

Navigating Accessible Educational Materials: Accessible Formats

Guiding Questions for the Decision-Making Team

Step 4: Support the use of accessible formats by the student, educators, and family

Step 4 includes five areas for consideration. The following questions will help a decision-making team identify appropriate supports to ensure a student with a disability can effectively use the accessible formats provided for the general education curriculum.

Guiding Questions for Step 4.1: Use of assistive technology (AT)

After a team has determined what features and accessible format(s) a student will need, how should the team make decisions regarding what AT may be needed to deliver the accessible format(s)?

When the team has identified the important factors about the student, the environments where the student needs access to educational materials, the tasks the student is expected to accomplish, and the specific educational materials in the curriculum, team members can then match the identified student needs to the features of various technology tools that might be used to deliver the accessible format(s). It is important to keep in mind that technology is often needed to deliver student-ready, accessible formats.

The provision of accessible materials via appropriate technology enables students to develop literacy skills, access information, communicate independently and efficiently, and participate in all educational activities.

What factors about a student and the instructional context should be considered when matching the needs of a student with the features of available technology?

There are many variables regarding the student and their learning context that need to be considered as part of the tool selection process. The educational assessment process will yield valuable information about the student's individual needs in the learning environment when making tool selections. All the information collected about the student, the environment, and the tasks that were gathered by the team (step 2.1) is considered and used to match the student's needs with features of the technology.

The IEP team considers characteristics of the student, such as the student's age, and the learning tasks required to achieve literacy skills. For example, an early childhood student may need hard copy braille embossed on paper to acquire essential literacy concepts, while a high school student may need portable braille tools with a refreshable braille display for use in school and at a work site. A similar example for large print is that an early childhood student may benefit from a handheld magnifier to enlarge print, enhancing portability and providing ease of use, particularly when children are in settings where they frequently sit on the floor.

Choosing tools also depends on a student's goals and the amount of reading and visual access required for tasks the student wants to accomplish. A computer-based method of accessing materials may offer a student the most efficient path to managing a large amount of text and provide a variety of ways to view text in an enlarged format. It is also important to know the student's goals regarding learning subject matter such as music and higher-level mathematics because there may be a need to use a specific technology or feature to achieve those goals. The student's future learning and living situations also affect choices because of the need to use accessible formats in a variety of work and learning environments.

What general factors should a team consider when matching features of technology to deliver accessible formats tailored to the needs of a student? How should the team choose a specific technology system?

The overall purpose, complexity, and design of tools are important considerations. Tools used for accessible formats have a range of capabilities, methods, and features through which they provide access to text. Each of these feature options is considered in relation to a student's needs and abilities. For example, using large print in textbooks does not require the additional knowledge and skills needed to access large print using manual and digital devices. The design of tools, such as ergonomics, size, and weight may influence when and how a tool should be used.

The features of tools that provide portability and flexibility may influence choice due to greater independence and efficiency in using accessible formats in a variety of environments including home, school, work, and the community.

Once AT for the student's use is chosen, what general questions about it should the team consider when planning for use in the educational environment?

When determining the AT that the student will need in order to use an accessible format, the team may consider questions such as the following:

- Is the technology already available in the school environment?
- Does the available technology have the needed specifications (e.g., memory, speed, operating system) for the applications the student will use?

- Will new devices or computers need to be purchased in order for the student to use the accessible format(s) the team has selected?

What tools are traditionally used with text in braille formats?

Tools traditionally used to provide text in braille include hard copy embossed paper braille textbooks and a manual braille writer. There are a variety of digital tools that provide text in braille to support braille and tactile literacy skills for students. Tools such as digital braille writers provide multi-sensory access (both braille and speech) and portable digital braille note takers with braille displays also provide multi-sensory capabilities (both braille and speech) in interactive environments. A student can use these tools for reading and writing braille.

Digital braille displays with “refreshable braille” interface with computers, allowing braille access to the information sighted people see on a computer screen. Tactile graphics makers and digital drawing tablets (touch tablets) are used to provide access to graphical information such as illustrations and maps. Braille embossers are used to emboss (print) hard copy paper braille from digital files and braille translation software provides the translation of digital text into braille files. Scanners are used to support this process if print is not available digitally.

What features of tools need to be considered for using braille formats?

The overall purpose, complexity, and design of braille tools are essential considerations. Braille tools have a range of capabilities, methods, and features by which they provide access to text and information. Tools may be specifically designed for blind people who read braille, or they may be created to provide access to information that was originally designed for sighted people who use print. A student’s age, individual needs, and goals may influence the choice of tool. For example, a younger student may need a tool specifically designed for blind users of braille in order to easily operate the device and develop beginning skills in using digital tools and programs. An older student may need access to mainstream computer programs commonly used by sighted people and need greater portability and independence, especially in a work environment. This student may require tools that increase efficient communication with computer programs used in a work setting.

Other important features are the overall purpose of the tool and its physical design. Braille tools can vary in how information is accessed and shared and in ergonomics, size, and weight. Some braille tools are designed to be used with a keyboard that enables six-key entry (input is written in braille) and others are designed with a standard QWERTY keyboard. Braille tools that are smaller than computers but are capable of performing many of the same functions are commonly called braille note takers. They have features that influence portability, flexibility, efficiency, and independence and can be effective in a variety of environments, such as school, home, work, and in the community.

Are there other ways to supplement braille with other outputs?

There are a variety of ways for students who read and write using braille tools to supplement braille with other outputs. Some tools provide braille output in refreshable braille and other tools and methods provide braille output in hard-copy embossed braille. Other braille tools supplement tactile access with speech, which provides increased flexibility and choices that may influence a student's access and learning.

It is also important to consider other devices that integrate with braille tools that foster communication with people who use print. This is an essential consideration when people are communicating using two different reading mediums, such as braille and print. Some braille tools integrate with devices that allow print output on paper and print output on digital devices such as LCD displays and computer screens. This allows braille users to communicate in print with sighted people.

What features allow the braille format to be usable in multiple environments and for multiple tasks?

It is important to consider tools with multiple purposes that can provide access through a variety of tasks. Braille needs to be used for word processing, reading books, calculating, web browsing, using email, checking spelling, and using additional braille codes. Tools with many of these features need to be selected based on the individual needs of a student and their goals.

Additional features of braille tools that are important considerations are how the braille tools integrate and interface with other access devices. To facilitate communication with others, some braille tools interface with devices that allow visual access by a sighted person to the braille text and information the student is using. Some braille tools may also interface with other devices, such as a typical QWERTY keyboard, to allow a sighted person to provide "real-time" access to displayed text. Additionally, how braille tools integrate with standard "mainstream" devices may influence the process of access to text and communication.

Connectivity with other devices can facilitate working with sighted people using print and access to the Internet.

What tools are traditionally used with large print formats?

There are a variety of tools used to provide large print. There are traditional large print books created by publishers and a variety of other tools used to access textbooks and educational materials in large print. Low-tech tools commonly used to view print in an enlarged format are optical devices (typically prescribed by a low vision specialist), such as handheld and stand magnifiers and telescopes. Digital tools may include hand-held portable pocket magnifiers for near and distance viewing, video magnification systems including portable and desktop models (previously referred to as CCTVs), and digital imaging systems to view text in large print.

Computers offer a variety of methods of providing a large print format. Hardware, such as a larger monitor and screen-magnifying lenses, enlarge content. The operating systems of many computers offer built-in accessibility features providing personal settings for displaying text, including large text. Screen magnification software also enables the viewing of large text.

What features of tools need to be considered for using large print formats?

Specific features that should be considered depend on the purpose of using a tool. For example, if a student needs immediate access to print in educational materials that are on an object (rather than in a textbook or on a typical printed hand-out), use of a tool such as a hand-held magnifier may be the most appropriate solution. If a student needs immediate access to one page of text providing directions to a learning task, then a student may prefer to use a digital magnifier. If a student needs immediate access to a book that is not in large print, the student may choose to download the text (if available) from a digital library using a computer that enables the text to be customized or viewed using large print software.

Are there ways to supplement large print with other outputs?

Some students benefit from a multi-sensory approach to accessing large print through software programs that integrate large print with speech output, commonly known as audio-assisted reading. A student who benefits from supplemental auditory supports may increase their rate of reading, learning, and, consequently, their level of independence and efficiency in a variety of reading tasks. When students who read using large print are required to read a large amount of text, multi-sensory access can provide the flexibility needed to sustain reading for an extended period of time.

What features allow large print formats to be usable in multiple environments and for multiple tasks?

It is important to consider tools with multiple purposes that can provide access to a variety of tasks. Selecting the most appropriate tool for large print access may depend on the reading and writing skills needed for a variety of tasks and in different environments. Multi-purpose digital tools may increase a student's ability to access large print for word processing, reading books, calculating, web browsing, communicating with email, checking spelling, and using a digital dictionary. Using a portable digital magnifier for both near and distance viewing may increase a student's efficiency in interacting with print for all of these tasks in a variety of environments. Additional features of tools that are important considerations are how the tools integrate and interface with other access devices. The ability of large print devices to integrate with other tools can be essential for access and independence. For example, a video magnifier that integrates with a laptop computer can increase a student's access to all literacy tasks and in "real-time" learning contexts. The student can view information in large print as it is being

written and simultaneously view additional large print material in any learning environment with tools that provide portability through integration with a laptop computer.

What tools are traditionally used with audio formats?

Audio files are from human-recorded speech or synthetic voice narrations. Providers of audio files typically offer one or more tools, known as players, for students to use.

What features of tools need to be considered for using audio formats?

The primary features of audio are output, navigation, and supported study skills. It is important to select technology that provides students with ways to change features quickly and easily so that they can work as independently as possible.

An audio file can be played on stand-alone devices or with playback software programs. Selecting the player is important, and there has to be a match between the features a student needs and the features of the player. Audio can be rendered in different ways and each way may require a different type of player.

Output is what a student hears or the way that audio material is presented to the student. Output features that a team thinks about when selecting a player include voice selection, speed, volume, and pitch of voice. Voice can be either recorded human voice or synthesized, computer-generated speech. Many technology tools offer a choice of gender—male or female—that are understandable, easily heard, and match the needs and preferences of the student.

Navigation is another feature of audio formats to consider. Navigation means moving about within the material being read and varying levels of navigation are designed into audio files and playback devices. In an audio format robust navigation features are extremely important. It is critical to think about the level of navigation a student needs to be sure that the selected reader supports it. Some navigation features the team will want to look at include capability to—

- Fast forward or immediately navigate to a specific chapter, section, or page in the document
- Rewind incrementally by word, sentence, or paragraph to hear something again
- Stop at any place in the document and continue later in the same place (known as “bookmarking”)
- Link to a glossary or other sections or locations

Some audio players support study skills through links to glossaries or other references included in the educational materials. Some offer the features of bookmarking sections or adding text notes and voice notes so the student can annotate content as they are listening to it. Later, when studying, they can easily locate their annotations for review or even extract their annotations so they essentially have a study guide or file of their notes.

What features allow audio formats to be usable in multiple environments and for multiple tasks?

It is important to consider tools with multiple features that can provide access to a variety of tasks. Some player technologies enable speech to be presented in different ways which may be needed in different environments and for different tasks. If it has been determined that a student needs audio as recorded human voice, it is important to select technology that will support that feature. If a student will be hearing a synthesized or computer-generated voice, then technology that will process and present that voice is critical. Many users of audio formats use synthesized and recorded voices, depending on tasks and other factors. In such cases, the selected technology would need to support both. Portability is also a consideration if the student needs access in different environments such as school, home, and community.

What tools are traditionally used with digital text formats?

There are three main ways the digital text format can be rendered and provided to a student in a student-ready format. The first way involves computer software and some stand-alone hardware that reads text aloud using synthetic speech, often referred to as text-to-speech or TTS. There are both free and commercially available products that provide TTS. The ability to turn TTS on is also included in the operating systems of most devices. Some TTS software programs also include learning supports and are referred to as supported reading software. Image files are typically included with digital text.

The second way digital text is rendered is as digital talking books (DTBs). These conform to the DAISY standard or Digital Accessible Information SYstem, a multimedia format that combines robust navigation with either synthetic speech or recorded human voice. The DAISY DTB platform has been used successfully to support blind and visually impaired users for quite some time and is also considered very useful for students with other print-related disabilities. When DAISY files are opened by computer software programs, the user can typically hear text read aloud and simultaneously view it on-screen depending on the technology being used. [Learn more about the DAISY format at the website of the DAISY Consortium.](#)

The third way consists of commercial digital texts or ebooks. Some offer embedded read-aloud functionality. There are many features of the extremely flexible digital formats that can be changed to meet the needs of the student depending on how the ebook is designed. Most can be manipulated to increase the font size or customize style. Text and background color can be changed. Digital text can include hyperlinks to add additional content such as definitions, background information, or prompts.

Using digital text files to learn mathematics is another important consideration for students who use this format. [Math Markup Language \(MathML\)](#) is specifically designed for accessible

digital math experiences and should be used in all digital text that includes notation related to math and science. State and local educational agencies are advised to require publishers to use the MathML3 Structure Guidelines when requesting that NIMAS files be deposited in the NIMAC (see [sample language in NIMAS & NIMAC: What SEAs and LEAs Need to Know](#)).

What features of tools need to be considered for using digital text formats?

When digital materials are created from source files that meet the NIMAS or the DAISY standard for accessibility, auditory and visual components, navigation, and other features are included. Categories of features of the tools may include navigation elements, visual supports, reading supports, and learning supports.

What features allow digital materials to be usable in multiple environments and for multiple tasks?

Files in the digital text format can be used with a large variety of technology-based delivery systems. Digital files are flexible and, depending on the technology being used, can be utilized in a wide variety of environments to accomplish different instructional tasks.

Are all digital text files accessible?

No. For example, many digital text files that are provided by publishers are locked, non-editable, read-only PDF files. Consequently, AT devices and readers do not have the capacity to process the text that is seen on the screen or to make other changes.

How does audio-supported reading relate to the use of digital text?

Audio-supported reading (ASR) is a technology-based approach for reading in which students simultaneously read digital text displayed on a computer screen or with refreshable braille while listening to an auditory version of the text such as with text-to-speech. Two publications go into depth on the benefits of ASR:

- [Audio-Supported Reading & Students with Learning Disabilities](#)
- [Audio-Supported Reading for Students Who Are Blind or Visually Impaired](#)

Guiding Questions for Step 4.2: Training for the student, educators, and family

What type of training related to selected tools is needed for the student, educators, and parents for the materials to be used effectively?

Training for the use of accessible formats and related technology should be appropriate to the level of need for each team member. While some people will need extensive knowledge about a particular format or the technology needed to deliver that format, others will need less

intensive training that helps them to understand what the format is, how it works, and how it can be expected to benefit the student.

While training about the technology is important, consideration should also be given to providing a wide variety of information about the use of the accessible format(s). Training content should include the operation of the technology, the goals for student learning that are addressed by the use of the accessible format(s), the situations when each format or accommodation will be needed, and the ways that the use of the format(s) can be integrated into the student's educational program.

What are operational skills? How should the team plan for training that includes operational skills that the student needs in order to use the accessible format(s)?

Operational skills are skills that a user of AT needs in order to operate the AT device. Skills may be very simple—such as understanding how to press a single switch—or they may be more complicated—such as typing on a computer keyboard. Operational competence may include not only the skills needed to operate the device, but also those skills that are needed to use access methods such as text-to-speech and screen readers. Operational skills are the ones we most often think of when teaching a student to use AT.

What are functional skills? How should the team plan for training that includes functional skills that the student needs in order to use the accessible format(s)?

During the selection process, the team focuses on the use of accessible format(s) for learning. They plan for the ways the student will use the format(s) and the technology that will deliver it to do specific, identified learning tasks. It is important for the team to be aware that the student may require help with knowing how to learn. Training in this area may include strategies for remembering, for identifying key points, for noting important information, or for responding to questions about educational material once information has been provided through the use of the accessible format.

In some cases, the act of reading has been so difficult for a student that the student has not had the opportunity to know how to learn from educational materials. Students who have had other kinds of supports and accommodations in the past may need direct instruction on independent learning strategies. This instruction should be included in the training plan.

What are strategic skills for the use of accessible format(s)? How should the team plan for training that includes strategic skills that the student needs in order to use the accessible format(s)?

Strategic skills involve the ability to determine when to use the accessible format; and, if multiple formats are available to the student, which format to use for a specific task. Students

may also need to be able to identify times when an accommodation or modification other than the use of an accessible format may be more effective for learning.

What are social skills for the use of accessible format(s)? How should the team plan for training that includes social skills that the student needs?

Students who use accessible formats need to understand and explain to others the reasons they are using the format and the support it provides them. In addition to learning when and how to use the device, students may need to learn to ask for the accessible format supports they need when those supports are not automatically provided.

Social skills that address the use of accessible formats also include knowledge of how to use the accessible format in an environment where others are using the standard format with continuity in the learning environment.

Are there specific skills that families and educators need to know in order to support the student's use of accessible format(s)?

Families and educators need the same knowledge and skills that the student needs—operation, function, strategic, and social.

If families and educators are not proficient in using braille code, how much training do they need to support a student who is using a braille tool?

The support of a collaborative team is usually necessary for a student to integrate the use of the braille format with accessible braille tools in learning environments. For team members who may not be proficient in braille, there are many ways the student can be supported when the TVI may not be available. For example, many digital braille tools operate in ways very similar to other common digital tools. If the student is proficient in braille, team members with knowledge about other aspects of technology can assist in guiding the learning process. For example, many aspects of using a book in a digital format on a braille note taker are similar to using digital files on other devices. However, gaining a basic understanding of braille code can improve communication and the teaching and learning process for everyone. Gaining a basic understanding of braille can be achieved in a short period of time.

Guiding Questions for Step 4.3: Providing instructional strategies

What are general considerations that the team should address about a student's instructional needs when using the accessible format?

It is important for students to quickly understand the benefits of using accessible formats and associated technologies.

Initially, instruction should focus on helping the student learn the basic functions needed to get started using the formats and technologies effectively. Next, the accessible formats and technologies should be used for authentic tasks within learning environments. For example, the student would use the accessible formats and technologies to read a book in language arts class. Initial success with the tool is critical, and the next step is to build on that success by gradually introducing more features of the technology that enable the student to accomplish additional tasks.

When a team is supporting a student in using new accessible format(s) and technologies in general education classes, what is the best way to get started?

Once a student becomes proficient in using accessible formats and technologies in the classroom, instruction should focus on the process of learning the steps necessary to be independent with all aspects of gaining information in this manner. This may include tasks such as downloading a book from a web site, organizing files to use a particular book, conducting any file transfers that are necessary, and using more features of the technology.

What instructional content is needed when braille has been chosen as the accessible format?

After access to braille is provided, the most essential support is the accessible instruction that is critical to mastering braille and tactile literacy skills and the application of braille literacy skills in everyday learning and life experiences. Students require instruction in braille literacy skills to meet their individual needs and goals and in all areas of braille reading and writing, which may include gaining meaning from tactile graphics; learning varied braille codes; and independently applying these skills in the educational curriculum.

To apply these skills, students need accessible instruction in braille technology tools to access information and communicate with others, instruction in the integration of tools with braille literacy skills, and deliberate and systematic strategies for integrating both the tools and braille literacy skills into the educational curriculum. This requires an additional support system of collaborative co-teaching by all team members, especially classroom teachers. This involves teachers and staff working together (often on a daily basis) to acquire and manage all of the braille/tactile materials and to monitor the use of the materials and student results.

This may include monitoring the student's access, participation, and progress in all teaching and learning activities and the integration of braille formats and tools in the instructional environment, enabling the student to make expected progress.

What instructional content is needed when large print has been chosen as the accessible format?

After appropriate access to large print is provided with tools, accessible instruction is also needed to ensure that the student is mastering print literacy skills and the application of print literacy skills in everyday learning and life experiences. Students may require instruction in print literacy skills to meet their individual needs and goals and in all areas of reading and writing, which may include gaining meaning from graphics, appropriately using tools to access print for near and distance viewing tasks, and independently applying these skills in the educational curriculum.

Ensuring high-quality and consistent access to the print environment may require a support system of collaborative co-teaching by the student's educational team with the classroom teachers. This involves teachers and staff working together to acquire and manage the student's visual access in all teaching and learning environments, monitoring the student's access, and monitoring the student's results in literacy skills through the use of accessible formats.

What instructional strategies are needed when audio has been chosen as the accessible format?

Learning through listening requires skills such as

- Listening with the attention and intensity necessary to gain meaning from educational materials
- Listening for extended periods of time (listening target is approximately 55 minutes at a time—the length of a typical secondary class)

In planning for a student's instruction, the team can provide direct instruction in listening skills that is similar to the instruction provided to students who use standard materials regarding study skills.

What instructional strategies are needed when digital text has been chosen as the accessible format?

When a student uses digital text and supported reading technologies, instruction is provided in a manner similar to that provided to students who use standard materials since all need to learn study skills such as identifying the main idea and summarizing the text.

In addition, instruction is likely to be needed in the same listening skills as those for the audio format. Students need to be able to attend to the digital text on the screen and, when audio is used, listen to the audio output with attention and intensity sufficient to gain meaning from the educational materials over extended periods of time.

When a student is experiencing an ongoing vision loss and is beginning to use the large print format along with magnification tools while learning braille, how can the team help the student get started?

It is not unusual for students to be reluctant to use the large print format and magnification tools for a variety of reasons, so it is important to initially convey to the student the benefits of using large print. Along with an orientation to using large print and magnification tools, consider an incentive program that encourages the student's independence using large print and the tools to access information and continue to make progress in the curriculum. Consider incremental steps such as the following: first, learning to use large print in a separate setting; then, with a few peers from the classroom; then, in the classroom with a small group; and then in multiple settings. Make a plan with the student along with choosing incentives.

Guiding Questions for Step 4.4: Providing support services

What supports are needed when a team has determined that a student will use an accessible format?

When the team has determined that a student will use a specific accessible format, team members plan which supports will be needed, how the supports will be provided, and who will be responsible to ensure that supports are available to the student. Supports may include

- Services of accessible personnel to support the student and educators
- Case management and coordination
- File acquisition and format delivery to the student
- Equipment management and maintenance
- Learning environment organization for accessibility, visibility, and access
- Procedures for use of accessible format(s) in specific environments where they are needed
- Evaluation of effectiveness of the use of the accessible format(s)
- Daily/frequent support of student use of the format(s)
- Communication with and support for all members of the student's educational team
- Communication with and support for family members

What should a team consider in order to ensure that all accessible format materials that the student will need are provided in a timely manner?

Initially, the team develops a list of materials in accessible formats needed and initiates acquisition of these materials. In addition, plans should be made for regular reviews of the educational materials required in the classroom to ensure that, if changes in plans for instruction occur, the student has timely access to the materials that other students use. A

process for acquiring accessible formats of newly identified related educational materials should be developed so that the student's teachers know what to do if plans for classroom instruction change and new materials are identified.

What supports are needed when braille has been chosen as the accessible format?

Effective support for students who use braille for literacy begins with personnel who are well trained in the accessible knowledge and skills around braille. This includes a certified TVI and certified braille transcribers to prepare braille embossed materials. It also includes personnel who understand complex AT and district IT and can work collaboratively with teachers to integrate braille access tools in the educational settings.

Support of braille formats is important, and schools need access to "student-ready" braille/tactile materials. There is a need for national, State, and local educational agencies to put in place systems for the acquisition, transcription, and/or adaption of educational materials into appropriate braille/tactile formats. This includes the provision of simple braille/tactile books for beginning braille readers. This process may begin with researching and acquiring a digital file that needs "value added" content from a braille transcriber in order for the book to be accessible to the student—what is referred to as "student-ready."

Other important supports are tools needed to provide access to braille/tactile reading and writing in a variety of settings, as previously discussed.

What supports are needed when large print has been chosen as the accessible format?

Effective support for students who use large print for literacy begins with personnel who have the appropriate knowledge and skills needed to teach print literacy skills to students with low vision. This includes a certified TVI and may include other teachers with appropriate knowledge of reading skills. It also includes personnel who understand AT and district IT and can work collaboratively with teachers to integrate accessible large print access tools in educational settings. Supports are needed to access print educational materials with the student's individual print presentation styles. This may include access to digital files and ensuring they are presented in the student's most appropriate presentation for visual access.

What supports are needed when audio has been chosen as the accessible format?

As with other accessible formats, effective support for students who use the audio format begins with personnel who are well trained in literacy instruction and the use of the format. It also includes personnel who understand AT and district IT and can work collaboratively with teachers to integrate audio format tools into educational settings.

Supports are needed to access educational materials with the student's individual audio presentation formats. This may include access to digital files and ensuring they are offered in the most appropriate audio format for the specific instructional task.

What supports are needed when digital text has been chosen as the accessible format?

Supports needed to access digital text files with the student's individual digital presentation tools are focused on the use of the technology. Support activities may include ensuring access to digital files and to the needed technology as well as troubleshooting technical difficulties and coordination of the activities of multiple supporters.

What supports will be needed if a team determines that some materials provided in the accessible format(s) will need to be created using the "locally created" strategy?

Class notes, handouts, teacher-made assessments, and other materials often need to be made accessible for students. The "locally created" strategy for providing accessible formats can require intensive support from school staff who work with the student on a daily basis. For example, teachers or other support staff may need to save files in DAISY or other formats. If materials are available only in print, they may need to scan content into a digital file that can be used by the student.

When this method of providing accessible formats is selected for some of the student's materials, the team should determine the specific materials needed and assign each activity to a specific team member for completion. This is particularly important in order to provide the student with needed materials in a timely manner.

It is important to comply with copyright law provisions when creating accessible formats of copyrighted works at the local level.

When a student needs materials in two or more accessible formats, how might needed supports differ?

If a student needs material in two or more accessible formats, the team initially considers the supports for each format separately as described above. Once needed supports have been identified for each format, the team may be able to consolidate some tasks, such as file acquisition, in order to ensure the most efficient plan for supporting the student.

Guiding Questions for Step 4.5: Providing accommodations and modifications

Do all students who use accessible formats of educational materials need additional accommodations and/or modifications to use accessible formats effectively?

When a student is unable to read or use text-based materials and needs an accessible format, the use of that format is an accommodation. The materials are presented in a different mode, but the content is the same as the standard materials used for the curriculum. If the use of the accessible format provides access to the materials and the student is successful academically, then no further accommodations are needed. However, additional accommodations often are needed, especially when use of the accessible format is new.

What is the difference between an accommodation and a modification?

Accommodations are instructional practices that allow changes in timing or scheduling, setting, response, or presentation that do not change the content or requirements of the task(s).

Modifications are changes in the content or requirements of the task(s). As a general rule, it is better to accommodate when possible and to modify only when an accommodation does not remove the barriers to participation and learning for the student.

The word *accommodation* indicates changes to how the content is taught, made accessible, or accessed. Accommodations do not change what a student is expected to master; rather, they provide access. The objectives of the course remain intact.

The word *modification* indicates that what is being taught, the content, is modified or that the learning expectations are changed, typically lowered or reduced. The student is expected to learn something different than the general education standard. For example, the instructional level, general education benchmarks, or number of key concepts to be mastered may be changed.

What kinds of accommodations and modifications might a team consider for students who will be using accessible formats in instructional programs?

There are four main types of changes that can be made in any instructional program. They include changes in timing and scheduling, setting, student response mode, and presentation of instruction.

What kinds of changes in timing and scheduling might the team consider as accommodations or modifications in a student's educational program?

Changes in timing or scheduling may be needed for any student who uses accessible formats. These changes may be needed because the student needs additional time to use a format or because of scheduling concerns that arise. The team can consider accommodations such as

- Extended time
- Multiple or frequent breaks
- Division of long-term assignments
- Provision of additional time in order to learn tools
- Provision of time to accommodate needed transitions in school environment

Modifications might include changing expectations by adjusting the challenge of learning objectives or shortening written assignments to the extent that the end product or outcome is different than what is expected of other students.

What kinds of changes in setting might the team consider as accommodations in a student's educational program?

Changes in setting may be needed for any student who uses technology-based accessible formats. These changes may be needed because of the location of the technology in the school environment or the student's need for additional support for some aspects of the use of the accessible formats. The team can consider accommodations such as

- Preferential seating
- Changes in the setting, such as lighting
- Reduction of distractions
- Changes in location
- Changes in the location of the technology used to access the accessible format(s)

What additional changes in a student's response mode might the team consider as accommodations in a student's educational program?

Changes in a student's response mode may be needed for a student who uses accessible formats. Just as the student needs a different format for accessing educational materials, a different mode of response may be needed in order to demonstrate learning and accomplish activities. The team can consider accommodations such as

- Use of AT to provide responses and complete activities
- Alternatives to written responses such as dictation or spoken response
- Adaptations to test booklets or scoring sheets

What additional changes in the presentation of instruction might the team consider as accommodations in a student's educational program?

Presentation changes are changes in how the information is presented to the student. It logically follows that a student who requires accessible formats may also require additional presentation changes in instruction and classroom materials. Alternative modes of presentation of instruction (e.g., braille, tactile graphics, large print, audio, or digital text) may be needed to reduce barriers and increase participation and achievement. A student may need additional support for some aspects of the accessible format. The team can consider accommodations such as

- Accessible classroom and teacher-made materials
- Verbal, graphic, multimedia, or other modes of presentation of instruction
- AT to provide access and alternative means of presentation
- Supports for studying/learning and note taking

These questions and answers originated from the AIM Navigator, a tool developed by the National Center on Accessible Instructional Materials (AIM Center) and later maintained by the National Center on Accessible Educational Materials (AEM Center). They were updated for use in this module.