Assistive Technology Implementation Plan

A Tool for Improving Outcomes

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The term *assistive technology* (AT) includes both devices and services. The Individuals With Disabilities Education Improvement Act of 2004 (IDEA, 2004) defines an AT device as "any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of a child with a disability" (20 U.S.C. § 1401 (1) (A)). This does not include medical devices that are surgically implanted. An AT service is defined as "any service that directly assists a child with a disability in the selection, acquisition, or use of an assistive technology device" (20 U.S.C. § 1401 (2)). AT services listed by the law include (a) evaluating AT needs; (b) providing for AT devices through purchasing, leasing, or other means; (c) "selecting, designing, fitting, customizing, adapting, applying, maintaining, repairing, or replacing . . . devices," (20 U.S.C. § 1401 (2) (C)); (d) coordinating the use of AT devices with other interventions received by the student; (e) providing training and technical assistance to the student and their family; and (f) providing training and technical assistance for professionals involved with the student. Since the Individuals With Disabilities Education Act was reauthorized in 1997 (IDEA, 1997) and continuing with IDEA 2004, states have been mandated to consider AT for all students with an individualized education program (IEP) and to document any AT needs in the student's IEP. Because of this legal mandate, a great deal of emphasis has been placed on the consideration process which has led to the development of many tools and resources for IEP teams to use when considering AT. For example, a consideration "quick wheel" (Technology and Media Division of the Council for Exceptional Children and the Wisconsin Assistive Technology Initiative, n.d.) and a "technology fan" (Mistrett et al., n.d.) are products that were specifically developed to assist teams in the consideration of AT for school-aged students and young children, respectively.

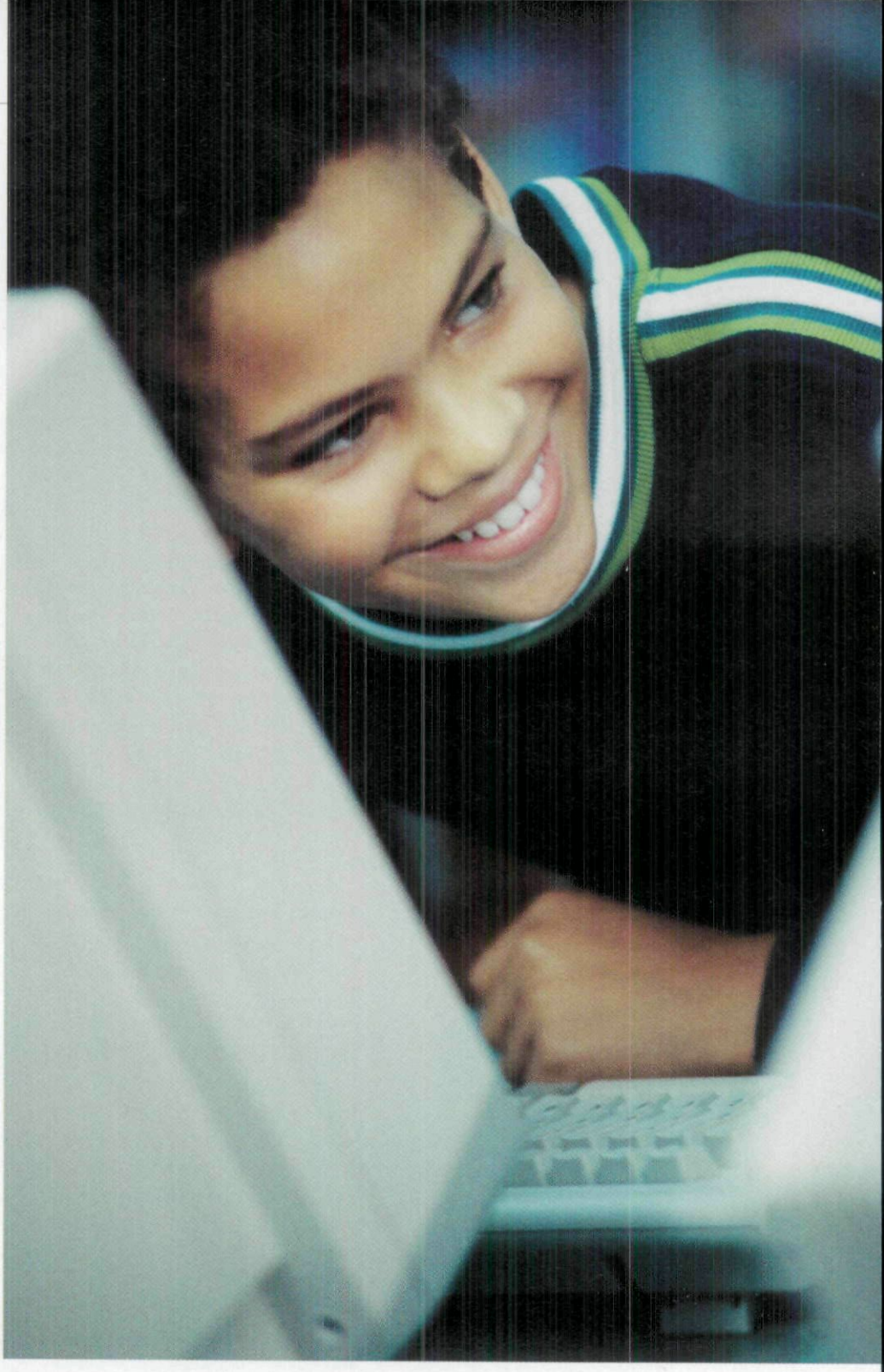
Although the consideration process is vital to an effective AT program for a student, implementing the AT properly is also critical for effective outcomes. Unfortunately, the provision of quality AT implementation services may not have received the same amount of attention as the consideration of AT, and IEP teams are struggling when it comes to implementing AT. Many professionals are not trained in the provision of quality AT services (Abner & Lahm, 1998; Hutinger & Johanson, 2000). In fact, professionals are not always aware of what the AT services are as defined in the law. In a survey conducted by Bausch, Evmenova, Behrmann, and Ault (2007), when professionals who provided AT services in their school districts were asked to list the AT services received by their students, a large percentage (59.8%) of the services they reported were not AT services as they are defined in the law, indicating a lack of awareness.

The Quality Indicators for Assistive Technology (The QIAT Consortium, 2004) were developed by a nationwide group as overarching guidelines for districts and professionals in defining and providing quality AT services (http://www.qiat.org). One indicator developed by the consortium involves developing a plan for AT implementation after the AT has been considered and selected for a student in an IEP meeting. This indicator states, "assistive technology implementation proceeds according to a collaboratively developed plan. Following IEP development, all those involved in implementation work together to develop a written action plan that provides detailed information about what will be done and who will do it" (p. 9). Therefore, the National Assistive Technology Research Institute (NATRI), an institute funded by the Office of Special Education Programs in 2000 (Lahm, Bausch,

Hasselbring, & Blackhurst, 2001), developed a product to guide IEP teams not only in the consideration process, but also through the implementation of the AT with the student (Bausch, Ault, & Hasselbring, 2006). As a part of this product, NATRI developed a form to provide a guide for teams when designing proper AT implementation for a student once the IEP team had determined that AT devices or services were needed. An implementation form is not considered part of the IEP and, unlike an IEP, it is not a legally binding document. Rather, the form is used to guide teams through a planning process that will ensure proper implementation of a student's AT and include elements that are unique to AT. It is specifically designed to ensure that activities related to AT are completed, and is designed following the IEP meeting by a team of persons involved in the implementation of a student's AT. These people may or may not be the same as the members of the IEP team.

The use of a written form for implementation of AT is needed for several reasons:

1. IEP teams often rely heavily on AT specialists to assist them with consideration, assessment, and implementation of AT (Ault, 2006). Although AT specialists may be necessary and beneficial to teams, they are not able to provide direct services to all students on their caseload, and teams need to develop knowledge and skills in order to take ownership of AT implementation. In addition, many school districts do not have access to AT specialists. Having a written form for AT implementation allows teams to create an AT plan with the help of an AT specialist if necessary. It then gives guidelines for integration and use of the AT throughout a student's schedule—thereby reducing the reliance on the specialist.
2. The implementation form allows the team to ensure that the unique features associated with AT implementation are addressed. The proper implementation of AT is associated with unique features usually not incorporated into an IEP. The implementation plan allows for the documentation of these unique features.
3. The form provides a means for accountability. Teams may often be unclear about which member is responsible for a specific task and service associated with AT implementation. Because tasks are assigned to individuals during the development of the plan, each will



be carried out as specified or, if not, a particular individual can be held accountable for the lack of implementation of the task.

4. The plan places an emphasis on implementation. The plan ensures that when a student has been identified as requiring AT devices and services the entire implementation process is properly carried out—from the acquisition of the devices to the implementation, monitoring, and adjustment of the technology—based on student progress data.

Steps for Using the Assistive Technology Implementation Form

A completed sample AT Implementation Form is shown in Figure 1. This form is divided into sections including (a) student information, (b) point of contact, (c) implementation team, (d) equipment, (e) equipment tasks, (f) training, (g) classroom implementation, (h) home implementation, and (i) monitoring and evaluation. The sample is designed for a hypothetical student with a disability in written expression. The following steps are used to complete the form.

Step 1: Student Information

First, fill out the Student Information section as specified on the form. Most important, fill in the AT plan review date. The team decides when the plan will be reviewed and whether or not it will coincide with the IEP meeting. The review may occur on a predetermined schedule (e.g., every 3 months); when the student is not progressing as expected; when a student has progressed well; or when any member of the team requests a review. The purpose of the review is to make sure the responsibilities assigned to members of the team have been fulfilled, to ensure the student is progressing on IEP goals involving AT, and to make adjustments to the plan as necessary to maintain student progress.

Step 2: Point of Contact

Fill in the name of the member of the team who will be the point of contact for the plan. This person is chosen by consensus of the team, and may or may not be someone who is directly involved in providing AT services. Because AT is integrated throughout a student's school and home schedules, multiple professionals will be involved in its implementation throughout the student's school career. A single point of contact is necessary to coordinate the plan and monitor its implementation. The point of contact is the person responsible for filling out the plan, calling the meetings, providing copies of the form to all team members, ensuring that the responsible persons have completed their assigned tasks, and storing and maintaining the plan. This one person's name is always associated with that student's AT plan, thereby ensuring that the plan will not get lost, will be maintained and updated, and will be transferred appropriately if the student changes teachers, moves to another school or district, or transitions to a postsecondary or work setting. This consistent contact person helps to ensure consistency, accountability, and follow-through.

Step 3: Implementation Team

List the specific individuals who will be involved in the implementation of AT devices and services and specify the role of each individual. The AT implementation team may or may not be made up of the same individuals who are on the student's IEP team; however, many will be the same. The members of this team should include those persons who will be involved in the direct implementation of AT devices and services with the student. Potential professional members of the team include the special education teacher, general education teachers, administrators, funding specialist, speech/language pathologist, occupational therapist, physical therapist, AT specialist, paraprofessional, and current or future employers. In addition, the student and family are valuable members of the team. The student can provide an opinion about the AT that may help decrease abandonment of the device (Phillips & Zhao, 1993) because he or she can speak to the acceptability of the AT and the procedures that will be used. Participation of the family as a team member is vital because the family members may be assigned certain responsibilities on the implementation plan such as assisting their child with homework using AT and incorporating the use of the AT into ongoing family routines and activities. The family's input also can help the team decide on appropriate roles to be assigned to the family as well as cultural factors that may influence the implementation of the AT in the home environment (Parette & Brotherson, 2004; Parette, VanBiervliet, & Hourcade, 2000). Including everyone involved in AT service delivery on the AT implementation plan team increases the chance of proper implementation because all persons will know their responsibilities and will be held accountable for fulfilling those responsibilities at the plan review.

Step 4: Equipment

List the specific equipment and software that the student will be using and the status of that equipment. Often, during an IEP meeting the team determines that a student requires certain equipment or software that possesses specific features—but the team fails to identify a specific piece of equipment by name. On the AT implementation form, however, the name of the specific equipment and software that is or will be used is listed as well as the status of the equipment in terms of ownership and acquisition. If the student does not have the equipment, indicate how it will be acquired (e.g., the district will borrow from a lending library, the district will purchase from the vendor, the vendor will send a trial version for 30 days, the district will purchase from student's previous district). Also, indicate the status if the student already has the equipment (e.g., district owns, student owns personal copy, equipment borrowed from student's previous school).

Step 5: Equipment Tasks

In this section, list the specific tasks related to equipment, the person responsible for each task, and when each task will be completed. This step

Figure 1. Sample Assistive Technology Implementation Plan

Assistive Technology Implementation Plan

STUDENT INFORMATION

Student Name	Nathan Kennedy	Grade	5	Date of Birth	9/27/98
School	Elementary School USA	Date	2/1/08	AT Plan Review Date	5/15/08

POINT OF CONTACT (Individual assigned to keep the Implementation Plan updated)

Reva Morales, special education teacher

IMPLEMENTATION TEAM

NAME (List all individuals who will implement the AT with the student.)	ROLE (e.g., administrator, teacher, family member, service provider, student, etc.)
Reva Morales	Special education teacher
Jack Liimata	General education teacher
Robert Singh	Assistive technology specialist
Nathan Kennedy	Student
Mr. & Mrs. Kennedy	Parents
Missy Kwan	Technology support teacher

EQUIPMENT

EQUIPMENT & SOFTWARE TO BE USED	STATUS (e.g., owned by school, will purchase, will borrow from district library, etc.)
Desktop computer (classroom & lab)	Owned by district
Desktop computer (home)	Owned by family
SOLO - (including Co:Writer, Draft:Builder, Read:Outloud & Write:Outloud)	District will buy license for home & school

EQUIPMENT TASKS

TASK (e.g., order/procure AT, load software, adapt/customize devices/software, set up at home/school, maintain/repair, etc.)	PERSON(S) RESPONSIBLE	DATE DUE
Order software	AT specialist- Singh	2/2/08
Load software on home & school computers	Tech. support- Kwan	3 days of delivery
Customize software for student needs	Special ed- Morales	3 days of delivery

continues

Figure 1. *Continued*

TRAINING

TRAINING NEED	TRAINEES	TRAINER	DATES & TIMES	FOLLOW UP/ALONG PLAN
Learn software features	Special educ.- Morales	Vendor	2/8/08 all day	2/15 - Half-day follow up visit and e-mail
Learn software features	Gen. educator Family	Special educ.- Morales	2/12/08 3:30-5:30	2/26, 3/14 and ongoing as requested
Learn software features	Student	Special educ.	Daily	In context of writing

CLASSROOM IMPLEMENTATION

IEP GOAL	CURRICULUM/DOMAIN (e.g., math, science, PE, art, etc.)	PERSON(S) RESPONSIBLE	AT NEEDED TO ACCOMPLISH THE GOAL (List specific AT and customized settings if appropriate.)
Identify/organize key info	Writing in all curricular areas: language arts, science, social studies, art, math, music	Gen./sp. educ.	Draft:Builder
Draft a 3 paragraph essay		General/special educators	Co:Writer, Draft:Builder, Customized dictionaries
Revise a 3 paragraph essay		General/special educators	Co:Writer, Draft:Bulder Customized dictionaries
Edit/Proofread 3 paragraph essay		General/special educators	Co:Writer, grammar check/ spell check

HOME IMPLEMENTATION

IEP GOAL	CURRICULUM/DOMAIN (e.g., reading, daily living, etc.)	PERSON(S) RESPONSIBLE	AT NEEDED TO ACCOMPLISH THE GOAL (List specific AT and customized settings if appropriate.)
Identify/organize key info	Writing	Parent/Nathan	Same as classroom
Draft a 3 paragraph essay	Writing	Parent/Nathan	Same as classroom
Revise a 3 paragraph essay	Writing	Parent/Nathan	Same as classroom
Edit/Proofread 3 ¶ essay	Writing	Parent/Nathan	Same as classroom

MONITORING/EVALUATION

GOAL	INSTRUCTIONAL STRATEGY (How you will teach student to use equipment and/or how to achieve goals.)	RECORDING SYSTEM & FREQUENCY (e.g., task analysis recording system; score "+" or "-" on the data recording sheet)	PERSONS RESPONSIBLE FOR IMPLEMENTATION/DATA COLLECTION
Identify/organize	Model-lead-test	Task analytic (daily)	General/special educ.
Draft a 3 ¶ essay	Model-lead-test	Task analytic (daily)	General/special educ.
Revise a 3 ¶ essay	Model-lead-test	Task analytic (daily)	General/special educ.
Edit/Proofread essay	Model-lead-test	Task analytic (daily)	General/special educ.

Note. From *Assistive Technology Planner: From IEP Consideration to Classroom Implementation* by M. E. Bausch, M. J. Ault, T. S. Hasselbring, Copyright 2006, National Assistive Technology Research Institute. Reprinted with permission of the author.

is important because these tasks are unique to AT and would ordinarily not be included in a student's IEP. The tasks the team lists here are those that relate to the AT services of designing, fitting, customizing, adapting, applying, maintaining, repairing, and replacing AT devices. These are the AT services that are mandated by IDEA (1997, 2004). Any task related to the student's AT equipment itself, rather than the actual implementation of the AT, is included here. Just as important, specifying the person responsible and the deadline date ensures accountability for each task. A variety of tasks depending on the individual needs of the student and the unique aspects of the AT may be listed here. Figure 2 shows a list of some possible tasks that may be included in this section, but the team has flexibility in individualizing the tasks for the unique needs of the student and his or her AT. Tasks listed for individual students will be more specific than those in Figure 2.

Just as important, specifying the person responsible and the deadline date ensures accountability for each task.

Step 6: Training

IDEA 2004 stipulates that AT training is a service that should be delivered to the student, the student's family, professionals who provide services to the student, employees of the student, and any other persons who are involved with the student. The QIAT Consortium (2004) notes that training for the student, the family and all professionals involved with the student is a vital part of effective implementation of AT.

1. Determine what the training needs are and list them. Needs are based on the individual student, but could include such tasks as teaching a student how to operate a piece of hardware or software, teaching a student a skill using AT, teaching a parent how to program a communication device, teaching a professional how to set up a piece of hardware or customize the preferences on a software program, teaching a peer how to interact with a student using a piece of technology, and so on.
2. Determine who will require the training. This will most often involve the student, but can include other professionals who implement the AT with the student, the student's family members, the student's employer if appropriate, and anyone else who is involved with using the AT with the student (e.g., peers, siblings, and community members). List the individual trainees' names as well as their roles so that if a particular person leaves a position, the replacement filling that role will be able to acquire the training.
3. For each training need, specify the person who will act as the trainer. For some AT, especially more high-tech devices, this may require bringing in a person who is not a part of the AT implementation team to provide specialized training. For example, a person with expertise in AT or a vendor representative for a particular device may provide training for students, professionals, or parents. Teams should ensure that if a vendor representative provides the training on the device itself, additional training on proper implementation of the device will be conducted by a member or members of the

Figure 2. Generic List of Possible Equipment Tasks for AT Implementation Plan

Obtain funds for the equipment

Place the order for the equipment

Locate the equipment at the lending library

Contact the vendor for equipment-related information

Check in the equipment, fill out warranty paperwork, inventory

Deliver equipment to student

Unpack equipment

Load software

Customize software

Prepare/Adapt the environment for the hardware (e.g., space, electrical outlets, lighting, and storage)

Adapt and customize the equipment

Problem solve and troubleshoot equipment problems

Maintain equipment regularly according to manufacturer specifications

Repair equipment when needed

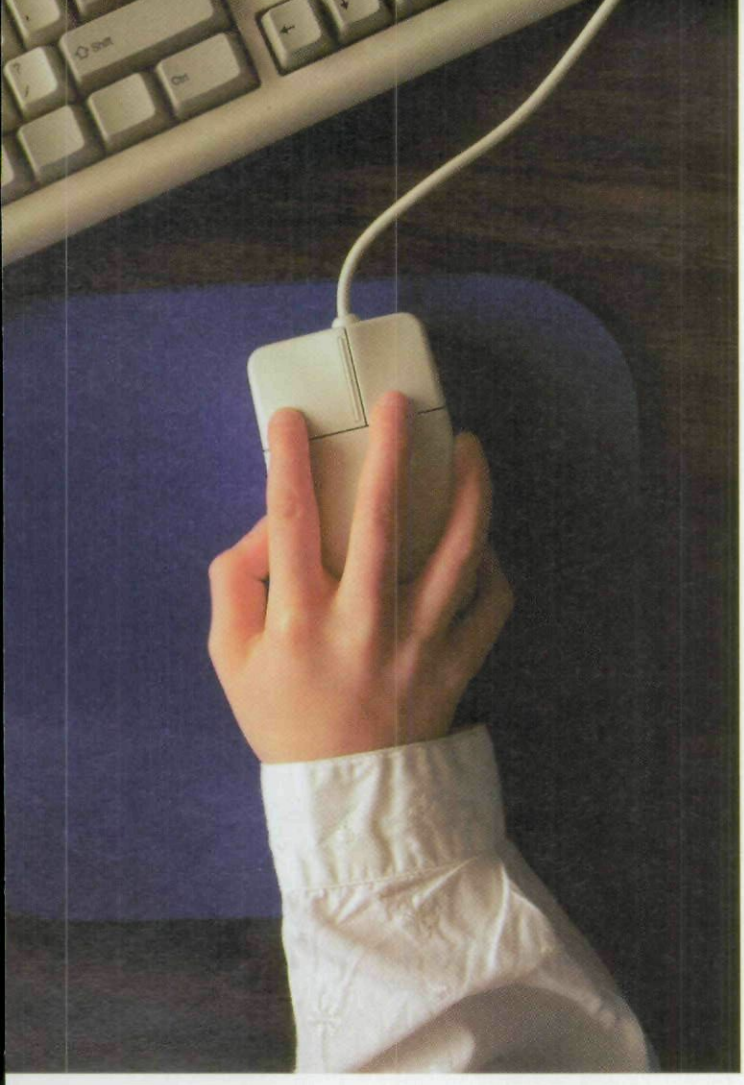
Replace the equipment if needed

Obtain funds for maintenance, repair, and replacement of equipment

Arrange for a back-up should equipment fail

Check periodically for updates on the equipment (e.g., remain current/update equipment)

Obtain funds for updating of equipment



team with expertise in using the device to provide access to the curriculum. Most often, however, a member of the AT implementation team will be able to provide the necessary training.

4. Schedule the specific dates and times of the trainings to ensure accountability.
5. Possibly most important, specify how and when follow-up to the training will occur. The trainer monitors a trainee's progress on the training need on a periodic (follow-up) or continuous (follow-along) basis until the trainee demonstrates competency on the training task.

Step 7: Classroom Implementation

In this section of the form, transfer from the IEP an abbreviation of the specific goals that include the use of AT. The goals will include the task or skill that the student needs to learn (i.e., the behavior) and the AT that is to be used (i.e., the conditions). For each IEP goal, write the curricular area or domain, the person(s) responsible for teaching the goal, and the AT that will be used to accomplish the goal. Any specific information related to how the AT is used or customized is included here as well. In this way students who transfer to new schools, have multiple interventionists, obtain new teachers, or move to new districts have the needed AT information with them so that services can be continued seamlessly. Once again, the unique customizations for the technology are often not included in an IEP, and the AT implementation plan ensures this information is readily available to the team. Any goals involving AT should be included here that are conducted primarily by the school but not necessarily be in the classroom. Examples include community-based instructional goals or goals related to a student's employment on a transition plan.

Step 8: Home Implementation

Because the integration of AT across all environments is vital for successful AT implementation, include goals here that involve the use of AT primarily in the home environment or other community environments that involve the student or the family (e.g., sporting events, homework). For example, include here a student who has an IEP goal of correctly answering questions using a voice output device in a variety of environments. This goal is included in the Home Implementation section. The family concentrates on the child answering questions at home in response to parents and siblings and at a restaurant in response to the waitress. The home implementation example provided in Figure 1 is similar to the classroom implementation information (Step 7) because the student will use the AT at home to complete homework assignments. The family will monitor and assist the student while he completes his assignments.

Step 9: Monitoring/Evaluation

Transfer the IEP goals from Steps 7 and 8 to this section. Then, for each IEP goal describe how the student will be taught the goal using the AT by specifying the instructional strategy or method. For each goal determine the data recording system that will be used to monitor the student's progress on the goal and how frequently the data will be collected. In Figure 1, the student's team identified a model-lead-test procedure to teach the tasks. In model-lead-test, the teacher first models the task for the student, then practices the task with the student providing the necessary prompts, and then removes the prompts and tests the student's progress (Gersten & Baker, 1998; Peterson, McLaughlin, Weber, & Anderson, 2008). To record the student's progress, each task is analyzed, and the teacher records the student's response on each step of the writing task. These data should then be visually represented (e.g., line graph, bar graph) so that the team can quickly see if progress is being made and the teacher can make adjustments as necessary. Finally, record the person who is responsible for teaching the goal using the methods specified, and who is responsible for collecting the data on the goal. A sample data sheet for teaching a goal using the model-lead-test procedure and task analytic recording is shown in Figure 3.

Direct measurement of student progress is essential for the team to be able to make appropriate instructional decisions for the student. Curriculum-based measurement (Tindal & Marston, 1990) of a student's progress with his or her AT involves direct measurement of the IEP goals and requires that the team use a variety of recording systems. For example,

Figure 3. Sample Data Collection Sheet for Task Analytic Recording of a Writing Objective

Student *Nathan Kennedy* Instructor *Morales*

Task *Identify and organize key information - Use SOLO*

Instructional Procedure *Model-lead-test: Model trials- teacher models each step of task while student observes; Lead trials- teacher uses verbal prompts at each step of task; Test trials- teacher provides no prompts*

Date/Session		2-15-08 / 1		2-16-08 / 2		2-17-08 / 3	
Start time		8:50		8:50		8:50	
Stop time		9:05		9:10		9:10	
Total time		15 minutes		20 minutes		20 minutes	
Step	Task Analysis	Trial type (circle)	Student Response	Trial type	Student Response	Trial Type	Student Response
1	Highlight main topics in Read: Outloud	(M) L T	+	M (L) T	-	M L (T)	-
2	Import main topics to Draft Builder	(M) L T	+	M (L) T	+	M L (T)	+
3	Add new topics & subtopics	(M) L T	+	M (L) T	+	M L (T)	+
4	Move topics & subtopics to new locations	(M) L T	+	M (L) T	+	M L (T)	-
5	Create notes for topics	(M) L T	+	M (L) T	+	M L (T)	+
6	Move notes to different topics	(M) L T	+	M (L) T	+	M L (T)	+
7	View outline in graphic format	(M) L T	+	M (L) T	+	M L (T)	+
#/% Correct model trial responses			7/100				
#/% Correct lead trial responses					6/86		
#/% Correct test trial responses							5/71

Key: M = model trial, L = lead/prompt trial, T = test trial
+ = correct, - = incorrect, 0 = no response

Direct measurement of student progress is essential for the team to be able to make appropriate instructional decisions for the student.

recording systems such as frequency, duration, interval, time sampling, or trials-to-criterion (i.e., task analytic, discrete trial) are used to carefully monitor students' progress (Kerr & Nelson, 2002; Mercer & Mercer, 2005). This allows teachers to document current levels of performance, determine the effectiveness of their instruction and adjust programs as needed, provide feedback to others, document their efforts, and be accountable to administrators and families.

In Summary

The use of an implementation plan or similar form will help guide teams thinking through and planning for the unique features that are associated with AT implementation. Too often, teams receive AT devices for their students, but proper implementation fails to occur—thereby preventing adequate student progress. The use of an implementation form allows teams to document (a) the specific equipment to be used, (b) the specific tasks related to equipment that must be completed, (c) the training needs of all involved persons, (d) the specific goals in which the AT will be used both at home and at school, and (e) the procedures for monitoring student progress on goals in which AT is used. Moreover, recording the person responsible and the deadline for completion of each task makes specific persons accountable for the tasks, which increases the likelihood that they will be accomplished as planned. This form can be relatively easy to use by teams and ensures that emphasis is placed on the implementation process. Focusing on quality implementation and documentation will ultimately improve the outcomes for students who use AT devices and services. The form is available for free download from the NATRI Web site at http://natri.uky.edu.

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