

Non-technology / Low Technology Solutions To Support Networks of Learning

Many non-technological strategies such as project-based or cooperative learning fit within the framework of Universal Design for Learning (UDL). The information presented in the 3 charts that follow has been derived from material provided on:

- the SET-BC BC-UDL project wiki (<http://bcudl.pbworks.com/Online-Presentations>);
- the CAST website (www.k8accesscenter.org/training_resources/UniversalDesign_BarriersSolutions.asp).

The strategies and accommodations described, while not an exhaustive listing, provide examples of differentiated instruction that when integrated into curriculum are in keeping with UDL principles. UDL solutions, when planned in advance, become an integral part of the curriculum and can be made available to a wide range of students with diverse learning needs.

CAST has identified three primary brain networks and the roles they play in learning.

- **Recognition networks** – Gathering facts. How we identify and categorize what we see, hear, and read. Identifying letters, words, or an author's style are recognition tasks - the "what" of learning.
- **Strategic networks** – Planning and performing tasks. How we organize and express our ideas. Writing an essay or solving a math problem are strategic tasks - the "how" of learning.
- **Affective networks** – How students are engaged and motivated. How they are challenged, excited, or interested. These are affective dimensions - the "why" of learning.

UDL principles help educators customize their teaching for individual differences in each of these three brain networks. A universally-designed curriculum offers the following:

- **Multiple means of representation** to give learners various ways of acquiring information and knowledge
- **Multiple means of action and expression** to provide learners alternatives for demonstrating what they know
- **Multiple means of engagement** to tap into learners' interests, challenge them appropriately, and motivate them to learn

Recognition Networks	
Methods for supporting networks	Strategies / accommodations that make learning more accessible
Use multiple examples to illustrate concepts	<ul style="list-style-type: none"> - pictures, sound bites, and video clips with captioning - role play - simulations - integration of physical movement into presentations - overheads with highlighted text - adjusted reading levels of materials - peer reading - use of a planning circle to link vocabulary and review concepts - display and sharing of work from previous classes - drawing upon the real world (field trips, community experts, staff and student expertise)
Highlight critical features	<ul style="list-style-type: none"> - teacher outline of key points - provision of accompanying materials, handouts - bolding, italics, different fonts and sizes, bullets, and headings to highlight and structure printed material - highlighter tape or pens - peer note takers

Recognition Networks	
Methods for supporting networks	Strategies / accommodations that make learning more accessible
	<ul style="list-style-type: none"> - use of 3-D foldables - graphic organizers - use of previewing strategies such as THIEVES (<i>Title, Headings, Introduction, Every first sentence in a paragraph, Visuals and vocabulary, End-of-chapter questions, and Summary</i>) - provision of essential questions for students to complete - use of jigsaw activities for sharing critical ideas back with the group - handouts with fill in the blanks
Use a variety of media and formats	<ul style="list-style-type: none"> - enlarged print or print magnified by copy machine - manipulatives - rulers with highlighted sections - reading boards - writing with symbols or rebus writing - student dictated books - retelling stories - recording critical portions of lessons - use of clip art to add images and text comments to add text support - books on tape/CD with accompanying text - use of work groups and assigning tasks to members - putting unit including all work sheets/material on classroom computer so student can review
Support background knowledge	<ul style="list-style-type: none"> - pre-teaching key vocabulary/use of key words repeatedly - use of simple pre-lesson assessment strategies such as red/yellow/green activity, I can statements, or KWL (<i>What I Know, What I Want to Know, What I Have Learned</i>) charts to informally assess background knowledge - working in small/cooperative learning groups - different scenarios - different level of content with same terms - brainstorming and group discussion - parent involvement - peer tutoring

Strategic networks	
Methods for supporting networks	Strategies / accommodations that make learning more accessible
Provide flexible models of skilled performance	<ul style="list-style-type: none"> - oral tests - teacher-student dialogue journals - presentations with poster, visual aids, large print, films, pictures, charts, graphics, physical movement - role play/acting out - interviews - recreation of a story - poster or diorama - hands-on activity (e.g., carving, models) - guest speakers - allowing students to record lessons for reviewing later - providing models of what projects should look like; posting of

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	<ul style="list-style-type: none"> – samples, and referring to them often – story recreation demonstrating concepts applied to own situation
Provide opportunities to practice with supports	<ul style="list-style-type: none"> – individual, small, large group discussions – checking for understanding – modelling metacognitive strategies (think alouds) – use of word walls to display special topic lists/high frequency words – teaching students how to ask questions and develop ideas – teaching students to discriminate interesting from irrelevant ideas – creating a list of questions to think about – use of Bloom’s taxonomy to develop higher level questions and thinking skills – think/pair/share cooperative learning groups – seating student near teacher or positive role model – posting assignments consistently at a designated location – small groups (peer) to demonstrate understanding of concepts – peer editing and older student mentors – arranging different work areas in the room – providing study skills training and learning strategies – selective/focused skill development – student contracts – checklists, cue cards, and bookmarks to remind about steps in a process or to help complete projects – introducing new graphic organizers for each grade level – personal dictionaries that students can add to
Provide ongoing, relevant feedback	<ul style="list-style-type: none"> – use of StudyBuzz tool – problem sets with answer keys – stating learning intentions and providing rubrics to enabling students self-monitor – multiple project performance opportunities – breaking up unit test into sections – providing test questions in advance – using alternative assessment formats – using video with Flip cameras for visual feedback – student directed grading/rubric – guided practice in classroom
Offer flexible opportunities for demonstrating skill	<ul style="list-style-type: none"> – portfolios – creative presentations to demonstrate understanding of theme and topics – different ways to present tests (open book, orally, take home) – self-monitoring checklists – performance-based assessment – buddy reading – drawing pictures/posters – retelling using pictures/graphics – role playing/skits – writing a play, writing/sing songs, creating a game – requiring fewer correct responses/shortening assignments to facilitate completion

Affective networks	
Methods for supporting networks	Strategies / accommodations that make learning more accessible
Offer choices of content and tools	<ul style="list-style-type: none"> – providing lists of books on topic and letting students choose – giving students range of learning tools and allowing access to ALL, not just students with special needs – adjusting lessons to students' interests – breaking down content to reveal imbedded interests – focusing on topic(s) within a book – letting students choose individualized questions of interest about a topic – encouraging students to use primary source materials – acting out historical or literary character(s) – setting up a choice board and encouraging students to make sets of choices
Offer adjustable levels of challenge	<ul style="list-style-type: none"> – providing information at different reading levels – offering choice of learning style–based learning activities – offering activities at different levels of difficulty, beginning with student's current ability level and introducing activities that support the student's transition from one level to another – providing direct instruction to students who need it – questioning at multiple levels – partner-non-partner options – graphic organizers – collaborative learning groups – sequencing maps – highlighting vocabulary – tiered assignments – independent study
Offer choices of rewards	<ul style="list-style-type: none"> – reward menus – individualized or student-selected award system for in school work and homework completion – helping students determine which rewards work best for them so they can advocate for themselves and use these rewards for lifelong learning
Offer choices of learning context	<ul style="list-style-type: none"> – cooperatives/peer group activities/team work rather than competition – individual graphing – partner presentations – inquiry/lab-based learning – quiet space, activity centers, spaces for gathering – letting students work on research topics of personal interest at home or whenever they have spare classroom time