Northeast Texas Low Vision Conference:
Filling in the Gaps
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What We Mean by Compensatory Skills: Accessing the General Curriculum

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Figure 1 Clipart image of a pad and pencil.

Write down:

What is your interpretation of compensatory skills as these relate to K-12 students with a visual impairment? Can you give a couple of examples?

Compensatory skills are typically....

Learning experiences such as concept development, spatial understanding, study and organizational skills, speaking and listening skills, and adaptations necessary for accessing all areas of the general curriculum

What do we mean by access?

Figure 2 Clipart image of Calvin and Hobbes comic strip characters thinking about something.

Turn to your neighbor to discuss. Write down what you think access means, and provide an example.

Did you come to the conclusion that....

- Access can be addressed by VI educators in 4 distinct ways:
  - Making the learning environment(s) accessible
  - Providing accessible learning materials
  - Supporting visual concepts related to the general curriculum
  - Teaching access skills to the student

Let’s start with the learning environments
Talk with your neighbor:

- What does the average kindergarten class look like?
- The average 1st or 2nd grade classroom?
- The average 8th grade science lab or history class?
- What about the high school media center? (aka library)?
What you can do to address learning environments

- Go into each environment to see the room set up, where information is posted, where student is seated, the lighting, how the class “flows”.
- Use the Vision Ergonomics worksheet to help you evaluate the visual components of classroom environments
- Make sure rooms are navigable, and student knows where things are located

Resources for Addressing Learning Environments

- Teaching Students with Visual Impairments
- Paths to Literacy
- Vision Ergonomics
  [http://www.tsbvi.edu/142-vision/3656-vision-ergonomics](http://www.tsbvi.edu/142-vision/3656-vision-ergonomics)

Now onto accessible materials

![Figure 7 Student doing math with manipulatives.](image)

Examples of accessible materials

- Adapted measuring devices, clock, number line, graph paper, games, alphabet strip, calendar, periodic table of elements, etc.
- High quality print handouts, maps, charts, graphs
- Math concept manipulatives (for place value, numeration)
- Real items vs. plastic representations (Kinder)
- Models of abstract concepts (solar system, electric current, 3-D shapes, geo board, etc.)

What you can do to address accessible materials

- Observe the setting to see which materials are routinely used
- Issue adapted materials to the teacher
- Add adaptations to materials when possible (e.g., bolder lines on measuring devices)
- Make a tabbed binder with desk copies of learning materials posted on the walls (e.g., calendar, parts of speech, periodic table of elements)
- Stick a number line and alphabet onto student’s desk
- Provide bold-line pens, paper, soft-lead pencils, bold-line graph paper, etc. if needed by the student

Great places to find ideas for adapting materials

- [www.aph.org](http://www.aph.org)
- [http://www.pathstoliteracy.org/resources](http://www.pathstoliteracy.org/resources)
Visual concepts related to the general curriculum

So, what do we mean by general curriculum?

- English Language Arts and Reading
- Mathematics
- Science
- Social Studies
- Languages Other Than English
- Health Education
- Physical Education
- Fine arts: art, music, theatre
- Technology Applications

Write down:

What are some visual concepts related to:

- Math - kindergarten/1st grade
- Math - 6th grade +
- Science
- Social studies/history
- Health
- Physical education
What you can do to address visual concepts in the general curriculum

- Observe all classes formally-make a running record of what you see
- Talk to gen. ed. teachers about class requirements and broad concepts covered (by month)
- Familiarize yourself with grade-level TEKS to determine how visual the concepts might be
- Check-in with your students weekly, look through their work, monitor their progress
- Caution: YOU ARE NOT A TUTOR!!

Resources for facilitating the teaching of visual concepts

- Paths to Literacy-Strategies tab: http://www.pathstoliteracy.org/strategies
- ECC Essentials (AFB Press)
- TEKS http://tea.texas.gov/index2.aspx?id=6148

Teaching Access Skills

Examples of access skills which require direct instruction

- Organization of “stuff”
- Study skills (note taking techniques, research, studying for tests, organizing information)
- Screen readers
- Optical devices
- Computer settings/short cuts
- Scientific calculators
- Auditory skills/equipment
- Classroom procedures
- Print literacy

Classroom Procedures

- Where to sit during circle time
- Turning in papers
- Organizing your materials
- Where work is located
- Retrieving your own materials
- Expected behaviors (raising hand, taking turns)
- Finding the right book and page number
Print Literacy

Managing print material

- Preview stories (vocabulary & concepts)
- Effective techniques to scan a page
- Formats typically used by publishers
- Using a magnifier/iPad in conjunction with print and pictures
- Using context clues/predicting text
- Navigating graphs, diagrams, charts
- Fluency and stamina
- Picture interpretation
- Techniques for editing/correcting work

Writing/Drawing

- Copying from one source to another
- Correct formation of letters
- Art

What you can do to address teaching access skills

- Familiarize yourself with sources for teaching access skills (see next slide for resources)
- Evaluate reading fluency & stamina and provide intervention if needed
- Assess your students in the areas mentioned and design lessons to address the gaps
- Observe!

Resources for direct instruction of access skills

- Learning to Listen/Listening to Learn (AFB Press)
- Looking to Learn (AFB Press)
- ECC Essentials (AFB Press)
- Paths to Literacy-Strategies tab: http://www.pathstoliteracy.org/strategies
- RECC http://www.tsbvi.edu/recc/
- Perkins Scout http://www.perkinselearning.org/scout/education-blind-visual-impairment
- Assessing Reading Speed & Stamina http://www.pathstoliteracy.org/resources/assessing-reading-speed-and-stamina-students-low-vision

Tell me your stories….

what compensatory skills have you worked on with your students with low vision?
The following are things to consider when optimizing a student’s visual performance in classroom settings.

**Consider the Etiology**

Familiarize yourself with the characteristics of the most predominant visual conditions resulting in low vision and their effects, such as retinitis pigmentosa, ocular albinism, retinopathy of prematurity, optic nerve hypoplasia, cortical visual impairment, cataracts, coloboma, nystagmus, central scotoma, glaucoma (this list is not complete). A current (April 2012) web resource for this is [http://www.svrc.vic.edu.au/AV.shtml](http://www.svrc.vic.edu.au/AV.shtml) “Visual Impairment”. Look for such things as:

**Effects of Light**

Examples: cataracts cause light to be scattered over the retina meaning that bright light and glare will usually cause problems for the student, whereas the student with retinitis pigmentosa (RP) will require high illumination. Glare for some would be disastrous. Overhead lighting might be too low/high, depending on the etiology. Illuminated screens (any type of lighted display) would be difficult for some, necessary for others.

**Field Deficits**

Examples: students with Stargardt’s Disease can have a central acuity loss, making staying on a line of print difficult without specific training. Students with RP tend to lose the peripheral field, thus making enlargements difficult to scan.

**Eye Motor**

Examples: students with nystagmus tend to have problems shifting gaze from one target to another (typical of copying assignments).

**Consider Posture**

A computer work station that is poorly arranged in regards to lighting would reduce visual efficiency. Whereas marketed reading stands straighten the student’s posture and elevate the reading material, students typically need to write on the same (slanted) surface. Look on occupational therapy websites, such as [http://www.therapro.com/](http://www.therapro.com/), for a writing stand that does not have the ridge at the bottom which makes writing uncomfortable. Or, use a 3 inch 3-ring binder turned sideways.

**Consider Organization**

It takes the student with low vision longer to find things. Students need to access their materials quickly, so storing for quick retrieval is necessary. Consider a small, stick-on battery operated closet light that you press for inside desks and other darker spaces. Backpacks will need folders and other organizational containers to keep papers organized, and smaller objects in desks should have dedicated containers. The TVI will need to check and reinforce that an established system is used consistently.
Consider Lighting

For Work Surfaces

With some eye conditions, a lamp might be necessary to put light precisely where it is needed. If an outlet is nearby, the APH lamp is wonderful. Another option is a battery powered OTT light that can be moved from room to room. When positioning the light, make sure the student’s head or hand does not occlude the light, or that the light is shining on the student’s face.

Students with albinism or cataracts might have difficulty with too much ambient light and/or glare, which can cause headaches and have a “wash-out” effect on certain materials. Tinted lenses might be beneficial for some, or a light blue filter placed over the reading surface could change the contrast (watch for glare off of shiny surfaces).

Overhead Projector Screens and Interactive White Boards

When the target surface is lighted or bright, students with lighting issues may have difficulties. The classroom lighting can be adjusted to accommodate, or in extreme cases, the student may need to have a desk (print) copy if significant copy work is required.

Consider Writing Tools and Materials

Provide adapted paper and writing tools, and adjust lighting and positioning of materials (see writing slant board above) if needed. Examples of writing tools include drafting pencils (or #1 soft lead, available in art/craft stores) and fine point felt tip pens. Student may perform better with bold line paper, or commercially available wide ruled notebook paper with darker lines (compare these at the grocery store—some are darker than others). Gradually move toward fewer adaptations as student becomes more proficient.

Consider Optical Devices

Assuming student has been seen by a low vision specialist, start by making sure the prescribed optical devices are on hand and the student has learned how to use them correctly. Devices that tend to be handed to students by well-intentioned people should be avoided. (e.g., full page magnifier) Electronic near devices are best used for “spot” viewing, and will slow the student down when reading longer passages. If a closed circuit TV is in the room, find out if it is being used consistently. If it is not (perhaps due to portability, placement, too much enlargement) consider retraining student on a handheld or stand magnifier. There are now products available from APH and Education Service Center, Region 4 that are designed for teaching optical device use. Refer to Looking to Learn: Promoting Literacy for Students with Low Vision, D’Andrea and Farrenkopf, Eds., AFB Press.
Possible Accommodations for the Student
With a Visual Impairment

General

- Your VI teacher (TVI) should give you a copy of the Functional Vision Evaluation and Learning Media Assessment with detailed information about how your particular student uses his/her vision
- Students with low vision should be encouraged to use their eyes to the maximum. Vision is not diminished by use.
- Allow the student to adjust his/her work to a position that he/she is most comfortable with
- Do not use large print materials when regular print will suffice
- Whenever an assignment refers to a picture (as in math workbooks) allow the student to look at the picture in a regular print book. The large print process distorts pictures

Reading the Chalkboard/Whiteboard

- Seat student near the board (within 3 to 5 feet) and in a central location, but within a group of students
- Verbalize as you write on board
- If possible, provide a copy of what you have written on the board to the student
- Have another student with good handwriting copy off the board (carbon or NCR paper can be used and the original can be given to the student with a visual impairment)
- Allow student to use a telescope supplied by the TVI (if this is done the student will probably need to be seated back away from the board to increase his/her visual field)
- A clean board makes a better contrast and is easier to read
- Avoid using red, orange, or yellow markers as these are difficult to see

Projector Screen/Video

- Seat student close to the screen
- Provide student with your overhead projector sheet or master copy so he or she can read and/or copy from it
- Use a dark (preferably black) Vis-à-vis pen on the overhead sheet
- Discuss movies thoroughly afterwards to make sure the student understands major concepts presented
- A darkened room provides more contrast
- Move the projector closer to the screen to produce a smaller, more distinct image
- Make a good photo copy of your master
- Do not use red ink
- Please be sure that your tests are completely legible. Ask the student to read parts of the test to you privately to be sure he or she can see all parts of the test
- Give the student a little extra time if needed
- Avoid handing the student a paper and saying, “Do the best you can”. This only cheats the student out of the continuity of your lesson and can be frustrating
- Use an app, such as JoinMe, to connect the teacher’s computer screen and/or interactive white board with the student’s iPad
Illumination
- Light intensity can be regulated by adjusting distance from the window or light source
- Artificial lights should be used whenever brightness levels become low in any part of the room.
- Avoid glares on working surfaces (a piece of dark colored paper taped to the entire desk surface diminishes glare off the desk)
- A student with albinism will be sensitive to the light and will sometimes require an adjustment period of about 10 minutes when he or she comes in from being in the sun

Seating
- Avoid having students work in their own shadows or facing the light
- Students may need to change their seats whenever they desire more or less light

Contrast
- Dry erase boards used with dark markers offer better contrast
- Soft lead pencils and felt-tipped pens with black ink are recommended for use on unglazed light and tinted paper
- Good contrast and white space between lines of print offer the best viewing comfort for lengthy reading assignments
- Avoid using red/orange/yellow on interactive boards

Tests
- Tests should be dark and clear
- If there is a time element, please remember that a person with low vision will frequently be a slower reader than a person with normal sight of the same intelligence. His or her eyes may tire much faster, so tests in the afternoon can be particularly difficult to read
- On timed drills allow at least double the time for a student with low vision. Ideally they should be untimed
- If the student is comfortable performing orally, tests could be given orally by another person who fills in the blanks. Please be careful here, as some people are not auditory performers, and it is a misconception that all blind and low vision students can perform better auditorally.

Physical Education/Recess
- Check with TVI to see if there are any restrictions of activity or on visual fields
- Ball Sports: practice catching, kicking, and batting with students to check whether or not he/she can see the ball in time to catch, kick, or bat
- Use audible goals and/or balls (available from TVI) or use a radio as a goal locator (as in basketball)

Orientation and Mobility
- Allow student to explore your room during the first week and whenever you make any major changes
- Show student where his or her desk is, where materials are located, papers turned in, etc.
- Point out the restrooms, water fountains, library, office, cafeteria, gym, and bus stops
- Contact a certified O&M specialist for detailed information
OBSERVATION NOTES - Student: David

Class: U.S. History      Date:    2/23/05

Learning Environment

Notes on the board:  homework assignment, daily vocabulary, announcements
David seated in middle of the room, 12 ft. from the board
Lighting is primarily from overhead
Computer is at the back of the room—glare from windows on the monitor

Lesson

T. announces open note test.  She asks D. if he wants to go to content mastery to take the test.  He said “no”.

T. asks students to get out class notes done previously.  D. does not have notes.  T. hands out test (matching format).  D’s enlarged.  He crosses out letters as he uses them to answer questions.  T. circulating throughout room, silently checking for understanding.  All students except D. were relying on notes to help with the test.  D. gets up very close to his work.  Short answer format on p. 2 of test.  D. finishes before most of the class.  Completed all of p. 1 and ½ of p. 2.  He does not notice the announcement on the board to read the Junior Scholastic when finished with test until another student retrieves one from in front of him.  David then asks for one.

Problem Areas

Not accessing notes written on the board
Does D. typically take notes?  How?  Can he read his notes?
Does D. need to be using a near reading device?

Follow Up

Check distance from board and monocular use.  Talk w/ teacher about reinforcing use of monocular.
Check lighting—enough for where he sits?  Reduce glare on computer monitor.
Check note taking skill—is this in a read-back form?
Are papers organized for easy retrieval?
Check low vision evaluation for near device—teach David how to use this.
OBSERVATION NOTES - Student: Jacob

Class: 5th grade math        Date: 2/14/05

Learning Environment
T. primarily using **overhead projector**
One bulletin board features examples of math operations/equations
J. seated at the front, **far left side** of the overhead screen

Lesson
T. instructs students to get out their homework. Places a transparency with answers to the homework on the projector. She reads answers out quickly. J. is checking his work and appears to be keeping up. He calls out when he gets behind. T. asks class if they had any trouble and reviewed problem areas. J. asked about one of his answers. His paper looks well organized, but he did not do all of the assignment.

T. asks class to open books to p. _____. J. responds immediately. T. writes page number on overhead and glances at J. (there is much speaking out and movement—J. ignores all of this). J. is using a regular print book, regular paper and pencil. J. is not using a place holder. Gets about 3-5 inches from book. Seems to be transferring from book to writing answers on paper easily. He finishes before most of class.

T. discusses answers to assignment by placing examples on white board (largish print) directly in front of J. She is talking, but **does not say specifically what she puts on the board**. T. asks J. to describe how he would complete a particular problem. J. gets out his monocular, reads the problem pretty quickly, then explains how he would work it.

Problem Areas
- T’s pace pretty fast, but J. seems to keep up.
- Did not finish all of the homework assigned.
Follow Up

- Ask J. if pace is typically OK for him
- J.’s position in class seems too far to one side. Check to see if he can visually access everything from there, including the learning materials posted on bulletin boards.
- Ask T. if she could verbalize as she writes on the board, and- remind J. to use his monocular
- Ask T. if J. typically finishes all of his work. If not, talk to J. about why (could be visual fatigue at end of the day—may need to call parent for evening homework scenario)
OBSERVATION NOTES - Student: Candy

Class: 1st grade reading
Date: 2/22/05

Learning Environment
Desks arranged in groups-4 to a group. C. is in group situated front left. Her right side is to the board, and her back is to the rest of the class. Multiple learning materials displayed over board and on bulletin boards. Rules listed on bulletin board. Calendar center lists student helpers. There is a science center with rocks and fossils in the back of the room, and a small shelf with picture books displayed for students to read. There are multiple games on a little shelf. Cubbies marked with student names.

Lesson
T. pulls Candy’s group to a smaller table and introduces vocabulary for today’s reading. She has flash cards of new vocabulary and reads these out as she shows them to the group of 6. They take turns reading. Candy gets close to the (16 point) print, but reads on a level equal to the others in the group. They are given a worksheet to finish at their desk with pictures that need to be matched with words and fill in the blank sentences. (this worksheet looks pretty faded/light). Students return to their desks. Candy rummages through her desk for her box of stuff. Takes out her magnifier and crayons. Begins to work on her worksheet. Asks a neighbor for help at one point. Finishes within normal time, then gets out her monocular to check the board. Uses right hand for monocular, and this is not resting on the desk due to her placement with right side to the board.

Problem Areas
- Candy did not appear to follow along with the vocabulary flash cards
- Worksheet was copied so many times that the print is now splotchy and difficult to read for Candy
- Her right elbow needs to be supported by a desk when she uses the monocular.
- Candy strains her neck down when doing desk work.
Follow Up

- Talk with teacher about worksheet quality.
- Check to see if Candy could see those vocabulary cards. If not, ask teacher to let Candy hold the index cards.
- Ask that Candy be moved so that her right elbow is supported w/ monocular use.
- When class is empty, work with Candy to make sure she is accessing all the materials on bulletin boards, above the board, etc. with her monocular.
- Talk with Candy about storing her low vision devices in a separate container—not with crayons or markers.
- See if Candy would benefit from a slanted writing board.
OBSERVATION NOTES - Student: Hunter

Age: (2.5 years old)
Setting: Day Care
Date: 2/22/10

Learning Environment
Home-making and dress up (pretend play) area in one corner, reading area with books displayed in one corner, large table for snack/drawing/writing activities in middle, large light table in middle, shelf with puzzles, toys, baskets of crayons, etc. Lighting is sufficient. Play (plastic) food items in pretend kitchen. There is a large (huge!) communal play area with classrooms clustered around this. There are climbing toys here, dolls, blocks, etc. Areas tend to be delineated with rugs. There is a small playground just outside classroom door, with slide, swings, riding toys. There is a large playground across an inner campus street (which does have traffic). This playground is delineated with railroad ties to mark play area. The larger playground equipment/playscapes are here.

Lesson
T is reading a dual media (print/braille) book to Tiffany, with Tiff in her lap. The book is Clifford, with large, colorful pictures. Tiff gets very close to pages, and runs her hand along every page (not particularly interested in braille). T proceeds rather quickly. Tiff goes over to group table where children are coloring. She bends down very close to see this. When coloring materials are offered, she runs off. Following this activity, class goes outside to big playground. Tiff anxious about crossing street, wants to hold T’s hand. She has difficulty navigating the railroad ties (compared to her peers, she seems less coordinated). Appears to visually locate the slide, and can climb the steps to this. Avoids the swing area, which does not have any kind of border to serve as a cue.

Problem Areas
- Tiff is not picking up on picture detail in book
- Navigation on playground is hesitant. She seems a little fearful
- Tiff bends down very close to paper on coloring table. Totally disinterested in this activity
Follow Up

- Would a dome magnifier provide picture detail?
- Could T have the magnifier handy during reading and manipulate it at first, then hand it to Tiff if she seems amenable to this?
- Refer for O&M. Perhaps simple (2x) telescope training to spot areas on playground?
- Refer for clinical low vision evaluation
- Change out some of the play items in pretend kitchen with real items where possible
- Introduce a slant board for coloring/scribbling activities. Introduce black construction paper and light-colored chalk for scribbling. May need a task light for close work like this, as her head obliterates overhead lighting
- Put wind chimes on swing set to give Tiff an auditory cue
Web Resources
for Teaching Students with a Visual Impairment

Ideas for Teaching:

Independent Living Skills
http://www.perkins.org/resources/scout/early-childhood/daily-living-skills.html

Teaching Braille
http://www.pathstoliteracy.org/instructional-strategies-teaching-braille

Art
http://www.artbeyondsight.org/sidebar/aboutaeb.shtml#video

Tactile Graphics

Social Skills
http://www.perkins.org/resources/scout/early-childhood/social-skills.html

Beyond Ms. Manners http://www.tsbvi.edu/instructional-resources/1931

Math Strategies
http://www.tsbvi.edu/math
http://www.pathstoliteracy.org/instructional-strategies-mathematical-literacy

Digi-Blocks (place value/number sense manipulative) http://www.digiblock.com/

Auditory Strategies
http://www.pathstoliteracy.org/auditory-strategies/strategies

Transition
http://shop.aph.org/webapp/wcs/stores/servlet/Category_413A14B_10001_11051_20828_-1_20815

Teaching Resources

APH Products for the Core Curriculum
http://shop.aph.org/webapp/wcs/stores/servlet/Category_412A3B_10001_11051_20724_-1_20701

APH Products for the Expanded Core Curriculum
http://shop.aph.org/webapp/wcs/stores/servlet/Category_412A4B_10001_11051_20764_-1_20701

Perkins-Teaching Accessible Science
http://www.perkins.org/resources/curricular/accessible-science/

ECC Subjects and Skills (Paths to Literacy)
http://www.eccadvocacy.org/section.aspx?FolderID=13&SectionID=143
Paths to Literacy
http://www.pathstoliteracy.org/
Resources for the ECC (TSBVI)
http://www.tsbvi.edu/recc/
Distance Learning Modules (TSBVI)
http://www.tsbvi.edu/distance/
TSBVI YouTube Instructional Videos
http://www.youtube.com/user/VideoTSBVI
Recreation and Leisure
https://shop.aph.org/webapp/wcs/stores/servlet/Category_412A4B9C_10001_11051_20802_-1_20764
All Areas of the Expanded Core Curriculum
ECC Essentials (AFB Press)
Resources for the Expanded Core Curriculum (RECC) http://www.tsbvi.edu/recc/
Notes
Texas School for the Blind & Visually Impaired
Outreach Programs

Figure 9 TSBVI logo.

“IDEAs that Work logo and OSEP disclaimer."

Figure 10 IDEAs that Work logo and OSEP disclaimer.