Implementation

After an IEP team completes an assistive technology assessment and includes AT tools in a student's IEP, the work has only just begun. Implementation planning including strategies for classroom integration, daily schedules and procedures are essential topics for the educational team to address if the AT is to become a useful tool. This chapter discusses ideas that the team can use as they integrate the use of assistive technology into a student's daily educational program.

STUDENT CENTERED QUESTIONS

- What does the student need to learn in order to use the AT for real tasks in everyday environments?
- What actions need to be taken to ensure that the AT the child needs is used effectively?
- Who is responsible for implementation of each aspect of the assistive technology plan?
- When and where will use of AT occur?

ACTIONS FOR THE STUDENT'S TEAM

- Acquire the needed technology.
- Plan the details of student use of AT for real tasks in customary environments.
- Provide instruction to the child on all aspects of AT use.
- Plan for the provision of supports needed for the student's use of assistive technology.
- Identify persons responsible for each task involved in implementation of the plan.
- Disseminate information about the plan to all who have a role to play.

IMPLICATIONS FOR DISTRICTS

- Systems for monitoring and progress reporting are needed to ensure accountability and high quality AT implementation.
- Professional development provided to all educators should include content regarding AT integration.
- The individual who supervises the staff members involved in implementation must know what is in the IEP/IFSP and hold those service providers accountable.
- Staff members involved in AT implementation need ways to meet and work together for ongoing planning activities.

EDUCATION TECH POINT #5: IMPLEMENTATION

As with any other part of an educational program, effective instruction that includes assistive technology use requires further planning on the part of the educational team. Planning for the use of assistive technology usually involves four specific areas of concern. These are 1) inclusion of AT in classroom instruction, 2) issues of student training, 3) issues of staff training and 4) issues of equipment management.

Without thoughtful implementation planning, many things can go wrong. Teams may make plans for training the child in the use of technology but forget to plan for training for those who will be working with the child on a daily basis. When people in the environment do not understand the child's technology tools, assistive technology use can seem much too difficult or cumbersome and is likely to be abandoned (Sherer, 1993, 2007). Similarly, if a system is not in place for troubleshooting and device maintenance, assistive technology devices with minor problems such as dead batteries may be put on the shelf until the "expert" consultant returns. If team members do not decide when to use the AT in the context of the student's day, progress toward implementation may stall. If an educational team spends time at the beginning of AT integration and develops a system to deal with anticipated use and problems that may arise, the child's use of assistive technology is much more likely to be successful.

The IEP/IFSP team determines the overall goal for assistive technology use during the plan development (IEP or IFSP) meeting. During implementation, the educational team decides how this goal will be addressed on a daily basis. A plan for implementation of the program described in an IEP/IFSP is much more specific about what will happen and who will take responsibility for various aspects of the child's daily education. Each team member has a role to play in AT implementation and those roles are identified and described at this Tech Point. Proactive planning and preparation can prevent later frustration on the part of the student, the staff and the family. Questions such as the following are addressed:

- What does the student need to learn in order to use the AT for real tasks in everyday environments?
- What actions need to be taken to ensure that the AT the child needs is used effectively?
- Who is responsible for implementation of each aspect of the assistive technology plan?
- When and where will the implementation use of AT occur?

Figure 1 shows the first page of a completed *Assistive Technology Management Issues Questionnaire*. This form suggests additional questions about student training issues, equipment management and staffing and support issues. In an implementation planning meeting the questionnaire can be used to review and discuss additional topics about the specific management and training tasks to support the student's use of AT.

AT Management Questionnaire

Date of Plan: _____

Student: Darren

Assistive Technology Device: AIM-Read & Write Gold

Team Members:

Review Date: March 31,2012

Megan Brown-Resource Teacher

Matt Larson-Director Special Education

Bonnie Williams-Case Manager

Phil Kruse-Math Teacher

Kim Powell-AT Consultant

Support Task	Person(s) Responsible	Schedule	Evidence of Completion
Initial Student Training	Resource Teacher/ AT Consultatnt	30 min/day two weeks	Independent software operation
Ongoing Student Training	Resource Teacher	30 minutes/ twice weekly	Scheduled weekly
Daily/Regular Support of Student Use	Resource room staff members	Daily as needed	Log of Darren's requests for support
Daily/Regular Maintenance Activities	AT Consultant-file management and acquisition	By March 1	Files converted and on computer
Staff Training	AT Consultant	By March 1	Two 2-hour sessions
Consultation with Staff	AT Consultant	Ongoing	Consultation log
Communication with Family	Resource Teacher	2 X Month until June	Family communication log
Parent/Family Training	AT Consultant (with staff)	By March 1	Two 2-hour sessions
Repairs and Modifications	AT Consultant	As needed	Consultation log

FIGURE 1: SAMPLE ASSISTIVE TECHNOLOGY MANAGEMENT ISSUES QUESTIONNAIRE

TERRY • *Plan to Use a Word Processor*

Many of the decisions about how Terry would use her Chromebook were easy for the educational team because the members had participated in the trial period. They had worked out a way to get Terry's written work printed, had given Terry initial instruction about the use of the device and had taught her to do basic device management tasks like charging batteries and organizing files. To make sure that they had not missed an important item that might cause the program to fail, the team reviewed the Assistive Technology Management Issues Questionnaire and discussed some of the items which had not yet been considered.

It was decided that Terry's primary need for training was in the area of keyboarding. She had received some basic keyboarding instruction in the fourth grade but still tended to use two finger typing. Terry was interested in learning to use touch typing and the ninth grade curriculum in the middle school offered a keyboarding class. Special arrangements were made for Terry to take the class with ninth graders. This solution allowed Terry to receive Junior High credits for the class instead of receiving instruction from the resource room during some other class. Terry was thrilled to be able to take a class with ninth grade friends.

When considering equipment issues, the team agreed that Terry should begin to use the Chromebook in all of her classes when she did written assignments of more than two paragraphs. For shorter assignments, she could choose which tool she wanted to use. Terry was to be in charge of her own equipment and responsible for turning in assignments after they had been printed. The staff in

the resource room agreed to continue to print Terry's files during her P.E. class so that she could deliver them to teachers during lunch. One of the instructional assistants suggested that Terry could simply deliver all assignments to teacher mailboxes in the office rather than going to each classroom with them. Terry liked this solution because it gave her more time at lunch and she didn't have to track down teachers who were not in their rooms.

Since Terry was very independent with the Chromebook, the only staff training required was a general meeting with all of Terry's teachers. During this meeting, the features of the device were demonstrated to those who were not familiar with it and the implementation plan was described. Teachers were asked to identify potential problems with the plan and solutions were generated. Terry and her mother were invited to attend this meeting. Terry did not want to attend but her mother came to make sure that she, too, understood the expectations and could help Terry with written work at home. Following the meeting Terry's mother asked for help in learning how to print from the Chromebook on her home printer. The occupational therapist agreed to make a home visit to install the printer driver and demonstrate how to use it. She would also teach the family how to move files from the Chromebook into the computer and back again.

ACTIONS FOR THE STUDENT TEAM

Action items for the student team at the point of implementation center around planning for student training, staff training and management of the equipment identified by the IEP/IFSP team. Implementation also addresses student and staff expectations, schedules, environments, and classroom procedures.

Acquire needed technology: Once assistive technology is identified in the IEP/IFSP, it is the responsibility of the educational program to ensure that it is provided in the same timely manner as other educational services are provided. Many education agencies have collections of frequently used AT devices that can be quickly made available to a student with a disability when needed. Funding may be needed for some types of more infrequently used devices. Regardless of the acquisition source, it is the responsibility of the education agency to ensure that assistive technology that is included on a student's IEP/IFSP is available for the student's use.

The acquisition of some kinds of specialized assistive technology can take a long time. This is particularly true of devices such as wheelchairs, customized seating systems, sophisticated speech generating devices and similar devices that need to be customized to meet the needs of the child. To ensure that acquisition happens as quickly as possible, one person on the team should be designated to coordinate device acquisition efforts. A person assigned to monitor the process can follow it through each step and handle road blocks as soon as they happen.

Plan the details of student use of AT for real tasks in customary environments: The plan for implementation should include issues of student training, staff training and equipment management. Before this planning can take place, it is important that teams identify the specifics of how the AT device will be used. Topics to be addressed in implementation planning can include locations, set up, the student's level of participation, types of tasks for which the student will use the AT, procedures for its use, etc. Steps to implementation planning should include the following team discussions.

1. **Identify the specific and frequently necessary tasks that the child will complete using the assistive technology:** During Consideration of the need for assistive technology, teams identify areas of concern for which a child needs AT to overcome barriers. Generally, during Consideration, the discussion of how the device will be used is somewhat general and the details of AT use are left up to the educators in the classroom. Later, during implementation planning, educators make a more specific plan that describes what the student will do on a daily basis. This plan will identify specific tasks that the student will do or criteria that defines when the AT device is needed. For example, a student may use a computer with text-to-speech software for all written tasks of more than three sentences. Or the team may decide that the same student will only use the computer for writing in language arts classes.

   Once teams have identified everyday classroom activities where assistive technology will be needed, it can be helpful to think about the student's current level of participation and how AT will help the student participate in a more active and independent manner. The work of Beukelman and Mirenda (1998) describes four possible levels at which a student might participate in classroom activities. A student's level of participation may differ depending on the specific task or activity.

   Levels of Participation

   - **Competitive participation:** Students participating at the competitive level are required to meet the academic standards of their peers. There is no need for curricular modifications, however, when students participate at this level, they may not be required to complete every activity. Alternative assignments or extended timelines are the most common accommodations when students participate at a competitive level.
   - **Active participation:** Some students are able to participate in the classroom curriculum but may not meet the same academic standards as their peers. When this is the case, students are evaluated according to their individual goals and often receive supplemental instruction to help them develop specific skills. When students are active (but not competitive) participants in the curriculum, the use of AT in their daily activities may help to increase their level of participation.
   - **Involved participation:** Students may participate in classroom activities but learn academic content that is significantly different from the curriculum. Involved students may be addressing standards at a much different level than their classmates. For students who are not involved in the same way that others are, alternative activities are often developed. The goal is always to ensure that the student is involved to the greatest extent possible. Assistive technology may be one tool to increase student involvement.
   - **No Participation**: It's important to recognize that it is possible for a student to be physically present in a general education classroom, but passive and uninvolved with instruction. This level of academic participation is never acceptable. If an educator is unable to identify ways that a student can be involved in classroom activities, it's time to ask for help from other team

members. Team members who are knowledgeable about assistive technology may be able to provide suggestions about how the student can begin to be an active participant.

Determining the specific tasks for which AT will be used helps teams to know how to proceed and whether the supports for AT use they are providing are effective. If a team has not been specific about student expectations for AT use, it is possible that the technology will not be used as effectively as it could be. Team members who understand which tasks the student is expected to complete using AT and how the student will participate, will be able to support and monitor that use. Students are generally more successful when team expectations are consistent and thoughtfully planned.

2. **Determine places and times the assistive technology will be used:** Planning for AT use can also include specific times and locations in the student's day when it will be a requirement that AT will be used. For example, when Lorrain got her first augmentative communication device, she carried it everywhere but never actually used it. The team reviewed their plans for implementation and decided that they needed to identify a time during the day when Lorrain would be required to speak with her device. They decided that she would begin with her science lessons. The team decided that she would use her device for real communication at least five times in every half hour science lesson. Once they had this plan in mind, team members were able to look for opportunities to help Lorrain use the device to ask and answer science questions. They set up a plan so that the teacher provided the vocabulary a day ahead of time and after training by the speech/language pathologist, the instructional assistant entered the new vocabulary and showed Lorrain where it was located.

3. **Develop a system for recording implementation activities:** If specific tasks, times and places for assistive technology use are designated during the implementation planning, data collection regarding the child's progress is much easier to collect. Including specific tasks, times and places also helps team members understand their responsibilities for implementing the plan. The Classroom Procedure form helps in tracking activities and the modifications to be used for each activity and IEP goal. Since many members of the team will be involved in the child's use of assistive technology, a record keeping system is an essential communication tool. This may take the form of a notebook that is kept with the device and used to record incidental data regarding its use and any technical difficulties or a chart posted by a computer where the child's performance is recorded after each use. The tools folder also includes other forms which school districts have used to record student performance and incidental data regarding assistive technology use. Figure 2 provides a sample of a step-by-step plan for Daniel's use of Accessible Instructional Materials in his fourth grade classroom. It includes data collection which the team used to determine how independently he could do each step.

		Completed Independently				
Class' Steps	**Daniel's Steps**	**M**	**T**	**W**	**TH**	**F**
Clear desk	Clear off tray					
Walk to book baskets	Put your things in your basket					
	Go to computer					
Pick book	Pick Computer Book					
Write start page	Enter start page on computer					
Find place to read	Put on headphones					
Free Reading	Talking computer book					
Write end page	Write end page on computer					
Put book away	Close book file					
	Save and Close Free Reading file					

FIGURE 2: SAMPLE PLAN FOR PROCEDURES/ DATA COLLECTION WORKSHEET

Provide instruction to the child in all aspects of AT use: Once a student's team agrees to provide a particular kind of AT, it is important that they identify the specific things a student will need to learn in order to use the AT. It is common for teams to assume that the primary thing the student needs to learn is how to operate the technology. However, this assumption can lead to very limited use of the technology.

Light (1989) and Light, Beukelman, & Reichle (2003) have proposed that there are actually four kinds of skills that AC users need to develop. The four competency areas are Linguistic skills, Operational skills, Social skills and Strategic skills. For students who use assistive technology devices for tasks other than communication, this paradigm can also be very useful in determining the things they need to learn. For the purposes of AT implementation planning, the original four skill areas proposed by Light and others have been adapted here to describe functional skills other than augmented communication. The adapted skill areas are Operational skills, Functional skills, Strategic skills, and Social skills. The following is a discussion of each skill area and the aspects that a team should consider when planning for student training during implementation.

Operation of AT devices: Operational skills are the skills that a student who uses AT needs to have in order to make the AT device work. These skills may be very simple things like pressing a single switch or they may be complicated skills like booting up a computer and using the keyboard to input, save, and print information. Operational competence includes not only the skills to operate the device but also skills that will be needed to use alternative access methods such as voice recognition and screen readers. Operational skills are the ones we most often think of when we talk about teaching a child to use assistive technology.

Functional use of AT devices: If a team has done a good job of assistive technology consideration or assessment, there has been a focus on the use of assistive technology to complete real tasks. Unfortunately, teams may assume that the new tool will allow the student to do things just because it is provided. For example, John's team provided him with a device that would read his textbooks aloud for him. John learned to use the device rather quickly and took the tool to his social studies class where the teacher allowed time for textbook reading. It was at that point that the team discovered how many study skills he was lacking. He could use the machine and listen to his assignments, but because reading had been so difficult for him in the past, he had not learned to identify main ideas or scan the text for important information. After the initial introduction of the text reader, the team had to regroup and identify the specific study skills (functional) skills that John needed to learn. The decoding barrier had been overcome so that he was actually able to learn the functional study skills he had missed in previous years.

Strategic use of AT devices: Strategic skills involve knowing when to use an AT device in the real world. To continue with the example of John who was using the text reader to learn from his content area texts, the team found that he needed to learn such strategic skills as 1) how to decide when the use the text reader instead of trying to read by himself: 2) when an accommodation such as reading by an adult in his environment was a more effective solution. The team helped John to learn when listening to electronic text was the most effective solution. The team helped him to develop his own strategies for determining when to use his AT and when to use other accommodations so that he could be as independent and as successful as possible in using the new AT.

Social skills for AT use: "Social skills" as they apply to augmentative communication refers to the ability to initiate, maintain and terminate communication with real people in real life situations. It is also about the ability to develop social relationships using the AC device (Light, Beukelman, & Reichle, 2003). Social competence, as it relates to other kinds of assistive technology, includes skills r associated with using the technology around other people. For instance, when John first took his portable text reader to his sixth grade class, the sixth grade teacher talked with all his students about the reasons John used this device. Over time, John was able to take on this task for himself. By the time he reached high school, it was part of his transition plan that he would meet with each new teacher to explain the AIM and AT he needed in order to get information from his textbooks. It was also up to him to ask for those accommodations if they were not provided automatically.

If all four aspects of assistive technology skills are not directly addressed in a student's program, the program is more likely to encounter implementation difficulties. While the example student used here is a student with mild disabilities, the paradigm can be applied to a wide variety of students with a wide range of disabilities.

Plan for the provision of supports the student will need in order to use the assistive technology: "Supports" are the many things that adults in the child's environment will do in order to make sure that assistive technology functions as expected. Each student will require different kinds of supports depending on the type of device used and the tasks for which the AT is needed. The way that each of these supports will be provided is also unique to the environments and the people in educational setting.

Below are a few questions to start the discussion:

1. Who will provide the device and any consumable supplies needed?
2. In what environments will the child use the assistive technology?
3. How will the device be made available in each environment (i.e. move with the child, child will go to the device, on request, etc.)?
4. Where will the device be located when the child uses it?
5. Will the student need to use this device at home? If no, will an alternative device be needed?
6. Will adaptations or modifications to the device be needed to help the student access the device?
7. Who will be responsible for device repairs?

Determine persons responsible for each task involved in implementation of the plan: It's important for the team to identify an overall coordinator who will monitor the student's AT use. This coordinator will have the responsibility of monitoring all the aspects of the AT implementation plan. This includes not only student progress but also timelines, specific support tasks and equipment questions.

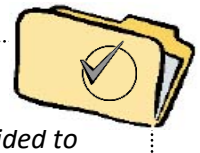
Others on the team will probably be assigned specific tasks. In John's case, an instructional assistant was responsible for charging the portable device every day. The special education teacher acquired the textbook files that John needed for each of his classes and the AT specialist was on call for troubleshooting technical issues. The team also identified a back-up person for each of these tasks in case the person responsible was not available at the time support was needed.

Disseminate information about the plan to all who have a role to play: Everyone who comes in contact with a child who uses assistive technology should have a basic understanding of the role the technology plays in the student's life. In order to assure this understanding, the team may want to develop a written description of the tool and the expectations for the student's use of it. Other team actions might include presentations to peers about the technology, talks at staff meetings regarding how to help the student with the technology or the development of videotapes showing the way the student uses the technology.

The Responsibilities of Team Members in Implementation

Each team member who comes in contact with a student on a regular basis should learn basic operation of the device. Students, who see that adults in their environment value their assistive technology and know how it works, are more likely to value the technology themselves. In addition, if technical problems arise, adults will be more able to help the student troubleshoot the difficulty and quickly get back to the real work of using the AT for functional tasks.

Team members should also know who is responsible for each aspect of AT implementation. When this information is available to all, delays in problem solving are reduced and every team member has a basic level of buy in for the student's use of AT. Another way to build team buy-in is to share with other team members regarding successes and problems with the implementation. If communication about how things are going for the student is regular and involves all team members, AT implementation is truly a team effort.



SHAR • *Implementing an Augmentative Communication Program*

Even though high tech assistive technology had not been a good tool for Shar, the team decided to review the management questions to help them anticipate problems with the augmentative communication program. They were particularly interested in student training issues because they hoped that the communication boards Shar was using in the classroom would also be useful in other environments. They also hoped to teach her to use more complicated communication boards or a communication book which would contain more vocabulary. It was decided that the first step in implementing the plan would be to teach Shar to use the boards in other environments. An instructional assistant was assigned to create boards based on the content provided by classroom teachers for Shar which could be used in her social studies discussion groups and in the cooperative learning groups for the ecology project the class was completing.

The biggest problem the team identified was that creating boards for Shar was time consuming. The special education classroom had a computer program available that would make boards of various configurations but little extra time to use software. The instructional assistants who worked with Shar thought that they could help identify vocabulary but would also not have the time to create boards using the program.

The team was at a standstill until someone suggested that it might not be necessary to have direct service staff make the boards. They checked with the office and discovered that there was a high school student who was working in the office on a work study placement for the rest of the school year. This student agreed to come to the special education room and make boards for Shar during the first half hour of her time at the school every day. The special education teacher agreed to provide her instruction and technical support.

Because Shar's augmentative communication program required the cooperation of many people, the team agreed to meet again at the end of a month to review the progress and make any needed changes in the plan. The instructional assistants who worked with Shar in the regular classroom were asked to notify her special education teacher immediately if a problem surfaced. The team wrote down all the parts of the plan and identified the individuals responsible for each part. Copies of the plan were distributed to all team members, Shar's general education teacher and her mom.

IMPLICATIONS FOR SCHOOL DISTRICTS

It is important that school districts recognize that staff will need additional time and support to implement a program which includes assistive technology. This is particularly true when staff have little experience in helping children use assistive technology. While one staff member will usually be responsible for monitoring the overall use, many people need to understand its function and operation in order for the program to be successful. Responsibilities should be clearly specified and recorded so that everyone knows what to do. District level procedures on assistive technology should encourage the documentation of responsibilities for the assistive technology plan and staff training on the use of assistive technology should include training in implementing an assistive technology program.

When districts develop assistive technology procedures, steps should be included to assure that careful implementation plans are developed. The *Education Tech Point* forms for this chapter includes a district form that asks the team to describe the plan for implementation. In some cases, the plan may be developed as part of the trial period and incorporated into the IEP. In other cases it will be initiated following the development of the IEP/IFSP as a tool to help everyone be aware of their individual responsibility.

In addition to questions about specific devices and services for the student, there will be many staff training and management issues that need to be addressed. When staff is encouraged to work together as a team and when time is set aside for team members to communicate, the likelihood that assistive technology will be an effective tool is increased (Todis & Walker, 1993).

A critical point that is often overlooked is the fact that only an administrator can ensure that IEPs and IFSPs are implemented as written. The individual administrator who supervises the staff members involved in implementation must know what is in the IEP/IFSP and hold those service providers accountable. Using a form that clearly describes everyone's responsibilities can be very helpful not only for the staff members but for the administrator who supervises them.

Local school staff should be aware of the additional resources they can access when they are unable to answer questions within the team. School districts should clearly describe the available support services and the appropriate procedures to use to obtain them. Some districts have chosen to identify a single point of contact for assistive technology services while others have provided all staff with information regarding resources. The decision as to how to distribute information regarding assistive technology technical assistance will be made based on the material resources and the human resources available to the district.

Quality Indicators for AT Implementation

Assistive technology implementation pertains to the ways that assistive technology devices and services, as included in the IEP (including goals/objectives, related services, supplementary aids and services and accommodations or modifications) are delivered and integrated into the student's educational program. Assistive technology implementation involves people working together to support the student using assistive technology to accomplish expected tasks necessary for active participation and progress in customary educational environments.

1. AT implementation proceeds according to a collaboratively developed plan.
2. AT is integrated into the curriculum and daily activities of the student across environments
3. Persons supporting the student across all environments in which the AT is expected to be used share responsibility for implementation of the plan.
4. Persons supporting the student provide opportunities for the student to use a variety of strategies–including AT–and to learn which strategies are most effective for particular circumstances and tasks.
5. Learning opportunities for the student, family and staff are an integral part of implementation.
6. AT implementation is initially based on assessment data and is adjusted based on performance data.
7. AT implementation includes management and maintenance of equipment and materials.

Action Items for Systems Change

The action items required for improved implementation center around developing procedures for implementation and ensuring that administrators are involved.

Maintain an inventory of frequently needed and commonly used AT devices: While it is impossible to predict every assistive technology need of students in a school district, most agencies are able to identify a core list of assistive technology devices that students will need. If these devices are readily available, it makes AT service delivery much easier.

Provide staff training in implementing IEPs or IFSPs that include Assistive technology: This training should include development of an implementation plan and assignment of responsibilities according to district procedures.

Develop recommended district procedures for implementation plans: The *Education Tech Points Tools* CD includes several examples of implementation plans that teams can use. Regardless of the approach, districts must provide guidance about how AT implementation should be planned, documented and monitored. Approximately 70% of all complaints to state departments of education regarding assistive technology involve failure to implement the AT plan (Bowser, Breslin-Larson, & Cummings, 2007). Districts that are unable to provide guidance about assistive technology implementation risk wasting resources in purchasing assistive technology devices that are never used because educators do not understand their role in supporting students who use assistive technology.

Develop a system to ensure that supervisors are informed. It needs to be someone's responsibility to give the principal a list of students that have AT in their IEPs so that he or she knows which teachers have students in their classroom who are supposed to be using AT for meaningful tasks. If that list briefly describes which task(s) the AT is intended for, it is especially helpful to the supervisor.

Release staff to attend planning meetings: Any person who will be instrumental in the implementation plan should be involved in training. Sometimes this means that staff schedules (including the schedules of instructional assistants) may need to be modified. It is more efficient to include all staff in initial planning. When this happens, the need for additional time to explain the plan is reduced.

Provide information regarding the district's technical assistance resources: This information might include people who work for the district, people who work for other agencies who can provide technical assistance and vendor technical assistance numbers. It might also include sites on the Internet, written materials about the operation of particular devices and information regarding assistive technology conferences and vendor fairs.

STEVE • *Assistive Technology in the Kindergarten Classroom*

Steve's team agreed to meet in August to develop an implementation plan for his assistive technology. Steve's mother asked to borrow a CCTV for home use during the summer. She felt that she and Steve could have a lot of fun with it and he could develop additional skill in manipulating the controls. The vision specialist provided the CCTV for home use over the summer but stated that she would need it back in the fall for use in the Kindergarten class. The team discussed whether Steve would need a CCTV at home to accomplish his educational goals for Kindergarten. They decided that while he might need one in the future to read print, there were no goals for his Kindergarten year that would require the use of a CCTV.

When the team met in the fall they reviewed the technology that was included on Steve's IEP and decided to make two plans, one for Steve's use of the CCTV and one for his computer use. The team felt that the plan for the use of the CCTV was fairly well defined. Decisions needed to be made about where to place the device in the classroom, what staff and student training would be needed and who would be called if technical assistance was needed, but many of these details had been worked out in the ECSE classroom and needed only minor adjustments for the new environment. The Kindergarten teacher felt comfortable with taking responsibility for Steve's use of the CCTV and agreed to keep a record of when he used it during the first month of school.

The team felt less comfortable with the plan for Steve's computer use. While they all understood that the goal was for Steve to learn to understand and use a computer with speech output, they were confused about what instructional strategies should be used to help him develop this skill. The vision specialist had particular expertise in this area so she took the lead in developing the plan. It was decided that for the first month of school, Steve would use a particular computer program every day for fifteen minutes with supervision from a classroom aide. The team chose a language learning program with large simple graphics and instructions given by digitized (recorded) voice output. The particular program they chose kept its own data regarding student performance and added new skills as Steve mastered the ones he was working on. The classroom aide agreed to keep anecdotal data on Steve's performance with the computer and to particularly record any problems he seemed to be having with understanding the computer speech. Once this program had been used for a month, the team agreed to meet to decide whether Steve was ready to begin to use a computer program with synthesized (computer generated) speech output. With help from the vision specialist the team members understood that subsequent steps would include use of programs with less predictable synthesized speech and programs with faster synthesized speech.

Since there was already a computer in the Kindergarten classroom, the implementation plan centered on schedules and who would help Steve use the computer. The vision specialist agreed to give the support people training in the operation of the computer programs and to identify and provide software in the future.

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Todis, B. & Walker, H. (1993). User Perspectives on Assistive Technology in Educational Settings, *Focus On Exceptional Children*, 26 (3).

Zabala, J., Bowser, G., and Korsten, J. (2005). *SETT and ReSETT: Concepts for AT implementation,* Closing the Gap, Minneapolis, MN

RESOURCES

Anderson, K.M., & Anderson, C.L. (2005). Integrating technology in standards-based instruction. In *Handbook of special education technology research and practice.* Edyburn, D., Higgins, K., & Boone, R. (Eds). Whitefish Bay, WI: Knowledge by Design, p. 521-544. www.knowledge-by-design.com $119

> The case study in this chapter is especially helpful in illustrating the process of looking at the instructional activity, the academic standard being addressed, the IEP goal or objective and then identifying and using specific technology to support and student.

Bausch, M.E., Ault, J.J., & Hasselbring, T.S. (2006). *Assistive Technology Planner—from IEP Consideration to Classroom Implementation*, Lexington, KY: National Assistive Technology Research Institute. Available from Technology and Media Division of the Council for Exceptional Children, www.tamcec.org

> This kit of tools that IEP teams can use when considering, selecting, and implementing assistive technology for a student is based on research conducted by the authors. The practical toolkit includes: user's guide, implementation planning tool, and individual AT Planners for teachers, administrators, and families.

Bausch, M.E., Ault, J.J., & Hasselbring, T.S. (2006). *AT Implementation Plan Form.* Lexington, KY: National Assistive Technology Research Institute.

> This planning form can be downloaded as a free pdf from natri.uky.edu

Bowser, G., & Reed, P. (2011). *The ABC's of Assistive Technology Case Management*. Winchester, OR: Coalition for Assistive Technology in Oregon. Order from www.educationtechpoints.org

> One of a series of six one-page Quick Sheets, it identifies key components of case management of AT and critical questions and resources to enhance the management of all aspects of AT service provision.

Bowser, G., & Zabala, J. (2005). SETT and Re-SETT: Concepts for AT Implementation. In The *ConnSENSE Bulletin*. www.connsensebulletin.com/resett.html

> SETT and Re-SETT provides a framework for effectively implementing the use of assistive technology. It addresses issues related to four types of competence: operational, functional, strategic, and social. Each of these are critical to the student's successful use of AT.

National Center on Accessible Instructional Materials at CAST, Inc. (2011). *AIM Implementation Guide*. Retrieved from www.aim.cast.org/experience/training/aim_implementation_guide

> The AIM Implementation Guide includes three products that can be used to support the implementation of AIM: A downloadable, printable manual entitled Text-to-Speech (TtS) and Accessible Instructional Materials (AIM): An Implementation Guide for Use of TtS and AIM in Secondary Classrooms. This manual includes a wide range of supports for planning, implementing and evaluating the use of AIM in the classroom. The Student's Speak Out Excerpt Video (4:10 minutes) that can be viewed online or downloaded. This video highlights the comments of students who participated in the pilot on how the use of Text to Speech impacted their educational participation, achievement and outcomes. The AIM

> Implementation Video (18:18 minutes) that can be viewed online or downloaded. This video provides an overview of a pilot implementation project conducted in Missouri including purpose, procedures and comments of students and teachers.

Quality indicators for Assistive Technology. (2011). Guiding Document for Implementation. Download from: www.natri.uky.edu/assoc_projects/qiat/resources.html

> The guiding document for implementation explains each of the quality indicators for AT implementation and provides illustrative examples.

Reed, P., Gierach, J., Walser, P., Sheets, L., Cumley, J., Lynch, K., & Wirkus, M. (1997). *Designing Environments for Successful Kids*. Oshkosh, WI: Wisconsin Assistive Technology Initiative. Download from: www.wati.org/?pageLoad=content/supports/free/index.php

> Although a little older, this manual contains dozens of inexpensive ideas. The focus is on four primary environments, the home, early childhood settings, primary grades, and upper elementary/secondary classrooms. In each of these environments, suggestions are made for inexpensive and easy to make items that can play an important role in helping students with disabilities to be more successful.

OCALI, ATIM: AT Implementation Module .https://atinternetmodules.org/m/802

> One of a series of Assistive Technology Internet Modules, the AT Implementation module offers a paradigm for developing implementation plans after AT has been chosen for a student.

Websites

National Center on Accessible Educational Materials – www.aem.cast.org

> This site serves as a resource to state- and district-level educators, parents, publishers, conversion houses, accessible media producers, and others interested in learning more about and implementing AIM and NIMAS.

High Incidence Accessible Technology (HIAT), Montgomery County Public Schools – www.montgomeryschoolsmd.org/departments/hiat/tech_quick_guides/

> This website contains a wide variety of excellent, useful resources that have been thoroughly tested throughout one of the biggest school districts in the country. HIAT is primarily focused on meeting the needs of students with high incidence disabilities. This link takes you to a series of printable quick guides and video tutorials for a wide range of assistive technology tools typically used by students with high incidence disabilities.

Bookshare – www.bookshare.com

> Bookshare is a repository of hundreds of books that can be downloaded. There are both audio books and e-text. They are free to children with print disabilities.

TOOLS

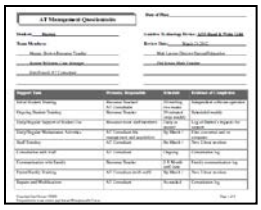
in the

IMPLEMENTATION SECTION

***of the* Education Tech Points Website**

For Use with Students

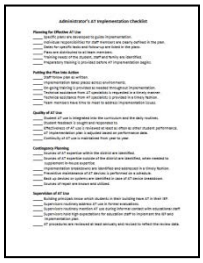
AT Data Plan. The AT Data Plan helps teams to set criteria for AT success and plan the specifics of data collection



AT Management Questionnaire. This worksheet guides teams as they plan for the initial setup and implementation of assistive technology in a student's program.

Procedures Plan. After the steps in a classroom routine are listed, this worksheet can be used to describe the accommodations and assistive technology that an individual student will need to participate in that routine.

For Districts/Agencies



Administrator's AT Implementation Checklist (Reed, 2012). A Checklist of critical factors related to effective assistive technology implementation. It is designed to be used by school administrators as they reflect on AT procedures and practices.

Assistive Technology Implementation Organizer. A tool to help administrators and staff members describe and understand each person's responsibilities.