Universal design for instruction: Guidance from students with learning disabilities.

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Beyond the Podium
University of Florida Faculty Development and Teaching Excellence

Students with Disabilities

- 11% of undergraduate students have a disability[1]

- Average of <u>1,325</u> students with disabilities registered with the DRC during 5-year period of 2009-2014
  - equates to 2.6% of total UF student population
  - ~ 52,000 UF students → 10% = **<u>5200</u>**

- Students with LD
  - ½ rate (21%) attendance at 4 year college versus general population (40%); 2x rate attendance at 2-year college[2]
  - College completion rates: 41% (LD) versus 52% in general population[2]
  - 11% of Students with LD report disability to college/university[3]

1. https://nces.ed.gov/fastfacts/display.asp?id=60 retrieved Aug. 11, 2016
2. Cortiella, Candace and Horowitz, Sheldon H. The State of Learning Disabilities: Facts, Trends and Emerging Issues. New York: National Center for Learning Disabilities, 2014.
3. NLTS-2, 2011 : http://www.nlts2.org/data_tables/tables/14/np5S5i_K8g_YNfrm.html retrieved August 11, 2016

UF DRC Student Population July 2016

Registered Students by college

- 37% Liberal Arts and Sciences
- 14% Engineering
- 11% Agricultural and Life Sciences
- 10% Business Administration
- 6% Journalism and Communications
- 22% all other colleges

Percentage by primary disability

- 28% Mental Health
- 26% Attention Disorders
- 19% Learning Disorders
- 14% Medical/Chronic Health
- 6% Other: Hearing, Vision, TBI, Autism
- 6% Physical/Mobility Impairment

Learning Disabilities & Attention Disorder

- Most prevalent disorder on college campuses
  - ~60 % of students reporting a disability[1]
- Life long disorder; Invisible disability
  - A neurological disorder that affects the brain's ability to receive, process, store, and respond to information[2]
- Learning Disabilities = "umbrella" term
  - Specific LD diagnosis can vary from person to person
- ~ 31-45% of individuals with LD or AD have both[3]

1. U.S. Department of Education, National Center for Education Statistics. (2015). Digest of Education Statistics, 2013 (2015-011), Chapter 3.
2. Cortiella, Candace and Horowitz, Sheldon H. The State of Learning Disabilities: Facts, Trends and Emerging Issues. New York: National Center for Learning Disabilities, 2014.
3. DuPaul, et al., 2013. DOI: 10.1177/0022219412464351

Challenges for Students with LD/AD

- Often unaware of how their LD symptoms impact their academic and essential life skills[1] – more difficulty with:
  - Time management; maintaining effective daily routines
  - Coping with stress; communicating needs
  - Organizational skills
  - Problem solving skills
- Need strong supports; lower self-esteem[1]
  - Often unaware of / under-utilize resources and support services
  - ↑ Self-efficacy, ↑ academic persistence, ↑ effectiveness of strategy use[2]

1. Reiff, H., Hatzes, N., Bramel, M., & Gibbon, T. (2001). The Relation of LD and Gender with Emotional Intelligence in College Students. Journal of Learning Disabilities, 34(1), 66-78.
2. Pajares, F. (1996). Self-efficacy beliefs in academic settings. Review of educational research, 66(4), 543-578.

Additional Challenges

Receiving / Synthesizing / Applying / Comprehending information & instructions

- Concrete language; word finding/confusion
- Slower processing → difficulty managing assignments within allocated timeframes
- Communicating and interacting socially

- Difficulty applying supports/strategies without a model or experience

- Lack of awareness & Stigma
  - Instructors being unaware and/or insensitive to needs and challenges
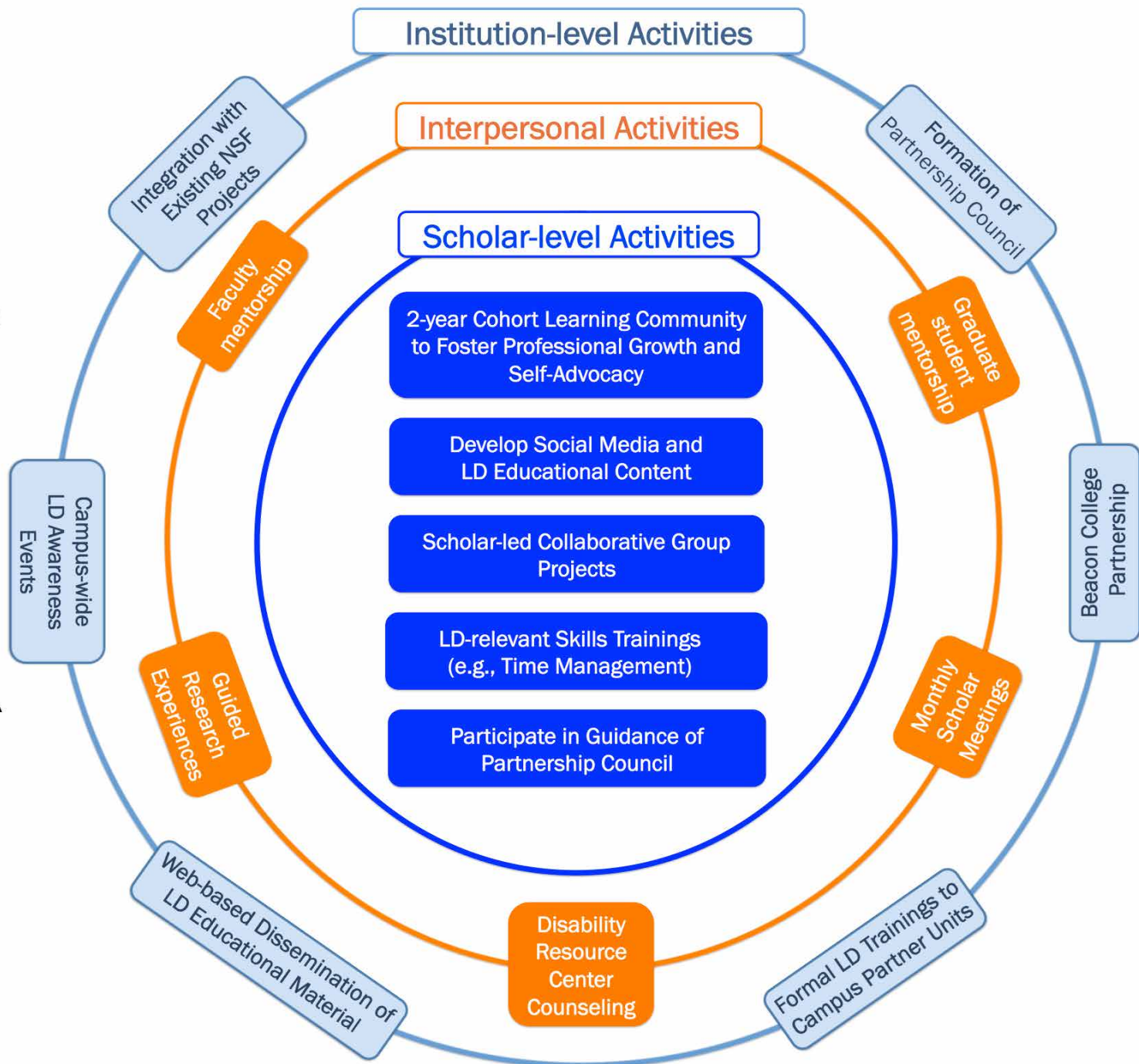 - "cop-out" excuse, not a real disorder, disruptive, attention-seeking

Comprehensive Support for STEM Students with Learning Disabilities (CS³LD)

http://stemscholar.phhp.ufl.edu/

Academics

Health

Institution-level Activities

Interpersonal Activities

Scholar-level Activities

- 2-year Cohort Learning Community to Foster Professional Growth and Self-Advocacy
- Develop Social Media and LD Educational Content
- Scholar-led Collaborative Group Projects
- LD-relevant Skills Trainings (e.g., Time Management)
- Participate in Guidance of Partnership Council

Integration with Existing NSF Projects

Formation of Partnership Council

Faculty mentorship

Graduate student mentorship

Campus-wide LD Awareness Events

Beacon College Partnership

Guided Research Experiences

Monthly Scholar Meetings

Web-based Dissemination of LD Educational Material

Disability Resource Center Counseling

Formal LD Trainings to Campus Partner Units
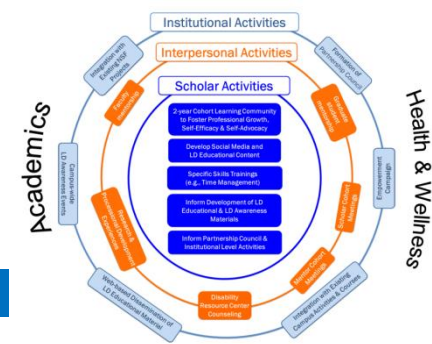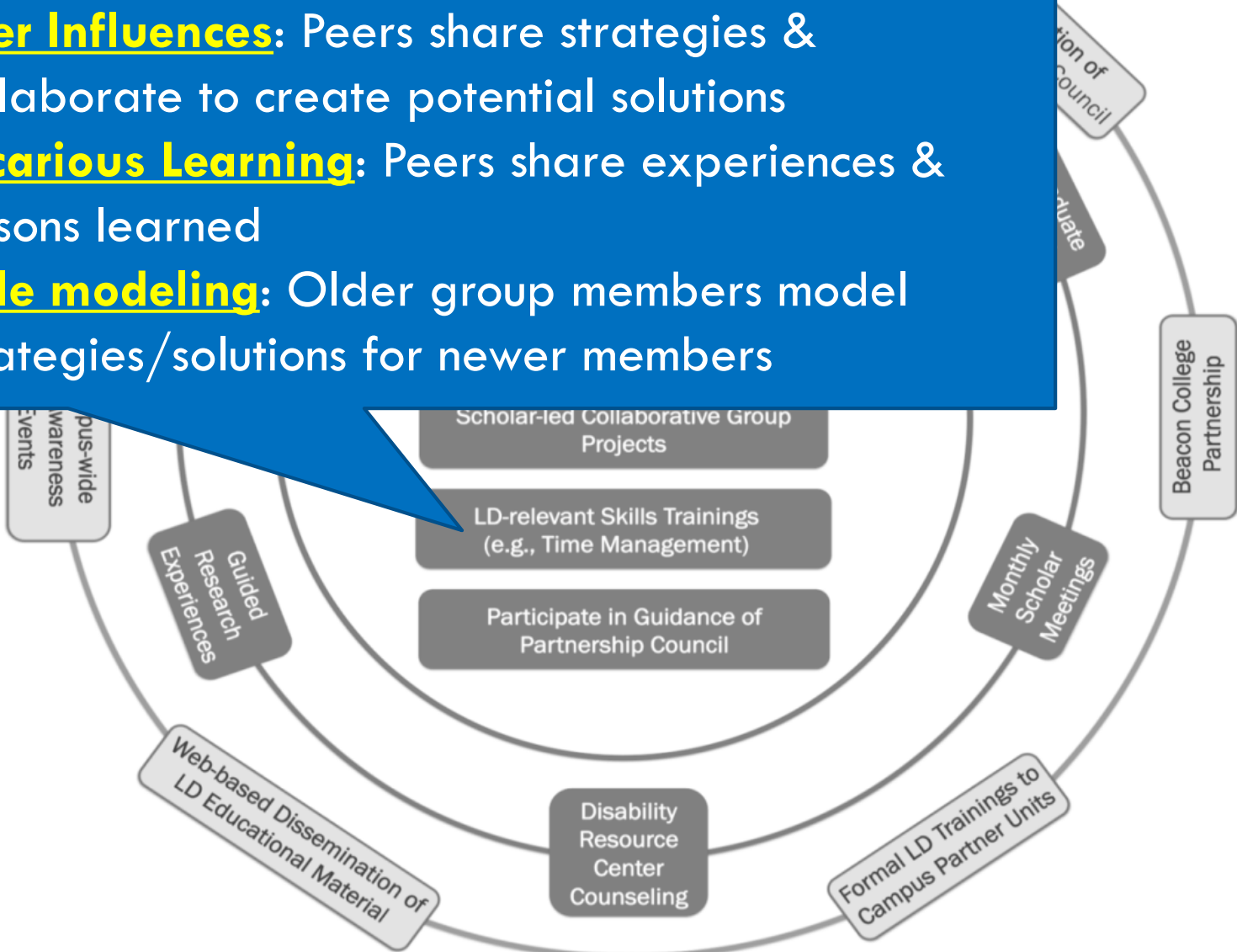
CS³LD Activities

- <u>Personal</u>: Undergraduate Group Trainings: self-advocacy; understanding symptoms & capacities; time & stress management

- <u>Interpersonal</u>: Mentors →
  - professional enculturation: helping understand the reality of their field – guided discovery
  - social support: acknowledging their hard work
  - empowerment mentor: instilling confidence to make decisions

- <u>Institutional</u>: Faculty & Administrators → Institutionalization of awareness & UDL training

Scholar Group Meetings:
- **<u>Knowledge</u>**: LD-related topics
- **<u>Peer Influences</u>**: Peers share strategies & collaborate to create potential solutions
- **<u>Vicarious Learning</u>**: Peers share experiences & lessons learned
- **<u>Role modeling</u>**: Older group members model strategies/solutions for newer members

Academ...

Health

...tion of ...ouncil

...uate

Beacon College Partnership

Scholar-led Collaborative Group Projects

LD-relevant Skills Trainings (e.g., Time Management)

Participate in Guidance of Partnership Council

Monthly Scholar Meetings

...us-wide ...wareness Events

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Scholars' Perceptions of Strategies for Self-Advocacy

Mastery of Experiences

Fall 2013	Spring 2014
Not efficient	Make lists of even simple things
Do things too fast	Take breaks
Misplace things	Keep track
Can't concentrate	Focus on what I am good at
Can't multi-task	Use a planner
Procrastinate	Finish easy things first
Can't comprehend	Read aloud

Social Persuasion

Fall 2013	Spring 2014
People **don't understand**	Provide education
Can't express myself	Practice speaking
Don't raise my hand	Ask questions
Don't like to talk about it	Talk to professors
Disrespectful	Be positive
People can't identify	Show them how our brains work
Shut down	**Don't be afraid**

- Themes of students' initial perception of mastery of experiences and social persuasion trended from problem statements to strategies for improved performance.

Meaningful Discussion Topics to our Scholars

Neurology of LD/AD

Cognitive Styles Common to LD/AD[1,2]

1. Big Picture Thinking (Interconnected Reasoning)
2. Dynamic Reasoning
3. Narrative Reasoning
4. 3-Dimentional Spatial Reasoning

1. Eide, B. L., Eide, F. F. (2011) The Dyslexic Advantate Unlocking the Hidden Potential of the Dyslexic Brain. Plume: New York.
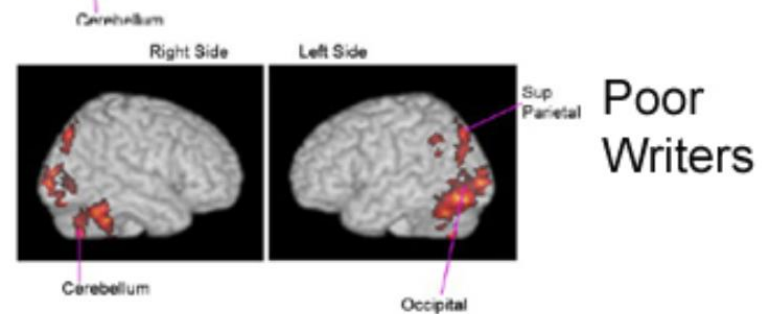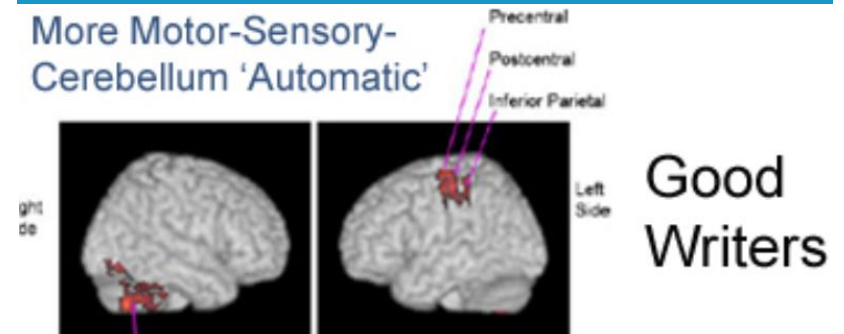2. http://www.dyslexicadvantage.org/mind-strengths-in-dyslexia-what-are-they/

Neural Differences

Dyslexia: ↓ Language Center activation

Dysgraphia (writing)

Controls 2-back [on-off]

Dyslexics 2-back [on-off]

Beneventi et al., Int J Neurisci, 2010

More Motor-Sensory-Cerebellum 'Automatic'

Precentral
Postcentral
Inferior Parietal

Good Writers

Right Side / Left Side

Cerebellum

Poor Writers

Sup Parietal

Cerebellum

Occipital

More Visual Monitoring

Richards et al., 2011

Big Picture Thinking (Interconnected Reasoning)

- Ability to spot relationships between different concepts & points of view
  - multiple points of view
  - borrows approaches from other disciplines
- Easily sees relationships of similarities or association/causation

- Strong conceptual ability in uniting disparate information into a single global view (i.e., gist)

Dynamic Reasoning

- Intuits solutions, then works   backwards to check potential path(s) to solution
  - Slower, more difficult discernment of path(s)
- Uses the "best fit" cognitive processes rather than rule-based/deductive/formulaic thinking
- Career implications: cutting edge fields , inventors & researchers
  - Good reasoning for highly changeable or ambiguous situations where knowledge is incomplete

Narrative Reasoning

- Tendency to use stories to recall the past, understand the present and imagine the future

- Career implications: Great for communicating a vision as a business leader, in the courtroom

- Students: can use stories to boost memory

3-D Spatial Reasoning

- Non-verbal reasoning
- Enables reasoning about:
  - The shape, size, motion, position of objects in the physical world
  - Orientation in space
  - The way objects in physical world interact
- Spatially gifted → verbally challenged
  - Arduous process of putting thoughts into words
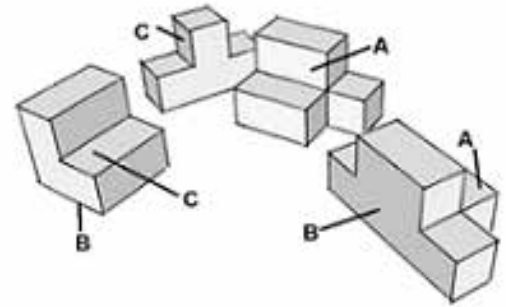
UDL: Universal Design for Learning/Instruction

What is UDL?

UDL Principles ➔

Multiple Means of…

Representation

Various ways of **learning the information**

(e.g., hear & see)

Expression/ Action

Alternative or various ways of demonstrating they **know the content**

Engagement

Tapping into student's **interests** & **challenging** them in **motivating** ways

The "what" of learning

The "how" of learning

The "why" of learning

Multiple means of **representation**: The "what" of learning

- "can you explain this in a different way?"

- "Recapping at the end of class..."
  - "...just a real quick recap"

- "..he just talks, I draw what he says."

- "leave it on the board just a little bit longer"

Multiple means of **expression**: The "how" of learning
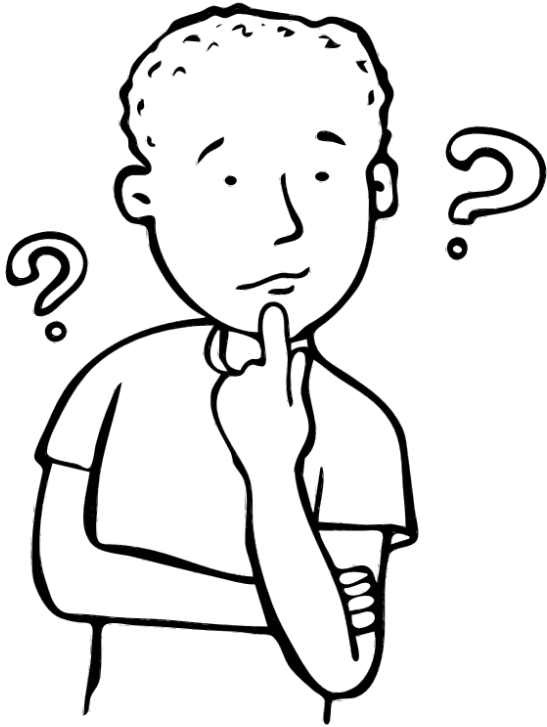
- "Please bear with me…It takes me longer to understand"
  - "Studying takes longer, taking my exams takes longer…"

- "Clear directions, in the right order…and all parts of the instructions in one place"

- "…looking around when I took my tests and getting accused of cheating when I wasn't. I need a small testing environment…"

Multiple means of **<u>engagement</u>**: The "why" of learning

□ "Positive support is a major motivation and will be that extra support we need to succeed."

  ◻ "…not a copout or an excuse"
  ◻ "I thought I wasn't good enough for UF"
  ◻ "I tended to just blame it on myself for being stupid"

□ "I never procrastinate. I don't trust myself. I do it early."

  ◻ Course calendar very important

pride interest
achievement
INtrinsic
curiosity

What Works for our Scholars

Examples of ways to implement Universal Design

During Lectures

- Highlight or write out: Key terms, Key concepts, Key ideas
- Be explicit: What they will learn. Why learn it. What to do with new learning.
  - Model reasoning & judgment about new ideas
- Leave things on the board just a little longer – takes longer to write when forming visual/conceptual/big picture linkages
- Visual aids, concept maps, graphs, charts
- Give the big picture before giving the new concept
  - At the end, link new concepts back to the big picture and to each other

General Classroom

- Provide slides/notes ahead – enables student to preview and create their own "big picture" of the lesson
- Clarify instructions & give additional examples
- Relate a new topic to one already learned or a real-life example
- Post lecture notes on website
- Comprehensive <u>chronological</u> outline: topics, required readings, assignments, exams
- Explain how to study for the kind of tests you give.
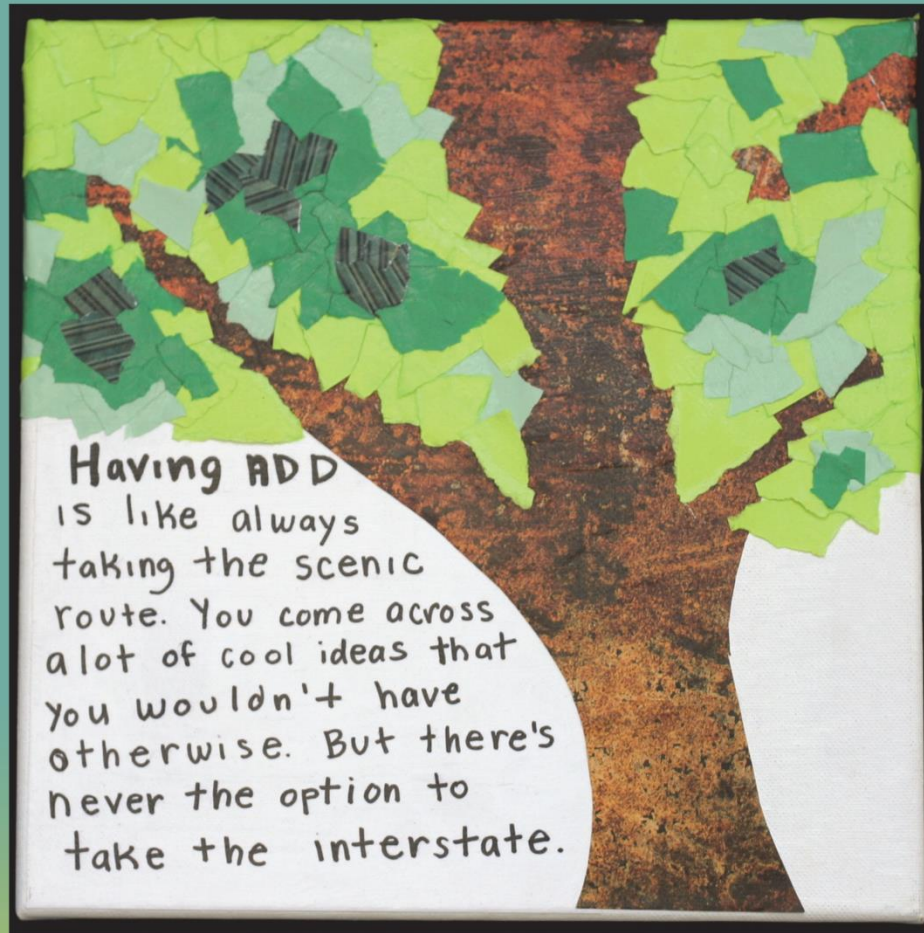 - Sample test questions & answers

Don't be scary…

"Kindness is the language which the deaf can hear and the blind can see."

Mark Twain

- ☐ Rushed gets mistaken for unapproachable
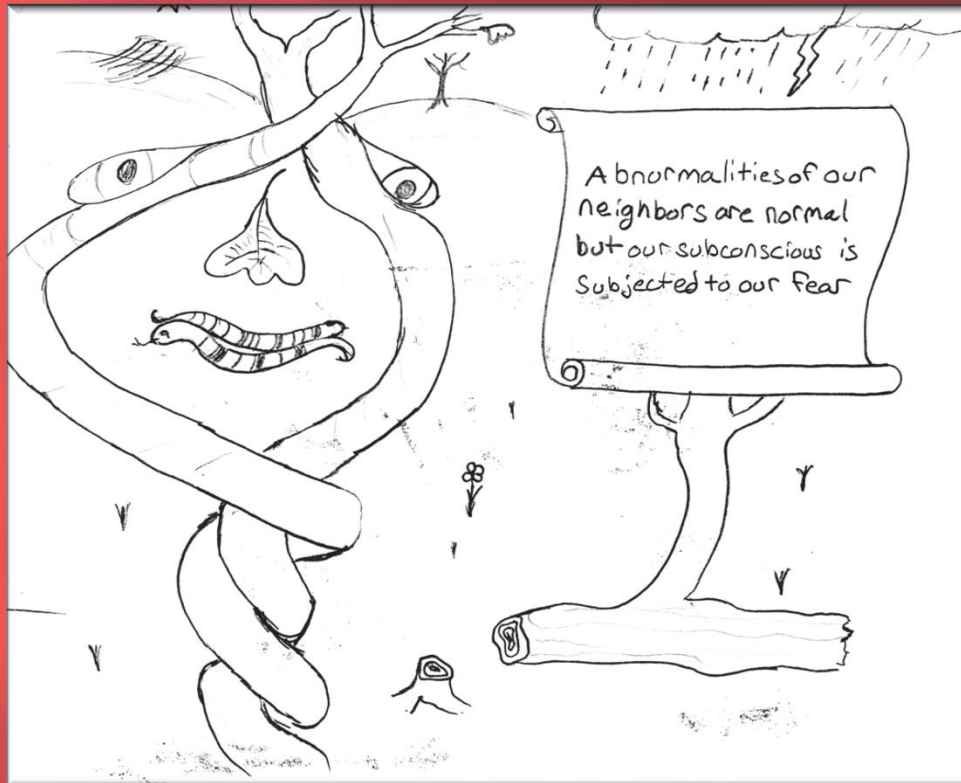- ☐ Expectations for getting to the point → "shuts me down"

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What our Scholars Wish Others Understood about LD/AD

The Scenic Route

"Having ADD is like always taking the scenic route. You come across a lot of cool ideas that you wouldn't have otherwise, but there's never the option to take the interstate."

– Artist with a learning disability

Normality

"When we see each other, we should realize that there is something different in all of us. We should not fear the difference. We should embrace it, and educate others so that there will be no difference."

– Artist with a learning disability

Advantages

- Most people who have ADHD have tons of energy. This can be good because they can put this energy into playing games and playing sports.

- Having ADHD also lets you focus really well on things you love, this means that you could be better at picking up details that other people would miss.

- Thinking outside the box is also something that people with ADHD are good at. You are able to look at problems differently and find new ways to fix them because your brain works differently.

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- "Justin Timberlake." Simpsons Wiki. Web. 02 Mar. 2016. <http://simpsons.wikia.com/wiki/Justin_Timberlake>.

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ADHD is a common brain disorder that causes the brain to work differently than the average persons' brain.

ADHD Success for Kids

Zari's Take-Home Messages

What has worked

- Patience
- Saying it a different way
- Saying it again – I don't listen & write well
- Asking me to help interpret accommodations

Thank you for trying, but doesn't really help

- The walk to the DRC not always worth it
- No need to baby me
  - Don't assume it's going to be too much for me

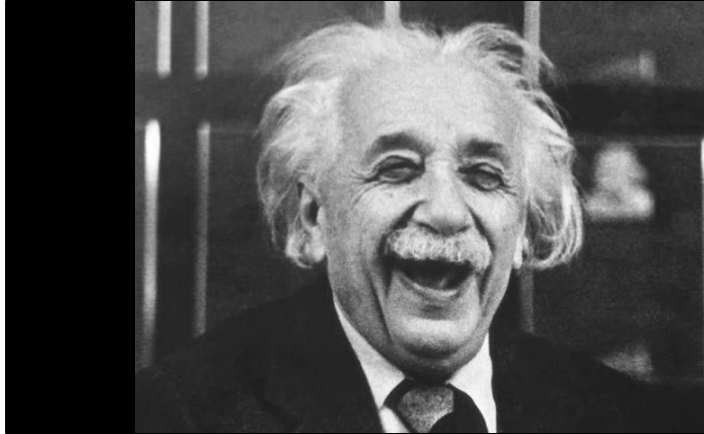# Accommodations:
Why & how they help

Formal Accommodations

- Extended time
- Low distraction
- Test scribe
- Note taker
- Technology use in the classroom
- Printed course materials

My Key Strategies

- Same seat (distractions)
- 3 or 4 – pass method
  - Read before class
- Semester calendar
- Visualizing what reading
- Color coding
- Sleep
- Routine

Points to Ponder

"Everybody is a genius.
but if you judge a fish
by its ability to climb a tree,
it will live its whole life
believing that it is stupid."
-Albert Einstein

☐ In what ways are principles of universal design for learning similar and different from principles of good communication?

☐ 64% of young adults with LD do not consider themselves to have a disability – what does that mean for the people in your classroom? (Cortiella et al., 2014)

☐ To what extent do LD symptoms (e.g., slow processing; disjointed verbal reasoning) get "worked into personality" → stigma?

It takes a village…

More of our CS3LD team:

- Sue Percival, PhD, Food Science & Human Nutrition

- CY Wu, PhD, Environmental Engineering Sciences

- Mei-Fang Lan, PhD, Counseling & Wellness Center

- Charles Byrd, PhD, Center for Assessment, Strategic Planning, Evaluation and Research

- Anthony DeSantis, PhD, Associate Dean of Students, Disability Resource Center

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