

# 2E: TWICE EXCEPTIONAL

2015

NORTH CAROLINA ASSOCIATION FOR THE



# GIFTED & TALENTED

*Our VISION is for gifted and talented students to be recognized, highly valued, and passionately supported.*

## UNDERSTANDING STUDENTS WHO ARE “2E”

BY DR. MARY RUTH COLEMAN

Twice exceptional (2e) students have a combination of gifts and disability areas that create a unique pattern of strengths and challenges. To help understand students who are 2e one needs to examine how “giftedness” and “disabilities” interact in a myriad of ways creating both exciting and difficult intra-individual discrepancies. Disability areas that may combine with giftedness include learning disabilities; attention deficits; speech/language disorders; sensory impairments with vision or hearing limitations; emotional or social adjustment challenges; communication disorders including Asperger’s Syndrome; and/or physical and mobility impairments. And, gifts and talents can manifest in a variety of domains, academic areas, and life endeavors.

### THE INFORMATION PROCESSING MODEL

A useful model for understanding how both disabilities and giftedness can impact an individual is the information-processing model (Kirk, Gallagher, Coleman, & Anastasiow, 2012). Information processing describes how individuals interface with the world around them and in particular how they learn from these interactions. With the information processing model we envision the individual as having an “information processing station” with three aspects: 1) information input; 2) information processing; and 3) information output or expression. All three of these aspects are controlled by the executive function or decision-making, the meta-cognition process and each aspect is linked together through a

feedback loop so that output automatically becomes new input. Information processing does not happen in a vacuum; the emotional context plays a major role in how information gets processed. When the emotional context creates anxiety—fear or other strong emotions—it is much harder to process information. Strong negative emotions interfere with all aspects of information processing impacting decision-making, perceptions, thinking, and output. Figure 1 shows the broad areas involved in information processing.

As Figure 1 (see p. 2) depicts, information and/or stimuli enters the system through sensory perceptions (visual, auditory, tactile, and kinesthetic).

*A deficit in a different context can be a profound gift and strength. – Jonathan Mooney*



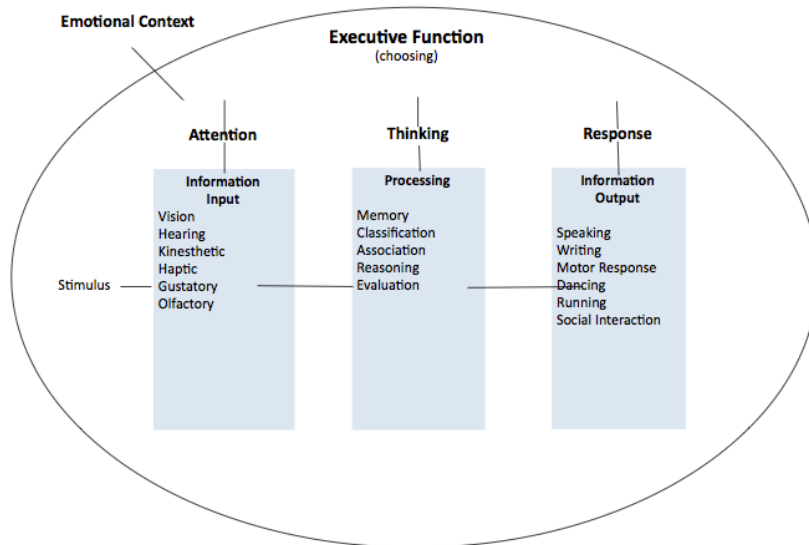


The North Carolina Association for the Gifted and Talented (NCAGT) is a non-profit organization dedicated to supporting the educational and social-emotional needs of academically and/or intellectually gifted students. Specifically, the Association seeks to:

- Increase public knowledge about the nature and needs of the academically and/or intellectually gifted,
- Assess public policy and work to establish and maintain those policies that benefit the education of the gifted,
- Enhance collaborative efforts between stakeholders in gifted education,
- Examine “best practices” revealed in current research and increase the relevancy and utilization of these practices to guide implementation of gifted programs,
- Support personnel preparation and professional growth among those working with gifted students, and
- Encourage action research and other initiatives that benefit gifted students.

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**FIGURE 1. INFORMATION PROCESSING MODEL**

Once information is perceived then the central processing of the information begins. This is where information is analyzed, organized into categories, linked with associations, and “filed” in memory for future use. This is also where ideas are combined in ways that create new thoughts and new information is generated. This is where “thinking” takes place and this is the area where individuals with gifts and talents often excel.

The final phase of information processing involves “output”, where information is put to use through some form of expression. The expression of ideas can be verbal or nonverbal; it can take a written, spoken, graphic/visual, and/or an enacted/dramatized form. Students with talents often excel in their ability to communicate information through a chosen means of output (e.g., the arts or writing). For students with speech/language/communication disorders, physical and mobility limitations, or sensory impairments, output of information can be very challenging.

The executive function or metacognitive level oversees the entire process. It decides which stimuli are worth attending to, how (and if) the information should be organized for use and the executive function also selects and supervises the output mode. When this system works well, and the emotional context is positive, learning is a relatively smooth and enjoyable endeavor where new ideas are absorbed, associated with previous knowledge and stored for future use so they can be retrieved as needed for expression. This is the way learning is often described by gifted individuals when they are working in their area of strength! But what happens when there is a “glitch” in the system...what happens when there is an area of disability?

## DISABILITIES AND THE INFORMATION PROCESSING SYSTEM

A disability can impact any part of the information processing system. Problems with input may involve sensory-perception difficulties including visual or auditory perceptual difficulties that interfere with early language and reading development. With a visual perceptual problem letters that are close in shape (e.g., a / u; g / y; n / h) and letters that form rotational or mirror images (e.g., b / d / p / q; w / m; h / y) are hard to decipher. With an auditory perceptual problem, phonemes—individual sound units that are very close (e.g., “ba” and “pa”, or “th” and “sh”)—are tough to differentiate. Perceptual problems are often part of the challenges faced by students with learning disabilities. The other difficulties that involve input are sensory-acuity problems that include visual impairment (low vision and blindness) and hearing impairments (including deafness). It is easy to see how disabilities that involve the input areas can have a dramatic impact on a student’s ability to process information—even for the most gifted learner.

In some cases, the glitch involves the central processing function and it interferes with how information is organized, stored, and retrieved. With this area short term memory may be impacted and the individual’s ability to form meaningful categories of information for future use may be impaired. Central processing disorders effect “thinking” and can cause major problems with learning - especially with schoolwork that focuses on rote memorization of isolated information where fragments of information are never placed into a pattern which builds meaningful understandings.

When the impact of the disability is in the output area problems with speech (e.g., developmental aphasia) and/or written work (e.g., dysgraphia) may be seen. Problems with self-expression in speech usually involve difficulty with word retrieval (not unlike individuals who have experienced a stroke of a closed head injury) and may involve “miss-word” usage, for example calling a window a “mirror”. Problems may also include difficulties with the production of speech sound. Written expression problems often take two forms: the inability to organize thoughts for writing; and the inability to produce legible handwriting. Another less frequently discussed form of output disability involves the recognition and use of gesture, facial expression and body language. An inability to read and use affective clues (e.g., a smile vs. a grimace; a sardonic laugh vs. an amused laugh) often lead to miscommunications with peers and adults and this can be especially problematic for students with Asperger’s Syndrome.

Executive processing is the decision maker, directing and supervising all other aspect of the system. When the disability affects this area students often can’t focus their attention, don’t spontaneously use appropriate strategies to organize their thoughts, and/or don’t know how to express themselves in ways that others can understand. Attention Deficits (with or with out associated hyperactivity) are associated with metacognitive dysfunction, or problems in the executive processing.

## GIFTEDNESS AND THE INFORMATION PROCESSING MODEL

When the same information processing model is considered from the stand point of “giftedness” one can see possibilities for heightened awareness or sensitivity to stimulus; facile use of central processing to organize, store, and retrieve information in a variety of forms for output; and one may also associate strong metacognitive abilities with “giftedness”. Given these parameters it is easy to see that the combinations of areas of giftedness with areas of disability can involve endless permutations of variables combining specific strengths and difficulties.

To begin to understand the individual’s specific pattern one must ask two questions: “Which areas does the disability impact?” and “Where is the giftedness most manifest?” One also must assess the levels of giftedness and severity of disability. Every individual who is 2e combines these variables in a unique pattern of strengths and difficulties, which must be addressed to help each child thrive. With the information-processing model to help us recognize the areas of individual strengths and needs, planning to address these becomes easier.

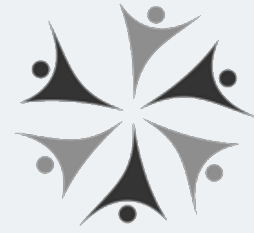
## UNIVERSAL DESIGN FOR LEARNING

The information-processing model helps us see directly the areas of difficulty, which need to be supported, and those strengths that need to be enhanced. Recognizing these areas teachers can use Universal Design for Learning (UDL) to create appropriate learning environments and experiences.

Universal Design for Learning includes the basic differentiated instruction principles and extends these through a systemic approach to instructional planning. With UDL three major strategies are used to support learning:

1. **Multiple ways to represent information** – visual, auditory, kinesthetic, tactile,
2. **Multiple ways to engage the learner** – discussing, reflecting, moving, playing, manipulating objects, writing, building, dancing, etc.
3. **Multiple ways to assess learning** – product development, art portfolios, presentations, written materials, drama, etc.

You may now be smiling to yourself as you make the connections between the three areas of information processing (input, processing, and output) and the three principles of universal design for learning (multiple representations, engagements, and assessments). Using what one knows about a student's areas of disability and areas of strength, as recognized through the information processing model, learning experiences can be planned that support areas of difficulty while also enhancing strengths. For example, visual input difficulties will require multiple representation strategies



## RECOMMENDED READING

Baum, S. M., & National Association for Gifted Children (U.S.). (2004). *Twice-exceptional and special populations of gifted students*. Thousand Oaks, CA: Corwin Press.

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Callard-Szulgit, R. (2008). *Twice-exceptional kids: A guide for assisting students who are both academically gifted and learning disabled*. Lanham, MD: Rowman & Littlefield Education.

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Kay, K. (2000). *Uniquely gifted: Identifying and meeting the needs of the twice-exceptional student*. Gilsum, NH: Avocus Publishing.

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## FROM *TWICE EXCEPTIONALITY*—A WHITE PAPER FROM THE NATIONAL ASSOCIATION FOR GIFTED CHILDREN

For many years, educators in the field of gifted education have advocated that a disability does not preclude the presence of giftedness and, increasingly, researchers are generating evidence-based practices for working with twice-exceptional students. For example, Assouline, Foley Nicpon, and Huber (2006) provided suggestions for working with twice-exceptional students, three of which are listed below:

1. A review of student's school records can reveal a pattern of academic strengths and weaknesses that warrants further evaluation. Look specifically for evidence regarding talent areas and possible vulnerabilities. This requires a collaborative effort among regular, special, and gifted educators, as well as with special support personnel such as school psychologists or school counselors.
2. Social-emotional concerns for twice-exceptional students must be evaluated and developed as a focus of the educational plan to ensure students' positive adjustment and long-term success. Development of self-awareness of strengths and weaknesses is especially important to the academic success of a twice-exceptional student. Twice-exceptional students will typically benefit from support groups, both inside and outside of the schools setting.
3. University-based talent searches offer subject-specific ways of discovering bright students who might otherwise be overlooked through traditional gifted and talented programs, especially programs that use a composite score to determine eligibility for gifted programming.

**DR. MARY RUTH COLEMAN**

Dr. Coleman's research focuses on students with exceptional learning needs, in particular, students with learning disabilities and students with gifts. She has directed several FPG projects including Project U-STARS~PLUS (Using Science, Talents, and Abilities to Recognize Students ~ Promoting Learning for Under-Represented Students) and Project ACCESS (Achievement in Content and Curriculum for Every Student's Success). She was Co-Principal Investigator for the Early Learning Disabilities Initiative and, from 1994 to 1998, she Co-Directed North Carolina's Statewide Technical Assistance for Gifted Education Center. Prior to this she was Associate Director of the Gifted Education Policy Studies Program at the Frank Porter Graham Center

Dr. Coleman has numerous publications including the seminal textbook, *Educating Exceptional Children*, with co-authors Samuel A. Kirk, James J. Gallagher, and Nicholas J. Anastasiow. Dr. Coleman served three terms on the Board of Directors for the Association for the Gifted (TAG), one of which she was President, and three terms on the Board of the National Association for Gifted Children. She also has served as President of the Council for Exceptional Children.

Dr. Coleman began her career as a teacher in public and private elementary schools, with both regular classroom and special education assignments.



## UNDERSTANDING STUDENTS WHO ARE “2E” CONTINUED...

using auditory, tactile, or kinesthetic modes; problem-solving strengths can be enhanced with multiple ways to engage the learner in meaningful work. Teachers also look for multiple ways that students can demonstrate what they have learned and understood by using a variety of assessment strategies (e.g., students may show what they know by designing an experiment to test a given hypothesis). Universal design for learning is not a silver bullet—meeting all the needs of students who are 2e—but it offers a logical place to start as teachers begin planning for student success.

In addition to thinking about input/representation, processing/engagement, and output/assessment it is critical to remember the importance of executive functioning and also teach metacognitive approaches to help 2e students learn to self-reflect and monitor their learning, emotional states, and behaviors. The ability to use appropriate self-reflection and self-regulating strategies contributes

to the success of 2e students across their lifespan. Finally, as noted earlier, the emotional context in which learning takes place is critical for students who are twice exceptional. Negative emotional contexts add stress, and for a twice-exceptional student whose ability to process information is already more vulnerable, this added stress can be the last straw.

The good news is that using the information processing model teachers can come to understand the specific areas of challenge and strengths faced by 2e students and using the universal design for learning approach they can begin to create learning experiences that help these students thrive! ❖

*Note: This article first appeared in the April 2013 newsletter of the North Carolina Association for the Gifted and Talented.*

## THE COMMUNITY OF PRACTICE (CoP)

In collaboration with IDEA Partnership, the 2e CoP is a virtual community of individuals, parents, teachers, psychologists, school psychologists, counselors, consultants, medical professionals, researchers and teacher educators, who are focused on the identification and needs of 2e individuals. The 2e CoP includes members from 26 national, state and local organizations, including:

- 2e Newsletter
- Association for the Education of Gifted Underachieving Students (AEGUS)
- Amend Psychological Services
- Baltimore County Public Schools
- Blucher Educational Services
- Bridges Academy
- Council for Exceptional Children
- College of Coastal Georgia
- Colorado Department of Education
- Engaged Education
- Johns Hopkins University
- National Association for Gifted Children
  - Special Populations Network
  - 2e Special Interest Group
  - Assessment Special Interest Group
- National Association of School Psychologists
- National Center for Learning Disabilities
- Northwestern University- Center for Talent Development
- Regent University
- Summit Center
- University of Connecticut
- University of Houston
- University of Iowa- Belin-Blank Center for Gifted Education
- University of North Carolina at Chapel Hill
- Western Kentucky University
- Weinfeld Consulting

# MEETING THE NEEDS OF STUDENTS WHO ARE TWICE EXCEPTIONAL

BY DR. MARY RUTH COLEMAN

Universal Design for Learning includes multiple ways to represent information, multiple ways to engage the learner, and multiple ways to assess learning. The UDL categories correlate directly with the Information Processing Model categories of input (representation of information); processing (engagement of the learner) and output (assessment of learning).

Educational modifications should be designed to minimize the impact of the disability while maximizing the student's ability to be successful; modifications that help the student become more autonomous and independent are optimal. The responsibility for learning and for self-regulation ultimately rests with the individual, but it is the job of educators to provide the support needed so that the student can thrive.

The evidence-based strategies presented in Table 1 can help to address difficulties across each component area of the IPM system within any content area or Common Core Standard. The trick is matching the appropriate strategies to the unique pattern of each student's strengths and needs. Following are some general strategies that can be used with all twice-exceptional learners.

## COMPONENTS OF COMPREHENSIVE PROGRAMMING FOR STUDENTS WHO ARE 2E

When we look at how to meet the needs of gifted students with disabilities we must consider the kinds of support available from the school, the community, and the family. However, some key components are essential to creating a comprehensive program for all students who are 2e.

Key programming components should include:

1. Offering appropriately challenging learning experiences in the individual's areas of strength,
2. Attending to the individual's interest areas and what motivates them,
3. Providing tutorials and remediation to support the areas of challenge,
4. Teaching learning strategies (study skills) to help develop organization and autonomy,
5. Developing compensation strategies and assistive technology skills, and
6. Ensuring that counseling and guidance are available when needed.

When a student is recognized as having a disability, all too often schools become hyper-focused on “fixing the deficit” and little if any attention is devoted to the rest of the child. In the case of students who are 2e, this means that frequently the gifts of the student go completely unrecognized and/or virtually un-served. Programming that allows the student’s strengths and interest to guide the development of appropriately challenging educational experiences, often facilitated by an enrichment or gifted education specialist, are critical to the well-being of students who are 2e.

While an overemphasis on remediation and tutorials is not useful, many students who are 2e do need some targeted support to get—and stay—up to speed. This is particularly true when the disability has been undiagnosed and an underachievement pattern has emerged. Remediation should be used to identify and re-teach specific missing or under-developed skills in order to build a solid foundation for future learning.

Learning strategies, or study skills, are an essential component of the curriculum for students who are 2e. These should include general metacognitive strategies that help students self-monitor, and also specific skills including time management, organizational strategies, content review and master systems, and test taking tips. In addition, students should be allowed to explore and develop

study habits that match their learning styles and that reinforce their individual strengths while minimizing their problem areas.

Even given a variety of learning strategies and support systems, the student’s disability will be an obstacle at times. Developing a wide array of compensation strategies to get around these difficulties will be essential for long-term success. Compensation strategies include the use of technology (calculators, computers, books on tape, copy machines, electronic speller, etc.); modifying the environment (using extended time, taking smaller classes, reducing class loads, working either alone or with a group depending on need and task); using support materials (Cliffs Notes, study guides, etc.); and developing a network of support systems (family, friends, classmates, etc.) to fall back on when other alternatives don’t work.

Because students who are 2e often experience frustration and self-doubt, counseling and guidance are essential components in a program. The counseling side should include information and exploration of personal issues and concerns. The development of friendships, frustrating relationships with teachers, and/or fears for future success are all topics that may come up. Students who are twice exceptional also need specific counseling regarding their disabilities and their gifts. This counseling should address the diagnostic process and should involve a clear

	<b>UDL REPRESENTATION</b>		
<b>IP Input</b>	Books on tape Manipulatives Videos/Pictures Graphics/Charts Story boards Timelines Matrixes Highlighting Color coding Large/Bold font Audio files Tactile graphics Use of all senses		
		<b>UDL ENGAGEMENT</b>	
<b>IP Processing</b>		Kinesthetic activities Discussions Debates Plays/Drama/Dance Music/Song Building models Writing activities (Journals, Poetry, Stories, Reports, Plays, Essays, etc.) Role playing Simulation games Critical thinking Creative thinking Research skills Data collection Data analysis	
			<b>UDL ASSESSMENT</b>
<b>IP Output</b>			Discussions Debates Product-based assessments of plays, models, written work, etc. Drawing/sculpting Music/Song Experimentation Charts/graphs Pictures/photos
<b>Executive Function</b>	Graphic organizers Thinking maps Concept maps Learning frames Outlines Chapter headings Advance organizers Syllabi Study guides Highlighting Prompts (verbal, visual)	Thematic lessons Big ideas Concept-based learning Metacognitive strategies Learning strategies Study skills	Rubrics (with open areas of student choice) Self-assessments Student-selected products
<b>Emotional Context</b>	Safe environment Structured rules Encouragement Rewards vs. punishment	Choice of activities Interest-based assignments Support available Study buddy Breaks for movement	Use of non-punitive assessments that reward student growth Environment supportive of risk-taking Provision of separate grades Effort for content and form

**TABLE 1. INFORMATION PROCESSING AND UNIVERSAL DESIGN FOR LEARNING STRATEGIES**

# TWICE EXCEPTIONAL

presentation of the information relevant to the individual's self-understanding. The guidance process should help promote self-advocacy and self-direction. Early on, students who are 2e should know that they have a number of opportunities available to them and that college is a viable option if they choose it. This is particularly important because often the early school experiences of students who are 2e are challenging and therefore they may internalize a belief that they are “not good at school” and that they are “not smart enough for college.”

Meeting the needs of students who are 2e takes a team. Collaboration among special, gifted and general education professionals in partnership with students and their families is central to successful programming. The good news is that we are beginning to recognize students who are 2e and we are learning to work collaboratively to address their strengths and needs! ❖

*Note: This article first appeared in the November 2013 newsletter of the North Carolina Association for the Gifted and Talented.*

## DEFINITION OF A TWICE-EXCEPTIONAL INDIVIDUAL

The Twice Exceptional Community of Practice (2e CoP) has agreed upon a definition of a twice-exceptional individual. This is a working definition, which seeks to unify the community and act as a foundation for our collaborative work. This definition reflects a consensus of the 2e CoP participants.

*The definition of a “twice exceptional individual” is: Twice exceptional (2e) individuals evidence exceptional ability and disability, which results in a unique set of circumstances. Their exceptional ability may dominate, hiding their disability; their disability may dominate, hiding their exceptional ability; each may mask the other so that neither is recognized or addressed.*

*2e students, who may perform below, at or above grade level, require the following:*

- *Specialized methods of identification that consider the possible interaction of the exceptionalities*
- *Enriched/advanced educational opportunities that develop the child's interests, gifts and talents while also meeting the child's learning needs*
- *Simultaneous supports that ensure the child's academic success and social-emotional well-being, such as accommodations, therapeutic interventions, and specialized instruction.*

*Working successfully with this unique population requires specialized academic training and ongoing professional development.*



Thank you for attending the screening of **2e: Twice Exceptional**, a new documentary film directed by Tom Ropelewski. *2e: Twice Exceptional* follows the personal journeys of a unique group of high school students in Los Angeles who have been identified as “twice exceptional” – gifted or highly gifted individuals with learning disabilities or differences. For more about the film visit <http://2emovie.com/>

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