

Assistive Technology Assessment: A Framework for Quality Assurance

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ABSTRACT

Increasing availability of assistive technologies in schools creates opportunities for educators to increase the efficiency, accuracy, and scope of assessment of student progress and adaptation to their changing needs. Unfortunately, the needs for assistive technology (AT) devices are often poorly assessed and, because of poor assessment, these devices are sometimes abandoned. Some of the reasons AT devices are abandoned are: (1) assistive technology selection is based on a mismatch between the individual's desires and/or needs and preferences; (2) the individual outgrows the capabilities of the device; and (3) the individual user of AT is not put at the center of the assessment process and thus loss of the desired outcome. Assessing an individual for AT use is an important part of the recommendation of IDEA (1997) and an essential support in the part to greater integration. Assistive technology can increase, maintain and improve the functional capabilities of any student with a learning problem. Assistive technology is used to bypass, work around, aide in dealing with a specific need of all students. Assistive technology can be used to help teachers get to know their students, to collect formative information during instruction, to assess outcomes of instruction, and to communicate with parents and guardians. AT can also help provide all students with greater access to test items, maintain records, explore data and maintain basic life tasks. Assessing a student's needs, strengths, abilities, and challenges increases the likelihood of specifying solutions that will improve performance.

Keywords: *AT, Assessment, Integration, Special Needs, Physical Challenges, Achievement, Strategies, Functional Capabilities, Learning Impaired, and Interventions.*

1. INTRODUCTION

Today the challenges of assessing a diverse student population are at the forefront of all education initiatives. AT assessment is a method of gathering evidence and developing a framework for quality assurance. The number of agencies conducting AT assessment is increasing worldwide. Assessment for assistive technology solutions is often carried out as a specialist consultation in Assistive Technology Centers (ATCs), especially when inter-disciplinary competence and trial equipment are required [1]. AT assessment is a daily, ongoing, integral part of teaching and learning.

Universal Design for Learning (UDL) is a concept or philosophy for designing and delivering products and services that are usable by people with the widest range of functional capabilities. That includes products and services that are directly usable (without requiring assistive technology) and products and services that are made usable with assistive technology [2]. The law requires that states and school districts develop and administer assessments, to the maximum extent possible, using UDL principles [3]. Both the use of AT and the concept of UDL must be taken into consideration and must be addressed by the student's IEP team.

2. ASSISTIVE TECHNOLOGY DEFINED/REFINED

In general, 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 a child with a disability. Exception--The term does not include a medical device

that is surgically implanted, or the replacement of such device [4].

Included in the definition of AT, there is a section that defines an assistive technology service. 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. The term includes:-

- The evaluation of the needs of such child, including a functional evaluation of the child in the child's customary environment;
- Purchasing, leasing, or otherwise providing for the acquisition of assistive technology devices by such child;
- Selecting, designing, fitting, customizing, adapting, applying, maintaining, repairing, or replacing assistive technology devices;
- Coordinating and using other therapies, interventions, or services with assistive technology devices, such as those associated with existing education and rehabilitation plans and programs;
- Training or technical assistance for such child, or, where appropriate, the family of such child; and
- Training or technical assistance for professionals (including individuals providing education and rehabilitation services), employers, or other individuals who provide services to, employ, or are otherwise substantially involved in the major life functions of such child [5].

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This is the definition as stated in federal stature. However, for the purposes of this paper, the definition is too limiting. In this paper, we will explore the use of AT with all students, not just students with disabilities. This will expand the scope and utilization of AT and UDL with a larger population of students.

When addressing AT, one must remember that first and foremost, AT is a tool and one must not lose sight of that fact. AT is used to help the student meet individual needs and, as such, serves the student. AT is a tool used to help the student meet goals and curriculum standards. It is helpful to remember that the student is the primary focus, not AT.

Second, whereas there needs to be a single person responsible for the AT selection/procurement process, no one teacher is expected to know everything about AT. The selection of AT should be the duty of a committee of professionals, and each professional's expertise and input must be respected and considered in the selection of the device.

Third, AT is specialized and is designed to help the student meet individual educational goals. Therefore, the AT device will become very personalized. If one particular AT device can be used across goals, then that is a plus. However, an individual piece of AT should not be overlooked simply because it can help a student meet only one goal in one area. If the required device helps the student meet that goal, it should be a consideration. The team must not lose sight of all needs of the student when determining AT, but the consideration of devices needs to be determined on an individual goal/student basis.

Fourth, there is a continuum of AT, ranging from no tech to high tech. Generally speaking, the more high tech the device, the higher the costs and the longer the time involved in the acquisition, training and use of the device. Realistically, whereas legally the cost of the device cannot be the single determining factor in the acquisition of the device, there is the cost to the individual school districts to consider. The team must consider how the device will be procured and there may need to be various agencies to help pay for the device [5]. The team must help determine whether a particular device would simply be a "nice thing to have" or would it help the student appropriately meet the individual goals for the educational program [2]. Disagreements sometimes develop between school districts and families related to the definition of "appropriate", and the AT committee should have planned for these disagreements. For example, a student with poor hand writing skills might benefit from a word processor with an enlarged keyboard; however a pencil grip and paper with raised lines may also stabilize the pencil and improve handwriting, thus providing the same result at a considerably reduced cost to the district [2].

This process of evaluation described in this paper is the Referral and Assessment for Assistive Technology

(RAAT) model [7-11]. It is a four-step process for determining both the individual needs of the student and providing the appropriate AT, ongoing support, and continuous assessment to meet those needs.

3. STEP ONE: REFERRAL FOR AT ASSESSMENT

The specific procedures for referring at student for an AT assessment vary according to the official policies and procedures of the school district. However, there needs to be, in place, a process for referring students to the committee for evaluation, thus helping ensure that students do not fall through the cracks and not get the appropriate help they need to succeed. This may be an initial referral, a referral of a transferring student, or a request for a student already receiving special education services [2]. A referral may come from a family member, a physician, a teacher, or other another school personnel. Students may even refer themselves in this process,

After the referral is made, the team meets to consider the request, as a referral does not guarantee that the student will get the device requested. All prior and current assessment data should be considered in the determination of delivery of services. The more information provided the better idea the team has about whether the committee should proceed with a formal assessment. The school district should have a form with the necessary information for the team to consider. The team will want to organize and consider the following information:

- Student data/pertinent personal information
- Medical data
- Vision and hearing reports
- Information about any current technology or equipment currently in use
- Background information regarding any previous related services provided for the student, including any AT that has been utilized but either outgrown or abandoned

Once the team has all of the assessment data and hears the concerns of the family and other team members, the decision to assess may be made [2].

4. STEP TWO: CONDUCTING AN AT ASSESSMENT

The student's instructional program needs to be tailored specifically to that student's abilities and needs and how those needs can be met while addressing the curricular goals and objectives. A multifaceted procedure will need to be in place that addresses the unique needs and abilities of the student. This assessment should be based on information gathered from a variety of sources, including the student's records, additional informal observations and information gathering, and formal assessment of the student's existing skills. It is the job of the AT specialist to actually conduct the assessment but team members will also play significant roles in assisting

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the individual. Assessment data may be obtained through direct observation of the student in several environments, including, when appropriate, home and work environments and through informal and formal interviews with family members, teachers, and the student [5].

Direct Observations During direct observations, the AT specialist will spend time focused on observing the student's abilities and skills, including the following:

- Cognitive skills
- Current use of any assistive technology devices
- Sensory skills
- Motor skills
- Communication skills
- Social skills

For the older student with a disability receiving transition services, the specialist may wish to observe independent living skills, and vocational performance. When very young children are assessed, it will be helpful to include a family assessment. The specialist should record this information so that it can be a reference as decisions are made about particular types of AT devices on a form such as this one.

Student Observation Form

Name of Student:		Observer:
Date/Time/Environment	Observations	Comments
	COGNITIVE FACTORS	
	CURRENT USE OF AT	
	SENSORY SKILL	
	MOTOR SKILLS	
	COMMUNICATION	
	SOCIAL SKILLS	

The first column provides an opportunity to note the time, date, and environment. The time and environment may have significant relevance to the student's abilities and the expectations for that student in that learning environment. A second column provides a reminder of the abilities that are being observed. To get a total picture of the student, all of these areas should be considered in the observation. A third column provides space for editorial remarks, memos, and pertinent quotes from other people regarding the student. These observations should take place across times and across all environments in which the student functions. For example, the expectations for a student in physical education is different that when the student is in a history class. For the younger student, it would be helpful to observe in during active learning events as well as play

time. Depending on the student, it may be helpful to observe the student in non-academic settings such as during extracurricular activities and within the home and community. If it is not possible to observe in multiple environments, then the assessment may rely on interviews with parents, teachers, and the student when appropriate.

5. INTERVIEWS

Interviews allow the AT specialist to gather information about specific areas of interest and give parents, teachers, and the student opportunities to express their experiences, interests, and concerns. Given time and experience, AT specialists will develop their own interview questions. These interviews can yield a wealth of useful information, including the following:

- Family concerns and expectations
- Perceived needs and abilities of the student
- Academic expectations
- Diagnostic information
- Medical information

In addition, for older students making the transition from school to the adult world, the interview should include independent living skills, and vocational performance.

6. FORMAL ASSESSMENT

A formal AT assessment generally involves selected activities in predetermined environments. As format AT assessments are scarce, the AT specialist may use instruments that were not specifically designed for assessing AT but will allow inferences to be made about how the student's skills are interrelated with the need for AT. The specialist may need to match assessments and/or parts of assessments to the student with regard to age, experiences, cognitive level, behavioral issues, and social skills. This summary of all the information collected during the AT assessment will be the foundation on which the team can make decisions as to whether AT is needed for successful student outcomes.

7. PUTTING IT ALL TOGETHER

When the referral, information-gathering, and assessment procedures are completed, the AT specialist will be able to construct a comprehensive picture of the student's strengths and needs. A formal, written report should be compiled by the specialist and presented to the student's AT team. The format of this report will vary depending on the school district, the individual student and the team make up.

8. STEP THREE: THE AT TEAM

The selection and implementation of AT is not an individual decision and should be approached with the team concept in mind. The AT team, which is multidisciplinary in nature, will make the decision based on the report given by the AT specialist considering carefully other information found in the student's assessments. The team should carefully consider the

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student's learning goals and see how the AT allows the student to access the curriculum and meet these learning goals.

Other decisions made by the AT team include training needs for the student and for those working with the student, which may include the family. Training issues should be discussed and decisions made at the time the recommendation for AT is developed. The team should consider device trials and training issues before making an investment in the AT device.

9. DEVICE TRIALS

After the team makes the decision that the student needs a specific AT device for access and support and has decided on the device or devices the student may need, it is time for the team to procure the device. Since many devices are high tech and expensive, the team should research which device they would recommend. Failure to do so may result in overspending or under spending. The team should make every effort to use the device on trial basis to ensure success before making a capital outlay. This may involve borrowing the device for a trial period. If a loaner program is not an option, then perhaps the device can be leased for the short-term. If another student has outgrown or abandoned a similar device, then maybe that device can be borrowed for a trial period. During the trial period, the student and others who will be working with the student need to be trained.

However the team is able to obtain the device, not only must the student, but those who will be working closely with the student must know how to use the device. The time factor will need to be considered and is especially critical if using a loaner with a limited time agreement. Some popular commercial devices are available for a limited time and may have a 30 day "try before you buy" program. But consider that even simple to use devices take time and effort to learn the correct use of the device and the circumstances in which the student will use the device must be considered in the training sessions. Students with cognitive disabilities who have problems with generalization may need to be trained on how to use the device across settings. During the training program, data should be collected to determine how the device meets the student's needs. These data will provide information to make meaningful decisions.

10. STEP FOUR: IMPLEMENTATION OF THE AT DEVICE

After all the preliminary work and decision making based on the assessment, it is time to procure the device and have the student implement it to meet the student's learning outcomes. Once the device has been procured for the student, additional training for the teacher, student, parents and peers may be necessary, especially if the device is different from the one utilized in the trial period. Even after the additional training is completed, the student will still need short-term assistance and monitoring to make sure the device is used correctly

and appropriately. During the early stages it is critical that the student, classroom teacher, family and peers receive support from related service personnel and other members of the AT team. Depending on the individual needs of the student, there may be other related service personnel and other agency personnel involved in the support.

The assistive technology specialist has a significant role in the implementation of the device. This role includes making sure the support is there for the student and seeing that the student is a successful learner. As the student is assessed to see if learning goals are met, the use of the AT device should also be assessed. This ongoing assessment is necessary to insure the effectiveness of the device.

Teachers, other related service personnel, family and peers who are in frequent contact with the student are most likely to have a good overall picture how the student is progressing in the general education curriculum. These members of the student's social network should be informally assessed frequently, as this data will assist the AT team in making future decisions regarding AT for the student. It is recommended that this or a similar checklist be utilized multiple times at the same times the student is assessed to see if the student is progressing toward meeting goals and other curriculum standards. Any items that are not being appropriately addressed should receive immediate attention to resolve the issue. This may include reconvening the AT team or simply consulting with a team member. Any significant changes will have to be addressed by the AT team.

- Is the student using the AT device to meet educational goals and/or curriculum standards?
- Does the AT device allow accessibility to learning or demonstration of knowledge?
- Is the AT device as unobtrusive as possible in classroom environment?
- Is the student able to generalize the use of the AT device to other environments?
- Is the student receiving the necessary support from school personnel to effectively use the AT device?

If issues and concerns are addressed immediately, student learning will not be interrupted, the student will continue to progress, and there will be little probability of AT abandonment.

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