files in a readable format, including braille, large print, or an electronic form.  | Proficient/advanced |
| C65. | Teach students problem-solving techniques for the use of AT in the classroom when materials are not in an accessible format.  | Proficient/advanced |
| C66. | Teach students with visual impairments to use the Internet.   | Advanced/proficient |
| C67. | Teach students with visual impairments to transfer files to appropriate AT devices.   | Proficient/advanced |
| C68. | Teach the student to stay current with new technology, access online manuals, and obtain technical assistance from vendors.   | Proficient          |
| C69. | Identify and use a variety of sources for braille and large-print materials.  | Proficient          |
| C70. | Identify and use a variety of sources for electronic and recorded materials.  | Proficient          |
| C71. | Identify and use a variety of options for accessing information presented on chalkboards, whiteboards, DVDs and other video sources, overhead projectors, and computer projector systems. | Proficient          |
| C72. | Assistive technology services that allow a student to participate at the same level of involvement in learning activities as their nondisabled peers.                                     | Proficient          |
| C73. | PC computer and MacIntosh computer accessibility options (universal options menu, accessibility wizard, and display settings) for individuals with visual impairments.                    | Proficient/basic    |

# INSTRUCTIONAL PLANNING

|  |  |                     |
|--|--|---------------------|
| C74.   | Plan for AT instruction that is comprehensive, relevant, and focused on the needs of the individual student. | Proficient/advanced |
| C75.   | Plan for assessment-based AT instruction.  | Proficient          |
| C76.   | Plan instruction that will increase students' keyboarding skills.  | Proficient/advanced |
| C77.   | Develop organizational and time-management skills to make planning instruction effective and efficient.      | Proficient          |
| C78.   | Infuse AT instruction into the general academic curriculum.  | Proficient          |
| C79.   | Infuse AT instruction into the expanded core curriculum.   | Proficient/advanced |
| C80.   | Write AT goals and objectives in lesson plans.   | Proficient          |
| C81.   | Modify tutorials on AT when needed.  | Proficient/basic    |
| Upon completion of a teacher training program, the teacher of students with visual impairments should possess the knowledge of |  |                     |
| C82.   | How to record and analyze data to measure students' progress in the use of AT.                               | Proficient          |
| C83.   | Research on AT and its application when planning instruction.  | Basic/proficient    |
| C84.   | How to incorporate the use of AT in the instructional planning process.                                      | Proficient          |

# ASSESSMENT

|      |   |            |
|------|---|------------|
| C85. | Complete a comprehensive AT assessment (along with an AT specialist), when appropriate, for students with visual impairments at different ages or grade levels. | Proficient |
| C86. | Interpret and write AT plans and reports.   | Proficient |
| C87. | Write measurable goals in a student's IEP, including those for the use of AT equipment.   | Proficient |
| C88. | Assess the student's level of independence after exposure to AT and techniques of access.   | Proficient |
| C89. | Conduct formative and summative assessments (along with an AT specialist) to assess a student's understanding of the AT instruction.                            | Proficient |
| C90. | Assess the effectiveness of AT devices.   | Proficient |

# PROFESSIONAL DEVELOPMENT

Upon completion of a teacher training program, the teacher of students with visual impairments should possess the knowledge of

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|------|--|------------------|
| C91. | Funding mechanisms for AT professional development.  | Basic            |
| C92. | Resources of local, state, and national professional development training programs.  | Basic            |
| C93. | Federal, state, and local agencies that provide technology assistance to individuals with visual impairments.  | Basic            |
| C94. | Assistive technology conferences (such as those held by Closing the Gap, California State University–Northridge Center on Disabilities, California Transcribers and Educators for the Blind and Visually Impaired, and the Association for Education and Rehabilitation of the Blind and Visually Impaired). | Basic            |
| C95. | Major AT manufacturers and vendors.  | Proficient/basic |
| C96. | Local, state, and national consumer organizations (such as the National Federation of the Blind and the American Council of the Blind).  | Proficient/basic |

Upon completion of a teacher training program, the teacher of students with visual impairments should possess the ability to

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|-------|--|------------------|
| C97.  | Obtain AT to assist families through service organizations (such as the Lions Club and associations of the blind). | Basic            |
| C98.  | Engage in professional development activities to demonstrate continual growth in current and emerging AT services. | Proficient       |
| C99.  | Access resources, such as journals and web sites.  | Proficient/basic |
| C100. | Advocate for AT professional development.  | Basic            |
| C101. | Engage in reflective practice and evaluate his or her attitudes toward the application of AT services.             | Proficient       |

# COLLABORATION

|       |  |                     |
|-------|--|---------------------|
| C102. | Participate as a member of a multidisciplinary team in assessing the needs of students with visual impairments.  | Proficient          |
| C103. | Participate as a member of a multidisciplinary team in planning and developing an AT program.  | Proficient          |
| C104. | Collaborate with local, district, and state AT specialists and education instructional technologists.  | Proficient/advanced |
| C105. | Collaborate with the district personnel in the evaluation and purchase of AT equipment.  | Proficient/advanced |
| C106. | Collaborate with related service personnel (such as orientation and mobility specialists, occupational therapists, and physical therapists) in the determination of and instruction to use appropriate AT. | Proficient/advanced |
| C107. | Collaborate with vocational rehabilitation personnel in addressing AT needs during transitions.  | Proficient          |
| C108. | Collaborate with general education educators and paraeducators in using general technology with students with visual impairments.  | Proficient          |
| C109. | Communicate effectively with AT specialists from other disability areas, such as speech therapy and deafness.  | Proficient          |
| C110. | Explain the use and care of AT equipment to parents, other educators, teachers, specialists, and aides.  | Proficient          |
| C111. | Advocate to administrators for the need for AT for students.   | Proficient          |

YOU DON'T HAVE TO KNOW IT ALL



MY



STORY

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## MY SECRETS

- Don't be afraid to turn on a device—don't wait!
- If a manual is bad, you don't have to use it.
- Don't reinvent the wheel—gather a set of reliable resources by bookmarking, saving electronically, making a binder—whatever works!
- Get over the fact that you don't know it all—neither do I, and neither does anyone else.
- You don't have to know everything about a device in order to use it. This technology works for YOU, not the other way around.

## MY SECRETS

- Lean on your vendors—HARD. They are the ultimate experts in their products & answer questions free. FREE!
- Memorize one simple sentence: “Let me double~check and back to you—”
- Work on self~advocacy by making your students call tech support!
- Sometimes devices just need a little attention. Invite a friend to stare at your computer/notetaker/CCTV with you, and watch as it suddenly works!

# MY WEBSITE:



<http://www.region10.org/supplementary-services/programs/vi-assistive-technology>