AT and AIM in Teacher Preparation

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Speaker's Notes

Presenter

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Objectives

Participants will understand

- The basics of Assistive Technology (AT) and Accessible Instructional Materials (AIM).
- The importance of AT and AIM in successful teacher preparation and successful teacher education programs.
- Strategies for integrating AT and AIM topics in program curricula.
- Resources for support and technical assistance.

Why AT and AIM in Teacher Preparation?

Teacher education programs need to address AT and AIM for two specific reasons:

1. To prepare future teachers to teach students with disabilities. The Individuals with Disabilities Education Act (IDEA) requires that AT be considered in the development of each student's IEP. Teachers must also implement the IEP by ensuring that AT is being used appropriately by students to access the curriculum. The 2004 reauthorization of IDEA (IDEA '04) includes a provision that requires states and districts to ensure timely provision of AIM to elementary and secondary students with disabilities who need them. To meet the IDEA mandate, teacher candidates must be provided with learning experiences both in their coursework and in clinical field experiences. Research indicates that successful use of AT by students is directly related to the knowledge and skills of teachers (Judge & Simms, 2009). Furthermore, teacher preparedness is a predictor of student AT use (Connor, Snell, Gansneder, & Dexter, 2010).

Follow this link to a helpful article about AT and IDEA

Follow this link to the National Center on AIM for information about AIM in IDEA

2. For your program's approval and accreditation. The Maine Department of Education rules in Chapter 114 that teacher education program approval includes measurements of diversity. Standard 2 is titled "Learning Differences." An indicator under this standard is that the teacher "accesses resources, supports, and specialized assistance and services to meet particular learning differences or needs." Standard 11, Technology Standards for Teachers, includes the following indicator: teachers "customize and personalize learning activities to address students' diverse learning styles, working strategies, and abilities using digital tools and resources." And,

of course, NCATE expects teacher education programs to prepare teachers who are able to teach all students, including students who need and use AT and AIM.

[Follow this link to the Maine Department of Education to download Chapter 114](#)

[Follow this link to download the NCATE Standards](#)

ISTE has prepared draft standards for NCATE's accreditation of programs for certification of technology coaches, technology directors, and computer science educators. These standards, which are pending approval by NCATE, include indicators that relate to AT and AIM. For example, under the Draft Secondary Computer Science Education Program Standards, Standard III.A.2 reads, "Plan for equitable and accessible classroom, lab, and online environments that support effective and engaging learning."

[Follow this link to the website of The ISTE Standards and NCATE](#)

AT: Formal Definition

Assistive Technology (AT) is defined by the Assistive Technology Act of 2004 as "…any item, piece of equipment, or product system, whether acquired commercially, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities."

AT: More Simply Stated

An AT device can simply be described as a device, software program, or app that helps an individual to accomplish a task that would be otherwise arduous or impossible.

As a way to understand AT devices, they are commonly categorized as low tech, mid tech, or high tech.

Low Tech AT

Low tech AT devices require little or no technology. Classic examples of low tech AT include eyeglasses and pencil grips. In this example, a Popsicle stick is used to create a low tech reading tool for helping students follow along the words in a book.

Mid Tech AT

Mid tech AT devices include calculators and audio or voice recorders. Software programs and apps can qualify as mid tech, as well. Concept mapping software and apps are useful for organizing information and ideas, particularly for students who have learning disabilities that interfere with communicating effectively through writing.

High Tech AT

High Tech is the most advanced category of AT. These devices, programs, and apps are also highly specialized. For example, fully dedicated communication tablets used by individuals who have difficulty with speech are high tech. Another example is known as switch scanning software, which allows individuals with limited mobility to interact with computers, laptops, and tablets.

[Follow this link to YouTube for a demonstration of switch scanning software known as Grapevine Computer Access](#)

AT: Formal Definition (Service)

In addition to a device, AT is also a service. Both devices and services are included in the formal definition of AT. The Assistive Technology Act defines an AT service as "…any service that directly assists an individual with a disability in the selection, acquisition, or use of an assistive technology device."

AIM Definition

According the National Center on AIM, Accessible Instructional Materials (AIM) are materials designed or converted in a way that makes them usable across the widest range of student variability, regardless of format (print, digital, graphical, audio, and video).

AIM Formats

Multiple formats of educational materials can be designed or converted to be accessible. For example, a video can be closed-captioned for individuals who are deaf or audio described for individuals who are blind. An audio file can be transcribed into text for individuals who are deaf or have difficulty with audio processing. Digital images can be described in alternative text tags and any image can be converted to a tactile graphic to make it accessible to individuals who are blind. All of these formats can be useful as additional representations of content for all learners, including students with disabilities.

IDEA '04 specifically addresses accessibility of print instructional materials by mandating that State and Local Education Agencies provide AIM in a timely manner to students who need them.

Specialized Formats of Print Materials

The four specialized formats of print materials are digital, audio, large print, and braille.

[Follow this link to the National Center on AIM for more information about the specialized formats of AIM](#)

Cited Challenges for Teacher Preparation

Although the importance of preparing teachers for AT and AIM is established, research indicates that few universities include them in teacher education programs. Common challenges include:

- Lack of faculty expertise.
- Limited space in the curriculum.
- Lack of resources.
- Perception that AT is used with a limited number of students.

The following articles present related research:

Judge, S., & Simms, K.A. (2009). Assistive technology training at the pre-service level: A national snapshot of teacher preparation programs. *Teacher Education and Special Education*, 32, 33-44.

Michaels, C.A., & McDermott, J. (2003). Assistive technology integration in special education teacher preparation: Program coordinator's perceptions of current attainment and importance. *Journal of Special Education Technology*, 18(3), 29-41.

Got Multiple Pathways?

Further complicating programs' efforts to integrate AT and AIM in their programs is the reality of multiple pathways to teacher candidacy. Many programs offer multiple pathways to teacher preparation, including K-8, secondary, general education, special education, and ESL.

Gen Ed – Special Ed Connection

Within a framework of general education and special education teacher preparation, teacher education programs need to consider what a candidate in either pathway needs to know and be able to do. In the case of AT and AIM, both general and special educators need to be able to consider the needs of their students with disabilities in IEP development and implementation. For general educators, the IEP will be implemented in the classroom setting, thereby requiring the teacher to know how a student uses AT to meet educational goals of the curriculum. Special educators, who support their students as case managers, will need more specialized knowledge about the use of AT across multiple settings and contexts.

"Drop-In" AT & AIM

Web-based resources can be used by teacher preparation programs to fill the AT and AIM gap in curriculum. Here in Maine, a series of three online modules were developed in collaboration between Maine CITE and the Maine Learning Technology Initiative (MLTI) of the Department of Education. These modules, or parts of modules, can be flexibly "dropped into" teacher education courses as short assignments.

Follow this link to the homepage of the three Maine AIM modules

Free to Use and Share

The three modules are licensed by the Maine Department of Education under a Creative Commons Attribution Noncommercial Share Alike 3.0 license. The content is free to use and we encourage stakeholders to re-distribute the modules for the purpose of professional and continuing education.

The Three Free Modules

The titles of the three modules are:

- Online Learning and Students with Disabilities: An Overview of the Considerations
- Creating Accessible Digital Learning Objects
- Selecting Accessible Instructional Material

The password for all modules is "aim"

Accompanying iTunes U Podcasts

Diverse Learners Online, a series of podcasts on AT and AIM topics, can be accessed through the Maine Department of Education's iTunes U site.

Follow this link to Diverse Learners Online at iTunes U

Module 1: Online Learning and Students with Disabilities: An Overview of the Considerations

The goal of the first module is to raise awareness of the common barriers presented by online learning for students with disabilities, as well as to provide guidance and strategies. Included in this module is a video podcast on AT policy and legislation. This module would be useful for students in secondary education programs who are interested in the "flipped classroom" model of teaching or in fully online learning programs for K-12 students.

Students who complete this module will be able to summarize the key considerations when deciding the extent to which online learning is a good match for a student with a disability.

Module 2: Creating Accessible Digital Learning Objects

The goal of the second module is to develop knowledge and skills in creating digital instructional materials that are widely accessible. Instructions are included for text documents, video, audio, and images. The information in this module is put in the context of Universal Design for Learning (UDL), which emphasizes that accessibility improves functionality and usability for all learners. For example, while closed captioning of videos provides access for students who are deaf or hard of hearing, it allows hearing students the option of reading the text of what is being spoken or otherwise conveyed. This is a second representation of information, allowing students to process the content through both listening and reading.

Students who complete this module will be able to create digital instructional materials that are accessible to all learners, including students who use AT and AIM.

Module 3: Selecting Accessible Instructional Materials

The goal of the third module is to develop knowledge and skill in selecting accessible educational materials. The focus of this module is on decision-making strategies that teachers can use when searching online for free and open materials or making purchases through publishers or vendors. This module includes topics related to textbooks and core curricular materials; practical steps for providing AIM to students who need them; and Open Educational Resources (OERs) in digital text, human-narrated audio, and captioned video formats.

Students who complete this module will be more scrutinizing about the accessibility of the educational materials they use in lessons and units.

Modules 2 & 3 in Teacher Preparation

Modules 2 and 3 include content that could be "dropped into" several courses in a teacher preparation program:

- Exceptionality
  - Accessibility of materials in the general education curriculum
- Media and technology
  - Strategies for creating accessible media and materials
- Content methods
  - Creating and selecting accessible curriculum materials
- Multi-tiered Systems of Support
  - Ensuring that individual students' needs are being met through appropriate access to materials
- Seminar
  - Consideration of accessibility of curriculum materials in lesson and unit design
- Independent study
  - AT and AIM as topics of research and inquiry
- Student teaching and internship
  - Opportunity for practice and implementation

Additional Resources for Teacher Preparation

Here are more recommended resources for you and your program:

AIM for Teacher Educators is provided by the National Center on AIM. It is organized as a list of key questions and accompanied by links and resources.

[Follow this link to AIM for Teacher Educators](#)

The IRIS Center is a national center dedicated to improving education outcomes for all children, especially those with disabilities birth through age twenty-one. The Center has a series of online modules across numerous topics, including AT. At the IRIS Resource Locator, choose Assistive Technology.

[Follow this link to the IRIS Resource Locator](#)

The Maine AIM Program has a series of archived webinars on topics that are immediately relevant to teacher candidates.

[Follow this link to the Maine AIM Program's webinar archive](#)

ALLTECH's Technical Exploration Center in Bangor is a resource for hands-on experiences with AT.

[Follow this link to ALLTECH](#)

Key Points of the Presentation

- AT and AIM are necessary components of teacher preparation.
  - Legislation.
  - Program approval and accreditation.

- Teacher candidates in both general education and special education pathways need to know about AT and AIM.
- Programs can use available resources to integrate AT and AIM training in teacher prep curriculum.
- The Maine AIM Program welcomes the opportunity to assist you and your program!

Resource

Follow this link to the Maine AIM Program and archived materials for this webinar presentation.

Contact

info@maine-aim.org

References

Connor, C., Snell, M., Gansneder, B., & Dexter, S. (2010). Special education teachers' use of assistive technology with students who have severe disabilities. Journal of Technology and Teacher Education, 18, 369-386.

Judge, S., & Simms, K.A. (2009). Assistive technology training at the pre-service level: A national snapshot of teacher preparation programs. *Teacher Education and Special Education*, 32, 33-44.

Michaels, C.A., & McDermott, J. (2003). Assistive technology integration in special education teacher preparation: Program coordinator's perceptions of current attainment and importance. *Journal of Special Education Technology*, 18(3), 29-41.