

Special Education and Technology

4 Professional Development Modules

January 2006

The following professional development modules and additional resources are intended to introduce special and general educators to the roles technology might play in providing greater access to learning for students with a variety of disabilities.

Module 1: What is Universal Design for Learning and How Does it Relate to Technology Use in Special Education?

Module 2: Exploring Technology Resources

Module 3: Analyzing Lesson Plans

Module 4: Raising Awareness and Promoting Advocacy

Additional Resources

What is Universal Design for Learning and How Does it Relate to Technology Use in Special Education?

Overview

- Universal Design for Learning--or UDL--has been conceptualized by the Center for Applied Special Technology--or CAST.
 - A not-for-profit educational research organization focused on increasing opportunities for all students, particularly those with disabilities
- UDL is intended to minimize the barriers to access in curriculum and classroom instruction to ensure all students have an equal opportunity to succeed
- *Teaching Every Student in the Digital Age* explores in detail how UDL can and does work in the classroom

History

- UDL is based on the principle of Universal Design from architecture
 - *“Universal design is the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.”* Ron Mace (architect, founder of the Center for Universal Design at North Carolina State University)
- Universal Design modifications seek to remove physical barriers—by providing accommodations such as curb cutting and captioning
 - These accommodations are included in the original design of the environment in an effort to avoid retrofit adaptations later.

Applied to Education

- UDL takes the idea of removing barriers and applies it to the context of education
 - What kind of barriers--other than physical--might exist in the classroom for a student with disabilities?
- UDL takes access beyond the issue of access to information and to the next step--access to learning
 - How can educators teach all students so that all learn?

Importance of Brain Research

- Brain research plays a critical role in the UDL theory
 - There is no such thing as a “normal” brain--each individual brain functions differently with an endless variety of strengths and weaknesses

UDL Is Another Piece

- UDL is not intended as a replacement for Universal Design in building structures such as curb cuts, ramps, wider doorways, lower tables, etc.
- UDL is not intended as a replacement for assistive technologies such as switches, alternative keyboards, voice controlled systems, captioning, etc.
- UDL is another piece in a complicated puzzle of removing as many learning barriers as possible for individuals with disabilities
- During this professional development we will be focusing on one small aspect of accessible education--UDL--which advocates the removal of barriers within CURRICULUM

Resources

Rose, D.H. & Meyer, A. (2002). *Teaching Every Student in the Digital Age: Universal Design for Learning*. ASCD. Available online at <http://www.cast.org/teachingeverystudent/ideas/tes/>

CAST website: <http://www.cast.org>

Orkwis, R. (2003). Universally designed instruction. *ERIC/OSEP Digest #e641*. Arlington, VA: Council for Exceptional Children. Available online at <http://www.ericec.org/digests/e641.html>

The Center for Universal Design website: <http://www.design.ncsu.edu/cud/>

- I. Overview
 - A. OBJECTIVE 1: Participants will become familiar with the tenets and basic principles of the Universal Design for Learning (UDL) theory through the use of various print, online, and digital resources
 - B. OBJECTIVE 2: Participants will practice effective web search strategies
 - C. OBJECTIVE 3: Participants will practice outlining with a word processor or using the flow chart template in Inspiration
 - D. (OPTIONAL OBJECTIVE): Participants will practice using PowerPoint.

- II. Activities
 - A. DLRP "Plugged In" Fact Sheets, and Tool Box Resources
 - B. In groups of 2-3, participants will complete 3 activities at their own pace:
 1. Participants will review materials produced by DLRP (Plugged In Fact Sheets and Toolbox resources). Participants will also review CAST online resources (see:
<http://www.cast.org/research/udl/index.html> and
<http://www.cast.org/teachingeverystudent/>
 2. Station 1: Internet Scavenger Hunt (Handout 1)
 - a. participants will find answers to questions and definitions for terms related to UDL in terms of physical surroundings and curriculum
 - b. participants will be provided with a list of helpful links as well as search tips
 - i The Center for Universal Design:
<http://www.design.ncsu.edu/cud/>
 - ii Web Accessibility and Universal Design:
<http://template.bsd.uchicago.edu/accessibility.html>
 - iii Adaptive Environments:
<http://www.adaptenv.org/universal/index.php>
 - iv Universal Design Education Online:
<http://www.udeducation.org/>
 - v WiggleWorks:
<http://teacher.scholastic.com/readingprograms/wiggleworks/>
 - vi ERIC/OSEP Topical Brief, Fall 1998:
<http://www.cec.sped.org/osep/ud-sec1.html>
 - vii Barrier Free Education: <http://barrier-free.arch.gatech.edu/index.html>
 - viii WC3 Web Content Guidelines (WAI):
<http://www.w3.org/TR/WAI-WEBCONTENT/wai-pageauth.html>
 3. Station 2: Application in Schools: Should be completed last by all groups—can take place at their group tables

- a. participants will consider what they learned during the review of Web-based materials, print materials
 - b. participants will create an outline or flow chart using Inspiration for a plan to evaluate their school on how accessible it is for all students in terms of the building, the curriculum, and the technology used
- C. Debrief—back in the larger group, participants will share what they learned through each activity. Each group will share at least one insight gained from each of the three stations without duplicating contributions from other groups.
1. Optional: each group will contribute one PowerPoint slide for each of the three stations highlighting the insight they shared with the group. The slides will then be compiled into a PowerPoint presentation that will be given to each participant.

For Facilitators

Estimated Time to Complete: 1-2 hours

Guidelines and Tips:

- Facilitators should stress that UDL does not replace assistive technologies and/or universal design in building structures.
- Facilitators should assess participants prior knowledge of Internet navigation and provide tip sheets as needed.
- Facilitators should encourage participants to list additional comments/thoughts on additions or examples
- During the scavenger hunt activity, facilitators should encourage participants to find answers through their own searching as well as through exploring the links provided.

Internet Scavenger Hunt Questions (Handout)

1. What role does brain research play in UDL?
2. What are learning networks? Identify and briefly define the three learning networks identified through brain research. Give an example of how each learning network plays out in the classroom.
3. What is the difference between UDL and the use of assistive technology?
4. What is traditional fixed media vs. digital flexible media? Identify at least 2 examples of each listing the advantages and disadvantages of each example. How can each example be used effectively in the classroom by applying the principles of UDL?
5. List 2 of the 7 principles for Universal Design (*not* Universal Design for Learning). How might these principles be applicable to you and your students?
6. What are some ways in which web developers can make websites more accessible to more people?
7. What are the three principles of UDL? How do they relate to the three brain networks? Give a concrete example of each principle as it might be demonstrated in the classroom.
8. What is WiggleWorks? Why is it different from other programs attempting to teach the same content?
9. Find and summarize at least one student success story related to the use of UDL and/or universal design.
10. What roles do goal setting, individualized instruction, and assessment of progress play in the application of UDL in the classroom?
11. How could UDL benefit all students and not just students with disabilities?

Internet Scavenger Hunt Questions (Handout)

12. What role does brain research play in UDL?
13. What are learning networks? Identify and briefly define the three learning networks identified through brain research. Give an example of how each learning network plays out in the classroom.
14. What is the difference between UDL and the use of assistive technology?
15. What is traditional fixed media vs. digital flexible media? Identify at least 2 examples of each listing the advantages and disadvantages of each example. How can each example be used effectively in the classroom by applying the principles of UDL?
16. List 2 of the 7 principles for Universal Design (*not* Universal Design for Learning). How might these principles be applicable to you and your students?
17. What are some ways in which web developers can make websites more accessible to more people?
18. What are the three principles of UDL? How do they relate to the three brain networks? Give a concrete example of each principle as it might be demonstrated in the classroom.
19. What is WiggleWorks? Why is it different from other programs attempting to teach the same content?
20. Find and summarize at least one student success story related to the use of UDL and/or universal design.
21. What roles do goal setting, individualized instruction, and assessment of progress play in the application of UDL in the classroom?
22. How could UDL benefit all students and not just students with disabilities?

Module 2: Exploring Technology Resources

- I. Overview
 - A. OBJECTIVE 1: Participants will explore examples of technology resources that meet at least some of the UDL principles/criteria
 - B. OBJECTIVE 2: Participants will reflect on how these resources meet the criteria for UDL and how they might use these applications in their classrooms
 - C. What follows is a series of mini-activities; the facilitator should decide ahead of time which activities best suit the needs of the participants; it is recommended that all groups complete the Activity A regarding the accessibility of websites

- II. Activities
 - A. Issues of Web Accessibility
 - 1. Participants will view a video produced by ASD which focuses on the accessibility issues surrounding the Internet: www.webaim.org/info/asdvideo/asd56k.htm;
 - 2. participants will jot down notes as they watch regarding some of the issues raised by the people in the video;
 - 3. then participants will view several websites using a traditional browser, using a traditional browser with certain features turned off/changed, and using an alternative browser; for each website the participants will complete a matrix regarding the aspects of the website they find particularly appealing, easy to use, difficult to use and potential barriers for students with disabilities (Handout 1)
 - 4. Participants will complete the following cycle for each website:
 - a. view the website in a traditional browser such as Internet Explorer—make notes in matrix provided
 - b. view the website using the same traditional browser with certain features changed or turned off and make notes on the matrix provided
 - i. images not loaded
 - ii. background color changed to black with text color changed to white
 - iii. frames not loaded

 - B. Participants will complete a mini-activity using TextHelp Read&Write (Mac and Win—commercial)
 - 1. Participants will use a selection from Project Gutenberg (excerpt from *Treasure Island* by Robert Louis Stevenson—Handout 2) <http://www.gutenberg.net/etext94/treas11.txt>
 - a. they will use the read functions and explore the different options for reading text

- b. they will use the write function to take notes on what they are reading, exploring the many different options for auto-complete, word prediction, etc.
 - c. participants will then answer Questions to Consider (Handout 3)
- C. Participants will complete a mini-activity using ReadPlease (Win only—freeware) See: <http://www.readplease.com>
 - 1. Using text from Project Gutenberg (excerpt from *Treasure Island* by Robert Louis Stevenson—Handout 2) participants will explore the different applications and abilities of ReadPlease and will answer the Questions to Consider (Handout 4)
- D. Participants will complete a mini-activity using KidBook—best suited for elementary grades (Mac only—freeware) See: <http://www.switchintime.com/freestuff.html>
 - 1. Using the KidBook Maker, participants will create a book to teach their students about a specific topic—preferably one they commonly teach in their regular curriculum
 - 2. Participants will then switch books with other participants and use the KidBook Reader to read them
- E. Participants will complete a mini-activity using Inspiration and/or Kidspiration (Mac or Win—commercial, 30-day trial) See: <http://www.inspiration.com/freetrial/index.cfm>
 - 1. participants will work together to create a collaborative concept map
 - a. they will decide together what the topic of the concept map should be
 - b. Participants will explore the various features such as templates, outline-to-graphic, colors, hyperlinking, images, etc.
 - c. each group member will complete one aspect of the concept map including illustrations, hyperlinks, and personalization through color-coding, font, etc.
 - d. participants will then use the Listen tool to hear the map read to them
- F. Participants will fill out a chart answering questions about how each application meets some of the principles of UDL and how each application might be used in the classroom (Handout 5)
- G. If time permits, participants may want to share their charts with the whole group

For Facilitators

Estimated Time to Complete: 1-2.5 hours

- 45 minutes to 1 hour for web accessibility activity
- 20-30 minutes for each mini-activity

Guidelines and Tips:

- It is recommended that facilitators always choose to have participants complete activity A on issues with website accessibility.
 - For web accessibility activity, there are several options for choosing the websites participants will view:
 - Allow participants to choose their own websites
 - Allow participants to choose 2 websites and you assign one from the list of accessible sites below
 - Allow participants to choose 1 website while you assign 1 from the accessible list and 1 from the inaccessible list below
- Facilitators should then choose 1-2 additional mini-activities based on the needs and interests of the participants, the software available, the operating system being used, and the grade level focus of participants.
- If you have access to TextHelp Read&Write, it is better than ReadPlease.
- KidBook is only suitable for K-3. Students any older than about 3rd grade will find the program too babyish.

Accessible Sites:

Accessibility Internet Rally (AIR) Award Winners:

RampWeb, Inc.: <http://www.rampweb.com/>

Coefficient Designs: <http://www.cedsn.com/>

Frog Design: <http://www.frogdesign.com/>

Additional Sites:

College of William and Mary: <http://www.wm.edu>

Inaccessible Sites:

Amazon.com <http://www.amazon.com>

Yahooligans <http://www.yahooligans.yahoo.com>

Google <http://www.google.com> (Try typing in a search)

MSN <http://www.msn.com>

Instructions for Changing Web Browser Preferences

Internet Explorer

Do not load images:

1. Click on **Edit**
2. Click on **Preferences**
3. Uncheck the box for **Show Pictures**
4. Uncheck the box for **Animate gifs**

Reverse text and background colors:

1. Click on **Edit**
2. Click on **Preferences**
3. Click on **Text Color**, change to **White** (with crayon selector)
4. Click on **Background Color**, change to **Black** (with crayon selector)
5. Uncheck box for **Allow pages to specify color**

Do not display frames and style sheets:

1. Click on **Edit**
2. Click on **Preferences**
3. Uncheck box for **Show Frames**
4. Uncheck box for **Show Style Sheets**

Website #1: _____

Browser	Aspects you Find Particularly Appealing	Aspects you find particularly easy to use	Aspects you find difficult to use	Potential barriers for people with disabilities
TRADITIONAL BROWSER				
TRADITIONAL BROWSER, NO IMAGES				
TRADITIONAL BROWSER, REVERSED COLORS				
TRADITIONAL BROWSER, NO FRAMES				

COMMENTS:

Website #2: _____

Browser	Aspects you Find Particularly Appealing	Aspects you find particularly easy to use	Aspects you find difficult to use	Potential barriers for people with disabilities
TRADITIONAL BROWSER				
TRADITIONAL BROWSER, NO IMAGES				
TRADITIONAL BROWSER, REVERSED COLORS				
TRADITIONAL BROWSER, NO FRAMES				

COMMENTS:

Website #3: _____

Browser	Aspects you Find Particularly Appealing	Aspects you find particularly easy to use	Aspects you find difficult to use	Potential barriers for people with disabilities
TRADITIONAL BROWSER				
TRADITIONAL BROWSER, NO IMAGES				
TRADITIONAL BROWSER, REVERSED COLORS				
TRADITIONAL BROWSER, NO FRAMES				

COMMENTS:

TREASURE ISLAND
PART ONE

The Old Buccaneer

1

The Old Sea-dog at the Admiral Benbow

SQUIRE TRELAWNEY, Dr. Livesey, and the rest of these gentlemen having asked me to write down the whole particulars about Treasure Island, from the beginning to the end, keeping nothing back but the bearings of the island, and that only because there is still treasure not yet lifted, I take up my pen in the year of grace 17__ and go back to the time when my father kept the Admiral Benbow inn and the brown old seaman with the sabre cut first took up his lodging under our roof.

I remember him as if it were yesterday, as he came plodding to the inn door, his sea-chest following behind him in a hand-barrow--a tall, strong, heavy, nut-brown man, his tarry pigtail falling over the shoulder of his soiled blue coat, his hands ragged and scarred, with black, broken nails, and the sabre cut across one cheek, a dirty, livid white. I remember him looking round the cover and whistling to himself as he did so, and then breaking out in that old sea-song that he sang so often afterwards:

"Fifteen men on the dead man's chest--
Yo-ho-ho, and a bottle of rum!"

in the high, old tottering voice that seemed to have been tuned and broken at the capstan bars. Then he rapped on the door with a bit of stick like a handspike that he carried, and when my father appeared, called roughly for a glass of rum. This, when it was brought to him, he drank slowly, like a connoisseur, lingering on the taste and still looking about him at the cliffs and up at our signboard.

"This is a handy cove," says he at length; "and a pleasant sittiyated grog-shop. Much company, mate?"

My father told him no, very little company, the more was the pity.

"Well, then," said he, "this is the berth for me. Here you, matey," he cried to the man who trundled the barrow; "bring up alongside and help up my chest. I'll stay here a bit," he continued. "I'm a plain man; rum and bacon and eggs is what I want, and that head up there for to watch ships off. What you mought call me? You mought call me captain. Oh, I see what you're at-- there"; and he threw down three or four gold pieces on the threshold. "You can tell me when I've worked through that," says he, looking as fierce as a commander.

And indeed bad as his clothes were and coarsely as he spoke, he had none of the appearance of a man who sailed before the mast, but seemed like a mate or skipper accustomed to be obeyed or to strike. The man who came with the barrow told us the mail had set him down the morning before at the Royal George, that he had inquired what inns there were along the coast, and hearing ours well spoken of, I suppose, and described as lonely, had chosen it from the others for his place of residence. And that was all we could learn of our guest.

He was a very silent man by custom. All day he hung round the cove or upon the cliffs with a brass telescope; all evening he sat in a corner of the parlour next the fire and drank rum and water very strong. Mostly he would not speak when spoken to, only look up sudden and fierce and blow through his nose like a fog-horn; and we and the people who came about our house soon learned to let him be. Every day when he came back from his stroll he would ask if any seafaring men had gone by along the road. At first we thought it was the want of company of his own kind that made him ask this question, but at last we began to see he was desirous to avoid them. When a seaman did put up at the Admiral Benbow (as now and then some did, making by the coast road for Bristol) he would look in at him through the curtained door before he entered the parlour; and he was always sure to be as silent as a mouse when any such was present. For me, at least, there was no secret about the matter, for I was, in a way, a sharer in his alarms. He had taken me aside one day and promised me a silver fourpenny on the first of every month if I would only keep my "weather-eye open for a seafaring man with one leg" and let him know the moment he appeared. Often enough when the first of the month came round and I applied to him for my wage, he would only blow through his nose at me and stare me down, but before the week was out he was sure to think better of it, bring me my fourpenny piece, and repeat his orders to look out for "the seafaring man with one leg."

How that personage haunted my dreams, I need scarcely tell you. On stormy nights, when the wind shook the four corners of the house and the surf roared along the cove and up the cliffs, I would see him in a thousand forms, and with a thousand diabolical expressions. Now the leg would be cut off at the knee, now at the hip; now he was a monstrous kind of a creature who had never had but the one leg, and that in the middle of his body. To see him leap and run and pursue me over hedge and ditch was the worst of nightmares. And altogether I paid pretty dear for my monthly fourpenny piece, in the shape of these abominable fancies.

But though I was so terrified by the idea of the seafaring man with one leg, I was far less afraid of the captain himself than anybody else who knew him. There were nights when he took a deal more rum and water than his head would carry; and then he would sometimes sit and sing his wicked, old, wild sea-songs, minding nobody; but sometimes he would call for glasses round and force all the trembling company to listen to his stories or bear a chorus to his singing. Often I have heard the house shaking with "Yo-ho-ho, and a bottle of rum," all the neighbours joining in for dear life, with the fear of death upon them, and each singing louder than the other to avoid remark. For in these fits he was the most overriding companion ever known; he would slap his hand on the table for silence all round; he would fly up in a passion of anger at a question, or sometimes

because none was put, and so he judged the company was not following his story. Nor would he allow anyone to leave the inn till he had drunk himself sleepy and reeled off to bed.

His stories were what frightened people worst of all. Dreadful stories they were--about hanging, and walking the plank, and storms at sea, and the Dry Tortugas, and wild deeds and places on the Spanish Main. By his own account he must have lived his life among some of the wickedest men that God ever allowed upon the sea, and the language in which he told these stories shocked our plain country people almost as much as the crimes that he described. My father was always saying the inn would be ruined, for people would soon cease coming there to be tyrannized over and put down, and sent shivering to their beds; but I really believe his presence did us good. People were frightened at the time, but on looking back they rather liked it; it was a fine excitement in a quiet country life, and there was even a party of the younger men who pretended to admire him, calling him a "true sea-dog" and a "real old salt" and such like names, and saying there was the sort of man that made England terrible at sea.

In one way, indeed, he bade fair to ruin us, for he kept on staying week after week, and at last month after month, so that all the money had been long exhausted, and still my father never plucked up the heart to insist on having more. If ever he mentioned it, the captain blew through his nose so loudly that you might say he roared, and stared my poor father out of the room. I have seen him wringing his hands after such a rebuff, and I am sure the annoyance and the terror he lived in must have greatly hastened his early and unhappy death.

All the time he lived with us the captain made no change whatever in his dress but to buy some stockings from a hawker. One of the cocks of his hat having fallen down, he let it hang from that day forth, though it was a great annoyance when it blew. I remember the appearance of his coat, which he patched himself upstairs in his room, and which, before the end, was nothing but patches. He never wrote or received a letter, and he never spoke with any but the neighbours, and with these, for the most part, only when drunk on rum. The great sea-chest none of us had ever seen open.

He was only once crossed, and that was towards the end, when my poor father was far gone in a decline that took him off. Dr. Livesey came late one afternoon to see the patient, took a bit of dinner from my mother, and went into the parlour to smoke a pipe until his horse should come down from the hamlet, for we had no stabling at the old Benbow. I followed him in, and I remember observing the contrast the neat, bright doctor, with his powder as white as snow and his bright, black eyes and pleasant manners, made with the coltish country folk, and above all, with that filthy, heavy, bleared scarecrow of a pirate of ours, sitting, far gone in rum, with his arms on the table. Suddenly he—the captain, that is--began to pipe up his eternal song:

"Fifteen men on the dead man's chest--
Yo-ho-ho, and a bottle of rum!
Drink and the devil had done for the rest--

Yo-ho-ho, and a bottle of rum!"

At first I had supposed "the dead man's chest" to be that identical big box of his upstairs in the front room, and the thought had been mingled in my nightmares with that of the one-legged seafaring man. But by this time we had all long ceased to pay any particular notice to the song; it was new, that night, to nobody but Dr. Livesey, and on him I observed it did not produce an agreeable effect, for he looked up for a moment quite angrily before he went on with his talk to old Taylor, the gardener, on a new cure for the rheumatics. In the meantime, the captain gradually brightened up at his own music, and at last flapped his hand upon the table before him in a way we all knew to mean silence. The voices stopped at once, all but Dr. Livesey's; he went on as before speaking clear and kind and drawing briskly at his pipe between every word or two. The captain glared at him for a while, flapped his hand again, glared still harder, and at last broke out with a villainous, low oath, "Silence, there, between decks!"

"Were you addressing me, sir?" says the doctor; and when the ruffian had told him, with another oath, that this was so, "I have only one thing to say to you, sir," replies the doctor, "that if you keep on drinking rum, the world will soon be quit of a very dirty scoundrel!"

The old fellow's fury was awful. He sprang to his feet, drew and opened a sailor's clasp-knife, and balancing it open on the palm of his hand, threatened to pin the doctor to the wall.

The doctor never so much as moved. He spoke to him as before, over his shoulder and in the same tone of voice, rather high, so that all the room might hear, but perfectly calm and steady: "If you do not put that knife this instant in your pocket, I promise, upon my honour, you shall hang at the next assizes."

Then followed a battle of looks between them, but the captain soon knuckled under, put up his weapon, and resumed his seat, grumbling like a beaten dog.

"And now, sir," continued the doctor, "since I now know there's such a fellow in my district, you may count I'll have an eye upon you day and night. I'm not a doctor only; I'm a magistrate; and if I catch a breath of complaint against you, if it's only for a piece of incivility like tonight's, I'll take effectual means to have you hunted down and routed out of this. Let that suffice."

Soon after, Dr. Livesey's horse came to the door and he rode away, but the captain held his peace that evening, and for many evenings to come.

Questions to Consider for Read&Write (Handout 3)

1. Would you want to use a program like Read&Write if your goal was to improve a student's word decoding or other mechanical reading skills? Why or why not?
2. Would you use a program like Read&Write if your goal was to improve a student's reading comprehension skills? Why or why not?
3. Would you use a program like Read&Write if your goal was to focus student's attention on the literary style and devices used by the author? Why or why not?
4. How would you differentiate the use of Read&Write for a student who needs a significant amount of assistance vs. a student who needs a minimal amount of assistance?

**Technology Application Chart
(Handout 5)**

	Teacher role		Student role		Technology	
	App. #1	App. #2	App. #1	App. #2	App. #1	App. #2
Supports recognition learning by providing multiple, flexible methods of presentation.						
Supports strategic learning by providing multiple, flexible methods of expression and apprenticeship (practice of skills and processes).						
Supports affective learning by providing multiple, flexible options for engagement.						

Module 3: Analyzing Lesson Plans

- I. Overview
 - A. OBJECTIVE 1: Participants will briefly review the importance of goal setting, individualized instruction, and assessing progress from the *CAST Teaching Every Student in the Digital Age* book about UDL (participants should have gained this knowledge during the scavenger hunt, but just in case, a guiding matrix will be provided for the purposes of this activity as well as for facilitator use as Handout 1)
 - B. OBJECTIVE 2: Participants will analyze their own lesson plans for elements of UDL which already exist
 - C. OBJECTIVE 3: Participants will identify elements of UDL that can be added to their lesson plans such as identifying the goals, identifying the true purpose of the goals, identifying the learning network central to the task, and identifying areas where flexibility/scaffolding might be provided
 - D. OBJECTIVE 4: Participants will develop ways in which technology might be used to incorporate elements of UDL and enhance student learning
- II. Activities
 - A. The facilitator should review the guiding matrix (Handout 1) with participants to the extent he/she deems necessary to refresh participants' memories about the principles and concepts of UDL
 - B. Participants will bring their own lesson plans. They can work on individual lesson plans but should work collaboratively with another participant who is either at the same school, same grade level, or in the same content area in order to "bounce ideas" off one another
 - C. Facilitators should remind teachers that UDL is intended to build flexibility into lesson plans in an effort to reach a broader audience
 - D. Participants will analyze their lesson plans using the matrix provided (Handout 2). Participants will have access to resources (Handout 3) that might be helpful to them in completing the lesson plan analysis and matrix
 - E. Participants will share their new and improved lesson plans with the group using one of the technologies used in Modules 1 and 2: PowerPoint, Inspiration, KidBook, Read&Write, ReadPlease, and/or a word processor

For Facilitators

Estimated Time to Complete: 2 to 3 hours

Guidelines and Tips:

- Facilitators should review the guiding matrix as a refresher. This module should not be completed by anyone who has not completed Module 1 as the guiding matrix is based on the principles and concepts of UDL covered more extensively and completely through the activities in Module 1.
- Facilitators should stress that teachers should recognize that UDL is intended to increase the flexibility of curriculum to make it as accessible to a wider range of student abilities as possible but does not claim to make curriculum accessible in every incidence.
- Facilitators should encourage participants to go beyond the questions and suggestions in the guiding matrix when completing their lesson plan analyses.
- Facilitators should encourage participants to explore the helpful resource links provided, but to not get sidetracked. Teachers need to keep the “big picture”—the overall goal of the lesson—in mind.

**Guiding Matrix: Analyzing Lesson Plans
(Handout 1)**

Questions to Ask	Examples of UDL
GOAL SETTING	
What standard does this lesson address?	From national, state, or local standards; well-developed standards emphasize learning how to learn and are not too narrow or specific; they should not be overly focused on factual knowledge or skills
What is the true purpose of the goal? Is it clear?	The true purpose should be the ultimate learning goal of the outcome. For example, if the standard states “All students will write an essay” is the true purpose the mechanical act of writing or the act of composing an essay? Once you have established the true purpose, determine whether or not the true purpose is apparent to students. Will students know whether you are focusing on their mechanical writing skills or their composition skills? The true purpose, once it has been identified, is what must remain constant for all students. Everything else is flexible and scaffolding can be used to meet individual learners’ needs.
Is the goal separated from the means of attaining it?	The goal should not specifically include or mention the means of attaining it. The more options your materials offer the easier it is to separate the goal from the means.
What aspects and learning networks are central to the true purpose?	Recognition network: the “what” in learning; who, what, when, where, and why—content is key Strategic network: the “how” in learning; skills and strategies—the process is key Affective network: the “why” in learning; appreciation and enjoyment—engagement is key
How is the performance criteria determined for each student?	Should be based on individual students’ strengths and weaknesses. Use Vygotsky’s idea of the “Zone of Proximal Development”—more challenging than what a student can achieve on his/her own, but not too challenging that the student cannot achieve it with scaffolding and support
INDIVIDUALIZED INSTRUCTION	
What teaching methods are being used in this lesson?	Identify the methods and instructional strategies being used, e.g. lecture, multimedia, etc. Methods should be varied and offer a variety of formats.

Questions to Ask	Examples of UDL
Do the methods used correspond with the central learning network?	<p>Some methods work better for certain types of learning.</p> <p>Recognition network: Provide multiple examples and non-examples; Highlight critical features in examples presented; Use multiple formats; Provide background content through, for example, hyperlinks to additional information sources</p> <p>Strategic network: Provide multiple and varied models of skilled performance as well as counter-examples; Provide practice in the skills with optional supports and scaffolding for secondary aspects of task; provide ongoing feedback from teacher and technology; Provide multiple tools for expression and demonstration of skills</p> <p>Affective network: Provide a choice of content and tools; Provide a choice of learning context; Provide adjustable levels of challenge; Provide a choice of rewards (think intrinsic)</p>
What materials are being used? What, if any, curriculum barriers are present?	<p>Are the materials you are using—such as textbooks, videos, charts, etc.—putting up barriers for some of your students? You may want to use the UDL Curriculum Barriers Finder at http://www.cast.org/teachingeverystudent/tolls/curriculumbarriers.cfm</p>
ASSESSING PROGRESS	
How is the lesson currently being assessed?	How are you evaluating student progress? Are you using the same test and the same format with all students?
Does the assessment accommodate individual differences within the 3 learning networks (recognition, strategic, affective)?	<p>For the test to be fair for all students, it should not measure talents irrelevant to the instructional goal. For example:</p> <p>Recognition network: paper and pencil tests evaluate skills in visual acuity, word decoding, reading comprehension, etc. Students with weaknesses in this area are at a disadvantage.</p> <p>Strategic network: timed test, multiple choice, and essay tests all require students to plan and self-monitor. Students with difficulties in this area are at a disadvantage. Also, students who are capable of planning but have a physical disability that prevents them from carrying out this plan would be at a disadvantage if the test is in a paper and pencil format.</p> <p>Affective network: For a student to truly demonstrate his/her knowledge he/she needs to be trying his/her best. The test should not be “high stakes” and should not cause anxiety for any student regardless of his/her motivation and/or engagement level. Embedded assessment—flexible and ongoing—also helps to reduce anxiety associated with tests.</p>

Questions to Ask	Examples of UDL
	<p>In essence—assessments should be offered in a variety of media—reliance on one medium will always favor some students over others and will inaccurately assess progress toward an instructional goal.</p>
<p>Is the media being used for assessment the best choice for the instructional goal?</p>	<p>The traditional medium associated with assessment is text-based and printed. But is this always the best choice for all instructional goals? For example, in art class, if the teacher wants to assess students’ understanding of a particular painting technique, does it make more sense to give them a paper and pencil test or to ask them to paint a picture demonstrating the technique? What about a language arts teacher who wants to assess students’ understanding of mood and tone? Would it be better for this teacher to ask students to write the definitions of these terms or to demonstrate their understanding through an oral reading or presentation of a story or poem containing these elements? We should consider other media not usually associated with assessment when deciding how to evaluate student progress toward an instructional goal. You may also want to try several approaches with your students to find which media yields the most accurate assessment of their learning.</p>
<p>Are appropriate scaffolds and support available?</p>	<p>As long as the central instructional goal is not being scaffolded, then allowing supports for other variables is perfectly reasonable and, in fact, provides a more accurate assessment of the content or skill being tested. For example, if mastery of content is the main objective and not reading skills, then allowing a student with reading difficulties to use a text reader will not compromise the assessment of his/her content knowledge. Scaffolds normally used by students in classroom learning should not be removed when assessing the learning accomplished.</p>
<p>Is assessment flexible and ongoing? Does it occur at multiple points during the unit of study?</p>	<p>An end-of-the-unit test might not be the best way to measure student progress. Instead, assessment should be embedded within the curriculum. Multiple snapshots of students progress should be taken through assessment that occurs regularly and in a variety of ways throughout the process of attaining an instructional goal (e.g. a portfolio approach).</p>

**Lesson Plan Analysis
(Handout 2)**

	Lesson As Is	What Kind of Flexibility or Scaffolding Might be Offered?	Role of Technology
GOAL SETTING			
What standard (if any) does this lesson address?			
What is the true purpose of the goal? Is it clear?			
Is the goal separated from the means of attaining it?			
What aspects and learning network are central to the true purpose? (Is the focus on the “what,” the “how,” or the “why” of learning?)			
How is performance criteria determined for each student?			
INDIVIDUALIZED INSTRUCTION			
What teaching methods are being used in this lesson?			
Do the methods used correspond to the central learning network (recognition, strategic, or affective)?			
What materials are			

	Lesson As Is	What Kind of Flexibility or Scaffolding Might be Offered?	Role of Technology
being used? What, if any, curriculum barriers are present?			
ASSESSING PROGRESS			
How is the lesson currently being assessed?			
Does the assessment address individual flexibility in learning approaches?			
How do you accommodate individual differences within the three learning networks (recognition, strategic, affective)?			
Is the media being used for assessment the best choice for the instructional goal?			
Are appropriate scaffolds and support available?			
Is assessment flexible and ongoing? Does it occur at multiple points during the unit of study?			

Helpful Resources for Lesson Plan Analysis (Handout 3)

Teaching Every Student in the Digital Age, Chapter 5: Using UDL to Set Clear Goals:
<http://www.cast.org/teachingeverystudent/ideas/tes/chapter5.cfm>

UDL Goal Setter <http://www.cast.org/teachingeverystudent/tools/udlgoalsetter.cfm>

Teaching Every Student in the Digital Age, Chapter 6: Using UDL to Support Every Student's Learning (Individualized Instruction):
<http://www.cast.org/teachingeverystudent/ideas/tes/chapter6.cfm>

Curriculum Barriers Finder:
<http://www.cast.org/teachingeverystudent/tools/curriculumbarriers.cfm>

Teaching Every Student in the Digital Age, Chapter 7: Using UDL to Accurately Assess Student Progress: <http://www.cast.org/teachingeverystudent/ideas/tes/chapter7.cfm>

Interdisciplinary Middle Years Multimedia Project: FAQs about Electronic Portfolios:
<http://www.edu.gov.mb.ca/ks4/tech/imym/faqs/portfolios.html>

Module 4: Raising Awareness and Promoting Advocacy

- II. General Overview
 - a. OBJECTIVE 1: Participants will complete a social climate survey on attitudes toward people with disabilities and discuss the importance of raising awareness
 - b. OBJECTIVE 2: Participants will explore advocacy organizations websites and online resources for raising awareness
 - c. OBJECTIVE 3: Participants will develop an advocacy and awareness strategy for their own school and/or district
- III. Activities
 - a. Participants will complete the social climate survey on attitudes toward people with disabilities and UDL.
 - b. Participants will choose at least three advocacy organization websites to explore and find at least two online sources of information that could be used to raise awareness; they will complete the Advocacy and Awareness Chart (Handout 1) while exploring the websites.
 - i. Advocacy and Awareness Sites:
 1. AIR—Accessibility Internet Rally—started by Mobility in Training in Austin; targets web developers—designing websites for nonprofit organizations—a competition—discuss how they judges have looked at the features of accessibility: <http://cookiecrook.com/AIR/2003/train/>
 2. Council for Exceptional Children: <http://www.cec.sped.org>
 3. NEC Foundation of America: <http://www.necfoundation.org>
 4. Disability World—online Web-zine: <http://www.disabilityworld.org>
 5. UK Advocacy Group: <http://www.disability.gov.uk>
 6. UK Inclusive Design Tutorial: <http://www.inclusivedesign.org>
 7. AHEAD (higher education): <http://www.ahead.ie/>
 8. University of Connecticut’s Center on Postsecondary Education and Disability: <http://www.cped.uconn.edu>
 9. WebAIM—Web Accessibility in Mind <http://www.webaim.org/>
 10. CAST <http://www.cast.org>
 11. DO-IT <http://www.washington.edu/doi/>
 12. Knowbility <http://www.knowbility.org>
 13. Accessible Textbooks Clearinghouse: <http://www.tsbvi.edu/textbooks/>
 14. Adaptive Environments: <http://www.adaptenv.org>

- c. In small groups, participants will outline a strategy for raising awareness of accessibility issues and advocating for UDL in their own schools/districts
- d. Participants will create an advocacy poster, brochure, or flyer that will serve to raise awareness that includes information about helpful resources that can be found locally or online
- e. Participants will share their strategy and poster/brochure/flyer with the entire group

For Facilitators

Estimated Time to Complete: 1-3 hours depending on participant interest

Guidelines and Tips:

- Facilitators should encourage participants to think about their schools in particular:
 - What is the social climate at their school?
 - What is the attitude toward students with disability at their school?
 - What method for raising awareness and advocating for greater accessibility would work best? Do people at their school read posters? Would they prefer more detailed information such as what might be included in a brochure?
 - What is the current level of awareness concerning UDL?
 - What type of information would best suit teachers and administrators at their school? Online resources? Local organizations? Videos?
- Facilitators should remind participants that this activity is intended as a starting point. Additional resources will be provided for those individuals interested in further pursuing these initiatives.

**Advocacy and Awareness Chart
(Handout 1)**

Organization and website URL	What is the intended purpose of the organization?	What is the organization doing to accomplish its purpose?	How might the organization be of use to you and your school/district?
1.			
2.			
3.			
Online Resources for Raising Awareness with URL	Why did you choose this online source of information?	Is this resource only online or is there also a local component?	What resources will you use to raise awareness in your school or district?
1.			
2.			
3.			

Conclusion

Facilitator should highlight key points about UDL that all participants should “take away” with them.

- It is not about what individual students can or cannot do—it is about what barriers individual students might encounter with a particular unit of study—it is about the curriculum and the accessibility of the curriculum
- UDL is not intended as a one-size-fits-all solution; it is intended to provide flexibility in curriculum to reach a broader range of students (not *all* students)
- Digital media makes the flexibility and multiple options feasible and attainable

Facilitator will also share a template for applying UDL to their school or district from the Concord, NH UDL Model:

<http://www.cast.org/teachingeverystudent/tools/systemicchange.cfm>

Additional Online Resources for UDL Modules

Access-IT <http://www.washington.edu/accessit/index.php>

Also based at the University of Washington, Access-IT promotes the use of instructional technology for individuals with disabilities at all levels of education, including faculty. The Knowledge Base is a searchable database of frequently asked questions and resources for accessibility.

Bookshare.org <http://www.bookshare.org/web/MembersSchools.html>

An organization dedicated to digitizing as many books, textbooks, and other print resources as possible. Schools, teachers, parents, etc. donate the digital books they have created through scanning hard copies.

Disability Law Resources Project <http://www.dlrp.org/>

Free Software for Students with Disabilities:

<http://www.switchintime.com/FreeStuff.html>

List of Alternative Browsers with disability-specific descriptions:

<http://www.w3.org/WAI/References/Browsing>

National Center for the Dissemination of Disability Research

<http://www.ncddr.org>

Provides information on accessibility and research project implications.

NICHCY <http://www.nichcy.org/index.html>

The official website for the National Dissemination Center for Children with Disabilities. A plethora of resources with more being continuously added.

Publications of the National Center on Secondary Education and Transition

<http://www.ncset.org/publications/>

Tons of great information! Type “universal design” in the search box for articles specific to UDL. Many publishing companies offer their textbooks in digital format. Contact your publisher for more information.

Rehabilitation Engineering and Research Center on Universal Design (RERC UD)

<http://www.ap.buffalo.edu/lercud/indexwelcome.htm>

Based at the University of Buffalo, this organization is committed to continued promotion, research, and product development using the principles of Universal Design.

Resources for securing funding/assistance:

http://nici-mc2.org/de_toolkit/pages/build_equity.htm

Selected Resources about Assistive Technology

<http://trace.wisc.edu/resources/at-resources.shtml>

includes information about products, research, training, and organizations related to assistive technology.

Software and online resource evaluation checklists from Prince George's County Public Schools, Maryland

<http://www.pgcps.org/~support/software.html#database>

Tutorial—Inclusive Design <http://www.inclusivedesign.org.uk/>

This is a UK-based site with an easy-to-follow tutorial about their version of universal design in architecture, communication, and products.

Universal Design of Web Pages in Class Projects

http://www.washington.edu/doi/Brochures/Technology/universal_class.html

A DO-IT publication, this article details several objectives for making websites more accessible and provides helpful resources for meeting those objectives. Could be used in middle or high school as well as higher education.

WAI (Web Accessibility Initiative) site: <http://www.w3.org/WAI/>

The World Wide Web Consortium's efforts to make websites more accessible to individuals with disabilities.

W3C—Priority Level Guidelines, etc.: <http://www.w3.org/> (home page)

Web accessibility guidelines (written in fairly technical terms) from the World Wide Web Consortium.