Chapter 9 - Assistive Technology for Organization

Assistive Technology for Organization

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Organization is the name commonly applied to an underlying skill set needed to be successful throughout the education process. It is often not a targeted component of the curriculum but plays a significant role in the achievement of curricular goals. Definitions may vary but for the purposes of this chapter and the assistive technology tools and techniques, we will discuss skills in the areas of self-organization, information management, time management, and materials management.

Introduction

Lack of organization can be a barrier to student's performance of everyday tasks and assignments. Although specifically not addressed as a subject area for instruction, different methods of organization are taught throughout the educational process. As early as their first educational experience, students are expected to follow the organization utilized in the classroom: using a cubby or locker to store their belongings; following a daily schedule to delineate when there are different classes; and recess and lunch times. As the students move up in the grade levels, other techniques and tools are used to help students stay organized: folder and notebook procedures to distinguish between what goes home and what needs to come back to school; daily planners or organizers to write down and remember assignments; templates for assignments, etc. Some schools have begun to move their organization of information to a digital format, listing class assignments, scores, grades on their web site which is accessible to their students anywhere anytime. Yet despite these structures put in place for them, some students still struggle with various aspects of organization.

This chapter is organized in accordance with the Decision Making Guide following the SETT format (Student, Environment, Task and Tool). The *Student* section will assist you in determining skills and abilities exhibited by the student to perform the organizational skills necessary for functioning in the academic environment. The *Environment* section poses questions to consider concerning the impact of the students environment, the teachers expectations, and how the environment might impact on the choice of assistive technology for organization. The section on *Tasks* for organization poses questions to help determine what is required of the student in order to appropriately choose an assistive technology solution. Following Tasks is a section on *Tools* beginning with the continuum of assistive technology to be considered. The continuum is organized from low to high technology. A more extensive listing of tools and strategies under the continuum subtitles follows. The chapter concludes with a discussion of a feature match process and steps for implementation. Chapter appendices include sample IEP objectives, references, resources, and product charts.

Using the SETT process and Decision Making Guide

It is intended that you use this as a guide. The Decision Making Guide follows the SETT (Student, Environment, Task, and Tool) format with a subcategory of Sensory Considerations included with Student and Environment. Additional categories include:

- Narrowing the Focus to help identify a specific task in order to select appropriate assistive technologies.
- Implementation Plan to assign trials, dates, responsibilities and data collection.
- Follow-Up Plan to set a date for the team to reconvene and review the student's progress.

Again, this is intended as a guide; during the actual assessment process, each topic should be written in large print where everyone can see (i.e., on a flip chart or board). Information should then be transferred to paper for distribution, filing, and future reference. For more information about using the SETT process, please refer to Chapter 1 of this manual.

The questions posed in the guide are not intended to be all inclusive but rather to prompt the team to consider as many factors as possible in order to identify and ultimately try appropriate assistive technology tools and strategies for their students.

Disclaimer: this is a brief introduction to an understanding of organization not meant to be all-inclusive, but to give the reader a basic understanding of organization to better select appropriate assistive technology supports.

For a review of the literature related to organization and articles addressing a multitude of organizational information, refer to the reference section at the end of this chapter.

WATI Assistive Technology Decision Making Guide

Area of Concern: <u>Organization</u>

PROBLEM IDENTIFICATION

Student's Abilities/Difficulties	Environmental Considerations	Tasks
What are the student's abilities & difficulties related to organization? Does the student have strengths or learning styles that could facilitate an organizational system? Identify specific issues: • Organization of time, information, or materials? • Self-regulation? • Cognitive strengths? • Classroom issues? • Managing time? • Missing deadlines? • Poor use of work time? • Frequently late? • Messy work areas/lockers? • Difficulty getting started or prioritizing work tasks?	What environmental considerations impact the area of concern? Are any of these barriers interfering: • Time to teach organizational skills? • Organizational skills in curriculum? • Time between classes? • Sufficient physical space? • Study rubrics, learning grids? • Structured work environment? • Sufficient materials, time, and work spaces? • Performance variable? • Does the teacher struggle with their own organizational issues?	What task(s) do you want the student to do? • Arrive on time? • Arrive ready for learning? • Have materials needed for class? • Organize papers and materials independently? • Organize their work area/locker? • Retrieve needed materials in a timely manner? • Complete projects successfully? • Generate a multistep plan for longer projects? • Develop their own organizational system?
Sensory Considerations		**Narrowing the Focus**
Hypersensitivity or hyposensitivity to stimuli such as: visual clutter, different lighting; classroom and background noise; tactile stimulation; awareness of physical space / personal space; other individual specific sensitivities		i.e. Specific task identified for solution generation (such as) one from the list of tasks above
Solution Generation Tools & Strategies	**Solution Selection Tools & Strategies**	**Implementation Plan**
Brainstorming Only No Decision	Discuss & Select Idea from Solution Generation	AT Trials/Services Needed: Date/Length/Person Responsible **Follow-Up Plan** Who & When-Set specific date now.

Important: It is intended that you use this as a guide. Each topic should be written in large print where everyone can see them, i.e. on a flip chart or board. Information should then be transferred to paper for distribution, file, and future reference.

Student's Abilities and Difficulties

As a team, discuss what the student's abilities and difficulties are related to organization. Please complete and review Section 8 of the WATI Student Information Guide: Organization (Chapter 1, page 38).

Indications of difficulties of organization are demonstrated in many ways. The student needs adequate support and skills to perform educational tasks. To help the team to better understand the abilities and difficulties there are questions that may be asked to elicit the child's current level of functioning with regards to organization.

What are the student's abilities and difficulties related to organization?

- Is the student able to self-regulate?
- Does the student have fully developed cognitive strengths?
- Does the student struggle to organize information?
- Does the student struggle to organize their time?
- Does the student struggle to organize their materials?

What evidence of organizational problems do we see in the classroom?

- Does the student have difficulty managing time?
- Do they miss deadlines, have difficulty managing work time or are they frequently late?
- Does the student have difficulty managing materials and workspaces?
- Does the student have work areas\desks\lockers that are a mess?
- Does the student have difficulty organizing information for projects or completing longer assignments?
- Does the student have difficulty getting started on projects, and extracting important or pertinent information?
- Does the student have difficulty prioritizing work tasks?
- Does the student have trouble handling multiple or multi-step assignments?

Sensory Considerations

Some students are adversely affected by environmental stimulation that others can filter out or ignore. Some common factors that can impact a student's learning and focus include hypersensitivity or hyposensitivity to stimuli such as

- Visual clutter
- Fluorescent lighting versus full spectrum lighting
- Classroom and background noise
- Tactile stimulation
- Awareness of physical space / personal space
- Other individual specific sensitivities

Below are factors that are not directly related to organization, but can impact the student's ability to focus on instruction and learning. Consider the following:

- What sensory challenges does the student have that impact organization?
- Do they like or dislike certain textures, visual information or clutter? For example folders or book covers that have various surfaces: shiny, smooth, bland.
- Does the student have the ability to explain why they need to use fidget toys or other types of self regulating strategies?
- Does the student have tools and strategies to assist their own sensory regulation as it relates to self-organization?
- Do they prefer flat storage or upright as in a locker?
- Do they use a separate container or a holder inside the notebook to store pencils or other small items?

Other Considerations
Each individual student has specific skills and areas of concern. Be certain to address those as you capture the particular traits of the student in this part of the SETT process.

Some questions to consider:

- Does the student have tools that can assist their cognitive strengths?
- Does the student have and/or use materials that meet their learning style?
- Does the student have specific tools to help focus their attention on educational tasks?
- Does the student have organizing strategies that match their needs?
- Has the student/parents been interviewed about current organizational challenges and strategies that have been tried in the past?

Environmental Considerations

As a team, discuss and write on chart paper any environmental considerations that might impact the student's organization such as auditory or visual input, placement of the student in the classroom, number of different environments or any other environmental impacts.

What environmental considerations impact the area of concern?

Are these common barriers interfering with the acquisition of organizational skills?

- Is there time to teach organizational skills?
- Are organizational skills built into the curriculum?
- If the student has to move between classes, is there enough time between classes?
- Are time and space management still emerging skills for many elementary and middle school students?
- Does the teacher struggle with his or her own organizational issues?
- Is there sufficient physical space to organize materials?
- Are study rubrics, scaffolding or learning grids available to help students break large tasks into smaller units?
- Does the student have cognitive strengths deficits that may be impacting their processing? Is there time to back track and work on these underlying skills?

- Is the student's organizational performance variable?
- How structured is the work environment?
- Does the lesson structure include strategies that support students with cognitive strengths difficulties?
- Are there enough materials, time, and work spaces?

Sensory Considerations
Different environments have different levels of sensory stimulation. If the team has determined that sensory issues influence the student's learning, identify the sensory levels in each environment that impact the student's ability to organize.

Assistive Technology: past and present
What assistive technology (AT) has been employed in the past or is currently used with the student? List all assistive technologies that have been used with the student. If some have been discontinued, make note of the reasons. Sometimes effective tools are discontinued for reasons that no longer exist such as computer conflicts, lack of training, lack of interest, or other reasons. Do not discount assistive technology that was previously tried and discarded. There may have been a mismatch between the assistive technology and the student's skills at the time. Differences in skill development, maturity, a different environment or other factors may make all the difference. If the student is currently using assistive technology note the AT used, location, level of effectiveness, trained staff, and any other issues that are pertinent to the student/building. Be certain to list low and high tech AT supports.

Tasks

As a team, discuss and write on chart paper the organizational writing tasks that the student needs to do.

One of the most important questions when assessing a student's need for assistive technology is: what are the tasks the student needs to do? These are some questions to consider:

- Does the student arrive ready for learning?
- Does the student arrive on time?
- Does the student arrive with materials needed for class?
- Does the student organize papers and materials independently?
- Is the student able to organize their work area?
- Does the student retrieve needed materials in a timely manner?
- Does the student arrive with projects completed successfully?
- Is the student able to generate a multi-step plan for longer project?
- Is the student able to identify or articulate emotional issues that may cloud or interfere with attention needed for organizing?

Narrowing the Focus

As a team, identify by circling or highlighting those few tasks the student needs to do for organizing that will have the most impact.

After the team has generated a list of tasks that the student needs to do, you may want to refine the list to limit the tasks that the team (including the student) will focus on. Too many tasks can overwhelm the team. Introduction of too many factors and tools may reduce your ability to determine effectiveness. Maintain your original list of tasks and review it later. Some tasks may already be effectively addressed with the new tools/strategies that you are using. The tasks that remain can become your new focus at a later date.

Solution Generation: Tools/Strategies

As a team, brainstorm and write on chart paper any assistive technologies and/or strategies you think will assist the student in successfully completing those tasks you identified.

At this point, the team brainstorms strategies and assistive technology tools that may be of benefit for the student to complete the identified tasks in the given environments. Do not critique or otherwise evaluate the suggestions at this time. List all suggested tools and strategies including those currently in use on chart paper for all to see. The tools and strategies discussed below follow the general continuum for organization. The continuum is generally organized from low to high Assistive Technology. It is not intended to be used as a step-by-step protocol for using AT tools with a student, but rather an organizational continuum of types of Assistive Technology. Subsequent to the continuum is a more in-depth description of select tools.

Background

Organization is a complex process requiring many components. This skill is important to overall student success. Throughout a student's educational career multiple methods and systems of organization are required. Many students struggle with how to use organizational skills to improve their work. Numerous components are involved in the organization process. These include: self-organization; information management; time management; or materials management. Understanding the components required to complete a task is paramount and helps us to provide assistive technology that supports a deficit area. Having background information in an area of study known as executive functioning helps staff to understand its role in supporting and contributing to organizational needs of students.

Executive functioning
Organizational skills are components of a broad set of skills often referred to as executive functioning (EF) skills. Currently there is no standard definition for EF, but the following definition outlines EF: executive functioning is a neuropsychological concept referring to the cognitive processes required to plan and direct activities, including task initiation and follow through, working memory, sustained attention, performance monitoring, inhibition of impulses and goal directed persistence (Dawson & Guare, 2004). Authors and practitioners (Dawson & Guare, 2004) (Warner, 2008) acknowledge several different categories of these skills, agreeing with the following 10 types of executive functioning (EF) skills: sustaining attention, shifting attention, inhibiting impulses, initiating activity, planning and organization, organization of materials, time management, working memory, and emotional control. All of these executive functioning skills work together to support self-organization, information management, time management and materials management.

To understand the underlying skills needed for organization, a brief explanation of EF taken from Warner (2008) will delineate the components of EF and their relationship to the different areas of organization in this chapter.

Sustaining attention
The proponents of Executive Functioning (EF) literature would suggest that sustaining attention is a significant precursor to organization. Sustaining attention is the ability to hold one's focus on the task at hand long enough to complete it. It is a pre-requisite to other executive function skills. It is difficult to stay with or stick to an activity without sustained attention, so even the best organizational methods can't be utilized if the student can't attend to the teacher explaining the task, the organization or any other information.

Shifting attention
Shifting attention is the ability to move freely from one situation, activity or aspect of a problem to another. This includes the ability to respond to feedback by letting go of an idea or strategy that is proving ineffective. Flexibility in solving problems, making transitions, and coping with unforeseen events is also part of the concept of shifting attention. Students may have difficulty making transitions because they are "stuck" on activities due to anxiety, perseveration or compulsiveness. Students may also have difficulty "settling in" once they enter a new classroom or start a new subject.

Inhibiting impulses
The ability to control impulses is an important part of determining what needs to be attended to as well as the ability to appropriately stop one's own behavior at the proper time. Lack of impulse inhibition allows the student to attend to information beyond what is important. The inability to tune out extraneous information is often observed as distractibility. Students may appear distractible because they have difficulty stopping themselves from responding to distracters. The capacity to think before acting and the ability to resist the urge to say or do something long enough to evaluate the situation and how our behavior might affect it will also influence the ability to follow through on organizational tasks through the school years.

Initiating activity
Another component of EF is the ability to initiate activity. This is the ability to begin a task or activity without undo procrastination It also encompasses the ability to independently generate ideas and the drive, desire, or motivation to complete work.

Planning and organization
Planning and organization is the ability to prioritize and develop steps necessary to complete a task. It often involves multiple steps and components to complete a task, and without the proper planning and organizing many school-based activities are not successful. Many times a teacher is able to note that the student has difficulty in this area, but they (both student and teacher) are unable to figure out the steps, where the difficulty is occurring, or the type of difficulty that is causing the lack of success with planning and organizing.

Organizing of materials
The organization of materials is often an area easily identified by the teacher as an outward picture of lack of organization. This is the ability to keep one's workspace, play areas, and materials orderly. It also encompasses the ability to determine what materials or resources are necessary for a task and have them readably available. Students who have difficulty with organization may lose materials and/or fail to turn in completed work. Organization of materials does not always equal neatness. Many people are able to have a system of organization that on the surface appears messy. However, the true test of an organization system is whether materials, information or any other needed item can be found in an efficient manner.

Time management
Time management is an area of Executive Functioning (EF) that is also easily observed by teachers in the classroom. It encompasses the ability to estimate how much time a task will take. The student must have the ability to estimate how much time one has, how to allocate it and how to stay within time limits and deadlines. It is the simple fact that the student recognizes time is important. Often when time management is an issue, the use of a parking lot will allow an extraneous idea to be acknowledged and set aside or 'parked' on a separate paper to be addressed at a later time. This allows the student to acknowledge that the other information may be important but that it is not part of the current project.

Working memory
Working memory is the ability to hold information in your mind while you complete a task. A student must be able to keep information needed to complete a task in their mind. The student must also be able to hold and move between different sets of information long enough to use them. This also encompasses the ability to draw on past learning and apply this to situations in the present and the future.

Emotional Control
Emotional control is the ability to manage emotions in order to achieve goals and complete tasks. The ability to control one's emotions is a significant factor in achieving executive functioning. Students who have difficulty with emotional control may go into a fight/flight mode about an issue and are then unable to focus on the task at hand. Teachers may note that the student comes to the classroom already in an emotional state and that it is very difficult for the student to move beyond the emotional state to address the learning that is to take place.

Self-Management

Sensory input as a basis for self-organization
A student needs to sort through a constant stream of sensory information and needs to employ self-regulation strategies to help decide what needs to be attended to and what extraneous information is. Much of our early learning experience is triggered by what we process at a sensory level. For some students, especially a student with sensory processing limitations, the skill set of learning may be skewed.

How does a child with visual impairments learn that there are objects to reach for and in the process develop the arm and hand functions needed for reaching? How does a child with motor problems learn the joy of catching something rolled or tossed their way? What happens when they miss the early social interactions of throwing the object back and forth with a parent or sibling? How does a child with attentional difficulties focus on the important sensory information (auditory/visual) required to comprehend the directions or information from their teacher when there are many environmental sensory distractions?

Acquisition of Information
The brain creates a “filing system” that expands constantly to accommodate new sensory information. That experiential filing system plays a critical role during a student’s school career, as new information to be learned is often compared or tied to what they already know. For some students, the filing system they have created may not match up with the expected experiences needed for successful school performance. Programs such as Birth-to-Three Interventions, Head Start and Early Childhood are designed to increase the early experiences of children so they are ready for the demands of school and life. Even with these programs in place, some students may not arrive with the filing tools they need. It is important to assess and perhaps take a step back and build the cognitive strengths needed for later learning tasks.

A child with a physical disability may miss out on some of the experiences that peers take for granted. A child in a wheelchair may not get to experience the social connections that his classmates get sitting at their worktables. The tool for mobility impacts the social and access components of learning. The wheelchair may make it difficult to pull up to the table or motor issues may make getting on the floor to play with a friend difficult. A child with communication difficulties, whose only means of expression is a simple picture board, does not get the same practice using words that a talking peer, affecting the development of conversational skills, play with words and sentence structure. The reality is that a student arrives at school with a set of experiences and a system that processes sensory information in a way that is unique to them. Sometimes it is important that we step back and help them to learn and navigate with new skills they may not have encountered before. It is never too late for a child to develop cognitive strengths and there are tools that can help these students navigate the school experience with more success. The question from an AT perspective is how we can use technology tools to support sensory systems, learning styles and cognitive strengths in the school environment.

Sensory Engagement

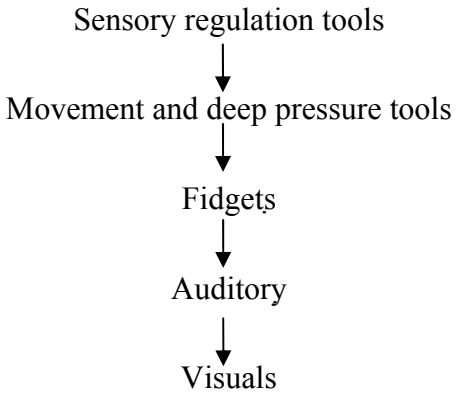
Eric Jensen in *Tools for Engagement* (2003) talks about strategies that tap into sensory strengths to increase student engagement. He uses simple routines (similar to motor feedback loops) repeated constantly to help clue young students into the actions, such as upcoming transitions, returning attention to the teacher after group activity, or drawing the children's attention into learning experiences. Simple strategies that can be employed to help children focus include: deep breathing to calm and focus an excited group or calm a tense situation; simple call back games; or playing certain types of music.

Use of Motor activities to reengage

The popularity of *Brain Gym* or *Yoga for Kids* may be due to the use of a motor feedback loop between movement and attention to help students stay focused. Tapping into any of the sensory loops can be effective for "brain access". Sensory diets and fidgets may be used to help a student stay in an attentive state. One example would be to use a wind chime as the call-back mechanism after group activity. The pleasant sound draws student attention gently and the teacher's beatific smile reward the students' quick response and attentive behavior.

Judy Sweeney, a professional and specialist in the area of assistive technology, found sensory processing played a role in technology tool selections depending on the student's preferred learning style. She found that visual schedules and *Time Timers* worked well for students with visual preferences, while print schedules and alarm sound features worked better for those who preferred auditory feedback. Sweeney created an Organization Problem Inventory which can be viewed at her website www.onionmountaintech.com It is also at the end of this chapter.

A Continuum of Considerations For Assistive Technology-Self-Management



AT Tools for Self-Management

Sensory Regulation Tools

Talk with your occupational therapist about resources to learn more about sensory processing tools that can regulate student sensory systems. Sensory Diets are quickly gaining popularity in many schools, especially for students with an autism spectrum disorder. While general suggestions such as deep breathing, heavy work, motor breaks, fidget toys, white noise or music are useful tools to help a student regulate their attention, it is important to work with an occupational therapist trained in these types of interventions while putting programs in place. Sensory stimulation activities can be very prescriptive. Swinging, deep pressure, heavy work and brushing/ joint compression programs can be very effective tools in self management, but need to be monitored regularly by someone who understands the neurological ramifications of what is being done to the child. Misinterpretations of a child's behavior can have a negative impact on their school performance.

Movement and Deep Pressure tools

Movement tools may include *Activa Disc*, *Disc O Sit* as well as *Move-n sit* cushions, ball chairs, swings, bikes or rocking chairs. The student uses the movement to help them maintain attention. The cushions, ball chairs and rocking chairs may provide in-class tools a student can use to move less obtrusively while maintaining attention. Swings provide rhythmical or arhythmical movements for a child who needs to regulate their sensory system. It is important to work with a trained occupational therapist when using this type of tool. Some students may need sensory breaks that allow them to move outside of the classroom. Bikes and playground equipment such as swings or merry-go-round can help calm some children. Movement may be paired with a heavy work activity such as carrying the full milk crate back from lunchroom or wearing a weighted or pressure vest. Heavy work and deep pressure tools are also used as calming activities.

Fidgets
Fidgets include small objects that can be compressed, stretched, manipulated, or moved. These may include a small rubber ball, silly putty, small fine motor toys, add-on pencil erasers that have a squishy or movable component or toys that fit in the hand but can still move. Fidgets are used to add movement in a non-obtrusive way. The movement may be needed to help the child maintain attention or to relax an anxious student. The challenge for these tools is to ensure that they are not misused and become more of a distraction for the individual student or peers than a tool for helping the student focus on tasks. Rules for use of these items are needed.

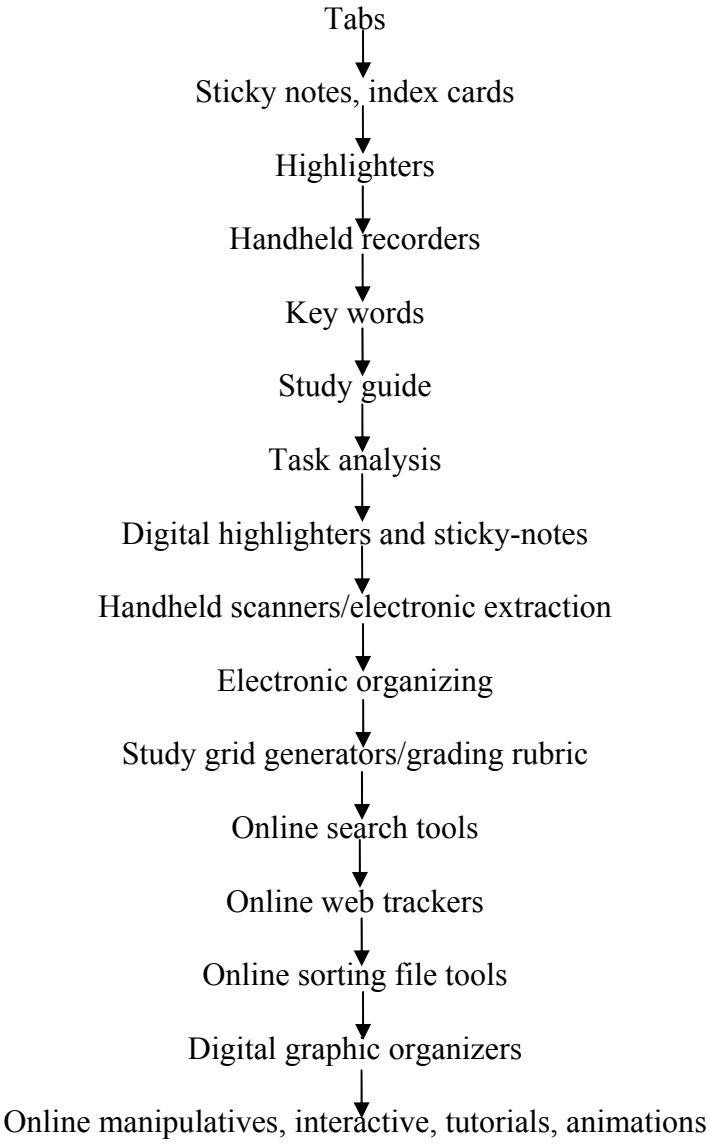
Auditory Tools
Music: Music can be a useful tool in self-regulation. Think of your own experiences. What kind of music do you listen to when you're happy? What music do you choose when you're sad? Is the music you choose on Friday night as you are going out to meet friends, the same music you would study to on Sunday evening? For most people, the answer for each of these questions would be different. Music theory has looked at the beats per minute as one means of moderating sensory experiences <http://faculty.washington.edu/chudler/music.html>. A Stanford study used functional magnetic resonance imaging (fMRI) technology and found that music engages the areas of the brain involved with paying attention.
White noise: some students may benefit from a headset that uses white noise as a block or filter for environmental noises that are distracting them. The white noise works to block the distracting background noises.
***Hemisync*:** There has also been brain research on using music to help the brain achieve a higher level of attention, concentration or relaxation. Some students may benefit from certain types of music while they work. *Hemisync* is just one example of this type of specialized music; they also have a CD recording of white noise.
Noise reduction headsets: Noise reduction headsets can be used to block out all external noise to help students maintain a focus on school tasks.

Visual Tools
Social stories, paper, symbol or visual clean video
Social stories were designed to help students anticipate changes or particular situations they might encounter during the day. Some students may have difficulty reading the subtle cues a teacher or classmates send to prepare for transitions in their day, such as going out to recess, changing classes or getting ready to go home. The social story is created to step them through what will happen during the transition using a simple structure that explains what needs to happen, give the steps needed and acknowledge feelings.

Social stories can take several formats. Some students may need real pictures, showing step by step what they need to do. Others may have picture schedules generated from a symbol library such as *Boardmaker*© or *Picture It*©. These systems are usually paper-based. Sometimes there are removable pictures that the student takes off as they complete the expected routine. With the emergence of video, some students may benefit from short video clips demonstrating what they are expected to do. These video clips are becoming more easily accessed through handheld devices. They can also be reviewed multiple times at school or at home for as long as is needed.

A Continuum Of Considerations For Assistive Technology

Organization - Information Management



AT for Information management

In the school setting students are expected to acquire, retain and use information. Managing information can be a challenge. Technology can help students manage and sort information to facilitate communication and comprehension. For the purposes of this section we are going to look at tools that can help a student manage and utilize information to complete required tasks.

Tabs: Most students in middle and high school have large textbooks that they need to navigate. These textbooks may have key sections the student may need to reference frequently such as a

map section, appendices, a dictionary or vocabulary definition section or the last page accessed. Removable book tabs can be put in the book to help students locate these sections quickly. The tabs can also be used to mark the questions at the end of the chapter, selections that contain pertinent information or any other place that needs to be referred to frequently.

Sticky-notes/ index cards: Sticky-notes may be used as temporary book tabs to mark where they stopped reading or to mark a chapter they need to reference. Another use of index cards or sticky-notes is to gather information as it is found in resource materials. The student writes the key points that they needed for their project onto the sticky-notes or index card. These can then be moved around on a desk or wall as a portable paper graphic organizer. Students can start to learn to chunk pieces of information that are similar or to look for patterns in the ideas they have noted from the information they have read. This organizational step is often missed by struggling students and is a very concrete way to start organizing a project.

Highlighters: Highlighters offer another way for students to interact with the informational text they are reading**.** The student may use a highlighter that is erasable or use a regular highlighter to mark handouts or worksheets. Highlighting offers a visual reminder about the text having some importance for the student. Some students may use a range of colors to mark text by category, i.e., all items that address timeline issues during the Civil War are in blue and all items that talk about causes of the war are in pink.

Steps for highlighting include:

1. Read the passage to obtain general idea of the material.
2. Reread and look for key words and concepts.
3. Highlight important information.

Students often do not follow all of these steps as they involve multiple reads of the information and they may have difficulty reading through it once or have issues with analyzing or synthesizing skills. This may be why they highlight too much information. Providing keywords to look for may help them start to learn how to identify important information. Highlighters come in several formats: erasable, some have built-in caps, which help keep all the pieces in one place, or highlighter tape.

Hand held recorders/Pocket minders: Digital or audio recorders may be used to capture thoughts and ideas verbally. A student records a message such as “I need to remember to bring flour for the papier-mâché project tomorrow” or “Read chapter 8, answer the study guide and questions on p.44 and 45.”

Keywords: Understanding key vocabulary is critical to organization of projects that are going to be written. Marking in a book or creating keyword sheets can work as a quick reminder about what the words they are using actually mean.

Study Guide: A study guide can help students navigate print and digital information and aid a student’s comprehension. It can provide a framework for learning tasks and classroom expectations. The study guide design can incorporate leading questions, to drive the process of information gathering, and shape the supports a struggling student may need. It can help

students identify and organize important information and help the students learn to think about and ask questions to support their comprehension while they are reading text.

Task analysis: Students may need paper or digital worksheets to help them analyze bigger projects. The purpose of a task analysis is to break down bigger elements into smaller more manageable chunks and to identify potential problem areas a student must navigate to complete the project. For sample sheets see the Resources section at the end of this chapter.

Digital highlighters and sticky-notes: Digital versions of highlighters and sticky-notes, often freeware or inexpensive software, allow students to highlight a webpage. Some of these highlighters will allow the highlighted text to be extracted to a word processing document or a digital graphic organizer such as *Inspiration* for future sorting. Sticky-notes are also available in digital form allowing a student to add their thoughts as they read from the web. These notes can also be sorted and added to a graphic organizer. These are built into programs like *WYNN*, *Solo*, or *Microsoft Word* (see Chapter 7 – Assistive Technology for Reading).

Handheld scanners and electronic extraction: Handheld scanners and electronic extraction can be used to convert paper documents into digital formats. A typical scanner would convert the document into a picture, but some of these tools are even able to convert a paper text document into a digital text format using OCR (Optical Character Recognition- see Reading CH. for more information). This may help the student access the text via a text reader or to highlight, cut-and-paste, or move text into a graphic organizer. The systems mentioned below are small enough to fit in a pencil case or pocket for on-the-go use.

- *Infoscan*
- *Kurzweil Knfb reader*
- *Docupen* 800 (OCRs with paper port) - http://planon.com/docupen_rc800.php

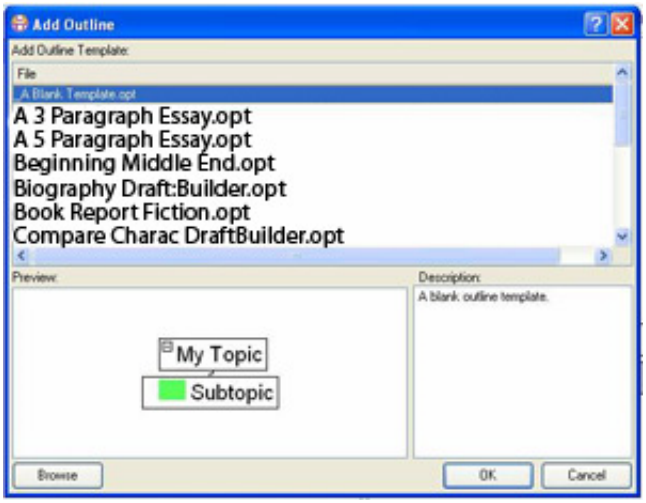
Electronic organizing:
There has been an explosion of web-based tools to support organizing information gathered on the Internet. Tools range from the development of study grids and task checklists to an array of online search, interact and track features. There are tools that can highlight or clip key information. Other tools may help track information as it is collected for later referencing. Web tracking software captures the sites a student is using. Other sites can help a student identify the type of form that is needed to complete a project with an outline of that format. This form can help guide the student through the creation process. There are even sites that can format references and resources.

Study grid generators, grading rubric:
A study grid helps students organize the search for information by identifying key concepts or questions a student may have as they read a text. These questions guide student to develop the internal thinking needed to extract meaning from information they read.

- Don Johnston's *Solo* product has ready-made templates and space to develop a study guide as part of a reading assignment. The product also has a read-aloud support feature to help students struggling with decoding.
- *Report Writer Interactive* is another tool that provides a study guide concept around reading/ writing activities. Identify the desired end product such as an essay or persuasive

argument and the program asks the user to answer questions that can guide their thinking on the topic.

- *Rubistar* is a web-based tool that templates study rubrics and is customizable to project needs.



Solo Templates
Image from Don Johnston, Inc.
www.donjohnston.com
Image used with permission.

Here are some other study guide templates with read aloud support

- http://ksdl.ksbe.edu/writingresource/typeswriting.html
- http://www.donjohnston.com/downloads/solo_templates/index.html (need *Solo* to view)
- http://www.brainpop.com/english/writing/typesofwriting/preview.weml
- Rubistar http://rubistar.4teachers.org/index.php

Online search tools: *Nettreker*, *Thinkfinity*, or *Awesome Library* offer age appropriate as well as protection from inappropriate sites while searching the Internet for information. Online search tools can be used by students to gather information or by the teacher to find alternate forms of the information that may better meet a student's particular learning style.

Online web trackers: Online web trackers track where a student has traveled during a web search. Useful for later referencing of sites, it helps when a student forgets where they found something and helps teachers leave a trail of sites for students to visit.

Online Sorting File Tools: In addition to online tracking software, file storage may be needed as a student works on a specific project. Teaching students to create files to store their information is common. Unfortunately there is a tendency to over bookmark and save files, just like we do with paper. This can make finding what you need tedious. Social bookmark sites such as Delicious (http://delicious.com/) allow the information to be tagged in multiple locations.

Digital Graphic Organizers: Graphic organizers can help students organize bits of information into summarized units. These organizers help students capture information in a format that can be sorted and then moved to the linear format. *Inspiration* is a common program in many schools that follows this concept and then allows the outlined to be exported to a word processing document for finishing. *Spark-Space* (http://www.spark-space.com/) adds a rotational

3D view that can help students with strong visual spatial skills. Additionally there are 2 free organizers, *C-Map* and *Bubbl:us*, that allow access to graphic organizing on the web.

Payne (2003) found that students could use digital graphic organizers, such as *Inspiration* and *Kidspiration* to capture their circular thinking in the diagram mode and then connect those thoughts in the outline mode to create an informational linear document a teacher would expect (p 49).

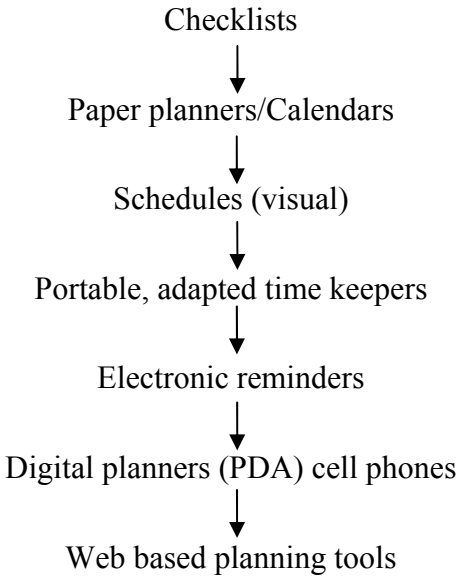
Lynne Anderson-Inman (n.d.), in her research on electronic study tools, found a connection with improved student performance when she used digital graphic organizers with students. The students could move the information pieces surrounding a topic in order and then switch the data into another view called outline mode. She found that the students using outline mode could see the gaps in their information and take corrective action.

Online formatting: The goal of these programs is to ease the pain of referencing projects by helping students keep track of their sources or to assist in the formatting. The following are some tools that are readily available.

- End notes in MS word http://www.endnote.com/
- Ref Works, Bibliographer in *Read and Write Gold*
- Format sites http://www.refworks.com/

Online Manipulatives, Interactives, Tutorials and Animations: These tools allow students to interact with content material in a format that fits their learning style. To find these, use Internet search engines and the key words such as animations, interactives, manipulatives or tutorials. *Thinkfinity* and *Nettreker* offer streamlined searches to look for these types of websites.

A Continuum Of Considerations For Assistive Technology
Time Management



Time Management
Time is an abstract concept that can be difficult for a student to understand. At a construct level, time is a way to sequence events, bring visual or kinesthetic expression to the chunking of routines throughout the day, demonstrate how a routine can be measured into systematic and expected units, understand that those units are known as "time" and build the duration a student may need to sustain attention, work, or stay in their seat for a period or "unit" of time.

Using Task Analysis to make tasks more manageable
Use of task analysis may help determine how time fits into the required activity. There is a tendency for students to underestimate how long project components can take. Task analysis is not necessarily an intuitive skill but is essential for learning time management not only for school projects but for the work tasks students may be asked to take on later in life. Task analysis asks the student to take a project and break it down into small, sequential tasks. To use a garden analogy, if the goal is vegetables in August, a student would need to prepare the soil, plant the seeds, weed and mulch, water, and weeks later harvest the results. There won't be any vegetables if they forget to plant and water.

Helping students learn to break larger tasks into smaller more manageable phases of the project with intermediate deadlines can be helpful. Just like study guides help students read for meaning, task analysis helps a student gain understanding on what needs to be done and how long it will take. Students learn that big projects are just a series of little steps sequenced together and that smaller steps can make a project feel more manageable.

A student's understanding of how much time each step really takes is another challenge in learning how to manage time. One strategy that may assist is to use a stopwatch to time how long

a task takes. The student estimates how long they think a task will take and then use the stopwatch to see how long it actually takes. Many students in middle school, in particular, are surprised by the time it takes to complete tasks. Estimations may be based on completing the task without any interferences, glitches, or interruptions.

AT for Time Management

The student's ability to manage time is an important aspect of organization that greatly influences success in the educational setting. The following are devices and techniques that can assist with the student's ability to manage their time.

Checklists

Checklists work as the first step of integrating time management and task completion. Generating a dated checklist can help a student stay on track for assignment completion as they identify the task to be done and the date that it is due.

Planners - paper or electronic

As the child moves into late elementary, assignments may grow in length and complexity. Planning the steps and time needed to complete the task may be facilitated by a task analysis of the activity and creating a project checklist. Paper planners, calendars or assignment notebooks can help define, plan, or visualize the time needed to finish work tasks. Graphic organizers as simple as a calendar can be used to plot out how much time is left before a project is due or to set interim goals. This is not an intuitive skill for most students so instruction in breaking big projects down into smaller components can be a real help to successful completion.

Personal daily planners, portable calendars or notebooks can be used to keep track of what needs to get done each day. Reference information that is needed frequently may be added to these systems such as phone numbers, website links, reference materials or e-mails are just a few bits of information that may be added. One digital tool is the *Pocketmod System*, which uses a piece of paper as the base for a simple portable organizing tool. It can be found at the following web site: http://www.pocketmod.com/v2/.

Graphic organizers, either the paper or digital varieties, can help students visualize the smaller steps and organize those steps into a sequence. Examples of digital graphic organizers include: Inspiration, bubbl:us (located at http://bubbl.us/), *Spark Space* or *C-map*.

Perhaps the most widely recognized graphic organizer is the calendar. Students may need a calendar program to organize the day, week or month. Paper versions can come in handy as students plan out when they will complete multiple assignments and long term projects. They may also need to schedule appointments and after school activities. Paper is often used in the early stages of this type of organizing but students may also utilize computer digital options that allow more flexibility in adding or subtracting new events. One common version is *Microsoft Outlook*, which offers not only a calendar feature that can be accessed at home or school, but can be integrated with phone and email contacts. *Outlook* can also send reminders to a student's screen when they turn it on in the morning. Another calendar resource is available at http://www.calendarsthatwork.com/membership.php.

Schedules (visual)

Any type of schedule helps to frame the events that will happen in a day. Items like class times, transitions, and special events can be shared with a student so that they can anticipate or plan for the various activities. These schedules can help students who do not transition well or who are upset by routine changes. The schedule is reviewed with the student throughout the day to help them anticipate what comes next. There are several formats for these schedules dependent on what a child needs. Some schedules may just use words; others may use pictures, symbols or videos. The schedule can contain a general overview of each day, or step a child through chunks or difficult sections of the day.

To understand the sequencing aspects of time, a teacher may want to create a visual schedule that is reviewed with a student to help them prepare for transitions or for what is coming next. Social stories may help a student successfully navigate a routine on their schedule. A kinesthetic component can be added by having the child move pictures to a "finish" box on a picture schedule as they complete each task. Consistent review of the day's schedule can help students prepare for what will happen next. Even a student who is unable to read can use a list of pictures of their daily activities to make note of the activities they have accomplished in a school day. They can then use this list to communicate with those at home to show what was done at school.

Picture-based schedules may be used to assist a child who does not understand verbal or word based schedules. Real pictures from the classroom or symbols may be used to represent various parts of the schedule. Some versions have the child remove pictures as they complete the task. Others are more static. The choice to use pictures or symbols must also be considered. A picture can be confusing if there are a lot of extraneous details in it.

Images from Silver Lining Multimedia, Inc
http://www.silverliningmm.com/
Used with permission.

Combining pictures and symbols may also be helpful, especially for a child using a communication device or symbol systems to communicate. Using symbols in the schedule can help them build vocabulary as well. In general, it is easier and faster to generate symbols, and those symbols can be applied in multiple ways.

Portable, Adapted Time Keepers with Visual/Auditory/Kinesthetic Feedback
Students may use a clock, watch or cell phone to alert them at certain times of the day. All three have visual as well as auditory alerts and some even have vibration modes to use as alerts**.** Watch and clock faces with the hour and minute hands can give some visual cues of time passage. There are a number of different types of clocks and watches that students can access based on sensory or physical needs. High contrast, Braille, and talking clocks may help a student with visual impairments read time. There are clocks that use a tactile component such as vibration to alert a student at certain times. Some watches, such as the *Watchminder* can be programmed to give messages to the wearer. These messages can be text or verbal. For example, a *Watchminder* (watch that has programmable alarms) may be used to cue a student to go to the nurse's office for medication. Sources for these types of watches and clocks can be found in the resource section.

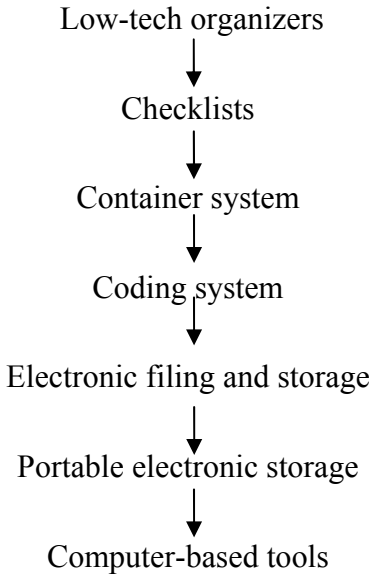
Some students may need a visual or auditory representation of time passing. A popular version of time passing in visual representation is the *TimeTimer*™. A red section slowly disappears as time passes. An ordinary kitchen timer can be used to help students learn about time. These systems have worked well to help students "visualize or feel" time passage. This can really be helpful for a student learning to work independently for periods of time.

Electronic Reminders
Alert systems can be used as personal electronic reminders and can cue a student to tasks they need to do or switch to independently. A timer, pager or watch can be set to go off. For students with visual impairments, the alert may be auditory. For students with hearing impairments the alert system may be visual, with the watch flashing at key times. Please check the chapters on visual and hearing impairments for more resources in this area. Some students may need cueing for certain activities that are time sensitive. They may set the alarm on their watch to queue them to go to the nurse's office for medication or know that it's time to go to the office to meet their parent for an appointment. These systems can also be digital and used to track long assignments and obligations.

Digital Planners
Digital planners are gaining in popularity, especially those that are carried in a pocket, such as a PDA or cell phone. Having critical information like calendars, contacts and resources in one place, readily accessible, and able to be integrated, can help a student plan their time, organize their work-load, and connect with those that can help them succeed. The speed at which these items are developing has been incredible. Many of the organizing features once found only on a computer can be loaded into these convenient portable devices, so that a student can have instant access to their calendar or datasets. Because these items are usually with the student at all times and are highly prized, they may prove to be useful tools in getting information back and forth between home and school as well as helping students organize their time through reminders, contacts, or access to digital sites.

Web-based Planning Tools
Wikis, *Google Calendar* and other web-based environments allow students to access tasks and progress on projects.

A Continuum of Considerations for Assistive Technology
Material Management



Material Management

Managing the "stuff" that enters and moves through a student's world can be especially challenging for those lacking in organizational skills. There are papers, and resource materials, projects in process or completed and tools needed for the work tasks of school. At least the "stuff" gets to stay in one room during the early grades. But in just a few years most students will begin moving from place to place needing to have the right materials at the right time. They will have to learn which stuff to keep and which can leave. They will need to do this within the limited space of their desk and locker areas. Without consistent and proper cleanouts disorganization will reign. There are various systems to manage materials, including SPACE and containment systems.

S. P. A. C. E.

Julia Morgenstern, a professional organizer offers some insight to the problem in her book, *Organizing from the Inside Out* (1998). Morgenstern addresses problems such as not enough space, unassigned homes for key items, inconvenient storage, or confusing systems that can make organizing one space a challenge. Morgenstern helps individuals organize using two strategies. The first considers personal preference by helping a student analyze what's going on with their space. It's important to know what's working and what is not, what items are critical for everyday use, what will work as a motivator to keep things organized, and anticipate potential problems that can hold a student back when they are attempting to organize their space.

Her second strategy focuses on the principle of S. P. A. C. E. for attacking the spaces that need to be organized. The S stands for Sort. Sorting looks at grouping similar items, identifying categories and identifying what's important. The P stands for Purge. This is when we toss what is not needed. Store only critical materials in the small spaces provided. A stands for Assign a

home. Morgenstern suggests getting items into zones or homes as important for being able to find them later. The C stands for Containers. The trick here is to find a container that really works in the space. And finally E stands for Equalize. This requires planning for and executing the cleanout strategies on a consistent basis, perhaps every week or two so that materials don't pile up. Her book is filled with a number of strategies and suggestions for helping all of us organize our spaces.

Schools create a constant stream of paper that must be sorted into levels of importance. Early elementary teachers may use a mailbox or sorting tool attached to the chair back to get finished work and permission slips out the classroom door. Older students may use trapper keepers or multiple folders to store or sort out papers from various classes. At this level, the sorting task is not just what goes home or what gets thrown away. There is a third level of paper called resource materials. These are materials needed for a short time to complete particular projects.

Containment

Containment systems are often a starting point. Some students can use a trapper keeper, a large binder that can hold multiple folders and notebooks. It can be closed or zipped shut to contain papers. Students may use color-coded folders to match their notebooks, the color helping them to match folder to class so only the right papers get in the folder. Some students may find the colors confusing, and struggle to find papers that may have been lost in transit. One idea is to use clear or translucent folders, well marked, helping them visually sort their folders by what is inside them. Providing sorting bins and/or time for sorting can help. Practicing organization can help reign in the chaos of a desk or locker. Sorting and classifying paper into the appropriate actions of throw or keep are great; however, one-size-fits-all classification categories do not work. Organizing strategies need to be flexible enough to match a range of student preferences and learning styles. Understanding student preference is critical to student performance in this area.

Work and storage spaces may provide a challenge for some students. Some students like a filing system with neat, organized folders to hold materials. For others, this type of filing system is a large black hole, where papers go in and may never reemerge. Desks and lockers are common catch-alls for student books, papers and materials. It is common in the early grades for teachers to help students by having Friday cleanups. Some middle schools may also work with students to help them organize their lockers. Be aware that some children may need a flat space to sort their materials on. Locating the desk near a worktable area may be a helpful strategy.

AT for Organization of Materials

Teachers are easily able to identify when students are in need of assistance with organizing their materials. However, even when given structured plans for organizing, some students are still not able to manage their materials. Struck (2004) would suggest that involving the student in the prescriptive or planning stages of any assistive technology it is more likely that the assistive technology tools will get used and not abandoned. This may explain in part why a single system doesn't work for all students. Learning styles also affect the students' choice of an organization system. Teachers tend to choose the organizational system style that works the best for them. If this system doesn't match the learning style of the student, the organizational system may not be

useful or successful for that student. Consider the students learning style. For a student with visual strengths, color-coding notebooks and folders may help. For a student with kinesthetic strengths, creating a bin system in the desk or creating a shelving structure in the locker with a shelf for each class may work better. Using a pocket pager or portable voice note, to remind the student to bring colored pencils class may help an auditory learner.

Low-tech organizers: Bins, boxes and closeable bags are examples of low-tech organizers. It is easy to overlook these tools for students who are working with small tasks and locker spaces. But they can be extremely helpful in containing critical tools in the same locations such as using a pencil box that captures pens, pencils and erasers. Once the box is shut, these items are all in one place and can be easily grabbed from a desk or locker. Other bins can contain tools such as glue, tape or pencil sharpener. Some people use bins to organize by class such as keeping the colored pencils with the geography folder, notebook and textbook. Make sure that the bins or boxes chosen fit the space and move easily within that space.

Locker or desk checklists: Checklists for materials stored in lockers or desks can be helpful for some students. A simple map that outlines the zones of storage in a desk can be used as a reference during scheduled cleanouts. Locker checklists might include a materials list for each class so the student make sure they take the colored pencils or markers needed and social studies or the right set of notebooks for science and math.

Everything box, Trapper Keeper, all in one folder: Paper can be quite prevalent in the school environment. The first challenge is not to lose the papers that are needed. For some students having one large folder or storage box can be helpful in training the first step of paper management. That step is “don't lose what you need”. Papers quickly add up, so frequent cleanouts are needed for this system to work.

Coding systems, color or see through folders, box sorts, home and school pockets: The second step in paper management is to get papers in the right places and to sort out what is no longer needed. It is common to suggest using colored folders to match class notebooks. But colors may not work for every student. Some students need to see the papers inside a folder so that they don't “visually” lose them. Transparent folders can help with this problem. Some students may prefer a tray system and put materials from one class into each tray. Many younger students are given home and school pockets on the back of a chair or on the side of the desk to help them sort the papers that can go home from those they will need again.

Electronic filing and storage: The explosion of electronic information has created a similar management issue as paper. As information stacks up, easy retrieval is the key. Students may need to keep track of websites they visit or access resource information and online activities to complete projects. There are number of web-based organizing tools that can help students track Internet sites; organize bookmarks by folders or tags which allow bookmarks to be stored in multiple categories. Online learning areas such as Blogs or Wikis may also need to be accessed by students. These areas may have been developed by teachers to share course resources, handouts, worksheets and reminders about field trips or materials needed for special projects. Some schools are even posting daily assignments and other information online allowing access from any place the Internet is available.

Electronic files like their paper counterpart may also need to be sorted into files or topic folders. Help students create a filing system that makes sense for them. Teach them how to make files to store their Internet finds and documents so that related documents are stored together. A key is to regularly delete files that are completed and no longer needed. Periodic cleanouts may also be needed. The ease of saving and the lack of a physical pile can lead to e-folders that get too full to find things. Digital options do not take up more physical space, which is nice, but when the bookmark lists get too long it may be hard to find the sites you need. A nice feature of digital bookmarks is tagging. Unlike bookmarked favorites that are only listed one time, tagging allows the document to be sorted by code words and/or "attached" to multiple locations for easier retrieval when it is needed. Digital files allow speedier/ easier access. There is no searching through filing cabinets. Digital files are automatically cataloged in several different ways, by file type, by date completed, and by topic if folders were created. Access is also more mobile with digital files accessible at home, the coffee shop or anywhere Internet access can be found. Of course all of this depends on the student's ability to access digital options out of the computer lab or through the school's firewalls and protections.

Portable Tools: Handhelds and cell phones may offer new toolsets in the area of electronic storage and filing. As they increase their capabilities to connect with the Internet, work with word processing files, and download from various sites, they offer new ways to access digital materials. Built-in photo taking may help visual learners remember materials they might need. This photo capability may also help students who need paper text changed into digital text that can be read and listened to on the phone.This tool could be especially helpful for a non-reader or poor reader when they need to fill out job applications or complete classroom assignments.

Computer-based tools: There are many tools on the Internet, which can help students to organize their digital files. Bookmarking tools such as *delicious* or *diggo* can tag these sites in multiple locations. Internet front pages can be designed to bring needed information to the student each time they turn on the computer. These pages can house web addresses the student may need to complete assignments. Some teachers are creating learning blogs for their classes with free Internet-based software tools. These sites allow a student to check their assignments, drop-down missing worksheets or look for additional resources on the current topic in class. Tracking software can help keep track of the websites a student visits as they search for information to complete a topic. This way they can cite their work based on information at the sites.

Transportation of materials

Materials often need to travel with students to different locations. The shifting between classes and home brings with it a new organizational challenge. Having the right materials at the right time is imperative. Tools that need to arrive with the student when they shift from one location to another may include a variety of books and reading materials, writing and studying tools, and other project components. For some students it may work better to have multiple sets of materials to go in various locations where they are needed. It may reduce the stress for some students to determine what materials need to be mobile and what materials stay in a certain location.

Students moving from place to place via wheelchair or walker may have difficulty transitioning themselves and their materials in the short time available for class transfer. They may also have difficulty carrying the books, notebooks and materials needed for classes. Knapsacks, storage bags and baskets may not be easily accessible to a student with motor issues. The team needs to consider which option works best for the student to transport and access their materials. If they do not find an acceptable solution it is important to work with the regular education teacher to see if a second set of materials can be kept in the classroom or be available in the special education or home environments.

Strategies for Material Management

Use of multiple sets of materials
There are several reasons that using multiple sets of materials may be recommended. For a student with a physical disability, having an additional set of materials in each room could allow them to independently ambulate from class to class and prevent them from having to carry books home. Students with poor organization skills can also benefit from an additional set of materials.

Environmental challenges may be a reason to recommend use of multiple sets of materials. The transition time between classes might be as short as 5 minutes. Consider a student with physical disabilities adding the mix of physical challenges and sensory processing issues to grab all the right things quickly, and you can see the student's challenge. Several environmental changes could help the students' performance dramatically. These might include a time study to figure out the issues, moving their locker to a more accessible area, having an additional storage space nearer to the lunchroom, or even permission to leave the lunchroom early. Consulting the student about which of these changes he would be most willing to try or use will help him to be successful in following through with the changes.

Using materials as reminders
Some students may use materials as a visual cue or symbolic representation for the work that needs to be done. Sometimes a student may leave their pencil out to remind them to finish a work sheet or turn a paper sideways in a folder to remind them that it needs to be completed.

Materials to and from school
Some special materials may be needed from home which raises another challenge for some students, especially if their parents are unable to read the notes sent from school. Ruby Payne (2003) talks about this challenge of home-school communication. English Language Learners (ELLs) or students who have parents who can't read have difficulty following through on the notes that go home. Payne notes that these children will often return without a permission slip or needed materials. Some parents will just sign what comes home, not understanding that a swimming suit is needed for gym or a lunch needs to come with the child on a field trip. This can result in some frustrating experiences for a child and their teacher. Some schools are using verbal communication systems such as a *Message Mate*™ or online resources zones where a parent can access material lists with auditory or visual pictures to assist in their understanding.

Solution Selection: Tools & Strategies

Use a Feature Match process to discuss and select those ideas, tools, and strategies that were generated during the solution brainstorming. Select those that best match the student, the environment and the motor aspects of writing tasks that need to be accomplished. Limit your selections to a reasonable number and prioritize them according to those that can be accomplished immediately, in a reasonable time period and those that will be considered at a later time or require additional or significant staff training.

Implementation Plan

After tools have been selected and prioritized, identify any trials or services that are needed including procurement of trial materials, team member(s) responsibilities, start date and length of trial, training needed and any other student/staff specific issues. Be certain to identify organizational objectives and criteria of performance to determine the effectiveness of the trials.

Feature match
The concept of using a feature match approach started in AT with AAC (Alternative Augmentative Communication) devices. Since there are so many variables of an AAC device to meet the needs of the individual, using a feature match system was a way to address those individual needs. Using a feature match allows the characteristics of the device to be matched with what the student receiving the device needs. Some examples might be size, weight, use of pictures or words, ease of programmability, voice output, etc. The use of a feature match for any type of AT is paramount in giving the AT a chance to succeed. When considering AT for organization there are many factors that can influence the choice of an AT tool for organization. Some examples have been alluded to in the organization chapter such as:

- Involvement of the student in choosing or designing organization systems
- Consideration of learning styles
- Level of comfort with technology tools
- Desire to perform better (motivation)
- Previously attempted techniques or strategies

Using Judy Sweeney's **Organization Problems Inventory** is another way to use a feature match with AT to support organizational skills. By figuring out which organizational areas are difficult for the student, problem solving, task analysis, using techniques, strategies or AT may help identify and/or improve the student's deficit areas.

http://www.onionmountaintech.com/files/Organization%20Inventory.pdf.

Organization Problems Inventory

For each of the following statements, consider whether this is a problem you (or a student) exhibits. If it is, place a check mark in the white box to the right of the statement.

I (or my student) have/has problems with:	1	2	3	4	5	6
1. Being as neat as other people expect me to be						
2. Completing long and complicated assignments						
3. Concentrating or remembering information when I am distracted by what is going on around me						
4. Deciding how to tell which tools, books, & notebooks go with each task or class						
5. Dividing a big job into sub-tasks						
6. Doing the hard work first before I am too tired or bored						
7. Doing things in the right order						
8. Estimating how much time is left						
9. Figuring out what is wrong if I accidentally skip a step						
10. Finding something if it's not exactly where I thought it should be						
11. Finding the right place (so I can find them again) for all the "things" I need to organize						
12. Finding things in my locker or desk						
13. Finishing a long task without a check-list or outside help						
14. Finishing detailed work without recueing or incentives						
15. Finishing work when the assignment is too vague or when I'm not given specific due dates						
16. Getting a task done without daydreaming						
17. Getting my work done in the allotted time						
18. Highlighting just the most vital information						
19. Keeping my notebook in order						
20. Keeping track of assignments						
21. Knowing how long something takes to complete						
22. Knowing which papers I should keep in my notebook / files						
23. Learning new things while sitting perfectly still						
24. Lining up math problems						
25. Listening to long and complex directions						
26. Making the best choices						
27. Memorizing seemingly unrelated information so I can retrieve it for a task or test						
28. Moving smoothly from one task to another without anxiety						
29. Not just putting everything in one pile						
30. Putting things in the correct folder						
31. Reading clocks						
32. Remembering how to do something unless I have practiced it over and over						
33. Remembering how to do things without a lot of repetition						
34. Remembering the final goal because I'm so caught up in the step by step process						
35. Taking in all the details that everyone else does						
36. Understanding how two things are related						
37. Understanding the benefit of doing things in a structured set of steps						
38. Skipping steps in a task unless they are written out						

39. Staying on one topic while writing						
I (or my student) have/has problems with:	**1**	**2**	**3**	**4**	**5**	**6**
40. Studying the most important information the longest						
41. Taking and organizing notes for a research paper						
42. Taking organized notes from reading						
43. Throwing unnecessary things away						
44. Waiting for anything						
45. Working in a small space or area						
46. Working on multi-task, long terms assignments without waiting until the end to finish them						
47. Working with graphic organizers that require I sort ideas into topics						
48. Writing on the lines or within the margins						
Total Checks per Category						

1 = Sequential Organization Problems
2 = Prioritization Organization Problems
3 = Temporal Organization Problems
4 = Spatial Organization Problems
5 = Categorical (Semantic) Organization Problems
6 = Attention Organization Problems

Scoring and Interpretation:
Generally speaking, we have found the following is true of the total checks per category boxes scores:

- 0-3 checks indicate a low to non-existent degree of organization problems in this category.
- 4 checks in a category can be symptomatic of problems for some people but could still be found in a person who is functioning with some degree of organizational success in this category.
- 5-8 checks almost always indicate functional problems in this category of organizational problems.
- Most people who have organizational problems have one category that is relatively high (7-8) and 2 other areas that are less problematic (4-7). We always suggest trying to deal with the category that has the most problems because "fixing" it can affect other areas.
- If attention is the major area, regardless of its number score, start trying to deal with it first. It always affects the other categories of organization problems.

Specifically, we also have noted:

- That sometimes problems are related to learning styles. For example, someone who checked #3 and #26 may have attention problems or they may simply have problems with auditory distracters.
- Students, parents, and teachers often see problems quite differently. For older students, I try to have all three categories of people fill out the inventory for the student being evaluated. While most everyone recognizes the most problematic categories, what is seen as most problematic by the student is often not the same category reported by parents and teachers. Starting with what the student thinks is most problematic is a good way to start dealing with organization problems

because the student is most invested in finding a way to remediate the problem they identify as their worst area of organization.

- A few people have told us that they need to fill out the inventory for different environments in their lives (home, work, school, etc.). While some problems seem to carry across environments, spatial problems, in particular, reportedly differ according to the environment the person is in and with whom they are living or working.

Executive functioning

The following charts are taken from the work of Colleen Wagner and are a way to address some of the issues that arise from difficulties with EF skills. Although they are not all necessarily AT, some may be considered AT and others are good strategies for working on deficit areas.

Executive Functioning Chart

Area of Executive Functioning	*Accommodations*	*Interventions*
Sustaining Attention	• Write start/stop time on assignments • Use incentive system • Break tasks up & give breaks • Use a time/challenge to increase excitement (not for the anxious child) • Do difficult tasks when most alert • Tasks need to be at appropriate level of challenge • Use "Grandma's rule"—eat your peas before dessert • Decrease amount of work & work on quality	• Model, assist, prompt, chunk assignments • Practice focusing for short periods of time and gradually increase the time
Shifting Attention	• Visual calendars • Increase supervision at transitions • Anchor changes with known situations (remember last week when …) • Provide preparation & warnings prior to schedule changes. Provide verbal structuring • Prompts for stopping • Prompts for shifting • ("Now we are going to do something different. English is over. Math is starting. Put away…)	• Practice switching from one activity to another • Play games that require changing strategies (UNO) • Make change fun!!
Initiating Activity	• Provide prompts to begin • Work with child to complete the first portion of task then fade involvement • Structure routines • Provide options or choices • Raising motivation. Raising anxiety • Use "Grandma's rule"	• Teach self instruction • Work with child to develop independent cueing system • Use incentive systems • Monitor amount of time from giving instructions to beginning the task. Encourage child to beat his/her own time
Planning & Organization	• Have adult provide a plan or schedule for student to follow • Use scoring rubrics for assignments • Break long-term or long assignments into clearly defined subtasks • Create an assignment template • Provide separate grades or points for each step of a project	• Teach one planning strategy that can transfer across situations • Use preferred activities to model skills as well • Have child be coach for another child on a task they enjoy • Follow child's lead for what works for them • Break larger tasks into smaller steps • Have students use planner/organizer • Walk child through planning process many times. You plan

Planning & Organization continued		and talk out loud. • Provide specific prompts for child to do the planning. • Provide general prompts • Have child verbalize as they plan • Child plans independently and you check plan
Organization of Materials	• Develop rituals or routines for organization. Cue & reinforce their use • Teach us of "launching pad" or "in/out" box • Simple organizational schemes • 2nd set of texts at home. Assignments and materials available online	• Model strategies with gradually decreasing cueing • Development of these skills takes a long time
Time Management	• Provide a schedule & prompts for each step • Extend time limits. If a time limit is given provide prompts for how much time is left • Use cueing devices such as clocks, bells, or alarms	• Practice estimating how long something will take and then actually timing it. Discuss accuracy. • Develop temporal reference points (length of a CD, song, TV. show) • Develop schedule & routines • Teach concepts of "work time" and "non-work time"

Area of Executive Functioning	*Interventions*	*Accommodations*	*Teaching the Skill*
Inhibiting Impulses	• Consequences don't work • DO NOT WITHDRAW RECESS!!!!! • Provide lots of physical activity • Provide redirection • Provide a "wiggle ball" or other object to direct physical energy • Use of weighted vest • Provide cues of what to do instead of telling them what not to do	• Increase external controls—restrict access to settings or situations • Increase supervision • Proximics!—stay close • Find ways to provide cueing without drawing attention to it	• "Stop & Think" program • Identify impulse to work on & a competing skill • Explain to child what you are working on and how • Have child practice the skill in a contrived situation • Reinforce for using the skill immediately, even if success is only moderate • Cue the skill just prior to situations • Ignore (when possible) disinhibited behavior • Gradually fade cueing and reinforcement
Working Memory	• Avoid multi-step directions • Reduce demands • Expect to repeat directions • Provide prompts for each step of an activity	• Provide word lists or other prompts for material needed to complete an assignments • Recognition tests over recall tests • Storage devices • Cueing devices • Natural cues in environment (placement)	• Digit span practice • Teach use of concrete reminders • Provide written cues then over time move to child writing cues & you double check • Teach memory techniques (mnemonics, chunking, visualization, repeating information, using rhythms)
Emotional Control	• "Get out of jail free cards" • Teacher must stay calm	• Quiet place to calm down • Anticipate, avoid, or prepare for situations likely to be difficult • Offer choices • Avoid reasoning or power struggles • Give breaks when tension is rising	• Teach emotional vocabulary • Teach self monitoring skills • Teach relaxation skills, distraction skills, "anger management" skills • Practice positive self statements • Practice skills, don't just talk about them • Therapy

Writing AT into the IEP

There are many correct ways to write AT into the IEP. It must be considered on the special factors form of the IEP and a listing of AT may be included there. It may be listed in the present level of performance. It may be included as a related service and may also be included as a supplemental aid or service. Purcell, Grant, (2002, 2004, 2007) and Bateman, Herr (2003) state many examples of writing present level of performance, objectives and goals.

The following is a four step formula for writing an IEP goal.

Time Frame: In 36 weeks

Conditions: given an agenda with areas for each subject

Behavior: Eric will fill out agenda

Criterion: daily 4 of 5 days

Another example would be the following:

Given modified daily planner (condition), the student will circle the assignment to be completed (behavior) daily for each class (criterion) 4 of 5 days (time frame).

References

Anderson-Inman, L., & Zeitz, L. (n.d.). *Beyond Notecards: Synthesizing Information with Electronic Study Tools*. Retrieved September 12, 2008, from www2.edc.org/NCIP/library/ot/inman.htm.

Anderson-Inman, L. (2008, June 23). *Making the Most of Digital texts*. Retrieved June 23, 2008, from cate.uoregon.edu/digitaltexts.html.

Armstrong, T. (1999). *Seven Kinds of Smart: Identifying And Developing Your Multiple Intelligences*. New York, New York: Tandem Library.

Assistive Technology Devices for study and Organization. (n.d.). Retrieved October 24, 2007, from http://gpat.org.

Aune, S. (2008, February 15). *13 Great Tools for Organizing the Web*. Retrieved September 12, 2008, from mashable.com/2008/02/15/13-great-tools-for-organizing-the-web/.

Dawson, P., & Guare, P. (2004). *Executive Skills in children and Adolescence: A Practical Guide to Assessment and Intervention.* New York: Guildford Press.

Edwards, M. (n.d.). *Improving your Child's School Organizational Skills*. Retrieved May 26, 2008, from www.parenting-ed.org.

Gardner, H. (1993). *Multiple Intelligences: The Theory in Practice*. New York: Basic Books.

How Good is Your TIme Management. (n.d.). Retrieved September 30, 2008, from www.mindtools.com/pages/article/newHTE_88.htm.

Janowski, K. (2007, June 11). *Free technology Toolkit for UDL in ALL classrooms-Spread the Word!*. Retrieved September 30, 2008, from http://teachingeverystudent.blogspot.com/2007/06/free-technology-toolkit-for-UDL-in-all.html.

Jensen, E. (2003). *Tools for Engagement: Managing Emotional States for Learner Success*. Thousand Oaks, CA: Corwin Press.

Jensen, E. (2005). *Teaching with the Brain in Mind, Revised 2nd Edition*. Alexandria, VA: Association For Supervision & Curriculum Deve.

Kranowitz, C. (2006). *The Out-of-Sync Child: Recognizing and Coping with Sensory Processing Disorder, Revised Edition*. Chicago: Perigee Trade.

Levine, M. (2002). *A Mind at a Time*. New York, NY: Simon & Schuster.

Managing Time. (n.d.). Retrieved September 30, 2008, from www.mindtools/pages/article/newHTE-85.htm.

Morgenstern, J. (1998). *Organizing from the Inside Out*. New York: Holt Paperbacks.

Music Moves Brain to Pay Attention, Study Finds. (n.d.). Retrieved October 1, 2008, from www.sciencedaily.com/releases/2007/08/070801122226.htm.

Newhall, P. (n.d.). *Teaching Time Management to Students with Learning Disabilities*. Retrieved September 25, 2008, from http://www.ldonline.org/article/23676?theme=print.

Organizational and Study Skills for the ADHD School Child. (n.d.). Retrieved December 31, 2007, from www.add-adhd-help-center.com/school_skills.html.

Organizing Information with Software Tools. (1995, Spring). *NCIP Profiles*, *4*, 1-4.

Osttosky, M., Jung, E., Hemmeter, M., & Thomas, D. (n.d.). *Helping Children Understand Routines and Classroom Schedules*. Retrieved May 8, 2008, from http://csefel.uiuc.edu.

Payne, R. (2003). *Framework for Understanding Poverty*. USA: Aha Process Inc.

Piaget's Cognitive stages. (n.d.). Retrieved March 8, 2007, from www.noteaccess.com/APPROACHES/ArtED/ChildDev/PiagetCogS.htm.

Rief, S. (2006, June 1). *Teaching Time Management to Children with ADHD*. Retrieved September 25, 2008, from http://www.additudemag.com/adhd/article/print/991.html.

Sousa, D. (2004). *How the Brain Learns to Read*. Thousand Oaks, CA: Corwin Press.

Supporting Students with Learning Disabilities in High School Science. (n.d.). Retrieved January 2, 2007, from http://cse.edc.org/products/supportingStudentsLD/tech_tools.asp.

Sweeney, J. (n.d.). *Technology and Organization*. Retrieved October 24, 2006, from www.onionmountaintech.com.

Tenny, J. (n.d.). *Computer Supported Study Strategies for Purple People*. Retrieved September 8, 2008, from www.www2.edc.org/NCIP/library/ot/tenny.htm.

Townley, C. (2004, February 8). *8 Simple Tips to Declutter and Organize Kids Rooms*. Retrieved December 31, 2004, from http://organizedhome.com/content-59.html.

Warner, C. (2008). *The Boss is Out: Helping Students with Executive Dysfunction*. Eau Claire, WI: PESI.

Westhaver, M. (2006). *The Thinking Classroom: Using Inspiration to Meet Curriculum Standards*. Beaverton, Oregon: Mona Westhaver.

Willis, J. (2007). *Brain-Friendly Strategies for the Inclusion Classroom*. Alexandria, VA: Association For Supervision & Curriculum Development.

Wolfe, P. (2001). *Brain Matters: Translating Research into Classroom Practice*. Alexandria, VA: Association For Supervision & Curriculum Development.