Oakland Schools

ASSISTIVE TECHNOLOGY GUIDELINES

Oakland Schools Academy on Assistive Technology

September, 1995

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Assistive Technology Guidelines

Oakland Schools

September, 1995

Dear Reader:

In this document, we set forth guidelines regarding assistive technology that have been developed by representatives of Oakland Schools, its constituent districts and community agencies.

The items presented in the columns on the left of each page are considered to be guidelines which will be used by Oakland Schools for organizing, supporting and promoting the use of assistive technology for students with disabilities. Material in the column on the right constitutes additional suggestions, references and ideas for districts wanting to adapt this document for their own use. Material presented in italics is reproduced directly from the rules, regulations or public laws.

This document was developed with guidance gained from guidelines adopted by Michigan's Region IV directors of special education in order to ensure consistency and cooperation in efforts across the region to provide assistive technology for those students who are in need of such accommodations, so that they may benefit from public education. It is hoped that local districts may use these documents when considering long range plans for addressing the assistive technology needs of their disabled learners.

We are appreciative of the work done by persons listed on pages ii and iii of this document. Their insights, considerable knowledge and dedication are the qualities that serve as the underpinnings of this document.

Sincerely,

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Law References

Definition of Assistive Technology Devices

The term "assistive technology device" means 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 children with disabilities. (From the Individuals with Disabilities Education Act (IDEA), P. L. 101-476, Section 1401 (a) (25).)

These aids can range from an adapted pencil to sophisticated microprocessors.

The definition of assistive technology is very broad in federal legislation. Districts are cautioned, however, that if they restrict the definition, it may later be found to be out of compliance with the federal law. In general, care should be taken when introducing inconsistencies into definitions used by funding authorities, oversight agencies and operating districts.

Definition of Assistive Technology Services

The term "assistive technology service" means any service that directly assists a child with a disability in the selection, acquisition, or use of an assistive technology device. Such term includes–

(A) the evaluation of the needs of a child with a disability, including a functional evaluation of the child in the child's customary environment;

(B) purchasing, leasing, or otherwise providing for the acquisition of assistive technology devices by children with disabilities;

(C) selecting, designing, fitting, customizing, adapting, applying, maintaining, repairing, or replacing of assistive technology devices;

(D) coordinating and using other therapies, interventions, or services with assistive technology devices, such as those associated with existing education and rehabilitation plans and programs;

(E) training or technical assistance for a child with a disability or, if appropriate, that child's family; and

(F) training or technical assistance for professionals (including individuals providing education or rehabilitation services), employers, or other individuals who provide services to, employ, or are otherwise substantially involved in the major life functions of children with disabilities.

(From the Individuals with Disabilities Education Act (IDEA), P. L. 101-476, Section 1401 (a) (26).)

Assistive Technology

Each public agency shall ensure that assistive technology devices or assistive technology services, or both, as those terms are defined in 300.5–300.6, are made available to a child with a disability if required as a part of the child's: (a) special education; (b) related services; or (c) supplementary aids and services.

300.308

A special thank you to Gale Gross for her time, effort, and technical expertise.

Service Plan Components

This section (guidelines 1-8) outlines the major components of the Oakland Schools service plan for assistive technology as these components are related to the rules regarding assistive technology. More specific guidelines regarding how these components will be addressed can be found in guidelines 9 through 23.

Guidelines	Comments
❑ **Guideline 1 – Mission Statement** We recognize that assistive technology may eliminate barriers and enable students with disabilities to be participating and contributing members of society. We believe that all students with disabilities are entitled to meaningful access to the technology needed to ensure opportunities for learning. We accept the responsibility to provide assistive technology services, when needed to gain educational benefit, and directly assist a student with a disability in the selection, acquisition, use or maintenance of an assistive technology device.	Oakland Schools is committed to the provision of assistive technology services to students in need of such devices or services to maximize educational benefits. Each local district is encouraged to write a mission statement which addresses assistive technology for individuals with disabilities.
❑ **Guideline 2 – Evaluation** Oakland Schools, in cooperation with local school districts, will provide assistive technology evaluation services by developing and supporting: ❑ A systematic referral process. ❑ A student- and family-centered team with special and general education personnel. ❑ Ongoing technological assessment; past, present and future needs. ❑ Sharing diagnostic personnel across districts.	This addresses subsection (A) of the definition of assistive technology services, page iv. For team composition suggestions refer to Appendix B, pages 1–2. For “best practices” suggestions refer to Appendix B, pages 2–4. For considerations regarding ecological assessment, refer to Appendix B, pages 4-6.

❑ **Guideline 3 – Device Acquisition** Oakland Schools, in cooperation with local school districts, will provide assistance in the acquisition of assistive technology devices by developing and supporting: ❑ A process for sharing resources, including personnel and equipment. ❑ A coordinated lending library of technology for trial use. ❑ A list of potential consistent funding sources. ❑ A process for allocation and reallocation of equipment. ❑ A standard inventory process. ❑ Vendor partnerships.	This addresses subsection (B) of the definition of assistive technology services. page iv. County-wide cooperation in locating information and referral sources for assistance with these components is further addressed under guidelines 21 and 22.
❑ **Guideline 4 – Device Selection and Maintenance** Oakland Schools, in cooperation with local school districts, will provide assistance in the selection and maintenance of assistive technology devices by developing and supporting: ❑ Student competency with device usage. ❑ Trial use of devices across environments. ❑ A process for, and funding of, repairs and replacements. ❑ Family input and participation in the training process. ❑ Application strategies across curriculum and environments.	This addresses subsection (C) of the definition of assistive technology services. page iv. County-wide cooperation in locating information and referral sources for assistance with these components is further addressed under guidelines 17 and 18.

❑ **Guideline 5 – Coordinated Services** Oakland Schools, in cooperation with local school districts, will provide assistance in coordinating assistive technology services for students by developing and supporting: ❑ A student- and family-centered technology team. ❑ Working partnerships with outside agencies. ❑ Coordination and cooperation between LEAs, ISDs, and Regions. ❑ A transition planning team.	This addresses subsection (D) of the definition of assistive technology services. page iv. For team composition suggestions refer to Appendix B, pages 1–2.
❑ **Guideline 6 – Training for Student & Family** Oakland Schools, in cooperation with local school districts, will provide assistance in the use of assistive technology devices by developing and supporting: ❑ Student competency with device usage. ❑ Family and other support persons' input and participation in the training process.	This addresses subsection (E) of the definition of assistive technology services. page iv.

❑ **Guideline 7 – Training for Professionals** Oakland Schools, in cooperation with local school districts, will provide assistance in the consideration and use of assistive technology by developing and supporting: ❑ Initial and on-going training of student- and family-centered technology teams. ❑ A training continuum including awareness, knowledge and implementation. ❑ A cadre of trainers. ❑ A technical support network.	This addresses subsection (F) of the definition of assistive technology services. page iv. For additional guidelines related to these components, refer to guidelines 16–23. Evaluation of the plan should also be related to successful completion of program accreditation/ student outcomes.
❑ **Guideline 8 – Evaluation Plan** Each district should establish an evaluation process to determine whether their assistive technology service plan has been implemented and to determine whether modifications in the plan are called for. This process should include: ❑ An evaluation matrix or checklist. ❑ Periodic review of the evaluation plan. ❑ Evaluation of training and other technology support services.	This Assistive Technology Guideline Plan is an example of a checklist in that the check boxes by each guideline can be used to indicate whether the guideline has been addressed.

Determine Student Assistive Technology Needs

❑ **Guideline 9 – Referral** The student is referred for assessment based on perceived educational needs for assistive technology.	Four steps are included in this section of the guidelines, addressing referral, assessment, recommendation and implementation issues.
❑ **Guideline 10 – Assessment** The assessment should provide a description of the student's current level of performance. The current level of performance may include: ❑ Attitudes and preferences of the student and family regarding acceptance of an assistive technology device. ❑ Educational environment, particularly the environment in which possible technology will be used. ❑ Cognitive level. ❑ Physical characteristics. ❑ Medical characteristics. ❑ Language and communication skills. ❑ Academic and literacy levels. ❑ Vision. ❑ Hearing. ❑ Previous approaches to addressing identified needs. ❑ Adaptive behavior, including behavior at home and in the community.	The ongoing evaluation of student needs and the relevance of assistive technology to meeting those needs is very important. If student evaluation is ongoing, it will show when the student's development indicates a need for a change in device(s), when new environmental demands call for other assistive technology solutions, or when the purpose of a selected device has shifted from helping a student participate in a curriculum to applications of life situations outside of school. This focus on the student's need for assistive technology will naturally change over time. This should be recognized when developing recommendations regarding assistive technology.

❑ **Guideline 11 – Recommendations** Develop recommendations which appropriately address the identified needs of the student in the particular educational setting in which performance is necessary.	The team should consider such factors as portability, durability, speed and expandability of the device selected. For additional suggestions regarding factors to consider when making a decision about a device to acquire, see Appendix B. Cost may also be one of the considerations when equivalent options are identified.
❑ **Guideline 12 – Implementation** The use of appropriate assistive technology should be incorporated into the student's educational program. The district should ensure staff competency in the use of identified necessary assistive technology. A cumulative record of the student's assistive technology history should be maintained using the Cumulative Assistive Technology Record. Ongoing evaluation of assistive technology provided for the student should include: ❑ Consideration of appropriateness of integrated assistive technology. ❑ The extent to which assistive technology should be included in the student's curriculum. ❑ The results of implementation should be documented to include what worked, what did not, and why.	See Appendix A for an example of the Cumulative Assistive Technology Record. While many teachers use technology in their instruction, it is rare that this technology is integrated into the instructional process; it is often relegated to isolated activities. The student's peers are also important to the ultimate acceptance and use of a device. It is useful to note that at times, effective integration of technology creates fundamental changes in interaction methods and effectiveness.

Integrate Assistive Technology with Curriculum

❑ **Guideline 13 – Action Plan** An action plan should be developed for a student for whom assistive technology has been determined necessary. This action plan should define a core team who will develop a plan of implementation which identifies individual responsibilities, proposed timelines, necessary training, and support personnel needed to assist the student and staff in accomplishing the curriculum goals. The student's action plan should be consistent with building, district and ISD-level assistive technology guidelines.	The effective integration of technology into the curriculum requires support and assistance. Assistive technology should be incorporated into the student's instructional setting in such a way that education is facilitated without calling undue attention to the technology being used.
❑ **Guideline 14 – Outcomes** The action plan should be directed to student outcomes which: ❑ Encourage interactive communication within the classroom and the community. ❑ Engage students systematically in higher order thinking skills. ❑ Provide students with authentic tasks and create opportunities for students to do meaningful work. ❑ Increase the quantity and quality of student's work. ❑ Develop the student's ability to access, evaluate, and communicate information. ❑ Develop a comfort level with technology use and information.	The plan should address a variety of perspectives reflected in situations in which: • The focus is on the student, the device becomes a part of the curriculum, and goals are developed to use technology in the education setting and in activities of daily living. • The focus is on the curriculum and the device is added to existing options so that assistive technology helps the student accomplish the curriculum goals.

❑ **Guideline 15 – Ongoing Evaluation** Ongoing assessment of the student's educational needs and the relevance of the assistive technology device should be conducted. This evaluation should determine the effectiveness of the assistive technology device in facilitating the student's functioning in various environments. The assessment and evaluation results should be recorded on the Cumulative Student Assistive Technology Record in order to facilitate decision making and communication over time.	It should be remembered that the focus of an action plan will naturally change over time. This should be recognized when developing recommendations regarding assistive technology.

Training, Technical Support and Information

❑ **Guideline 16 – A. T. Committee**	
Establish an Oakland Schools Assistive Technology Committee to develop procedures to communicate, to recommend structured data storage and retrieval procedures, and to initiate the development of a regional communications network. This committee will consist of a minimum of representatives from: ❑ a. Oakland Schools personnel. ❑ b. Each local district, including: ❑ General education personnel. ❑ Special education personnel. ❑ c. Parent / student representatives. ❑ d. Community agencies.	County-wide cooperation is essential to establish effective uses of assistive technology for students with disabilities. Information, experience and technical expertise need to be shared among the districts in the county. This provides support for all staff in selecting, locating and using appropriate assistive technology. In addition, general education perspectives need to be considered when developing plans to use assistive technology. To this end, a communication support network should be developed to coordinate county-wide efforts to provide support for using assistive technology effectively.

❑ **Guideline 17–Committee Responsibilities**	
The Assistive Technology Committee will meet four times annually. Responsibilities of the committee members include: ❑ Coordinating communication within and between all levels within the ISD, and disbursing information about assistive technology. ❑ Disseminating information on availability of service and equipment availability options. ❑ Gathering information to ensure that staff are kept current about district plans and state objectives. ❑ Communicating information about technology and support monies, and district, state and national public and private procedures for funding devices. ❑ Maintaining open lines of communication between state, county, district and building levels, serving as an assistive technology communications liaison. ❑ Coordinating access to a resource library developed by the region or county. ❑ Reporting the results of each meeting to the Special Education Oversight Committee (SEOC).	Training in the selection, use and support of assistive technology is an ongoing process that involves a variety of personnel at awareness, skill development and utilization levels. Because the technology is changing so rapidly and the skills needed to support many of the available devices are relatively specialized, a system of needs identification, new product awareness, direct training and technical assistance is needed to ensure that appropriate assistive technology services are provided for those students who are determined to be in need of them. A number of resources are available which can assist the committee in carrying out these responsibilities, including state-wide information resources such as the Michigan Assistive Technology Clearinghouse database, the Oakland County Community Assistive Technology Council, and Region IV information gathering activities of the Region IV Assistive Technology Committee.

❑ **Guideline 18 – Needs Assessment** The Assistive Technology Committee will develop a procedure to determine the needs of Oakland Schools regarding implementation of this assistive technology plan. This procedure should provide information to the committee regarding areas calling for priority focus in the upcoming year.	The Assistive Technology Committee might do well to focus on soliciting requests from those individuals within each district who are in frequent contact with technology users. They should also include a sampling of needs identified in IEP meetings in which assistive technology is considered. A carefully selected random sampling procedure can be of great help in carrying out a cost-effective ongoing needs assessment.
❑ **Guideline 19** The Assistive Technology Committee will respond to the requests of local school districts with emerging needs for additional training or follow-up in the use of assistive technology.	Ways to enhance training opportunities include: • Identifying funding sources. • Business and community involvement. • Creative ways to provide release time for teachers to receive training. • Sharing of training opportunities throughout Region IV.
❑ **Guideline 20** The Assistive Technology Committee will develop a list of resources for facilitating training opportunities, and establish a “brokerage” function for linking districts with trainers and training opportunities.	

❑ **Guideline 21** The Assistive Technology Committee will develop a process that will maximize sharing of inservice activities related to assistive technology across Oakland Schools and Region IV. Such a procedure will address methods of delivering information to those who need it, pooling resources for high-need training, and facilitating the exchange of information about assistive technology practices and policies across districts and within the region.	Develop an on-line data bank of resource personnel within Oakland Schools and Region IV with expertise in various aspects of assistive technology selection and use. This database can be used as the basis for identifying trainers and support references for instructional staff seeking assistance. The Assistive Technology Committee will ensure that all local school districts have access to the on-line database and that it is made available to classroom teachers. The intent of this guideline is that all school employees working with assistive technology will have access to national-, state- and county-level databases on assistive technology.
❑ **Guideline 22** The Assistive Technology Committee will develop a database of assistive technology services and resource personnel. Such a database will be coordinated with Oakland Schools and Region IV to include common fields, so files can be shared and merged together, and common classification terminology, so users can access the information contained therein in a standard way.	Services to be entered in the database include (but are not limited to): • Training capabilities of local "experts" • Assessment personnel familiar with assistive technology • Repair services and maintenance personnel • Engineering and programming services • Technical consultants It is suggested that other existing databases also be used (e.g., the Community Assistive Technology Councils and the Michigan Assistive Technology Clearinghouse) and that the Oakland Schools database effort be coordinated with these other activities.

❑ **Guideline 23**	
The Assistive Technology Committee will develop an evaluation plan which will provide information necessary for a long-range training plan, and give specific information regarding the kinds and amount of follow-up support needed.	

Additional Assessment References

Blackstone, S. W. and Cassatt-James, E. L. *Augmentative Communication: Implementation Strategies*. Publication Sales Office, American Speech-Language-Hearing Association, 10801 Rockville Pike, Rockville, MD 20852.

Lifespace Access Profile: *Assistive Technology Planning for Individuals with Severe or Multiple Disabilities*. Lifespace Access Organization, P. O. Box 2355, Sebastopol, CA 95473.

Scherer MPT Model: *Matching People with Technology*. Scherer Associates, 486 Lake Road, Webster, NY 14580.

Technology in the Classroom: Education module. American Speech-Language-Hearing Association, 10801 Rockville Pike, Rockville, MD 20852.

Technology in the Classroom: Communication module. American Speech-Language-Hearing Association, 10801 Rockville Pike, Rockville, MD 20852.

Technology in the Classroom: Positioning, Access and Mobility module. American Speech-Language-Hearing Association, 10801 Rockville Pike, Rockville, MD 20852.

Technology in the Classroom: Listening and Hearing module. American Speech-Language-Hearing Association, 10801 Rockville Pike, Rockville, MD 20852.

Appendix A

Samples of Forms and Other Decision Making Tools
Related to Assistive Technology

- **Program Modification Survey**
- **Assistive Technology Implementation Training Plan**
- **Cumulative Student Assistive Technology Record**
- **Data For Switch Training**
- **Criteria Selection for Augmentative/Alternative Communication Systems**

Program Modification Survey

Student _____ Grade _____ Date _____

Teacher _____ School _____

State specific student skill deficits: _____

Check program modifications implemented for student in the classroom setting for at least 30 school days.
Circle the checked number(s) of modifications that were deemed the most effective.

GENERAL

__1. Student should sit in _____ of room.
__2. Provide organized work space area with minimal distraction.
__3. Directions reviewed with student with clarification and check for understanding.
__4. Extended time needed for _____.
__5. Frequently acknowledge effort put forth.
__6. Implement behavior contract/rewards system.
__7. Use of time out.
__8. Reduce assignments or give alternative assignments in subjects.
__9. Provide peer tutor/volunteer to help with _____.
__10. Accompany oral assignments with written instructions or visual cues.
__11. Use of assignment notebook or work checklist.
__12. Allow extended testing time.
__13. Grade on effort/individual ability in addition to test scores.
__14. Reduce number of test items for student.
__15. Grade satisfactory vs. unsatisfactory.
__16. Develop parent/school contract.
__17. Provide student with duplicate set of class materials for home use.
__18. Modify or change student's schedule.
__19. Provide notetaker.
__20. Provide copy of lecture notes.
__21. Provide study guides.
__22. Other _____

READING

__23. Student permitted to use marker when reading.
__24. Taped textbooks will be provided by _____.
__25. Alternative grouping for reading.
__26. Provided taped tests.
__27. Provide a reader for tests.
__28. Other _____.

WRITTEN EXPRESSION

__29. Provide help for copying from board or book to paper.
__30. Provide Xerox copies instead of requiring copying.
__31. Provide large spaced paper for writing.
__32. Use graph paper to help space letters and numbers.
__33. Allow student to use a typewriter, computer, or tape recorder for lengthy written work.
__34. Allow oral response/teacher recorded answers on tests.
__35. Student not penalized for misspellings/poor penmanship on written work.
__36. Reduce number of spelling words to _____ per week.
__37. Other _____.

MATH

__38. Allow counters/manipulatives for computation.
__39. Allow use of calculator for computation.
__40. Provide visual aids to illustrate steps in computation.
__41. Provide fact sheets.
__42. Reduce number of problems on page.
__43. Other _____

RECOMMENDATIONS

Completed by: _____ Role: _____

Based on the above survey, it has been determined that:

❑ Current program modifications are adequate.

❑ Recommend the following additional modifications: _____

❑ Recommend further evaluation on the following deficit area(s) _____.

Assistive Technology Implementation Training Plan

Domain(s) in which assistive technology is needed:

❑ Physical ❑ Communication ❑ Visual ❑ Cognitive ❑ Auditory

Which people will be involved in the implementation of this modification?

Training Requirements:

Staff Training

Student Training

Parent/Guardian Training

Other Considerations:

Potential Problems

Possible Resolutions

Develop a training or inservice recommendation, including all teachers and professional staff, the student, parents/guardians, paraprofessionals and other caregivers involved in the use of this assistive technology.

Cumulative Student Assistive Technology Record

Name: _____ Birthdate: _____ ID.#: _____

Purpose: ***Cumulative*** history of the use of assistive technology to accommodate the student's unique needs. It is suggested that this information be provided to those working directly with the student. (Be sure to include accommodations that did not work, as well as those that did.)

Date	Accommodation Provided*	Purpose	Where Used	Level of Support Required (independent --- maximum)	Status

* Please attach specific examples of accommodations.

Examples

Date	Accommodation Provided	Purpose	Where Used	Level of Support Required (independent --- maximum)	Status
Example 1	Laptop computer	Class work and homework	School/home	Setup needed, then independent	
Example 2	Calculator with enlarged key pad	Participate in curriculum	School/home math class	Independent	
Example 3	WOLF (Voice Output Communication Aid)	Choice making	School/nurse	Maximum for 2 picture choosing including elbow support	

Cumulative Student Assistive Technology Record

Name: _____ Birthdate: _____ ID.#: _____

Purpose: ***Cumulative*** history of the use of assistive technology to accommodate the student's unique needs. It is suggested that this information be provided to those working directly with the student. (Be sure to include accommodations that did not work, as well as those that did.)

Date	Accommodation Provided*	Purpose	Where Used	Level of Support Required (independent --- maximum)	Status

* Please attach specific examples of accommodations.

Data For Switch Training

_____ seconds between commands

Sessions

	1		2		3		4		5	
Date										
	Sec.	#	Sec.	#	Sec.	#	Sec.	#	Sec.	#
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
Total										
Average										
NR										

Total average seconds from all 5 sessions: _____ /. 5 = [ ] Time

Total average unintentional activations from all 5 sessions: _____ /. 5 = [ ] Accuracy

Total average "no response" tallies from all 5 sessions: _____ /. 5 = [ ] No Response

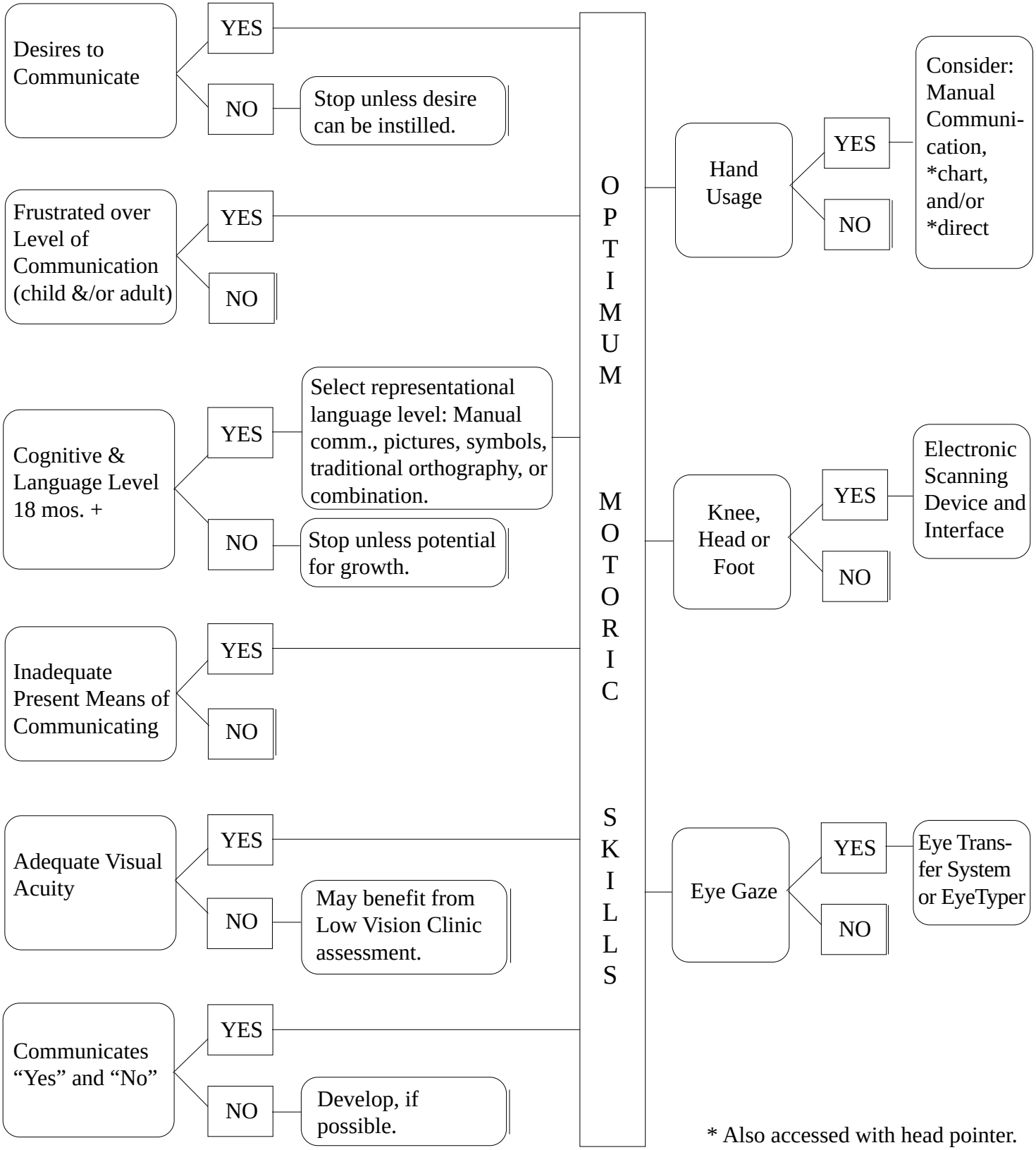
---

Sec. = number of seconds between command and switch activation response
# = number of inappropriate switch activations occurring during waiting period

Criteria Selection for Augmentative / Alternative Communication Systems

Name:_____ Date: _____

C. A.: _____ School: _____



* Also accessed with head pointer.

Appendix B

Excerpts from*Technology in the Classroom: Education module*.
American Speech-Language-Hearing Association.

Technology Team

The following is excerpted from *Technology in the Classroom: Education module*. (Chapter 1, pages 5-7). American Speech-Language-Hearing Association, 10801 Rockville Pike, Rockville, MD 20852.

It is essential that decisions about a child's use of technology be made by a team of professionals and family members to ensure that the child will benefit from a broad perspective of knowledge and experience. Members of a child's team change over time; only the child and, sometimes, the family remain constant. Thus, although each team member plays an important role along the way, the job of a team is to empower the child and the family to make decisions, to take control of the process, and to seek out new resources when they need them.

Research and practice suggest that teams function best when roles and responsibilities are clearly delineated. The members who usually make up a child's team are described below:

- **Child** – Children are the only constant on the team, bringing with them their unique personalities, abilities, challenges, and fantasies. The children are active participants, and their opinions must be respected and valued. After all, they are the ones who will or will not benefit from technology, and will or will not use it.

- **Family** – The family provides support and helps to develop the child's world knowledge base. It is important to realize that many families have concerns unrelated to their children with disabilities that will affect their level of participation. In some cases, cultural issues and existing family dynamics may even inhibit active involvement. Varying degrees of participation are understandable and acceptable. The family can be a child's best advocate and can develop a child's sense of confidence, self-esteem, and independence.

- **Aides/instructional assistants** – These individuals work with teachers to implement the curriculum and make learning possible. They play a key role in fostering peer interaction, self-confidence, and independence.

- **Audiologists** – Audiologists test hearing, recommend hearing technologies, and provide instruction in the use of hearing technologies. They also give suggestions for enhancing children's listening skills.

- **Classroom teachers** – The classroom teacher is responsible for the child's total education program. Teachers must balance the activities and time available during the school day and collaborate with the family and other professionals to ensure that the "educational path" is followed. They develop and implement educational strategies that allow assistive technology users to participate in classroom activities so that functional academic and social goals can be accomplished.

- **Occupational therapists** – Occupational therapists, like physical therapists, evaluate children's posture and mobility. Occupational therapists then recommend and implement procedures and devices that will meet seating and mobility needs. In addition, occupational therapists help determine which devices and strategies children can use to access other technologies, such as those for learning and communicating, as well as moving.

- **Peers** – Children's peers may be friends, classmates, helpers, and tutors. Peers provide emotional support and a special link to certain aspects of children's lives in which adults have little involvement. They provide models for learning and communicating.

- **Physical therapists** – Physical therapists evaluate children's posture and mobility and are subsequently involved in recommending and implementing a variety of techniques, devices, and strategies that will appropriately position the children to facilitate their comfort, proper development, and safety, and that will increase their mobility.

- **Physicians** – Physicians address medical issues and monitor medical complications. They are involved in the prescription of the seating and, often, the mobility device. The physician helps to procure funding from third-party payers (e.g., insurance companies).

- **Psychologists** – Psychologists assess children's intellectual abilities and learning styles. They must be skilled at making necessary adaptations to determine a child's cognitive functioning, taking into account present physical disabilities and behavioral characteristics.

- **School principals, directors of special education, superintendents** – These designated leaders have job descriptions that involve management of educational programs and fiscal issues. They are leaders and set the tone. They understand the school system and often can make things happen. They have the authority to allocate staff time as deemed appropriate. Their support is often critical to the successful implementation of assistive technology.

- **Special educators** – Teachers with special education backgrounds develop an in-depth understanding of each child's cognitive profile and learning style as they relate to the curriculum. Based on this knowledge, the special educator can modify curriculum goals and materials and provide additional resource support, such as recommending software that enables children to participate in classroom activities (e.g., art projects, creative writing).

- **Speech-language pathologists** – Speech-language pathologists suggest ways to maximize a child's speech, language, and communication during each activity (e.g., use of a communication device during circle time and a mini-board at home during bath time). They often help develop vocabularies, design overlays, suggest strategies to facilitate interaction and integrate speech and language development into the educational curriculum.

- **Team facilitator** – This individual possesses the knowledge and the skills to coordinate team meetings, ensure follow-through of team goals, see that time lines are met, and generally manage team activities so that no activity deemed important "falls through the cracks."

- **Technical resource personnel** – Rehabilitation engineers and/or technologists and assistive equipment suppliers/manufacturers help make decisions when specific technology is being considered. They can assist in procuring, designing, fitting, and maintaining the equipment and can also help in setting up/ modifying equipment and software and designing work stations.

The individuals cited above play an important part in helping children use technology effectively. The roles they play often vary; those who implement the use of technology are not always the same as those who prescribe or design it. The level of expertise among these people in using technology also varies. Each person contributes his or her own unique skills, talents and personality; together they make assistive technology work. And, it is important that teams provide continuity and plan for smooth transitions as the child grows and moves through the educational system.

Using Technology in Educational Settings

The following is excerpted from *Technology in the Classroom: Education module*. (Chapter 2, pages 11-16). American Speech-Language-Hearing Association, 10801 Rockville Pike, Rockville, MD 20852.

No one ever said teaching was going to be easy. Day-to-day curriculum implementation, programmatic decisions, and scheduling issues result in a hectic and demanding work schedule. And now you have to think about computers, switches, touch pads, and talking software! In addition to being responsible for achieving short- and long-term instructional objectives, you are also being asked to incorporate highly technical devices into the learning process. The technological revolution, while offering great promise to the educator, also poses a great challenge.

We are only beginning to understand the impact that technology has on teaching children with severe disabilities. Special devices now available are capable of enhancing the learning, communication, and independent living experiences of children with disabilities. However, we have only a limited number of empirically validated teaching strategies that offer procedures and methods for integrating technology into the educational setting. To complicate the problem, state-of-the-art technology is evolving on a daily basis. As soon as you are comfortable with one microcomputer system or communication device, another one is recommended in its place. Sometimes it seems as though we are on a technological treadmill, always trying to get ahead (or at least stay in the race), never daring to stop investigating the latest technological gadget for fear we will rapidly become outdated.

To begin, we first need to define a framework for using assistive technology in educational settings. The general principle underlying the framework is that children have a right to technology to circumvent their disabilities. The corollary to this premise is that using technology will result in definite improvements in the functioning of these children. Current "best practices" in special education suggest that educators in an exemplary program:

- employ technology as a tool to facilitate the achievement of educational goals;
- utilize environmentally based assessment procedures to assist in the selection of appropriate assistive equipment;
- select assistive technology based on individual student needs, not on equipment availability;
- integrate assessment procedures as an on-going facet of the educational program to evaluate the effectiveness and fine-tune the use of assistive equipment;
- consider the related skills of environmental control, communication, and mobility in addition to academic achievement when determining educational goals;
- utilize a fluid, multidisciplinary team, whose members change depending on the student's needs, to assess and prescribe technology;
- integrate technology, where appropriate and as needed, across all learning environments of the individual and throughout the calendar year;
- place students in programs based on educational achievement, not disabling condition or need for specialized technological devices; and
- promote interactions with non disabled peers in a natural environment.

In addition to the best practices listed above, an exemplary program that uses assistive technology should also:

- specify in writing the use of assistive technology as a procedure to achieve a learning goal within the Individualized Education Program or the Individualized Family Service Plan;
- explore a range of equipment options – not settle for certain pieces of equipment simply because they are available;
- allow students to use a variety of devices for extended periods of time in real environments before making final recommendations; and
- rely on professionals in the school / agency to assist in integrating adaptive equipment into the classroom. You don't need to become an assistive technology specialist (unless you want to!) to implement technology as part of your curriculum. Although you are the manager of your classroom and you orchestrate the daily activities that occur there, it is appropriate to utilize the services of others to achieve best practice procedures.

Remember that the field of assistive technology is a new one. Our knowledge of what works and what doesn't continues to evolve as we gain a better understanding of how these tools can be wed to facilitate a child's independence and maximize integration. As a professional or a family member who will be involved in the daily integration of technology, your contribution to the field's knowledge base can be invaluable. Approach each potential technology user's educational program with an open yet critical mindset. Don't fall into the trap of applying standard strategies to each case. Be flexible in your approach and creative in your programming. Be willing to try anything at least once. And most of all, keep a sense of humor.

Functionality and Independence Across All Life Environments

• What is an environmentally based approach to program development?

Within the last decade, there has been a dramatic shift in the way teachers approach the development of educational programs for children with severe disabilities. No longer is learning viewed as a six-hour experience that occurs within the physical confines of the classroom. Instead, it is seen as a dynamic process that is based on the give-and-take interactions of individuals with the world around them. As a result, the design of educational programs has taken a new focus. Emphasis is placed on developing a student's skills and behaviors required for functional independence and successful integration in all present and future settings.

An environmentally based method of teaching involves the identification of specific skills and tasks that will facilitate improved independence and maximize integration. In this approach, the learning environments of home and community are considered as important to learning as the school situation. The proportion of learning that occurs in the classroom as compared to the learning that occurs in the home and community varies according to the student, the task, and the practicality of moving about in multiple, natural settings.

• Does the environmentally based approach fit in with my current teaching philosophy?

An environmentally based approach to program planning might require some adjustment in the way you approach teaching. The educational philosophy presented herein does not build upon traditional curricula, and the developmental model upon which many early childhood education programs are based is not inherent in this approach. Instead, this teaching philosophy requires the development of a unique curriculum for each child that looks at future goals as well as current learning. However, in spite of their uniqueness, environmentally based approaches are compatible with traditional teaching philosophies. Using this strategy in addition to your existing curriculum will enhance and enrich the learning experiences of each student.

The approach is not new to the field of special education. It is well-grounded in theoretical and empirical literature. It can stand alone as an educational program or it can enhance the traditional curriculum. The environmentally based model of instruction is a "thinking" curriculum in that it relies on the teacher to develop and adjust the educational experiences of each student based on his or her needs in each learning situation. As such, it is particularly applicable to the inclusion of highly specialized devices and techniques.

• Why should I use an environmentally based approach to develop goals for my students?

The goals of the Individualized Education Program for students with disabilities are typically derived from the results of diagnostic evaluations. Information obtained from these traditional assessment procedures, however, rarely help the teacher decide how to use technology as a tool to achieve educational objectives. There are serious limitations to traditional diagnostic assessment procedures:

- **Norm-referenced tests** provide only a standardized measurement of a person's performance relative to the performance of others.
- **Intelligence scales** only sample and compare behaviors against the norm to determine an intelligence quotient.

Scores and/or ages obtained from the above measures do not provide specific information regarding needs or preferred learning methods of the
student or appropriate technological tools for the student to use.

- **Developmental scales** simply compare the student's behavior to sequences of behaviors exhibited by normal children.
- **Criterion-referenced tools** measure target behaviors against preselected behavioral sequences that have been defined according to some predetermined standard.

Through these procedures, skills may be targeted for intervention that may not relate to increased independence or improved functioning.

Use of these tools also presents problems if the student is functioning significantly below chronological age; it may result in the selection of target behaviors and intervention activities that are not in keeping with the child's age or interests.

These assessment tools also assume that certain prerequisite behaviors must be present before more advanced target skills are taught. Some students may never acquire a specific sequence of skills, yet may be able to produce the desired behavior with assistance if the skill is modified or if they are provided with a special aid or device.

An environmentally based assessment can be designed to provide specific information on which technological tools are needed by a student. These assessments

- **identify sequences of behaviors** that reflect the actual skills necessary to participate within community environments;
- **result in individualized education programs / individualized family service plans** that are relevant to each student's life skills;
- **help delineate low and high technological devices** that could facilitate the ability of a child to achieve functional independence;
- **provide specific educational strategies** on how to integrate technology into the daily living and academic learning activities of the child;
- **eliminate the need to plan for generalization** from isolated tasks to functional contexts and avoid teaching numerous splinter skills; and
- **ensure the development of educational programs that have social validity**, thus targeting the development of skills that are valued by society, viewed as functional and deemed important for successful integration.

Traditional environmentally based assessments, however, are time-consuming and, although they identify many potential target skills, they do not

- **delineate the order** in which skills should be taught;
- **identify skills needed to make the transition** between activities; or
- **take into account related skills**, such as communication and motor skills.

The assessment procedure described in this module utilizes strategies that address each of these concerns.

Using the Environmental Approach in Assessment

Defining An Ecological Assessment

The successful design of an environmentally based curriculum relies on a comprehensive, well-designed evaluation procedure that assesses an individual's functioning and skill level across all life situations. Referred to as an ecological assessment, this evaluation technique, designed to identify skills that are needed by an individual in a range of contexts, employs tools such as direct observations, surveys, and interviews. Attention is given to all current learning environments as well as those learning environments in which the student will participate in the near future. The goal of the assessment is to delineate the skills needed to participate in traditional activities enjoyed by children without disabilities across a variety of different environments.

Preparing for the Assessment

Preparation for the assessment includes the careful selection of materials, activities, and situations that represent the learning environments within which the child functions.

Step 1: Select materials and tasks that are

- chronologically age appropriate;
- functional and motivating for that student;
- present within the student's environment; and
- adaptable to the sensory, motor, or cognitive skills of the individual.

Step 2: Select environments and activities for assessment that

- incorporate the student's current and future environments;
- represent the student's typical activities; and
- permit ongoing, direct observation of skill performance both during intervention and under maintenance conditions.

Note: The reader is referred to the complete American Speech-Language-Hearing Association module for additional information and examples regarding ecological assessments.