

*Assistive Technology Resources for Children and Adults with Disabilities*

# Closing The Gap

DECEMBER, 2010 / JANUARY, 2011  
VOLUME 29 - NUMBER 5

*Solutions*



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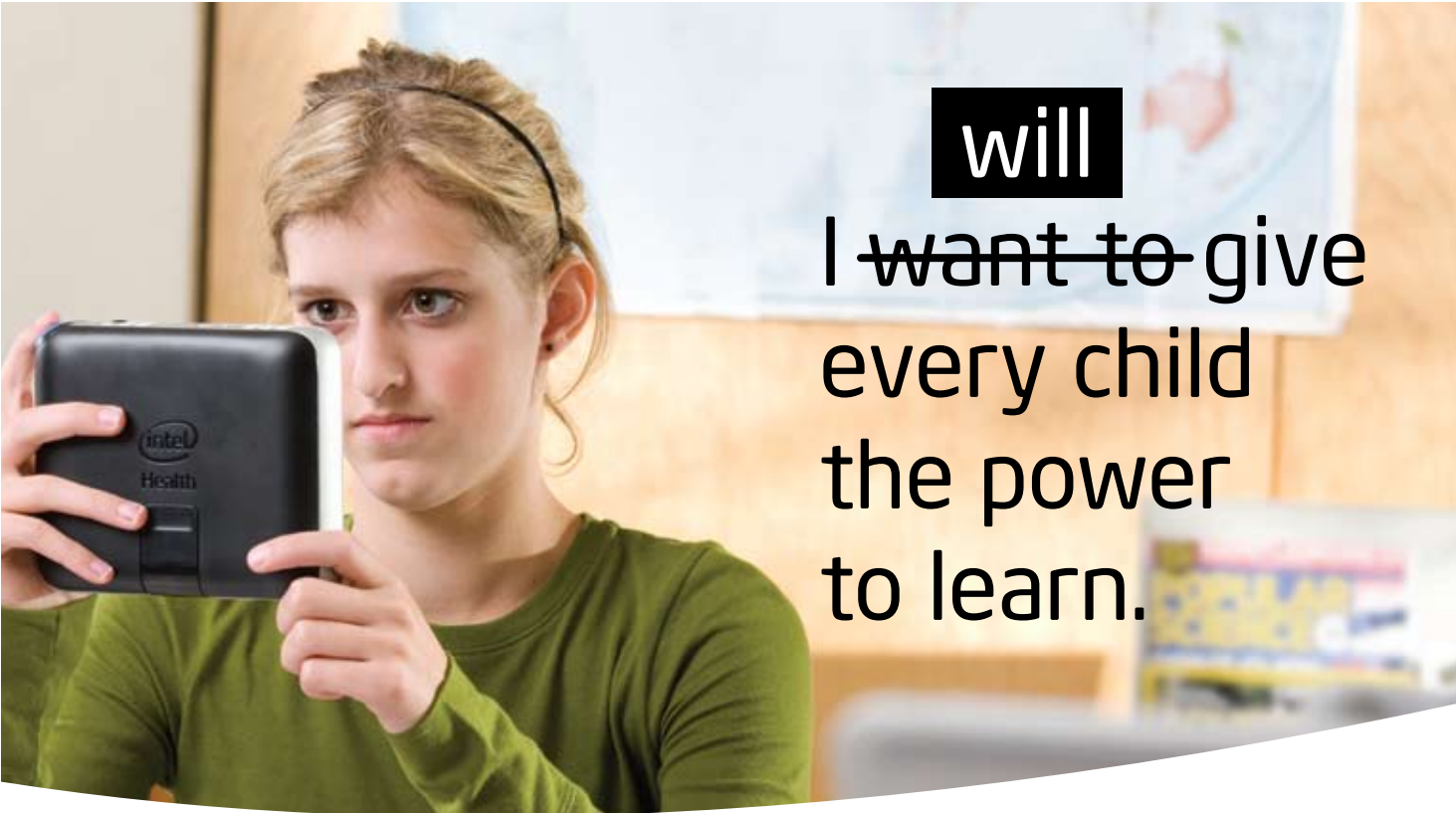
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# Closing The Gap

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\$39 per year in the United States. \$55 per year to Canada and Mexico (air mail.) All subscriptions from outside the United States must be accompanied by a money order or a check drawn on a U.S. bank and payable in U.S. funds. Purchase orders are accepted from schools or institutions in the United States.

## PUBLICATION INFORMATION

Closing The Gap (ISSN: 0886-1935) is published bi-monthly in February, April, June, August, October and December. Single copies are available for \$7.00 (postpaid) for U.S. residents. Add \$2.00 for postage outside the U.S. The annual Resource Directory issue sells for \$16.95 plus postage and handling. Article reprints available, please contact the Managing Editor for details.

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# Smart Inclusion for the 21<sup>st</sup> Century Classroom

## Integrating SMART Boards with Assistive Technology

By Alex Dunn and Alison Inglis

**PARTICIPATION** in education involves going beyond access. It implies learning alongside others and collaborating with them in shared lessons. It involves active engagement with what is learned and taught, and having a say in how education is experienced. But participation also involves being recognized for oneself and being accepted for oneself. I participate with you when you recognize me as a person yourself, and accept me for who I am. (Booth and Ainscow (2002))

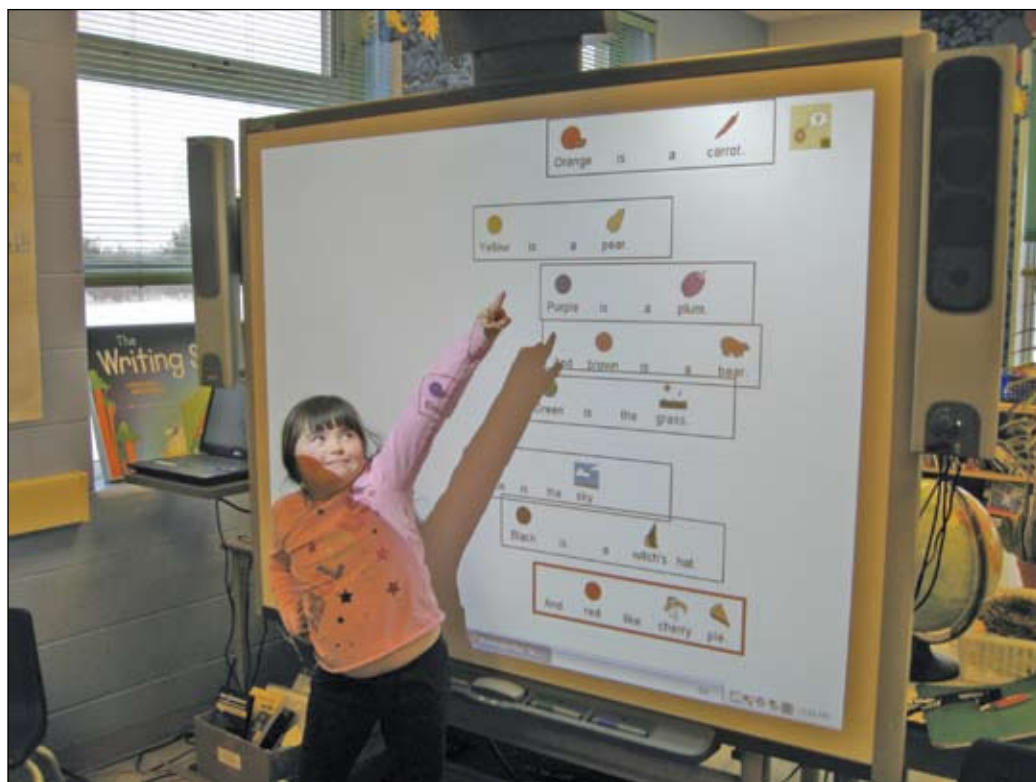
Welcome to Mrs. Curry's Grade 1 class. Today the goal for this literacy lesson is to sequence lines in a poem. Prior to Smart Inclusion, some days, Paula would have slowly made her way to the back of the classroom to work on her literacy program on her own computer with "special" software. Sometimes Paula was even

encouraged to put on headphones because she needed assistance reading the material and this was often viewed as distracting to the other students in the classroom. Other days, her classmates would all say "goodbye" to Paula as she missed the literacy block altogether to help make popcorn for the school fundraiser.



**ALEX DUNN** (Speech Language Pathologist) and **ALISON INGLIS** (Chief Psychologist) represent a team of people that consists of speech-language services staff, special education resource teachers, learning consultants, teachers and Principals at the UCDSB. The team also acknowledges the contributions of the following in their work: UCDSB's IT department, SMART Technologies, Bridges Canada, Advanced Presentation Products, Cambium Learning Technologies, Nintendo and Dynavox Mayer-Johnson, and the work and advice of Dr. Donna McGhie-Richmond from the University of Victoria.

For further information about Smart Inclusion visit [www.smartinclusion.wikispaces.com](http://www.smartinclusion.wikispaces.com). Alexandra Dunn may be reached at [alexandra.dunn@ucdsb.on.ca](mailto:alexandra.dunn@ucdsb.on.ca); Alison Inglis may be reached at [alison.inglis@ucdsb.on.ca](mailto:alison.inglis@ucdsb.on.ca) or [@SMARTInclusion](https://twitter.com/SMARTInclusion) @twitter.com



A SMART Inclusion student proudly pointing out her contribution during whole group instruction.



Now, as part of one of more than 30 schools in Upper Canada District School Board practicing Smart Inclusion, Paula is able to engage with peers as an active participant in her class, learning academic content while also working to meet her individual learning needs and goals; this is in essence the meaning of inclusive education. Paula's classroom teacher is using a SMART Board ([www.smarttech.com](http://www.smarttech.com)) with some of the software and hardware that Paula used to use alone or with an assistant at the back of the class and she is using these for group instruction. Therefore, technology that is necessary for Paula has become good for all. Interactive whiteboard technology, when paired with assistive technology, has made it possible for teachers to offer TRUE Universal Design for Learning – multiple means of representation, expression and engagement so that ALL students have access to an education.

## INTRODUCTION

In 2008-2009, the Upper Canada District School Board (UCDSB) team developed Smart Inclusion, an idea that originated as a method to support inclusion and programming for 12 students with severe communication challenges. The Trillium Lakelands District School Board had done work in the year prior to the Smart Inclusion pilot using Smart Boards for students who use AAC. They felt that integrating AAC with the Smart Boards provided an unexpected experience of creating a language-literacy and communication immersion environment for the whole class, not just the non-verbal student. (Clinker, M. & Moore, B. 2008)

This initiative examined the use of SMART Boards with what has historically been thought of as "special needs software," set within a theoretical framework, including Universal Design for Learning (UDL; Turnball et al., 2002) and the Participation Model (PM; Rosenberg & Beukelman, 1987; Beukelman & Mirenda, 1998). The goal was to support communication and participation for students with significant communication challenges and inclusive educational programming. In this article we will discuss the positive outcomes of this grassroots initiative. UCDSB teams continue to monitor implementation and effects of Smart Inclusion, using action research principles, as more and more classrooms, schools and districts, look to support students with

significant challenges and their typically developing peers.

## PROCESS

In May of 2008, Paula, as well as 11 other students with severe communication challenges, in classrooms from kindergarten to high school, were identified as eligible for an Ontario Ministry of Education Special Equipment Allowance (SEA) grant to purchase specialized equipment and software for students with severe disabilities. (We



The classroom teacher integrates not only technology but traditional teaching methods to ensure ALL students have access to the curriculum.

unable to secure consents for two of the students to proceed with complete data collection; therefore this paper is based on data from 10 of the 12 original students selected for this pilot.) This equipment included a SMART Board, along with a variety of application software and augmentative and alternative communication (AAC) tools. For most of these students, AAC and some specialized software was already in use, purchased under previous SEA grants. Based on the Smart Inclusion framework, these tools were considered essential to augment and assist not only communication, but meaningful educational and social participation in the classroom setting for the student with severe disabilities.

Tools were put into place for September of 2008. Extensive training and coaching on the theories, practices and technology behind Smart Inclusion were provided to classroom teachers, educational assistants and special education school-based resource teachers (learning resource coaches (LRCs) at UCDSB). Training was provided by UCDSB Smart Inclusion team, Bridges Canada ([www.bridges-canada.com](http://www.bridges-canada.com)), SMART Technolo-

gies ([www.smarttech.com](http://www.smarttech.com)), and Advanced Presentation Products ([www.advanced-inc.com](http://www.advanced-inc.com)) at 2008 Summer Institutes and throughout the 2008-09 school year.

## THE THEORIES ... "INCLUSION WITHOUT PARTICIPATION IS NOT INCLUSION AT ALL."

**Universal Design for Learning (UDL) and Differentiated Instruction (DI)** provide frameworks for designing curricula that enable ALL individuals to gain knowledge, skills, and enthusiasm for learning. UDL principles assist teachers in designing instruction for a diverse group of students, while DI principles allow them to address specific skills and challenges for individual students. (See [http://www.ontario-directors.ca/L4All/L4A\\_en\\_downloads/LearningforAll%20K-12%20draft%20J.pdf](http://www.ontario-directors.ca/L4All/L4A_en_downloads/LearningforAll%20K-12%20draft%20J.pdf))

UDL and DI overlap and provide a range of instructional strategies, resources, activities and assessment tools to meet the strengths, needs, readiness and learning styles or preferences of a wide range of individuals in a class. They guide the development of flexible learning environments through multiple means of representation, expression and engagement in order to increase access to learning by reducing physical, cognitive, intellectual and organizational barriers to learning, as well as other obstacles, while maintaining high achievement standards for all. (See [www.cast.org](http://www.cast.org))

Teachers, like Mrs. Curry, understand how to cast the UDL net in an attempt to teach and reach ALL students. Mrs. Curry has discovered that this is made easier through the use of a SMART Board interactive whiteboard and specialized software. She recognizes that auditory representation (e.g. voice, speech output from computer, sound effects), visual representation (picture communication symbols, printed words, graphics) and incorporating kinesthetic modalities (e.g. touching, adding to and moving information on the IWB) are necessary to "capture" and engage her students in learning. However, despite her best efforts, there are some students who sometimes fall through the UDL net and so the Participation Model also helps Mrs. Curry (and other educators!) to engage all of her students.

**The Participation Model (PM)** provides a framework for supporting academic and social participation. This model captures those students who fall through the UDL net by addressing how to identify environmental and student barriers to participation that



continue to exist, so that even those students with severe communication impairments are able to participate in a meaningful way in classroom activities. The philosophy behind the Participation Model is that students with special needs, including those who use assistive technology and/or augmentative alternative communication (AAC) tools, can participate in the same classroom activities as peers, while still meeting their individual learning needs and goals. Programming for students with special needs, within the PM framework, is collaborative. The process includes teachers, educational assistants, speech-language pathologists and parents in setting academic and social goals.

The Participation Model begins by identifying current levels of academic participation, social participation, integration and independence within the learning environment. For example, students' level of participation in an activity may be involved, active, competitive or none, and where integration with peers during the activity may be full, selective or none, and with a level of independence that could be characterized as assisted, with set up, or fully independent.

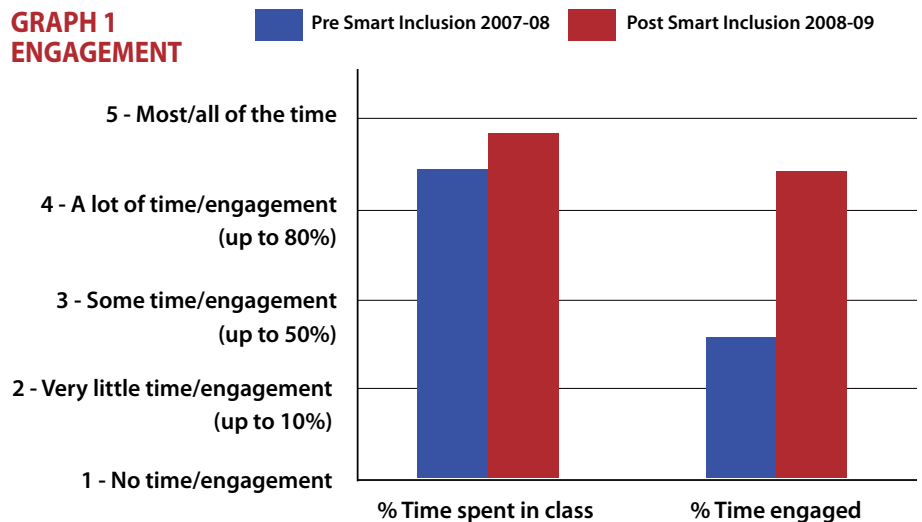
The next step is to identify barriers that may be preventing a student from more active participation, integration and increasing independence in any classroom learning activity. It then focuses on designing interventions to address the barriers, thereby optimizing academic and social participation, integration and independence. Finally, the levels of participation, integration and independence are re-assessed to evaluate the effectiveness of program and interventions in helping students reach their goals.

## THE TECHNOLOGY

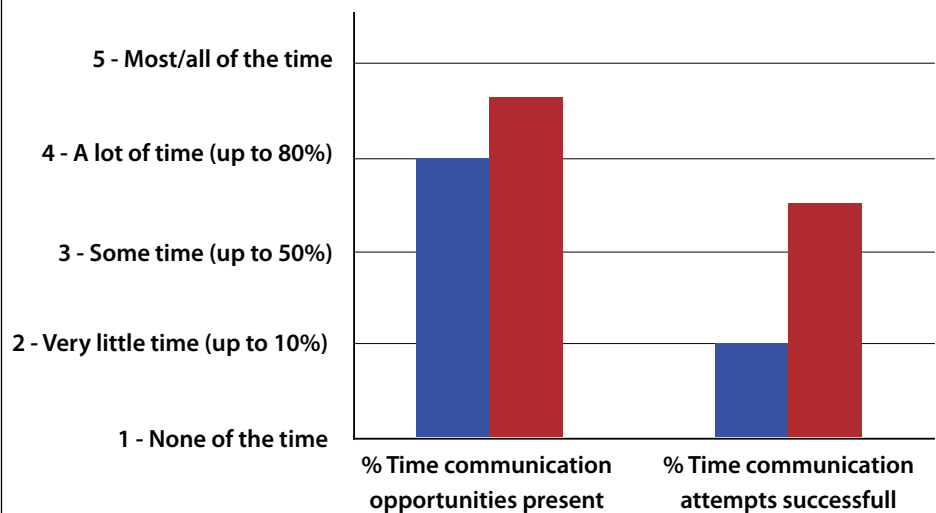
Prior to May 2008, some of the students selected for our work were already using a computer and assistive technology. However, the technology was frequently used by an individual student in isolation from peers, resulting in minimal opportunities for academic and social participation. This sometimes looked like educational assistants working with students at the back of a classroom (or even outside of classrooms) on individual learning goals that were not always well connected to the subject matter being addressed at any given moment within the classroom as a whole.

To promote engagement with peers in classroom instruction, we created a "toolkit" by integrating the students' assistive technology with a SMART Board for use during group instruction. We selected SMART Boards over other interactive whiteboards (IWB) because other IWB require a pen for interactivity. This can be a barrier to participation for some of our students who have physical

**GRAPH 1  
ENGAGEMENT**

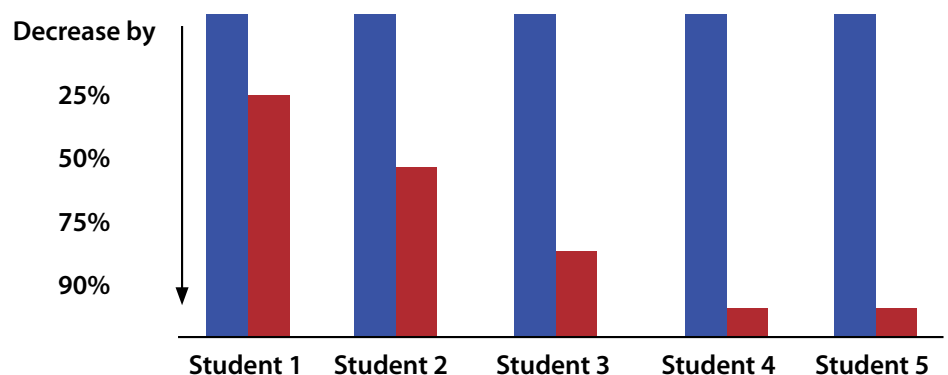


**GRAPH 2 - COMMUNICATION**



**GRAPH 3 - BEHAVIOR**

### 5 Students: Seriously Disruptive Behavior, Weekly or More



access challenges. The SMART Board interactive whiteboard overcomes this environmental barrier by allowing students to interact with the lesson using a finger, an elbow, their head or any object that they can get their fingers around. It was also critical to have as close to zero shadowing as possible. The positioning of the body required to reduce shadowing with many IWB can pose difficulties for some students due to cognitive and other challenges, so in year one, we chose Gen2 integrated SMART Boards. We have since moved on to using the 685ix SMART Board in our effort to move closer to boards that offer zero shadowing. Assistive Technology ranged from software, like Boardmaker Plus, Classroom Suite 4, Notebook, Symwriter, Kurzweil and Inspiration, to complex hardware, including alternative access keyboards, switches and voice output devices like V and Vanguard. (For more specific information on how to have voice output devices interact through the computer with the SMART Board visit us at [smartinclusion.wikispaces.com](http://smartinclusion.wikispaces.com).) While the assistive technology was originally deemed essential for one student (our Smart Inclusion target student), many students within the classroom benefited from its use; “necessary for some, good for all.”

## EVALUATION AND RESULTS

At UCDSB, during the 2008-2009 school year, pre and post data was collected on the 12 students for whom the SEA claims were pursued. The data sources included classroom observations, surveys (completed by school teams), speech-language assessments, review of IEPs and report cards, and interviews with teachers and principals. Qualitative and quantitative data was gathered on academic participation, social participation, communication skills,



A student can interact with websites with a touch of a finger on the SMARTBoard.

**TABLE 1 - ACADEMIC PARTICIPATION / SOCIAL PARTICIPATION**

Participation Levels Language Arts	Pre Smart Inclusion 2007-08 (# Students)	Post Smart Inclusion 2008-09 (# Students)
<b>None:</b> Alternative expectations not on topic or participating with class; may be out of classroom; may be working on other curriculum areas in the classroom.	2	0
<b>Involved:</b> Alternative but on topic or alternative expectations but participating in the activity with class; alternative expectations may include OT, PT, SLP, Behavior, Social, life skills, daily living skills, etc.	5	1
<b>Active:</b> Modified curriculum	1	7
<b>Competitive:</b> Same expectations as everyone else; may have some accommodations – working with peers	0	0
Participation Levels Mathematics	Pre Smart Inclusion 2007-08 (# Students)	Post Smart Inclusion 2008-09 (# Students)
<b>None:</b> Alternative expectations not on topic or participating with class; may be out of classroom; may be working on other curriculum areas in the classroom.	2	0
<b>Involved:</b> Alternative but on topic or alternative expectations but participating in the activity with class; alternative expectations may include OT, PT, SLP, Behavior, Social, life skills, daily living skills, etc.	4	1
<b>Active:</b> Modified curriculum	1	5
<b>Competitive:</b> Same expectations as everyone else; may have some accommodations – working with peers	1	2

Social Participation	Pre Smart Inclusion 2007-08 (# Students)	Post Smart Inclusion 2008-09 (# Students)
<b>No friends</b>	5	0
<b>1 or 2 friends</b>	3	5
<b>A few to many friends</b>	0	3

behaviors, learning skills and inclusion. It should be noted that with support from UCDSB, the London District Catholic School Board (LDCSB) implemented SMART Inclusion during the 2009-2010 school year and was able to replicate the findings from the UCDSB. (For more information on results from the London District Catholic District School Board please visit [smartinclusion.wikispaces.com](http://smartinclusion.wikispaces.com).)

The following results are based on the surveys completed by school teams at UCDSB during the 2008-2009 school year. The surveys provided pre and post measures for students with special needs in the areas of Engagement, Independence, Communi-

cation, Behavior and Academic and Social participation.

By the end of the Smart Inclusion year (2008-09 school year), **target students were spending more time in class and were engaged more often in learning activities with peers** compared to time in class and engagement in the prior school year (2007-08), as reported by 2007-08 teachers (retrospectively in September 2008) and 2008-09 teachers (at end of school year, June 2009).

By the end of the Smart Inclusion year (2008-09 school year), **target students were being provided more communication opportunities and were successful in more of their communication attempts**

compared to the prior school year (2007-08), as reported by 2007-08 teachers (retrospectively in September 2008) and 2008-09 teachers (at end of school year, June 2009).

Standardized language assessment pre and post data available for eight students revealed that all students demonstrated growth in their speech and language skills; all students' communication skills had improved to a greater degree over the course of the 2008-09 school year when compared to growth over previous years. All Smart Inclusion students have been on SLP caseloads for several years. Details on these results available from Dr. Alison Inglis, Chief Psychologist.

## SUMMARY AND CONCLUSIONS

### Outcomes – Students with Special Needs

- Students with special needs were not only more engaged and participating more fully in classroom programming with peers, but they were meeting their IEP goals and more. Teachers had to increase learning expectations exponentially.
- Students with severe communication challenges became more active social participants in their classrooms.
- Significant negative behaviors decreased, thus optimizing positive engagement in classroom communities.
- Improved attendance for students with special needs was reported.

### Outcomes – Whole Class

- All students were more engaged.
- Assistive Technology was being used for whole class instruction.
- More teaching and less behavior management were reported.

### Outcomes - School Community

- The Participation Model adopted beyond the Smart Inclusion classrooms.
- Principals implementing Smart Inclusion theory and technology into other classrooms, and some School Success Plans now include the Participation Model and Assistive Technology
- Two Smart Inclusion schools were created to further evolve models for "best practice" in inclusion and technology.

## SMART INCLUSION: WHAT NEXT?

Smart Inclusion is now in its third year and has grown beyond a pilot project to bring 70 classrooms under the Smart Inclusion umbrella at UCDSB. We are also working very closely with two schools in a two-year research project where the focus is on "Inclusion for the 21st Century." These schools have equipped every classroom with SMART Technology and software (Classroom Suite 4; Boardmaker Plus; Clicker 5; Inspiration; Kurz-

weil; WordQ/Speak Q) and have paired assistive technology and training with support for effective inclusive classroom practice.

Our students are the true stars of Smart Inclusion and have become educational leaders as more and more classrooms, schools and districts look to support students with significant challenges and their typically developing peers. That's something to talk about.

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# The AIMing for Achievement Series:

## What Educators and Families Need to Know about Accessible Instructional Materials

### *Part Two: Navigating the Decision-Making Process*

**By Joy Smiley Zabala and Diana Carl**

Part Two of the AIMing for Achievement Series focuses on the decision-making process related to accessible instructional materials (AIM) and looks closely at how each of the steps requires good thinking of the individualized education program (IEP) team or other decision-making team. First, the team determines whether or not the student may need AIM; next, if needed, they select which formats are appropriate and determine the sources from which to acquire the formats. Finally, the team will think about the supports and services that will be necessary for the student to use the formats effectively for participation and achievement.

Included in Part Two is an introduction to the AIM Navigator, an online tool, developed by the AIM Consortium and made available on the National Center for Accessible Instructional Materials (AIM Center) Web site at <http://aim.cast.org/navigator>. The Navigator is a process facilitator that contains in-depth information and scaffolded supports to guide decision-making at every step of the process.

#### **THE DECISION-MAKING PROCESS**

Those of us who have worked in assistive technology for a long time have found that the most efficient and effective way to consider the needs for assistive technology is through a decision-making process. And really, the same holds true for AIM.

Basically, there are four steps that teams must take in order to ensure that students who need materials in these formats have them when needed for educational participation and achievement. Those steps include:

1. Establish need for instructional materials in specialized formats

2. Select specialized format(s) needed by the student for educational participation and achievement

3. Commence SEA and/or LEA-defined steps to acquire needed formats in a timely manner

4. Determine supports needed for effective use for educational participation and achievement.

#### **DETERMINATION OF NEED**

In this step, the team thinks about whether the student can read and gain information from the standard print-based instructional materials used across the curriculum by all students; needs the materials in a specialized format; or needs modified content or alternative materials.

#### **WHY WOULD A STUDENT NEED A SPECIALIZED FORMAT?**

If the student is able to understand the content presented in textbooks and other related core instructional materials that are used by other students across the curriculum, but is unable to read or use them, the student will need another way to get the information contained in the print materials. In this case, the student may need specialized formats of the curricular materials.

#### **WHAT ARE THE SPECIALIZED FORMATS?**

Specialized formats are Braille, large print, audio and digital text. Detailed information about the specialized formats was provided in Part One of the AIMing for Achievement Series.



**JOY ZABALA**, Ed.D., ATP, is Director of Technical Assistance, CAST and the National Center on Accessible Instructional Materials. She can be reached at [jzabala@cast.org](mailto:jzabala@cast.org)



**DIANA CARL**, M.A., LSSP, is an Independent Consultant and Special Projects Coordinator for the AIM Center. She can be reached at [diana.carl@comcast.net](mailto:diana.carl@comcast.net)

**What already existing information can be used to help the team decide among the three options? What data can teams use to help them make this decision?**

Some of the specific types of information that can be used to help the team make a decision about the need for specialized formats includes, but is not limited to:

- Reading level, including formal and informal reading diagnostic information
- Indications in Individualized Education Program (IEP) or 504 Plan
- Academic achievement scores and grades
- Curriculum based assessments
- State-wide and district-wide assessment participation and proficiency
- Sensory abilities
- Physical abilities
- Cognitive abilities

**What methods can be used to gather the additional information that will help the team decide among the three options?**

- Trials with materials in specialized formats
- Formal measures conducted by a psychologist, a reading specialist, an audiologist, a vision teacher, a physical therapist, an occupational therapist, etc.
- Learning Media Assessments conducted by vision specialists
- Outside evaluations or reports from a doctor or other medical professional

**What is the difference between specialized formats and alternative materials?**

A specialized format of a print-based material includes exactly the same information as the printed material. The specialized format does not change the content, only the way in which the content is presented to the student. The specialized format neither adds nor changes any information. An alternative material may address the same goals, but the content of the material is modified or changed in some way – usually made less complex – so that it can be understood by the student.

## SELECTION OF FORMATS

After the team determines that the student needs specialized formats, they select which formats are needed. The selection process includes a) listing what print materials are used across the curriculum, b) considering the instructional context in which they are used, c) selecting which formats the student needs, and d) determining which materials are needed in the different formats.

**a) List the print instructional materials used across the curriculum.**

The team gathers information about the print instructional materials used across the

curriculum in which the student will participate.

**b) Consider the instructional context**

In the next step, the team considers the student's skills, needs and preferences, the environments in which the student will be working and the tasks for which specialized formats will be needed. Thinking about the student, environments and tasks helps the team understand how materials are used so that the team can make a good decision about which of the combination of specialized formats – braille, large print, audio and digital – will work for the student.

**c) Select the formats needed**

Next, the team determines which specialized format(s) will be most useful to the student. They select the format(s) needed by this student based on matching the student's needs and the instructional context needs with the features that can be manipulated in the specialized format(s). More than one may be needed and can be selected.

**d) Match formats to materials**

The team uses the information gathered to select which print instructional materials are needed in which format.

## ACQUISITION OF ACCESSIBLE INSTRUCTIONAL MATERIALS

There are five common sources for acquiring AIM:

- The National Instructional Materials Access Center (NIMAC)
- Accessible Media Producers (AMPs)
- Publishers
- Other Sources
- Do-It-Yourself

The following is a summary of each source, the type of materials they provide and a description of who is eligible to receive materials from them. In-depth information about the legal context was provided in Part One of the AIMing for Achievement Series.

## THE NATIONAL INSTRUCTIONAL MATERIALS ACCESS CENTER (NIMAC)

The National Instructional Materials Access Center (NIMAC) is the national repository of files developed according to the National Instructional Materials Accessibility Standard (NIMAS). In order to receive specialized formats created from NIMAS source files from the NIMAC, a student must:

- have an Individualized Education Program (IEP). This means that the child has undergone an evaluation and is or will be receiving special education services under IDEA.
- be certified by a competent authority as having a "print disability" as defined by copyright statute.

Procedures for acquiring NIMAS files differ from state to state. If you have questions about the process where you live, you can ask the school district contact or the primary NIMAS/NIMAC contact in your state. State contact information is available at [http://aim.cast.org/learn/policy/state/nimas\\_nimac\\_contacts](http://aim.cast.org/learn/policy/state/nimas_nimac_contacts).

## ACCESSIBLE MEDIA PRODUCERS (AMPS)

Accessible Media Producers (AMPs) are organizations that produce accessible materials in specialized formats, such as Braille, large print, audio or digital text. To receive materials from AMPs' general collections, students must have a qualifying print disability. To receive specialized formats of print instructional materials created from NIMAC files, the student must also be served under IDEA.

**Bookshare** (<http://www.bookshare.org/>)

Bookshare creates and provides files that can be used for students who need materials in digital text or Braille format. They also provide software that can be used to read those files.

**Recording for the Blind and Dyslexic** (RFB&D) (<http://www.rfbd.org/>)

RFB&D creates and provides audio books with human narration and synthetic electronic speech. Specially adapted players or software may be required to play the audio books.

**American Printing House for the Blind** (APH) (<http://www.aph.org/>)

American Printing House for the Blind (APH) creates and provides materials in Braille, large print and electronic formats for individuals who are blind or have visual impairments

## PUBLISHERS

There are several instances in which publishers can be of assistance with the provision of accessible materials. Upon request, a publisher may be willing to provide a digital file or grant permission for a state or local education agency to copy or scan materials that are not available from another source. Typically, when publishers provide these files, it is with the understanding that use of materials created from the file will be limited to students certified as having a print disability. This is especially helpful when a student with a disability has a service plan (e.g., 504) but is not served under IDEA, or when the material is no longer sold and for which no NIMAS source file has been created. These materials are called "legacy materials."

Some publishers also provide digital versions of instructional materials along with the printed books. This can be very useful if the materials that are provided contain the same information as the printed book rather

than supplementary material. It is important to be aware that just because a material is in a digital format does not necessarily mean that the material is accessible to all students (e.g., text cannot be read aloud, highlighted or otherwise changed).

One of the most promising developments is that publishers are beginning to provide some accessible versions of instructional materials for purchase, typically in digital formats that can be read by a variety of digital readers. An excellent example can be seen in the HTML Books available from Pearson Publishing (<http://www.pearsonschool.com/htmlbooks>).

## OTHER SOURCES

There are numerous free and commercial sources for accessible materials. Although these sources do not typically include textbooks, they may be good sources of supplementary materials, some of which are required school reading. Items that are available free of charge are typically those whose copyright has expired and are in the public domain.

## ELECTRONIC BOOK SOURCES

The following is a selection of sources that provide electronic or audio books; some texts are available for free and other books must be purchased.

- LibriVox: [www.librivox.org](http://www.librivox.org)
- Net Library: <http://www.netlibrary.com/>
- Project Gutenberg: <http://www.gutenberg.org>
- Audible.com: <http://www.audible.com/>
- Online bookstores: <http://www.amazon.com/>, <http://www.barnesandnoble.com/>, and others
- OverDrive: <http://www.overdrive.com/>
- Audio Editions: <http://www.audioeditions.com/>
- Blackstone Audiobooks: <http://www.blackstoneaudio.com/>

## “OPEN SOURCE” INSTRUCTIONAL MATERIALS

Open source materials can be acquired, customized and used with any student free of charge (or for a very small fee), depending upon the source. The IEP team will need to verify that an open source material is accessible. These materials are typically not textbooks, although CK-12 (<http://about.ck12.org/>) looks promising.

**National Library Service for the Blind and Physically Handicapped (NLS)** (<http://www.loc.gov/nls/>)

This network of libraries across the nation lends audio, Braille and large print books and materials to persons with a qualifying print disability.

## DO-IT-YOURSELF

Although specialized formats are increasingly available through accessible media producers and commercial sources, the “do-it-yourself” method of scanning, copying and creating materials remains a way to meet the needs of some students for certain materials. For example, teacher-made materials will almost always need to be created in this manner.

When an accessible version of a published, copyrighted material is created in this way, copyright law must still be respected. The safest approach is to ask permission from the publisher before teachers or parents scan and create their own AIM.

## WHAT SUPPORTS ARE NEEDED?

The IEP team should determine whether any of the following supports are needed for your child to effectively use the selected AIM:

- technology,
- training,
- instructional strategies,
- support services, and
- accommodations and/or modifications.

The following is a broad summary of supports that may be needed for a student to effectively use AIM.

## TECHNOLOGY

After selecting the specialized formats needed and determining how to acquire them, the team will need to decide what types of technology or tools are needed for the student to use the accessible formats for participation and achievement. The information about the student, the environments and the tasks that were identified when selecting formats can be helpful when selecting the technology needed to use the formats. The identified student needs can be matched to the features of the various technology tools that might be used to deliver the specialized formats.

## TRAINING

Different levels of training will be needed, depending on the complexity of the technology or tool selected to access the specialized formats. For example, use of a large print book would not require much training. However, if the student is using text-to-speech software or a screen reader to access digital text, more advanced skills may need to be taught. Teachers, other school staff and families may also need training in order to support the child at school and in the home.

Students may also need additional types of training, such as when to use a particular format or tool for a specific learning task or how to ask for needed supports when they are not readily available.

## INSTRUCTIONAL STRATEGIES

Educators may need to use various instructional strategies to support students using specialized formats and supporting technologies. When a student first begins using these tools, instruction should include multiple opportunities for the student to understand the purpose, benefits and outcomes of using the tools. It is helpful to start by providing opportunities for the student to use the tools to successfully complete familiar learning tasks (possibly in a single environment). Gradually building on early successes and increasing the functional complexity of the tools will enable the student to learn use the tools for independent mastery of learning goals in a variety of environments. The child’s IEP team should work together to ensure that teachers and staff are coordinating to assist the student in using the accessible materials and monitor the change in literacy skills and access.

## SUPPORT SERVICES

The student’s IEP should describe any support services needed for effective use of various specialized formats and who is responsible for providing them. Different support services may be needed for different formats. For example, a student using Braille may require specialized instruction from a qualified teacher of the visually impaired, and a student with a physical disability may need the support of an occupational or physical therapist. Additional supports, such as case management, classroom organization and arrangement, equipment management and maintenance, and file acquisition, may be needed.

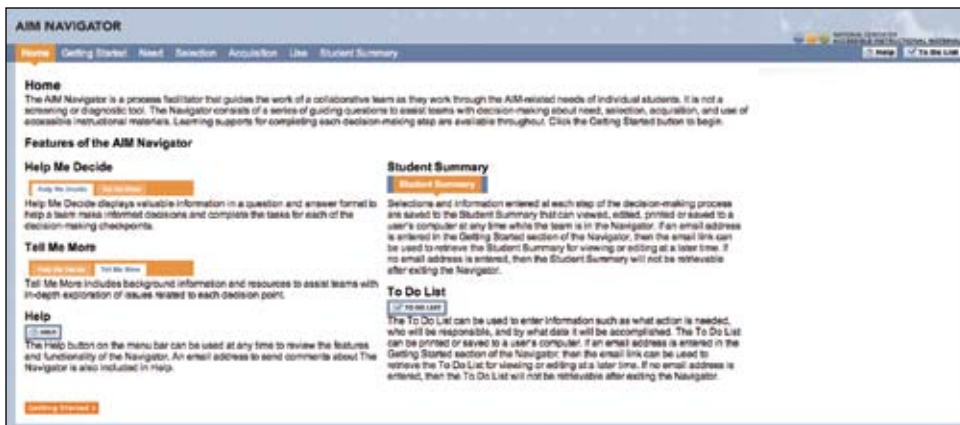
## ACCOMMODATIONS AND/OR MODIFICATIONS

The use of AIM may require accommodations and/or modifications to the student’s educational program. For example, a student may need preferential seating or additional time to complete tasks due to the time required to use a specialized format. Frequent breaks may be needed to avoid fatigue. Some students may need to provide responses orally rather than in writing. The team should consider which accommodations and/or modifications are needed when developing the IEP.

## THE AIM NAVIGATOR: FACILITATING THE DECISION-MAKING PROCESS

The AIM Navigator is a free Web-based tool that facilitates the process of decision-making around AIM for an individual student by IEP or other decision-making teams. The four major decision points in the process





The AIM Navigator is available on the AIM Center Web site at <http://aim.cast.org/experience/training/navigator>.

include determination of need, selection of format(s), acquisition of formats and selection of supports for use.

The AIM Navigator provides extensive support for decision-making at each point through a series of guiding questions, resources and links to other tools created by the AIM Consortium. The guiding questions are provided at two levels —“Help Me Decide” which includes a brief list of questions and answers related to the decision point and “Tell Me More” which includes a comprehensive list of questions, answers and resources for both

the specific decision point and for all decision points within AIM Navigator.

The AIM Navigator collects all decisions made by the team and all supporting information entered by the team and uses that information to create a summary report that can be printed or saved to a local computer. The AIM Navigator also includes an optional running To-Do list that the team can use as they go through the AIM Navigator to create a list of actions that need be taken and determine who will be responsible for each action. The To-Do list can also be printed or saved to a local computer. All other tools created by

the AIM Consortium are linked within the AIM Navigator at the specific decision-point to which they apply. The AIM Navigator is available on the AIM Center Web site at <http://aim.cast.org/experience/training/navigator>.

## COMING SOON! PART THREE: JUST IN TIME AIM SUPPORT AT YOUR FINGERTIPS!

Part Three of the AIMing for Achievement Series will provide a detailed guided tour of the Web site of the National Center on Accessible Instructional Materials at <http://aim.cast.org>. The AIM Center provides knowledge development, technical assistance and leadership to SEAs and LEAs, as well as to educators, families and others involved in the massive collaborative effort involved in getting high quality accessible materials into the hands of students who need them. The suite of tools produced by the AIM Consortium is among the large and growing resources available free of charge to all states and interested parties on the AIM Center Web site.

In the meantime, visit the AIM Center Web site at <http://aim.cast.org> and check out how to get involved and stay connected by exploring the upcoming and archived webinars and the available collaboration opportunities. ■

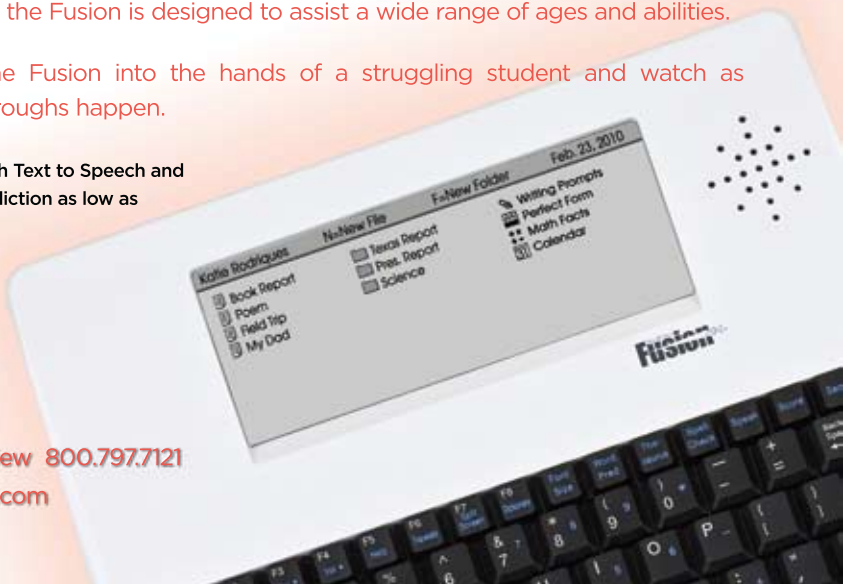
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# DISKoveries

## Special Needs: Toys, Games, Electronics and Software

By Joan Tanenhaus

### Learning Resources

**Reading Mentor** (Learning Resources; [www.learningresources.com](http://www.learningresources.com)) The Reading Mentor is a stand-alone electronic device that contains visual and auditory output, as well as groups of reading rods (little blocks that can be strung together). These little blocks can be manipulated to make words and sentences. Students then place the reading rods on a track on the device and they are read aloud. They then hear the letter name, word or sentence they have built and can also read it on the screen. Students can hear individual phonemes or hear the word spoken aloud. They can press either the Read It or the Sound It buttons to repeat the words or sounds as often as they want. They can use the arrow keys to toggle to the word or letter they want to practice. There are a series of kits that cover a wide range of reading experiences. These kits (with story books, reading rods and activity books) can then be used to reinforce independently or with assistance the basic reading skills of letter recognition, letter-sound associations, phonological awareness, sight-word reading, decoding, spelling word recognition and vocabulary development. This multi-sensory approach allows students to use their hands to build words and sentences with the Reading Rods and to then see and hear what they have built. The rods are color-coded

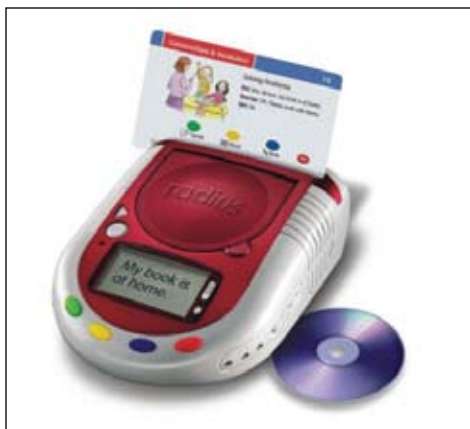


Learning Resources Reading Mentor (Learning Resources)

rods and help learners distinguish consonants, vowels, blends and different parts of speech. The Reading Mentor also provides an aural model to reinforce and improve language comprehension and pronunciation. With over 23,000 words in memory, four headphone jacks, volume and contrast controls, it is still portable enough to move around and use where ever it is needed. It is an impressive learning tool for regular classes, English language learners, students with special needs or students in speech/language pathology

programs. Word Building Library contains 12 Readers, two Activity Books and a Teaching Guide. It works along with the Reading Rods Word Building, a set of 109 color-coded interlocking rods with consonants, vowels, vowel patterns, blends and digraphs. Each of the books focuses on a particular phonic skill (i.e., initial s blends, th voiced and unvoiced, digraph ch, etc.) and within the book the focus letters are color coded to match the Reading Rods. The goal of this set is to develop letter recognition, letter-sound associations and to develop the connection between words and sounds. Students can hear the letter names, phoneme sounds and the words that are built by combining them. The 12 readers let the students read whole words with targeted blends and digraphs. The activity books (flip books) are excellent – they contain over 50 pages of activities – first they find the rods needed to complete the activity. Then, following color-coded diagrams, they are helped to build words that match the diagram and pictures. There are also pages with pictures and the task is to find things that begin with a specific blend or digraph. This is then reinforced by placing the Reading Rods in the Reading Mentor unit to hear the words and sounds they have created. This library provides excellent opportunities for learning sound segmenting, sound blending and for rein-





Radius Audio Learning System (Learning Resources)

forcing vowel patterns. The activities progress from initial (s), (l) and (r) blends, final consonant blends, blends and digraphs in the context of a story, and usage of (th), both voiced and unvoiced. Sentence Building Library, for grades 2 and up, is the most advanced library in the program. It also includes 12 Readers, two Activity Books, a Teaching Guide and works along with the Reading Rods Sentence Building (156 rods, including nouns, adjectives, adverbs, verbs, pronouns, conjunctions, articles, interjections and punctuation). Its goal is to allow students to see the connection between words and sentences and to then hear words and sentences that they have built. With the activity books, students follow icons and direction to listen, speak, read and write. Flip Book 1 features activities that focus on nouns, pronouns, verbs and subject-verb agreement. Flip Book 2 contains a variety of activities with adjectives, prepositions, adverbs, conjunctions, articles, synonym and antonyms. Students are introduced to the part of speech (i.e. nouns: people), learn to identify the color coded nouns and then use them to follow the diagrams to complete sentences, which they can then hear spoken with the Reading Mentor unit. Activities are focused on possessive nouns, action verbs, irregular verbs (present/past tense), adjectives, comparative adjectives, prepositions, antonym, synonyms, adverbs, articles, conjunctions and compound subject and predicates. In addition, the Reading Rods can be used to create additional activities that give students the experience of manipulating words to create meaningful and linguistically correct sentences. They are excellent also for children who may not have adequate grapho-motor skills to write – this will still allow them the opportunity to manipulate words to create sentences and hear them read aloud.

**Radius Audio Learning System** (Learning Resources; [www.learningresources.com](http://www.learningresources.com)) This excellent system is a compact sized interactive card reader that reinforces reading and

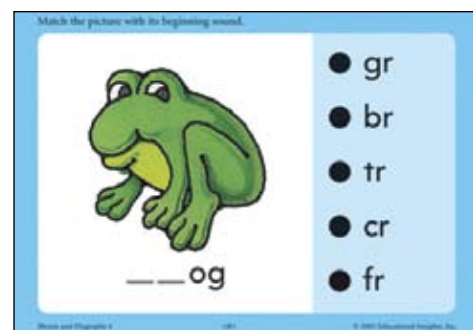
language materials with high quality audio. Because it contains interactive CDs, this system provides a much greater capacity for content than other card-based systems. Students insert the CD, scan a card and listen and press the color-coded buttons as cued to respond to questions and do activities. The written text is on the card. The card and the reader use barcode technology that reads the print aloud. The color-coded buttons match the interactive card sets – look, listen, write and speak. The built-in voice recorder stores up to two minutes of student voice. It works with an included power adaptor or with batteries and comes with a durable carrying case. There is a large selection of subject and level specific interactive CD/card sets (sold separately). Each set of cards include 40 double-sided activity cards and an interactive CD. Conversations & Vocabulary CD Card Set, for ELL/ESL Grade 1+, has cards that teach vocabulary, simple dialogue and conversations, and themed vocabulary on common themes, using key phrases and natural language patterns. For example, Teacher instructions, such as "Please take out your spelling books," simple school conversations (Girl: "Mrs. Brown, my finger is hurt." Teacher: "Let's go to the nurse's office.") and simple conversations about seasons, days of the week, months of the year, holidays and shopping. Reading Comprehension CD Card Set, for grades 1-3, teaches: using picture cues, making predictions, main idea, drawing conclusions, comparing and contrasting, sequencing, identifying fiction and non-fiction and distinguishing fact and opinion. Students are encouraged to look at the text, read along with the speaker and to then answer questions by pressing the record button and hearing immediate feedback. This is an excellent tool for teaching and reinforcing reading and language skills, great for encouraging independent work skills, and very motivating because of the interactivity. There is a wide range of card sets available for different skills and ages.

There is a display screen that provides easy-to-follow visual reinforcement. Also plays standard audio CDs. Great for center-based instruction, independent or small group learning.

**GeoSafari Smart Talk** (Educational Insights: 888-800-7893, [www.educationalinsights.com](http://www.educationalinsights.com)) This is an interactive, electronic hand-held toy that can help students acquire both receptive and expressive language. With its flashing lights and clear audio output, it guides students to hear a word, learn about it and then answer questions. It is used with the 450-card Smart Talk Library. Each card is 5 inches by 5 inches and laminated. Students slip one of the clear, colorful cards into the device. They press the Word button to hear



GeoSafari Smart Talk (Educational Insights)



Hot Dots Jr. (Educational Insights)

the picture identified. When the next Learn light blinks, they can press it to hear the word used in context, sometimes with sound effects to help learning. When the Quiz light blinks, they press it for questions about the pictures. Flashing lights then redirect the student to press the Learn button again to hear the answers. The other side of the card is the text side and students can follow along, matching the printed words to the spoken words. There are three Smart Talk Card Libraries, each with 150 talking photo cards (Home & Family, School & Community, and Animals & People). Age appropriate for older students, as well as younger ones, and very motivating for both, it is a good choice to help language learning.

**Hot Dots Jr. "Ace" - The Talking, Teaching Dog Pen and Activity Card Sets** (Educational Insights: 888-800-7893, [www.educationalinsights.com](http://www.educationalinsights.com)) All the fun of Hot Dots is now available for pre-school children, using the Hot Dots Jr. Pen and activity cards. The cards are clear and colorful and present the children with a problem or question. Children select the correct answer by placing the pen on their choice and pressing – the pen talks, laughs, lights up and even buzzes with excitement as children explore. Designed for little hands, this electronic pen cheers for correct



answers and gently redirects children when they answer incorrectly, allowing for independent discovery. It allows for independent, self-paced learning. This special pen plays 20 cool phrases and fun sound effects and glows green and red for answer reinforcement. Press a button to select the type of sounds you want to hear (speech, sound effects or alternating speech and sound effects). You can also regulate volume or turn sound off. Activity Card Sets each include 36 colorfully illustrated double-sided cards providing 72 early learning activities, plus an answer key, all stored in a handled carrying case. Some of the activity cards sets are: Shapes (identifying shapes, matching shapes, shape words and visual discrimination), Colors (identifying colors, matching colors, color words, color combinations and patterns), Numbers & Counting (identifying numbers, counting, number words from one to ten, number sequencing, identifying number sets), The Alphabet (uppercase letters, lowercase letters, matching lowercase and uppercase letters, letter sequencing, alphabet review), Beginning Phonics (letter sounds, matching letter sounds with pictures, initial sounds of words, ending sounds of words, rhyming words), and Patterns & Sequencing (completing a pattern, completing a sequence of events, cause and effect). Very motivating! Hot Dots Jr. Getting Ready For School uses colorful, motivating lesson cards. There are five card sets, each containing 32 lessons (160 interactive lessons) that target Learning the Alphabet (uppercase and lowercase letters, distinguishing and matching uppercase and lowercase letters), Numbers (counting numbers and learning the number words one through ten), Shapes (distinguishing shapes and recognizing them in real-life objects), Colors and Patterns. The pen provides immediate feedback that rewards progress and corrects mistakes. There is also a Getting Ready for School Lesson Guide that gives step-by-step instructions for using the cards and integrating them with other learning.

**Hot Dots Reading Comprehension Cards** (Educational Insights: 888-800-7893, [www.educationalinsights.com](http://www.educationalinsights.com)) These are sets of Reading Comprehension cards. Each set is focused on one individual reading skill and contains 50 stories with 10 reading selections for each reading level (2.0-6.0), followed by four questions per card. They work with a Hot Dots pen that signals whether the answers are correct, giving instant reinforcement and reward and allowing for self-checking of answers. The cards can also be used as traditional reading comprehension cards, with the reading task on the front side and questions on the back. The following sets are available: Getting the Main Idea, Noting and

Recalling Details, Drawing Conclusions/Predict Outcomes, Using Context Clues, Finding the Sequence/Finding Cause & Effect, and Making Inferences.

**Match Maker + Quiz Creator** (Judy Lynn Software: [www.judylynn.com](http://www.judylynn.com)) This is a great new computer software program for creating matching activities and matching related quizzes. It also comes with a large collection of ready made matching activities to use right away. The program has two modes: Game and Quiz. In Game Mode, matching pairs appear on the screen. You can select from two to 10 pictures. One picture is randomly selected by the program and the user has to select the matching picture. The program works with switches, touch screen, keyboard or mouse. When all the pictures are successfully matched, a new set of pictures appear. There are various kinds of matches – matching exact objects or matching within a category (ie. two different kinds of boats), match picture to word, numeral to number of objects, etc. In Quiz Mode, there is a prompt and a set of pictures, one of which matches. There are over 30 matching activities, including Shapes, Jobs, Cars, Colors, Foods, Miscellaneous Objects, Numbers and Words, Money, Sign Language, Sounds, Telling Time, US States and Capitals, What Letter is Missing, Words and Objects. Data is collected and can be viewed in either spreadsheet or text format. If you would like to download a free trial version with a limited number of pre-made games and 15 trials, you can, from [www.judylynn.com](http://www.judylynn.com).

**My Virtual Tutor Series for Nintendo DS** (Mentor Interactive: [www.Mentorinteractive.com](http://www.Mentorinteractive.com)) This series of Nintendo DS programs is designed to encourage reading success in young children. There are three DS programs in the series: READING Pre-K to Kindergarten, READING Kindergarten to First Grade, and READING First Grade to Second Grade. Each program contains six to eight books that can be read in four different modes. In Read to Me, the game reads each page with words highlighted to follow along. To hear a word again, touch the word with the stylus. This allows children to experiment with words they don't recognize. In Explore, the focus is on reading comprehension. The program reads the story and asks questions that relate to understanding the story. In I Can Read, the children can read to themselves or out loud with individual words easily touched if help is wanted. Along the way, there are puzzles and games. All focus on words and letters. There are Word Jumbles, Word Scratch, Letter Tracing and a Recorder so that children can read the page and hear it played back. In the Paint mode, children can paint along as they are listening to the story. In addition, there are Phonics mini-games and quizzes. This is a great way



Match Maker + Quiz Creator: (Judy Lynn Software)



My Virtual Tutor Series for Nintendo (Mentor Interactive)

for young children to reinforce reading skills, while at the same time enjoying the Nintendo DS touch technology.

**Cosmos Chaos for Nintendo DS** (Mentor Interactive: [www.Mentorinteractive.com](http://www.Mentorinteractive.com)) This is an educational adventure game on the Nintendo DS that's designed to help struggling 4th grade readers. It targets word learning strategies and vocabulary words within the context of storytelling and gameplay. The main character's little dog is abducted by a strange alien spaceship. He or she (you can select) finds a robot who can help but who has had all of his vocabulary chips stolen. Together the two set off to retrieve the robot's chips and find the lost dog. Vocabulary chips are recovered by playing a mini game that asks the player to identify the meaning of the words stored in them by selecting a correctly used sentence. Vocabulary games are also used to respond to people, to recharge the robot, etc. Any word that pops up can be tapped on to hear a pronunciation and definition of it, and hidden all over in the backgrounds are flashing stars that teach more words when selected. This is a fun and educational program.

**thinkSMART Series** (Mentor Interactive: [www.thinksmartgames.com](http://www.thinksmartgames.com)) These two Nintendo DS games are designed to "power UP your brain." There is one versions for ages eight and up and one for adults. thinkSMART for Kids is a fast-paced learning game with three levels of difficulty and with six different categories to train language skills, logical thinking and pattern recognition. There are



Mindflex (Mattel)

games for language, memory, math, logical thinking and comprehension. These include activities, such as scrambled sentences, recalling animal sounds and a shell game. thinkSMART for adults is similar in design and includes six different training categories with activities for Language, Memory, Mathematics, Spatial Reasoning, Grasp and Logic. There are word search puzzles and mazes. There are single player and multiplayer modes, as well as free training. thinkSMART is also available for Wii.

**Mindflex** (Mattel: [www.mindflexgames.com](http://www.mindflexgames.com)) In this exciting, interactive game, recommended for ages eight and up, the players wear a headset that "reads" their brain waves. The headset fits on the head, the clips connect to the ear lobes, and a metal forehead sensor is placed just above the left eyebrow. The game console is a round plastic console with a recessed round track and a small recessed fan that rotates. Around the track are a set of holes in which you anchor multiple obstacles. Concentration generates brainwave activity and the wireless headset transmits this signal to the console. The signal activates a fan that levitates a ball. The more you concentrate, the higher the ball goes (the faster the fan goes). Relax and the ball descends. Players use this concentration to move the ball around the game console and through a wide range of fun obstacle courses. The dial in the console allows you to keep the ball moving around but the raising and lowering of the ball is accomplished by alternating concentrating and relaxing your mind. Once you mastered the basic skill of raising and lowering the ball, there are five games for varying skill levels designed for groups of one to four players. You can also select the difficulty level. A variety of hoops, hurdles, funnels and a teeter-totter can be positioned however you want on the game console. Players then use their minds and varying levels of concentration to move

the ball under, over or through the obstacles. Several games test speed, while another challenges players to lift a ball up and through a funnel, shooting it across the game console to score points. The game really works, is great fun and is both interesting and challenging for players of all ages and skill levels!

**Star Wars Science: The Force Trainer** (Uncle Milton: [www.unclemilton.com](http://www.unclemilton.com)) This is another game, similar in technology to MindFlex. This set contains a tower base, a training tower, a ball and a wireless headset with three sensors. After activating and syncing the base and the headset, players concentrate, and their brainwaves trigger a fan in the base that elevates the sphere (ball). In this game, the voice, a "Jedi Master Yoda," guides you through 15 levels of training, along with sound effects and feedback. In Freeplay mode, players practice concentration and control of the sphere by raising and lowering it and holding it at different levels. During each of the 15 trials, the voice will tell you where the sphere must be held. Star Wars fans of all ages will love this game, as they practice concentration, and advance from Padawan to Jedi Master.

**Toy Story Motion Video Game** (Jakks Pacific, [www.jakks.com](http://www.jakks.com)) This game just plugs into your television and is ready to play. No console or additional software is needed. By moving the video controller, players control the movement on screen with Toy Story characters Buzz, Woody and their friends. In Rolling Patrolling, players help Buzz go around an obstacle course while they tilt and steer up, down, left and right to help him balance on a ball, collect jacks and finish as fast as they can. In Giddy Up and Go, players guide Woody and Bullseye to collect all the sheriff badges. Players use the buttons to jump and speed and move the controller to steer. In Backyard Dash, they race around collecting pickups. Options control music and sound effects, as well as game difficulty.

It's fun and easy to set up and play, for ages 5 and up. Spy Net Secret Audio Recording Pen looks like a regular pen but comes with lots of hidden technology. As you write, you can record conversations, save them, play them back and even upload the files to your computer, with the hidden USB connection. For ages six years up, it's a great way to encourage young writers.

**Design & Drill Talk Along ToolKit** (Educational Insights: 888-800-7893, [www.educationalinsights.com](http://www.educationalinsights.com)) This great pre-school take-along toy is fun, portable and compact and helps children explore counting, colors, shapes and patterns while also building fine motor and creativity skills. The durable board folds into a carrying case and stores all parts and pieces. It includes a reversible power screwdriver specially made for little hands with three different drill bits (flat tip, Phillips and socket). There are 60 bolts in five colors. The drill goes forward and in reverse (to remove pieces). Children can play with the bolts randomly, can create their own simple patterns and pictures, or follow one of the enclosed 12 patterns. Great for fine motor and visual perceptual skills, too.

**RC Tarantula** (Uncle Milton: [unclemilton.com](http://unclemilton.com)) This is a very realistic, remote control



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tarantula with light-up eyes. It will crawl with real spider-like movement and it's made of a furry texture that makes it look real. It can move along a smooth, flat surface – and scare a lot of people! Children use the egg shaped controller with two buttons – one forward and the other to turn and reverse direction. Easy to use, good for directionality, attention, and for fun, too. Naboo Sea Creatures: Star Wars Science: For more than 350 million years, Tripod Lngicaudatus (Naboo Sea Creatures) have existed! In this science kit, you just add water, hatch eggs, watch them grow, up to two inches long. The kit includes a sturdy aquarium tank with a built-in magnifier. For ages eight and up, the kit also includes a fun and informative learning guide.

## DVDS FOR CHILDREN

**Shalom Sesame Series** ([www.sisuent.com](http://www.sisuent.com)) The first two DVDs in this series are available and 10 more are coming in 2011. Educational and entertaining, these DVDs feature American and Israeli celebrities interacting with your favorite Sesame Street friends, and also with new Israeli friends, including the Israeli version of Oscar the Grouch. Grover and Anneliese van der Pol travel to Israel to meet new people and learn new things. The DVDs are designed to help bring the vitality



Star Wars Science: The Force Trainer (Uncle Milton)

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of Jewish culture and tradition, as well as the diversity of Israeli life, to American children. Each will focus on storylines drawn from Jewish cultural traditions, highlighting lessons on Hebrew letters and words, unique sites in Israel and Jewish values. In *Welcome to Israel*, Grover and Anneliese go to Israel and explore the land, and eat lots of falafel. In *Chanukah: The Missing Menorah*, it's time to celebrate Chanukah in Israel and Grover is bringing the latkes. When Annaleise loses her special Menorah, her friends have to help her find it. Bonus extras on each DVD include "Grover's Monster Music Videos," option for English subtitles and sneak peeks at all 12 titles in the series.

**Music, Music Everywhere!** ([www.hitentertainment.com](http://www.hitentertainment.com)) This fun DVD stars Barney, Bob the Builder and Thomas & Friends. Viewers will learn some basic music concepts and explore some instruments with Barney. Episodes included on the DVD are Barney: "Play Piano With Me," Bob the Builder: "Roley's Important Job," Thomas & Friends: "Tuneful Toots," and Kipper: "Arnold's Drum." There's also a bonus episode from Angelina Ballerina – "Angelina's Musical Day." Also included is a Bonus Music CD featuring 5 favorite songs.

**Barney A Counting We Will Go** ([www.hitentertainment.com](http://www.hitentertainment.com)) This new Barney program, in English and Spanish, uses songs, rhyme, dance and laughter to help very young children learn to count. It's great for pre-



schoolers who are just learning to count, with a game of Hide and Seek, shopping for treasures, and marching to the beat of a different drummer in a number parade.

## INTERACTIVE ENTERTAINMENT SYSTEMS FOR LEARNING

**Backyard Sports: Sandlot Sluggers for Wii** (Atari: [www.atari.com](http://www.atari.com) [www.backyardsports.com](http://www.backyardsports.com)) This is another great Backyard Sports program – developed especially for children. There are four modes. In Season Mode, you take your team through a seven- or 14-week season, with or without post-season playoffs. In Story Mode, you can create your own character, play on eight different fields – even on a rooftop. Family Fun Mode lets parents join in on the fun – this turns one of the controllers into a boost system, giving an extra boost to the player. This lets the youngest players have the ability to be part of the action with older siblings or parents. Players will also enjoy the humorous commentary, exaggerated animations and fun characters ... and also that they can steal bases. With five mini-games and super-charged power-ups, the game is fun and intuitive to use on the Wii – just play like a real baseball game.

**NCAA Football 11 EA Sports for Xbox** (EA Sports: [www.easports.com](http://www.easports.com)) This all new College football game for the Xbox lets players experience all the excitement and traditions of their favorite schools (120 of them). From kickoff to the game's final plays, broadcasters offer insights and commentary while breaking down your game. There are new animations and new moves and everything looks more realistic than ever before. The new lighting system brings great detail to the player models – you'll even see their faces grimacing. You can run the offense the way the schools do and dictate the tempo of the game. Great for all those college football fans.

**Bass Pro Shops The Strike with Rod and Reel Controller for Xbox** ([www.basspro.com](http://www.basspro.com)) This is a great fishing game for the Xbox 360. There is a wired fishing rod and reel set that control amazingly well during the gameplay. The reel is like a real enclosed spinning reel and you can even unscrew the handle and put it on the other side if you are left handed. When a fish actually bites, you have to jerk the rod to set the hook and then there's a real fight. The controller rumbles and vibrates and force feedback motors in the reel actually push back against you. It feels like you are really fighting with the fish. There are 11 kinds of fish to catch, 111 different lures, nine boats and 10 lakes to fish in. You practice fishing and earn points in a free fishing mode and then, with some experience, you can compete in a tournament. There are also simple casting and

boat racing mini-games. Just drop anchor on your couch and fish the day away!

**NHL 11** (EA Sports: [www.easports.com](http://www.easports.com)) This classic hockey game is even better this year! There are over 200 enhancements. With the new Hockey Ultimate Team mode, you can build a team from the ground up by acquiring top Canadian Hockey League and American Hockey League prospects and training them to superstardom. You can put your squad in retro jerseys and manage your team throughout the season. If you break your stick, you can now kick the puck to you teammate or have your teammate pass you his! There are great new winning ceremonies and celebrations too. All the plays and moves are in real-time realism with the new engine. You can also prepare your team for a playoff run with an all-new Practice mode. For one to four players offline; for one to 12 players online.

**Madden NFL 11** (EA Sports: [www.easports.com](http://www.easports.com)) Another new version of a classic program that keeps getting better each year. Featuring Drew Brees, Super Bowl MVP and quarter back for the New Orleans Saints, Madden 11 has an all new play-calling system that automatically selects the best play based on authentic NFL game plans. You spend less time in the huddle and more time on the field as you play a full game in as little

as 30 minutes. There are fewer button and more analog stick moves. Gus Johnson joins Chris Collinsworth in the booth, adding a new level of excitement to every game. Play up to three versus three in an all new online co-op mode. In Madden Moments, you can replay dramatic contests from last season. There are also custom stadium chants that put you right in the middle of your favorite NFL stadium. Madden NFL 11 is a great football game – the action is better than ever, and the realistic commentary is great.

**Grease: The Game for Wii** (505 Games: [www.505games.com](http://www.505games.com)) In this new game for Wii, players can sing and dance along to "Grease," the original high school musical. You can compete in Party Play – in two teams, with two microphones and the Wii Balance board. There are 16 songs from the movie, video clips and a group of mini-games inspired by the movie. Lots of fun!

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# Create Your Own Computerized Intervention System

## For Students with Learning Disabilities: Integrating Charts, Video and Progress Notes

By Rhoda P. Erhardt



**RHODA P. ERHARDT** is a consultant in pediatric occupational therapy, providing services to a variety of health agencies, educational systems and national corporations. She presents workshops throughout the world; teaches online courses; and has authored books, chapters, journal articles, assessments and videotapes/DVDs on topics such as normal and atypical development of prehension, vision, eye-hand coordination and feeding in children with cerebral palsy and learning disabilities. She can be reached at [RPERhardt@ErhardtProducts.com](mailto:RPERhardt@ErhardtProducts.com)

### INTRODUCTION

Communication is essential between school personnel and the families of children who receive related services through an Individualized Educational Plan (IEP) or Response to Intervention (RTI) approach. Without it, intervention can be a cumbersome and fragmented process. The purpose of this computerized intervention system model is to facilitate efficient ongoing communication between all members of the team, which may include teachers, paraprofessionals, occupational therapists, physical therapists, speech and language pathologists, psychologists, students and parents. The evolution of the model over time will be illustrated with a research-based intervention program of activity charts that can be incorporated into everyday classroom and home activities (Erhardt, 2009). The traditional components of that program will be compared with the new dynamic integration of materials (gross motor, fine motor and oculomotor activity charts; progress notes; and instructional videos). The new model combines progress notes with each activity chart in Word document files that can be accessed by all team members to add ongoing progress, comments, questions and specific recommendations. The files, which include links to digital video files, are all uploaded and stored on the school's Web site or on free online accounts such as GoogleDocs, Facebook or DropBox, password-limited to team members to ensure privacy.

A case example of a 13-year-old student with learning disabilities will demonstrate

the versatility of the dynamic and interactive documentation model, and show how it can be adapted for students with any type of disability, in schools, and with families that have different levels of computer equipment, internet access and technology expertise. The efficacy research study of handwriting change using a systems approach, rather than handwriting instruction, offers practical strategies and materials that can be useful in the classroom and/or home environments.

### HISTORY AND RATIONALE FOR THE MODEL

As an occupational therapist since 1954, I have been a consultant for about 40 different school systems, special education cooperatives, child development centers, hospitals and human service centers in North Dakota and Minnesota. Those experiences were very important because they gave me a comprehensive view of a variety of educational and health systems and forced me to find efficient ways to complete the paper work we all must do. A primary challenge was communication between all team members. In 1970, when I was the director of the Easter Seal Mobile Therapy Unit in Fargo, North Dakota, occupational therapists were in very short supply, and we were receiving more referrals for children with learning disabilities than we could possibly serve. This was before P. L. 94-142 was enacted in 1975, and public schools were not required to provide related services, such as occupational therapy, for these children.



The Visual-Motor-Perceptual Activities Collection

At a presentation at the American Occupational Therapy Association (AOTA) annual conference in New York in 1970, I described specific examples of service delivery models, consultation and supervision for a variety of teachers, paraprofessionals, college students, parents and community volunteers working with children one-to-one and in groups in the Fargo-Moorhead area. Activity charts used in these programs and distributed at that session were also described in a follow-up article published in the American Journal of Occupational Therapy during the next year (Erhardt, 1971).

In the 70s and 80s, I focused on hand development and the motor components of vision in children with cerebral palsy and continued to treat school-aged children with learning disabilities. The original activity charts were constantly revised, with new charts added regularly, and I used them within eclectic approaches that embraced a variety of theories, such as motor learning and control, sensory integration, perceptual-motor development, theories of play and neurodevelopmental treatment (NDT). The gross motor, fine motor and oculomotor activity charts were the core of my intervention program for children with learning disabilities and were easily adaptable for children from age 4 to 14.

The Visual-Motor-Perceptual Activities Collection (Erhardt, 2009) is a tabbed multi-pocket plastic folder with more than 800 activities on 150+ pages. It includes reproducible activity charts, instructions for creating low cost materials for these activities and a CD-Rom containing all the charts for people to reprint, instead of having to copy them from the paper originals in the folder.

## EVOLUTION OF THE MODEL

The table Evolution of Intervention Documentation and Implementation shows how my cumbersome documentation system gradually evolved into the digital age. In the 1970s, I gave activity charts to the families and sent copies of my progress notes to them and to school personnel, physicians and other team members. Everything was typed on my Royal portable typewriter, and the copies I made were that shiny slimy paper. By the 1980s, I had an Apple computer and a dot matrix printer, and my typewriter was history. I was beginning to videotape my patients, but also still drawing stick figures to describe therapy techniques and using Polaroid photos to indicate correct positioning of each child

in the home and classroom. The following case study will illustrate how the dynamic integration system evolved from my traditional approach and how it can work with an electronic model that integrates charts, progress notes and video clips.

## CASE STUDY

Most of us are not usually surprised to see positive results when we intervene with short-term programs in young children. However, I was seeing similar positive outcomes with older children, and those changes could not be attributed to normal maturation. One of my families agreed to participate in a research project to document the efficacy of this holistic approach for their 13-year-old son who was diag-

### Evolution of Intervention Documentation and Implementation

Materials	Traditional Components	Dynamic Integration
Activity charts: Gross motor Fine motor Oculomotor	Copies with specific activities checked for designated team members to implement	Progress notes combined with each activity chart in digital document files that can be edited to report ongoing progress, comments, and specific recommendations; also include links to digital video files, all uploaded and stored online (e.g. DropBox, Facebook, GoogleDocs, or your school website), accessible only to team members.
Progress notes: Name of activity Child's response Recommendations	Notes taken during session, then typed, printed, and mailed to designated team members	
Video: Demonstration of intervention techniques	Sessions videotaped, VHS copies mailed to designated team members for viewing	

Evolution of Intervention Documentation and Implementation)

### Results of the Efficacy Study

Testing Procedures	Baseline: Age 13	After Intervention: Age 14
<i>Optometric testing</i>		
VMI-Beery percentile	7 <sup>th</sup>	98 <sup>th</sup>
<i>Psychological testing</i>		
VMI-Beery percentile	16 <sup>th</sup>	96 <sup>th</sup>
VMI-Beery age equivalent	9 years 6 months	14 years
<i>Academic Grades</i>	Bs, Cs, Ds	As, Bs
<b>Minnesota Handwriting Assessment: Mean Number of Errors</b>		
Legibility	1.8	1.0
Form	9.0	3.5
Alignment	11.6	1.8
Size	24.8	5.8
Spacing	2.8	2.0

Results of the Efficacy Study



## Handwriting Samples

Minnesota Handwriting Assessment Form (Reisman, 1999)

**Model**

the brown jumped lazy  
fox quick dogs over

**Before  
Intervention**

the brown jumped lazy fox  
quick dogs over

**After  
Intervention**

the brown jumped lazy  
fox quick dogs over

## Relationship of Shoulder Integrity to Handwriting

**Before Intervention**



**After Intervention**



Handwriting Samples

Relationship of Shoulder Integrity to Handwriting

nosed with an unspecified learning disorder. This case study was designed to determine if his handwriting could be improved and maintained by a systems approach that considered entire body function rather than focusing on handwriting instruction. It was eventually published in the Australian Occupational Therapy Journal (Erhardt & Meade, 2005a) and included in the book Handwriting: Anatomy of a Collaborative Assessment/Intervention Model (Erhardt & Meade, 2005b). The team included an OT, PT, the student, his parents, and an optometrist and a psychologist, who both provided independently scored measures. Another OT, who was director of the University of Minnesota occupational therapy program, independently scored The Minnesota Handwriting Assessment (Reisman, 1999).

The results of certain subtests of The Developmental Test of Visual Motor Integration (VMI) from both the Optometrist and Psychologist were impressive. The changes in academic performance were also significant. The handwriting test showed decreased number of errors, especially in form, alignment, and size.

The handwriting samples on the Minnesota Handwriting Assessment Form show the model, before intervention and after intervention. Although handwriting improved, it was far from perfect. His mother said that she had the unrealistic goal that he would have beautiful penmanship when we were done. In fact, she learned that he had many other problems she didn't realize, and the best thing the program did was raise his self-confidence because he became competent in so many

**Progress Notes/Comments**  
**Stored online: <Website>**  
**<Type of Activity> <Activity Chart>**

**Name** \_\_\_\_\_ **Age** \_\_\_\_\_ **Start Date** \_\_\_\_\_

**<Potential> Team Members Invited to Post:**  
 Mother, father, student, extended family, occupational therapist, physical therapist, speech pathologist, classroom teacher, adapted physical education teacher, teacher of visually impaired, paraprofessional, classroom aide, volunteers, physician, optometrist, psychologist, others

Date	Activity	Response	Recommendation
<Date> <Team Member>	<Activity Chart> <b>Video Link:</b> <File Name> <Length>		

Progress Note Template

other areas, such as organizational skills, sports and grades.

### HOW DID WE MAKE IT WORK?

During my first consult with the student and his parents, I observed significant instability and asymmetry of the shoulder girdle, which could certainly interfere with efficient control of head, shoulder and trunk for precision eye, arm and hand movements because the foundations for fine motor skills, including handwriting, are postural control and shoulder integrity. I made an immediate referral to a physical therapist

and believe that the program she designed for his entire body, especially the shoulder girdle, contributed greatly to the improvements he achieved, not only in handwriting, but also in sports performance, which was important to him. The parents agreed to implement a home program five to seven days per week for five months:

- Occupational therapy: They were asked to spend 30-45 minutes per day using the activity charts to improve the student's body organization, physically and perceptually.

# MIRROR ROTATIONS

Name \_\_\_\_\_ Age \_\_\_\_\_ Date \_\_\_\_\_

**MATERIALS:** small mirror, eye patch

**METHOD:** The mirror is held 13-16" away from the child's eye. The adult moves the mirror slowly as the child watches own mouth in the mirror. Next, the child moves the mirror. Finally, the child coordinates tongue movement with eye movements (like Michael Jordan).

## ACTIVITIES

## Dates Completed

Position	Direction	Adult	Child	Tongue/Eyes
1. Lie on your back with your left eye patched and watch your mouth in the mirror wherever it goes	a. horizontal: right & left b. vertical: up & down c. diagonal: up right & down left d. diagonal: up left & down right			
2. Lie on your back with your right eye patched and watch your mouth in the mirror wherever it goes.	a. horizontal: right & left b. vertical: up & down c. diagonal: up right & down left d. diagonal: up left & down right			
3. Lie on your back with both eyes open and watch your mouth in the mirror wherever it goes.	a. horizontal: right & left b. vertical: up & down c. diagonal: up right & down left d. diagonal: up left & down right			
4. Sit in a chair with your left eye patched and watch your mouth in the mirror wherever it goes.	a. horizontal: right & left b. vertical: up & down c. diagonal: up right & down left d. diagonal: up left & down right			
5. Sit in a chair with your right eye patched and watch your mouth in the mirror wherever it goes.	a. horizontal: right & left b. vertical: up & down c. diagonal: up right & down left d. diagonal: up left & down right			
6. Sit in a chair with both eyes open and watch your mouth in the mirror wherever it goes.	a. horizontal: right & left b. vertical: up & down c. diagonal: up right & down left d. diagonal: up left & down right			



First Mirror Rotations



Second Mirror Rotations

- Physical therapy: The goals of the five-minute daily exercise program were to improve range of motion and postural alignment, and only then to increase strength and endurance.

- Supervision/consultation: OT every two weeks, PT monthly (together, because I wanted her to monitor body alignment and movement patterns of all OT activities).

## USING THE COMPUTERIZED INTERVENTION SYSTEM

The Progress Note Template contains:

- Link to an online site, storing all the student's activity charts, progress notes and videos, to be used by the entire team to share information
- Link to a specific activity chart
- List of potential team members who can be selected to implement the intervention for the student
- The post format, which includes the date, team member name, video link and posted comments.

The Mirror Rotations Activity Chart shows the headers (different positions, direction of eye movements, who moves the target point (adult or child), moving the tongue and eyes together) and the sequenced activities.

The Mirror Rotations progress note example shows the student's designated team members who can go online and access the OT's progress note, the activity chart and the video clip. They can view these files and add their own posts, which may be questions or comments. In other words, everyone will be able to share information, something like a notebook going back and forth from school to home. This example shows comments from the OT, PT and student.

The video captures show the student during the first OT session and the improvement in muscle tone and control of the tongue two weeks later.

For older children, it is important that they are recognized as fully participating team members, but even younger ones can be encouraged to contribute. Our goal is to empower them and prepare them to be self-advocates.

Of course, a key factor in this student's academic improvements was the school's agreement to accommodations and modifications. His Individual Learning Plan (504) included keyboard substitutions for writing tasks, un-timed oral test-taking and tape-recorded assignments. Most importantly, a primary factor for this student's success was the communication between all team members, which included the occupational therapist, physical therapist, psychologist, optometrist, mother, father, student and all his teachers, who implemented this plan.

Almost 10 years after our program had begun, the student's mother reported positive functional outcome in her Christmas letter. He had graduated college, and at age 22, was working as a restaurant manager, opening new sites in Europe and Asia. According to her, he was very organized and capable!

## SUMMARY

This dynamic collaborative intervention program is accomplished through online sharing. Because text, image and/or video files are stored securely, team members can access them from any computer with an Internet connection and a standard browser. The files can be exported or downloaded, edited, then uploaded again for others to view and contribute. The key to intervention success for these students is communication among all team members. It is important to adapt this model for your own students, schools and especially families that have different levels of computer equipment, Internet access and technology expertise. For example, in a socioeconomic

area where very little electronic technology is available, the basic concept of integrating the intervention documentation can still be done with traditional printed materials (activity charts and progress notes) and visual materials (drawings and photos) delivered and/or mailed, as I did so many years ago. For those with computers that accept CDs and DVDs, those media can be mailed, or text and graphics files may be e-mailed. Finally, text and video files can be uploaded for online access at school Web sites or free sites, such as DropBox, Google-Docs or Facebook.

**Product Information** The Visual-Motor-Perceptual Activities Collection is available from [www.ErhardtProducts.com/vpm.html](http://www.ErhardtProducts.com/vpm.html) for \$39.50.

The book describing the entire evaluation and treatment program of this case study, *Handwriting: Anatomy of a Collaborative Assessment/Intervention Model*, is available from [www.pileatedpress.com](http://www.pileatedpress.com) for \$45.

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# Using Technology to Enhance the Classroom:

## *Strategies for Children with Autism*

By Lori Dahlquist and Amy Koch

Experts in the area of autism seem to agree that children benefit from early multi-modal intervention that centers on the development of functional communication skills. Experts also agree that for most children with autism, skills are best taught in naturally occurring environments because of their difficulty in generalizing what they have learned. To be successful, the environment must provide structure, routine and multiple opportunities to practice communication and interaction. For most children, the classroom is one of these environments.

Lite-tech voice output devices, including a wide variety of switches for access, were first developed for individuals with physical disabilities to enhance independence. These same devices have been shown to enhance the communication skills of individuals with autism. At least 50 percent of individuals with autism are considered functionally non verbal. This can range from no speech, limited verbal output or, for some, the inability to produce speech on command or in a stressful situation. This means there are many children and adults who could benefit from the numerous

augmentative communication strategies that have been developed through the years. One thing that is clear is that the use of technology DOES NOT delay the development of verbal skills. As with other forms of early intervention,

it is important to consider communication technology as soon as possible. There is no need to wait for "prerequisite skills," such as pointing or picture identification, as is so often thought.

The decision to include technology in the classroom should not be taken lightly. We all know of technology sitting on a classroom shelf gathering dust because proper consideration was not given to all the variables

involved in choosing a device. The process should involve the family, educators, therapists and professionals familiar with technology. With so many technology options, it can be overwhelming if you are not familiar with available features. It is not uncommon when enhancing classroom activities that multiple lite tech devices are more functional than a single device with many features. Cost is not necessarily an indicator of functionality. Thought must be given to the time it takes to train classroom staff (turnover is often a problem) and the



We recorded the text of the book into the Sequencer. Each time the Sequencer is pressed, it reads a page of the book.



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time it takes to add proper visual supports and to program and reprogram devices.

Visual supports can help enhance the communication process for individuals with autism. These visual supports can range from body language to computer use. Visual cues, such as objects, photos, line drawings and text, are commonly used to enhance classroom schedules, bulletin boards, centers and play activities. Visual supports are often individualized for the user and are commonly used for routine activities, such as dressing, eating and personal hygiene. This means that a classroom could have different types of visual cues used throughout the day, making it important to use technology that can accommodate a wide variety of visual supports.

Many individuals with autism have greater difficulty processing auditory information than visual information. Visual information is less transient and continues to be available throughout the time needed to process, whereas auditory information is presented and then gone. Does this mean we ignore the auditory mode? Of course not. What it does mean is that great care and planning should be taken to control and monitor information presented via the auditory mode. It is also important to carefully select the visual cues paired with this auditory information. Adding a technology feature, such as voice output, to a currently used visual support can aid in further clarifying the communication intent for some users, as well as the message receiver. Using technology with digitized speech (real recorded voice) offers the ability to incorporate proper inflection and intonation into the message, further enhancing its effectiveness. Since many individuals with autism struggle to understand these types of speech variables, it can be a great intervention strategy. Digitized recording does not need to be limited to speech. Recording things, like music and sound effects, can be used as a motivational tool that gains attention and encourages participation in a given activity.

When introducing technology into the classroom, the most common concern expressed by staff is coming up with appropriate activities. Our philosophy is to incorporate technology into the activities you are already doing!

The following are samples using a variety of technology features that are easily incorporated into commonly occurring classroom activities. Remember, the same technology features can be used for a variety of activities and for a variety of users. Often, simply changing the recorded message gives the activity a whole new meaning/purpose.

## CIRCLE TIME

Most classrooms have some form of circle time. For older students and adults, it may have another name, such as current events, but often the same information is highlighted. A technology feature very helpful in this environment is sequential messaging. Here are a few suggestions for adding technology using a sequencing device, such as the Sequencer. Remember that this device can be recorded with just a single message if that is more appropriate for the user.

- Use sequential messaging to say the Pledge of Allegiance
- Have messages recorded by family members to use for Show and Tell
- Record messages for classroom jobs, such as reporting the weather or the lunch menu



The Lex can be paired with TalkingMyWay Object Communication Cards to create voice output for visual schedules.



We paired the Lex with TalkingMyWay Object Communication cards to create a visual schedule with voice output.

- Record the opening song as a single message or sequentially
- Report the day and date

## VISUAL SCHEDULES

Visual schedules are an important intervention strategy. In order for visual schedules to be successful, they must use the visual cueing system most appropriate for the user. Adding



voice output to these schedules combines the auditory (often the most difficult learning mode) with the visual component (often the stronger learning mode). With a voice output device, you can customize the message that accompanies the visual cue. A device, such as the Lex, works well because it can easily accommodate a variety of visual cues, including objects, photos, pictures or a combination, such as is available with the TalkingMyWay Object Communication System.

## CENTER ACTIVITIES

Most classrooms have center time. Common center areas include computer activities, art, fine motor (blocks, puzzles), dramatic play, reading and gross motor. Students may rotate through the centers or they may get to choose the center they want to participate in. Technology should be located in each center. Ideally this technology should be something that can easily be changed to meet the needs of the student using the center. Here are some examples:

### Art Center:

- Record the message: "more paint" for a student making simple requests.
- Record a series of messages such as: "I want blue" or "Now I need green"
- "Maybe a little yellow" for a more advanced student or for someone who is directing an activity
- You could also record social comments such as "This is fun" or "I think painting is gross."

**Reading Center:** Sequential messaging is a feature that is essential for any reading center.

- Recording a single message, such as "Turn the page" or a fun sound effect is an easy way to keep the student involved as he/she is being read to.
- Recording a repetitive story line or a series of rhyming words and having the student "fill in the blank" as the reader pauses at appropriate intervals is another great way to keep the student active.
- You can also record the text of each page as an individual message so the student can "read" the story when he/she activates the device.
- For students who are reading, you might record a comprehension question for each page they read.

**Computer Center:** Voice output technology is a great way to reinforce listening and memory skills. Record a series of directions, such as:

- Turn on the computer
- Pick out your game
- Insert disk in the drive
- Click on start

You might not think additional technology in the computer center is needed, but it may allow a student to use the center independently.

**Fine Motor Activities:** Puzzles are a staple in many fine motor centers. Puzzles can be adapted using switches. Taction Pads are clear adhesive switches that can be put directly into puzzle boards and then plugged into a voice output device, such as the VoicePal 8. Now you can really change the activity by what you record.



We adapted this wooden puzzle by placing Taction Pads into the cutout area for each puzzle piece. We plugged the Taction Pad into the VoicePal 8 to add voice output to the application.



The Randomizer can be used for games such as Candy Land, Bingo, Sorry and many more!

- Record fun sound effects or music that is activated when the correct piece is inserted.
- Record directions, such as "find the car," that are activated when that area of the puzzle board is activated.
- For students who are older but still need to work on simple fine motor skills, you can record age appropriate messages or facts. (We used a three-piece knob puzzle with an ocean theme. We recorded the message "There are 10,000 species of fish in the ocean." This message was activated when the "fish" was inserted correctly into the puzzle.)

**Gross Motor Activities:** Technology can help offer structured ways to be an active participant. Random messaging is a feature that allows you to record a series of messages and have them played back in random order. It is a great feature for many gross motor and leisure activities. It can be easily used to replace a spinner or dice. Use the Randomizer to:

- Help pick teams by recording names into the device



- Play games, such as Duck, Duck, Goose or Red Light, Green light
- Play Bingo
- Play board games, such as Candy Land or Sorry

**Cooking Activities:** Cooking is a great activity for any age group. It can be used to reinforce math skills, memory skills and social skills. Here are some technology suggestions:

- Program a grocery list of ingredients to be used at the grocery store
- Program the recipe into a sequencing device
- Use environmental controls to operate the blender or mixer

**Social Skills:** This is an area where many individuals with autism struggle. Technology can be a great enhancer in this area. Use voice output to:

- Introduce yourself
- Enhance social stories (see reading center)
- Place an order at a restaurant
- Rent a movie
- Tell someone you are upset
- Make activity choices or ask someone to play during recess/break time
- Initiate social conversation during meals

Simple technology is often overlooked as a viable means of functional participation for individuals with autism. In order for students with autism to be successful, we must offer as many ways as possible for them to participate. The mentioned examples are only a few ideas of how technology can be used in the classroom. If you are interested in finding more applications, check out our Photo Album of Ideas at [www.adaptivation.com](http://www.adaptivation.com).

## PRODUCT INFORMATION

For more information on the products mentioned in this article, visit Adaptation's Web site at [www.adaptivation.com](http://www.adaptivation.com).

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