Supporting Executive Functions in the Classroom

Directions:

1. Review areas of executive functioning difficulties.

2. Identify structures, supports, skills or strategies to address each area of executive functioning.

3. Generate examples of instructional delivery from introduction of content, engagement & review of content, and assessment of content that accounts for each area of executive functioning.

Area of Executive Function	Structure, Support, Skills, Strategies	Lesson Plan Approach
Activation – • Avoids starting tasks, procrastinates • Struggles to identify, sequence & internalize the steps needed to complete a task • Becomes blocked because can't identify the appropriate established rule-governed behavior . • Low or high alertness/arousal	• Attach first step of task to another approachable task • Starting task in presence of support • False deadlines - Show stages of task to someone • Separating task into 'baby steps'	**Introduce content:** • Post Daily Agenda (in class; website; handout) • Activator – activate background knowledge in students of the content (brainstorm; connection to a video clip, song or poem; metaphor or example; concept mapping exercise) • Research investigation - Introduce content in form of question that students work in pairs or small groups to answer **Engagement with Content & Assessment of Understanding:** • Post key learning goals for lesson/activity • Post sequence of steps for task • Partner discussion of content and report out to class • Partner or small group activity (discussion; constructing visuals maps, posters, brochures; constructing models • Start homework assignment in class • Choice of assignments – offer creative & meaningful assignments that are not just "busy work" • Collect, record, & post class ideas on required sequence of steps for task completion • Identify how content/task connects to real-world application • Show models of student work representing "A"/"B"/"C"/"D-F" quality •

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Focus –	• Create top-down picture of task – outline	**Introduce content:**
• Hyperfocusing on the details, can't see big picture	• Scheduling breaks during task = using timers or person	• Daily agenda.
• Shifting attention between multiple tasks	• Establish absolutes list (what must absolutely get done vs. what can wait)	• Focus Questions.
• Focus only on now – lack of forethought	• Schedule check-ins (email work in stages, show someone work in chunks)	• Concept Mapping.
• Lack of sense of time	• Parking lot of less critical tasks	• Visual/auditory time markers (try http://learningforallages.com/Timers.htm).
		Engagement with Content & Assessment of Understanding:
		• Create timeline for how content fits into previous material and will fit into upcoming material.
		• Project-based partner or small group assignment (create board game/ podcast, video/YouTube clip, website, see Techsmith's www.JingProject.com ,etc. = have to have purpose to game that matches "purpose" of content).
		• Movement breaks – some free breaks with "walk & talk cards" = hand partners review question cards that they discuss while taking a short walk around the classroom, hall, building, etc.) Come back and report out to whole group.
Effort –	• Physical movement and food breaks	**Introduce content:**
• Tires easily	• Minimum and Maximum goals	• Guided organization of materials (can be simultaneous with agenda preview).
• Sleep issues	• Reward for completing baby steps	• Students generate questions and post on poster sheets around the room.
• Extra time to process ideas	• Start with hard task first	**Engagement with Content & Assessment of Understanding:**
• Struggles to generate rules & meta-rules	• Establish routines	• Timed Snack scavenger hunt- students snack on or find protein snacks with attached content questions/clues/tasks/problems to solve/address hidden around the room/floor/building/campus.
• Struggles to sustain motivation	• Set reminders to eat, sleep, exercise	• Walk and Talk Discussion cards.
	• Work with partner or study group	• Partner Projects/ Study Group Assignments.
		• Content coverage is depth, not breadth (less schema switching-attention shifting).

Emotion –		Introduce content:
• Difficulty regulating mood & emotions • Difficulty managing stress • Trouble letting go of negative thoughts, experiences	• Create parking lot of unwanted thoughts/feelings • Journaling/ no-send letters • Exercise • Mentor/someone to test perceptions • Reverse role play	• Open with a joke/comic/bizarre fact of the day. • 5 minute "brain dumps" – "write down everything cluttering your mind before we move on". • Reflection questions: "How does this topic connect to you?" "How will you feel if you do well in this class today?". **Engagement with Content & Assessment of Understanding:** • Students teach and assess content. • Student choice in assignment/assessment. • Group discussions/ structured debates. • Frequent, constructive feedback – frequent formative assessments.
Memory –		**Introduce content:**
• Trouble remembering sequence of steps (remembers first or last, but not things listed in middle) • Has great ideas, but forgets them after writing down first one • Holding events in mind • Recalling past events and experiences • Trouble with internalization of speech, self-questioning & reflection	• Talk self through the steps out loud • Write everything down/carry notebook/audio recorder/cell phone/ pda with alarms, pulse pen, task lists • Speech-to-text software • Concept mapping software • Outlines • Placed post-it reminders/color coded • Pairing a physical action with sequence of steps	• Posted agenda. Track on one-page color-coded calendar. • Connect past content with new content (schema maps). • Students create metaphors for new concepts (ex. Neurotransmission is like the U.S. transportation system because they both…). **Engagement with Content & Assessment of Understanding:** • Activities & assessments that engage multiple memory pathways – visual, auditory, kinesthetic/procedural encoding. • Incorporate self-reflection/self-assessment questions into activities & assessments – "what did you do to prepare?" "What would you do differently" "what surprised you about…?". • Process deadlines. • Project-based assignments/assessments.

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Action –

- Reconstitution (breaking down a behavior into component parts & recombining those parts into a new behaviors in pursuit of a goal
- Dropping a project midstream
- Working at inconsistent pace = too slow at start, then rushing to finish
- Acting/reacting impulsively, taking on too many tasks
- Lacks internalization of rule-governed behavior
- Struggles with regulation of motivation

Sources: 1. Brown, T. E. (2001). Manual for Attention Deficit Disorder Scales for Children and Adolescents.

2. Barkley, R. A. (1998). Attention-Deficit Hyperactivity Disorder. *Scientific American.*

- Practice turning down requests
- Schedule self-time
- False deadlines
- Reporting to someone/ show work in stages
- Reward system
- Prioritizing important tasks from less important
- Sending self reminders (mail, delay email, pda, phone, etc.)
- Attaching task deadline to another event
- Single Daily Action Plan
- Identify limits

Introduce content:

- Agenda (Maximum wishes outcomes list w/reward/treat – if we complete "x,y" by _____time, we will _____; but if we complete "x, y, z" by _____, we will _____.
- Field trip/ guest speaker with reflection journal – "what was surprising about…" "how do you think the person felt when….".

Engagement with Content & Assessment of Understanding:

- Problem-based assignments/activities – journals on problem-solving process (best when there isn't just one write solution).
- Partner/Group-based activities, assignments/assessments – students work in small teams but with each student responsible for individual component with all components assembled during class time or structured study groups (accountability to self, teacher, and peers/friends and process is coached by teacher and peers).

Universal Design Techniques for the Classroom with Students with Learning Disabilities

Universal Design Techniques	Description	Examples	Area(s) of Deficit Addressed	Rationale for Univ. Design/Research Evidence
1. Advance Organizer	Specific, concrete steps taken to *organize* and *motivate* students *in advance.* Gives students a "map" of upcoming unit, lesson or activity and a sense of direction. Activities designed to activate a personal connection to the lesson and to motivate SS to want to learn more. Activators check what students already know about a topic	Should be brief, organized, visual, & motivating. "When you finish _____, you will be able to _____." T writes agenda on board and uses it to discuss goals/activities for the lesson At beginning of new theme, T provides schedule and graphic organizer of theme *Prior* to any new theme or lesson, T asks Ss to brainstorm, do reflective writing on upcoming topic, e.g. What do I know/want to know about this topic?" T asks students to study a particular visual organizer of a particular theme, e.g. theory of relativity, and generate ideas about what they already know about the theory based on the diagram	*Focusing/Attentional Difficulties:* Keeps students focused on purpose of and direction of lesson on hand *Executive Functioning*: Models planning, prioritizing, goal-setting *Language*: Gives students a concrete visual reference point to understand lesson, i.e. they are not relying on transient, auditory directions from the T *Background Knowledge Deficits:* Students with LDs often have a cumulative background knowledge deficit as a result of reading and/or comprehending less than their non-LD peers. They often have, however, many rich experiences to draw from in approaching a topic, if they are given the opportunity to make those kinds of connections.	From D. Ausubel's original research(1958?) Advance Organizers help all students • Orient to the new lesson • Feel motivated by clear rationale for activity • Clarify directions/steps Supported by schema theory research: that students learn by linking what they already know to new information. Activators help all students • Explore concrete and personal connections to an upcoming topic Have a good reference point for comparing what they knew at start of topic vs. at the end of the study of that topic
2. Clear Directions	Conscious effort by teacher to provide clear, concise, written or visible directions for both in and out of class activities	Directions should be brief, clear, and numbered, if involving more than one step. Long-term project/paper assignments should be designed for clarity with steps, built-in checkpoints, deadlines, and a clear description of how it will be evaluated	*Language*: Ss are not confused by long, oral directions; Ss have written document to study/understand at their own pace *Executive Functioning*: When larger assignments are broken down into clear steps by the T and support is provided as part of the process, it removes some of the exec. functioning burden on the student	Supported by research re Clear Directions help all students: • Be clear about direction on assignments and in-class activities

			Attention: When directions are visible or written, it helps those who are distractible get themselves back on track	
3. **Connectors**	Activities that allow students to consciously connect new topics with previously introduced material. Using a connector in class is not simply "reviewing," it is more a conscious effort to connect how a new topic or unit relates to a previous one or how a new topic or unit resembles something they already know.	Use of analogies, e.g. theory of _____ is like _____. Direct compare and contrast exercises with previous ideas/units, e.g. use of matrix to show shared and unshared characteristics	*Cognitive flexibility*: Ss get help in making connections that they might not make ordinarily; thus their understanding is strengthened along with their confidence about their ability to understand a challenging topic.	Bulgren et al, at the Inst. for Research on LDs at the U. of Kansas use "anchoring tables to show in visual and precise way exactly what the similarities and differences are between new and old concepts(p. 215 Skillful T) Research on characteristics of expert learners point to their superior ability to make connections with old material and the *flexibility* in seeing how the new relates to the old • Connectors help all students: Strengthen their ability to connect how what they already know relates to the new
4.**Multi-modal Techniques**	Activities that emphasize a non-linguistic way of understanding or processing information. Utilizing visuals, movement, and building activities to introduce, clarify, practice and reinforce course concepts.	T and S generated graphic organizers. Using movement as an integral way of knowing, e.g. "walking" through an idea; role plays Using manipulatives as a way for students to "build" their understanding	*Alternative processing strengths*: Students may excel in their ability to use non-linguistic approaches to thinking *Language Deficits*: Students who struggle with expressive language can use the non-linguistic format as a concrete way of capturing their thinking and as a template for generating language	West(199?), Gardner(199?), and Hecker(199?) research all support the efficacy of emphasizing alternative ways of knowing Multisensory Activities help all students: • Participate in a classroom culture that respects diverse ways of knowing • Provide concrete bridge to generating richer language to describe understanding
5. **Strategizers**	Activities that regularly allow students to reflect on what kinds of *strategies* are and are not working for them in being successful in a particular class.	Built-in reflection activities on their performance, e.g. along with your portfolio, please include a page in which you reflect on your process as a writer and how you might change it for the next essay. Ts help students to explicitly understand effective approaches to their particular domain	*PoorlyDeveloped Self-Understanding*: Ss may lack self-awareness about how to be strategic in their approaches to studying/learning, i.e. they may be "actively inefficient"	Research on metacognition points to strong need for students to develop better self-understanding and to become more strategic in their learning. Strategizers help all students: • Develop awareness of their strengths and weaknesses • Identify strategies that work, i.e. develop a toolbox for learning

6.Summarizers	Activities that allow *frequent* opportunities for Ss to summarize, review and synthesize class material	At the end of a lecture, T asks students to list the three main points they got from it and to discuss those points in small groups T. continually elicits "big picture" responses from Ss: "So what is the essence of that theory? Can you draw it?"	*Linguistic/Conceptual/Memory Overload Problems*: Ss benefit from principle of "less is more:" from having T allow students to cement connections and understanding on a regular, cumulative rather than summative basis.	Summarizers help all students: • Process material in an incremental and thereby deeper way than if they were asked to take on larger loads of information
7. Routines	Conscious efforts by T to assist students in habituating to particular classroom procedures	T. determines daily and weekly routines that fit course demands: e.g. each class begins with reflective writing; every Friday is a seminar day T. creates logical routines for assignments/tests/labs e.g. papers are always due at beginning of class on Friday every other week	*Difficulty Automatizing*: Students may struggle to develop habits or to do things automatically, such as walk into a class and get their materials out. *Memory*: Ss may have considerable difficulty remembering when assignments are due or following activities that require procecudural memory, e.g. the steps in setting up for biology lab *Distractibility*: Ss may struggle to stay focused in class. Routines help them get back on track	Routines help all students • Avoid time wasted trying to figure out what is expected of them in a class • Develop habits of readiness • Relax about knowing their role in the class
8. Flexible Assessment	Flexible assessment is designed to allow students to demonstrate what they know or understand in a variety of ways, i.e. in a format that does not test them in their area of disability(linguistic skill)	T determines what the objectives of a test or assessment is and then identifies ways in which Ss can demonstrate mastery of those objectives in a variety of ways e.g. via a project, video, a teaching demonstration,	*Language processing difficulties*: Ss may have particular difficulty with tests that are as much a test of their language abilities as of the content of the class, e.g. multiple choice tests with answer options that have vocabulary not covered by the class	Flexible Assessment helps all students • Demonstrate their mastery of material • Make choices about how they can best show their mastery of material • Develop respect for diverse ways of knowing