



The SETT Framework Revisited

SETTING the Stage for Success: Building Success through Effective Selection and Use of Assistive Technology Systems

by

Joy Smiley Zabala

This personal reflection on the SETT Framework shares insights into the development and use of the SETT Framework. It provides considerations for using SETT as a collaborative tool by which groups of people with varying previous experience in assistive technology can effectively build consensus and align expectations in order to: 1) consider and establish the need (or lack of need) of an individual student for assistive technology; 2) work toward developing a system of tools with which a student can use to address identified needs; 3) link assistive technology assessment and intervention; and, 4) align purpose, expected results and evaluation measures when choosing and using a system of assistive technology tools.

Part 1: The Big Questions

Several years ago, as the language of the Individuals with Disabilities Education Act (IDEA, P.L. 101-476) regarding assistive technology became widely known, much attention was focused on school districts and the procedures and practices which school personnel use in arriving at decisions regarding the provision of assistive technology devices and services. Many questions which arose then are still in the forefront. Which students need assistive technology? What kind of technology is needed? Who is involved in making these decisions? What sort of data should be gathered to aid in the decision-making process? Much discussion has been

generated about each of these questions. Though there are few quick and easy answers to any of these questions, processes that support critical thinking and problem-solving in the area of assistive technology have emerged. One of them is the SETT Framework - the subject of this paper.

Which students need assistive technology?...those for whom assistive technology is necessary in order for them to receive a free, appropriate public education (FAPE) and to make progress in a program reasonably calculated to confer educational benefit. Though significant due process in recent years clarified this issue somewhat, a big question remains regarding what constitutes need.

What kind of technology is needed?.. this must be determined on a case by case basis related directly to what is needed for a student to receive FAPE. Effective assistive technology systems may contain no tech (strategies), low tech and high tech tools.

Who is involved in making these decisions?... the student's IEP team is the actual decision-making body, with recommendations from members of a flexible multidisciplinary team which promotes participation by the student, family members and/or caregivers, and appropriate educational and related services professionals. This team may also include other people who are significantly involved in the student's education and well-being such as medical personnel and peers. Ideally, some members of this team should be on the IEP team, so that there is a clear understanding of how recommended tools were selected and how they are to be used.

What sort of data should the multidisciplinary team gather to aid in the decision-making and recommendation process?... information about the Student, the Environment, the Tasks, and the Tools. Information on each of these areas must be sought in a collaborative process designed to build consensus as to the direction which intervention is to take, the tools needed to move in that direction and the measures which will be used to evaluate the effectiveness of the tool system and the interventions in supporting the student's progress.

Part II: Establishing the Need for SETT

In the 1993, in the National Council on Disability's report to the President and Congress of the United States, it was estimated that seventy-five percent of children with disabilities could remain in regular classes if supplied with the appropriate assistive technology. Additionally, it was estimated that appropriate assistive technology could lower the level of school related services required by forty-five percent of these children. Long before these figures were published, professionals dedicated to meeting the educational and life goals of students with disabilities worked to identify and provide useful augmentative communication and assistive technology devices with features which matched the student's needs and abilities. Decisions were made, devices acquired, and training provided on operational techniques and strategies for effective use. There were high expectations that, with this approach, positive changes would occur on an increasingly regular basis; however, with frustrating frequency, what continued to be seen was students who were marginally involved and devices which were underutilized or abandoned. Why was this happening?

Over the years I pondered these questions along with people with disabilities, families and colleagues with a variety of personal and/or professional perspectives on the issues. Through our mutual explorations and conversations, insights began to emerge. First, even when the features of devices were well-matched to the needs and abilities of users, the devices were not always environmentally useful for the system operator. Perhaps there was a question of portability - Perhaps there was no one in the potential system operator's daily life who was able to support the person adequately in using the system effectively - Perhaps there were mixed attitudes and expectations on the part of people around the person using the system - There were any number of possibilities. Second, often the systems were not designed to support the person in using the device for the accomplishment of tasks important to that person. The thought came to mind, "How much time and effort would anyone put toward using a tool that did not fit the task or the environment in a useful, meaningful way?" The clear answer for most of us was, "Not much!"

Though the needs and abilities of students and the features of systems of assistive technology tools were well-matched,

systems were frequently developed with insufficient up-front attention to the environments in which the system of tools was expected to be used, and to the naturally occurring tasks in which the person was expected to participate by using the tools within the identified environments. As I began to watch more closely what was being done by my colleagues, it became increasingly clear that those who were getting higher rates of success for users and lower rates of device abandonment were those who routinely considered the person within the context provided by the environments and the tasks. In retrospect, it appears to be an obvious issue, for it would be difficult to choose any tool without a clear awareness of where and how the tool was to be used! Most of us would consider it ridiculous to choose a tool at a hardware store without first considering the task which was to be accomplished with that tool. And yet, assistive technology tools are often chosen in just that way.

The need to develop a clear, easily communicated and understood definition of a student-centered, task-focused, environmentally useful approach to looking at assistive technology was brought to my attention by a new colleague at Region IV Education Service Center. Like most people working in the area of assistive technology, we are regularly asked by our participating districts to make recommendations about what hardware and/or software is the "best" for them to purchase for their students with disabilities. This, of course, is not a readily answerable question without considerable additional exploration. Our new colleague, however, wanted very much to provide helpful information, so he came often to consult with our group about what he suggestions he might give to districts seeking assistance. Our answer was consistently, "It depends." Though we had frequent, lengthy discussions about what "it" depended upon, we did not make much headway toward developing a common understanding of assistive technology issues and ways to go about addressing them. Patience grew thin on all parts! "This was NOT new stuff! People have been considering these issues for years!", we said. "OK, then," said he, "Just tell me about it in language I can understand!" Forget the jargon and just help me know what to do and how to think about all this stuff!"

One day, after yet another discussion, I approached my explanation from another angle, "Consider this. To get the

best shot at putting together a system of tools, you need to explore the student, the environments in which the student is expected to use the tools, and the tasks which are an inherent part of communicating, participating and being productive in those environments!" It was a big "Ah, ha!" for all of us! He understood and we realized how simple, yet complicated this all was! Later, when I was struggling to put these old, tried and true ideas together in a new and easily-remembered way, this persistent and thoughtful colleague said, "Well, THAT part's easy! It's just the SETT!" And so it is!

Part III: Introducing the SETT Framework

To make effective assistive technology decisions, who should be involved in the decision-making process and what information should be included?...information about the Student, the Environments, the Tasks, must be gathered and thoughtfully considered before an appropriate system of Tools can be proposed and acted upon by a multidisciplinary team with full participation from the person and his/her personal and professional supporters. In order to define a framework around which such a process might occur, the SETT Framework was developed. The SETT Framework considers the Student, the Environments and the Tasks required for active participation in the activities of the environments, before attempting to identify the features of components of the system of tools needed for the student to address the tasks.

It is important to realize that this outline of questions to consider in each area of the SETT Framework was developed as a guideline and a place to start. Teams gathering and acting upon this data may wish to seek answers to numerous additional questions. In virtually every case, however, any questions which arise will relate to one of the areas of the SETT Framework.

The Student

- What does the Student need to do?
- What are the Student's special needs and current abilities?

The Environments

- What are the instructional and physical arrangements? Are there special concerns?
- What materials and equipment are currently available in the environments?
- What supports are available to the student and the people working with the student on a daily basis?
- How are the attitudes and expectations of the people in the environment likely to affect the student's performance?

The Tasks (Be as specific as possible)

- What activities occur in the student's natural environments which enable progress toward mastery of identified goals?
- What is everyone else doing?
- What are the critical elements of the activities?
- How might the activities be modified to accommodate the student's special needs?

The Tools

- What no tech, low tech, and high tech options should be considered for inclusion in an assistive technology system for a student with these needs and abilities doing these tasks in these environments?
- What strategies might be used to invite increased student performance?
- How might student try out the proposed system of tools in the customary environments in which they will be used?

Though there are not many questions in each area of the SETT Framework, each of the questions may generate significant conversation and data. It is not uncommon for more than one view of the student to present itself in SETT discussion, just as it is not uncommon for team members to have differing contributions in the other areas as well. It requires time and effort to move toward consensus on which observations are assumptions and which are based on observable data. However, without working toward a common view which can be supported by all members of the team, it is unlikely that alignment in intervention design and system

selection can occur. When developing this "commonly held view that can be supported by all", there are some factors to consider as a deeper understanding of the areas outlined in the SETT Framework is invited.

Part IV. Taking the SETT to Task!

The Student:

When considering the Student, these three small questions may yield reams of data. The questions are intentionally broad, so that they do not preclude anyone or any possible solutions at the outset. However, it must be kept in mind that ALL data on a student is not pertinent to choosing and using assistive technology. Meaningful issues must be identified specifically for each individual student.

When first considering what the student needs to be able to do, it is fine to be global. "Talk" or "write" may be appropriate answers, though some elaboration is desirable. Later, in the Tasks section, these issues will be explored more deeply, as it would be useless to pursue "talking" if "about what?" could not be defined. The primary goal of this question is to invite active, nonjudgemental sharing to begin to establish consensus among group members about what it is really important for this student to be able to do.

The question, "What are the student's special needs?", is designed to generate conversation about the barriers which keep this student from doing whatever needs to be able to be done. When exploring current abilities, it is important to keep in mind that, no matter how great the needs, everyone has abilities which can be built upon and enhanced - and not necessarily replaced.

The Environments:

For every student, multiple environments must be considered, as no student exists in only one environment. Even the rare person who operates primarily in one location experiences a multitude of influences which can greatly alter that single environment. When considering only school environments, the differences are profound among the classroom at different hours of the day, the playground, the

cafeteria, the hallway, the bus stop and a variety of other environments a student experiences during a typical day. Add to these the home and the community, and the complexity of choosing and using a system of assistive technology tools which will be environmentally useful for a student, can become daunting without a process to follow.

What is the anticipated arrangement of the environment? Though discussion might include possible placement options, it should also include, when known, the setup. For instance, when considering a mobility system which must be used in a crowded hallway, a classroom with close-set rows of desks, a sand and grass covered playground, and a bus that currently has no lift system, remember that each of these environments must be considered up front in order to determine the components of a functional mobility system. Environmental issues like those mentioned do not mean that power mobility would not be considered. They just mean that, in order for power mobility to be functional in these environments, other parts of the system would be critical, like: identifying a lift system for the bus; some assistance for the teacher in altering classroom space; training for the student and others in how to manage in crowded situations; and, possible alterations in scheduling so that the student might avoid the halls at the most crowded times. These should be a part of the initial system design, for without them, the system will not meet expectations and will most likely be abandoned in favor of other strategies which, though practical for the moment, may provide fewer opportunities for independence.

The area of attitudes, may be more critical than any other, because attitudes have far-reaching influences on the environment. Within the category of attitudes is expectations. The attitudes and expectations of the people who are responsible for developing environments where learning can take place are crucial, for those attitudes and expectations have much to do with what learning opportunities are offered to students.

An example of this can be seen when examining the attitudes and activities of a typical teacher. During the years that I was a first grade teacher, it was my expectation that all of my students would eventually acquire the skills needed to

participate fully in adult society. They would be able to attend college or engage in whatever activities they chose in order to be productive and happy adults. With this expectation in mind, I set about providing an environment where the necessary skills were readily addressed at an appropriate level. Literacy was the primary focus for all of the students and the classroom setup and activities reflected this focus. Opportunities to build literacy skills were woven throughout the day, regardless of the subject matter being taught. Literacy was never confined to one period of the day or one circumstance. It was far too important for that!

What if, however, there had been some reason to suspect that among my students were those for whom I believed college and adult productivity would be difficult or impossible? Would I have worked as long and hard at developing literacy for those students, suspecting as I did, that it was highly unlikely that they would ever master the art of giving and receiving information in written form? Would I have taken the time and effort to provide a print rich environment and draw attention to its use at every possible moment? Though I would like to think that I would have, I know that this is not likely. I would probably have selected more "meaningful" and "attainable" goals for these students and given the development of literacy the backseat to more "appropriate" goals.

Given my expectations, I would have failed to offer invitations for my students to develop literacy skills. Therefore, whether they were capable of learning to read and write or not, they would not have been able to do so in my classroom. The opportunities for them to learn these skills had not been sufficiently presented and acted upon.

Are attitudes and expectations important? Certainly, but they are tough to deal with. Consider the IEP meeting where Mrs. Jones finds out that John, a student with severe physical disabilities, will be in her classroom. Mrs. Jones is unprepared to deal with John's special needs and the needs of her other students. She protests that John obviously does not belong in her classroom. She doesn't seem to realize that she will have help in supporting John's learning. Though you suspect that fear and lack of understanding are behind her reactions, you recognize that she has a very poor attitude toward John and

that this will be the biggest obstacle to John's success in her class! You decide to approach her directly, saying, "Mrs. Jones, It is normal to have concerns, but your attitude is what will hinder John's success in your classroom. The IEP committee has decided that he will be in your class, so you will need to make some adjustments. I will help you all I can."

Will this approach change Mrs. Jones' attitude? I believe that it will. Before she was confronted, Mrs. Jones did not want John in her classroom. Now she doesn't want YOU either! And you were the one who was going to assist her!

Attitudes and expectations! Areas rich with opportunities to invite growth and, yet, fraught with the potential for disaster! Attitudinal differences must be recognized, but must also be dealt with in ways that promote the opportunity for growth for all so that every student will have the opportunity to learn and grow.

The Tasks:

The purpose of identifying tasks is to determine what opportunities are present that will enable the student to move toward mastery of his/her goals? If the answer is "None", then assistive technology tools will not solve the problem. Assistive technology is just a means to participate in activities which offer the opportunity to build skills. As might have been the case in my first grade classroom, if there are no tasks which provide meaningful practice, mastery cannot possibly be expected.

When considering tasks, it is always important to begin with what "everybody else is doing." Participating in the same activities does not always lead to the same results for all participants. An example which demonstrates this principle is an elementary student with significant mental retardation whose goals include categorizing and sorting, task completion, turn-taking, seeking help when needed and grasping and releasing items appropriately. There is little reason for this student to work on these tasks in isolation. Most of these goals could be addressed by working, for example, with fellow students on an earth science project involving classifying, sorting, and charting various kinds of rocks and the ways in which they were formed? The actual items that would be monitored and measured for mastery would be different, but

the tasks would be pretty much what "everybody else is doing." When necessary, move away from "what everybody else is doing", but first determine that it is really necessary.

As the activities in various environments are considered, it is essential to remember that tasks (or activities) are not isolated skills, but clusters of skills which must be used together in order to participate in the activity. (Calculator and Jorgensen) It is difficult to think of any activity in which participants use skills in only one area - motor, social/emotional, communicative or cognitive? With that in mind, consider modifications that can increase participation for students with disabilities while not changing the critical elements of the activity for any student.

As an example, think about an important preschool and early elementary activity - Musical Chairs For most people, when asked to quickly name two things that are critical elements in the game of Musical Chairs, MUSIC and CHAIRS come to mind

In a classroom I once frequented, there was a student who used a power wheelchair. That student's goals included learning to safely manipulate the wheelchair in crowded situations. The teacher made a modification in the game to include this student in the game and provide opportunities to work toward mastery of that goal. The chairs were removed and mats were placed on the floor. This was the only change made in the game and everyone played as before with one exception - the student using the wheelchair played right along with everyone else! Chairs were traded for mats, but, since that modification did not significantly change the action of any of the students, it would be safe to say that CHAIRS are not a critical element of Musical Chairs.

Later in the year, a student who was deaf joined the class. In order to include this student in Musical Chairs, a light was purchased at a nearby electrical supply store. When the tape recorder used to play the music was turned ON, the light began to flash and continued flashing as long as the tape recorder was in the ON position. With this modification, the student who was unable to hear the music participated fully in the activity. Once the tape was accidentally left out of the tape recorder at the start of the session. The ON button was pushed and there was no music, but the light began to flash.

As might be expected, all of the students began to march around the mats as the game began! So we also find that MUSIC - a commonly identified critical element of Musical Chairs, really isn't critical after all.

What are the two critical elements of Musical Chairs illustrated here? First, there must be one less spot than there are students. Second, there has to be a signal which indicates when to start moving and when to stop.

That analysis, though aimed at a simple activity, provides more opportunity problem-addressing and problem-solving than would have been possible if action had been taken on what is now seen as inaccurate conclusions. So that this illustration does not lead toward the assumption that this applies only the games of young children, take some time to explore the critical elements of writing a term paper and how they might be negotiated to enable participation and productivity by a student with severe dysgraphia.

In conclusion, when identifying and analyzing tasks, reviewing George Karlan's work with Environmental Communication Teaching is helpful. Chiefly, most tasks contain a multitude of steps. Once the steps have been identified - as anyone would do them - it is possible to look at what elements of the tasks would be difficult or impossible for a student to do without significant assistance. At that point it is possible to begin developing a system of tools which could be used to address those elements. In order to focus interventions on barriers which need to be removed, the barriers must be clearly identified. Just as it is necessary to work to provide tools which remove barriers, it is important not to spend a student's precious time and energy on areas where barriers do not exist.

The Tools:

Finally, the SETT Framework addresses the area where most people would like to begin! It is hoped, however, that a group who has used the SETT Framework to arrive at this point, does so with a clearer understanding of what tools should be sought. What a difference to begin seeking tools with a clear idea of who is going to use them, where, and for what!

Among all of the questions in the SETT Framework, the most critical one is "What no tech, low tech, and high tech options should be considered when developing a system of assistive technology tools for a student with these needs and abilities doing these tasks in these environments?" All other questions merely gather and organize the information that is needed to arrive at answers to this question.

As the features of a workable system of tools are sought, participants must keep in mind that tools are not just things - they are both devices and services. They are "no tech" strategies as well as low tech and high tech devices and supports. They are systems of tools working in combination to assist a student in moving forward. More often than we would like to think - even when ongoing training has been provided - a laptop computer may fail to meet expectations because there is no extension cord available when the battery runs low. In a well-thought-out system, the extension cord would have been included.

Part V. Putting the SETT Framwork to Work!

The SETT Framework promotes team-building and builds consensus by using clearly understood language, requiring broad-based participation and valuing input from all perspectives. As data is organized and prioritized within the SETT Framework, it promotes logical thinking by all team members and can be an effective consensus-building tool. As environments and tasks are explored, the links between assessment and intervention become strong and clear, as does the need to develop a system of tools which will enhance the student's abilities to address the tasks in which he/she is expected to build competency. In addition to developing a system of tools valuable to the student, participating in a process using the SETT Framework increases the likelihood that the people supporting the student will see the relevancy of the technology and will be more active and persistent in encouraging and supporting the student's achievement through its use.

Using the SETT Framework as a guide, it is possible, from the start, to address and overcome many of the obstacles which lead to marginal student inclusion, general dissatisfaction and device abandonment. When the Student, the Environment

and the Tasks are fully explored and considered, laments like "Well, the device is here, now what do I do with it?" or "He has it, but he won't use it!" should seldom be heard. Instead, students, parents, and professionals should all rejoice at the increased opportunities for success which come with assistive technology systems that are well matched to the student's needs and abilities to perform the natural tasks which are part of living and learning in this world.

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Current Contact Information:

[Joy Zabala](#), M.Ed.
Department of Special Education and Rehabilitation
Counseling
229 Taylor Education Building
University of Kentucky
Lexington, Kentucky 40506-0001
(859) 361-5919
email: zabala@technologist.com

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