

Why Johnny and Jenny Can't Write: Disorders of Written Expression and Children With Bipolar Disorder

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How many times have we all jotted down a list to take with us to the supermarket? Even a simple vertical column of ordinary household items requires more than we realize. We scan areas of the house and pull from memory different food stuffs or supplies that need to be replenished or replaced: refrigerator (need milk, butter, juice); cabinets (we're out of sandwich bags and sponges); canisters (need coffee and tea); laundry room (need detergent and bleach); dinner (..... good question). All this information requires a flow of memory, organization, and planning. Most of us do this part of the task spontaneously and routinely.

Now we need to create that list on paper. As automatic as it seems, writing simple words like "coffee," "sandwich," and "juice," requires a call-up of a sequence of letters and shapes for each word—spelling—and an ability to manipulate the pen or pencil in order to encode the letters. During the physical act of jotting down a list, we control several muscle groups to keep the writing tool flowing in a direction—moving vertically, horizontally, and in a circular fashion (rotary movement). Fine motor coordination is key as we stimulate certain muscle groups, inhibit others, and balance, flex, and contract movements. We don't punctuate the list, write it in a creative way, grab the attention of a reader, or develop a theme and add flourish and detail to our assertions. A list is just a list.

Now that you realize the abilities this simple column calls for, think of a child who has graphomotor problems so that he or she writes letters in a laborious, illegible manner; who has sequencing problems so that spelling is greatly below par; and who has memory challenges so that the missing items or ingredients aren't summoned easily to mind (or kept in working memory long enough to write them down). A shopping list becomes a whole new order of accomplishment, demanding effort even at this rudimentary level.

There are no statistics, but it is estimated by some psychiatrists and neuropsychologists who treat and test children with bipolar disorder, that at least half of these children have disorders of written expression. The numbers may even be higher.

The problem for some children is language-based (and may co-exist with dyslexia); for others it is a motor outflow difficulty; and for many children with bipolar disorder, the problem may be a severe difficulty in organizing thoughts, relinquishing original ideas and reformulating them; and marshaling the energy and attention to complete the task. Any one of these problems will make writing a demand that will most likely be resisted—very vehemently, and with increasing frustration and anger.

What Happens When a Child Has to Write

According to Hilary J. Luttinger, MA, clinical research director of the Department of Medicine at Elmhurst Hospital Center and Mount Sinai School of Medicine in New York:

Writing is a complex task requiring the mastery and integration of a number of subskills. The process of writing connects cognition, language, and motor skills. Some children have difficulty in one aspect of the process, such as producing legible handwriting or spelling (dysgraphia), while others have difficulty organizing and sequencing their ideas. Difficulties in one area can delay skill development in the other areas.

Another layer of writing must develop as a child moves into higher grades. Dr. Mel Levine, in *A Mind At A Time*, writes that a student must “respond productively to the call for excellent language skill, rich idea development, and the arrangement of ideas and facts in a logical manner.” “In some cases,” he adds, “that call goes unanswered.”

What are some of the reasons that call goes unanswered, especially for children with bipolar disorder?

In addition to a motor and sequencing difficulty, a child with bipolar disorder may also have difficulties with the mechanics of writing (periods, commas, and capitals may be very late to arrive in any written product), working memory, intention (let’s get it done), and sustained attention. In a hypomanic state, the thoughts may race and ideas pour out faster than the motor or organizational controls; conversely, in a depressed phase, there may be a slow-down of thought and a paucity of ideas.

We spoke with Dr. Dana Luck, a neuropsychologist in New York City and she explained:

Writing is a directed task and very different from speaking. Verbally, we can all mention thoughts, circle around them, move off in different directions, and hopefully get to the point somewhere along the way. Writing, however, is much slower and very much more precise. It is straight processing and it is a task of drafting, and re-drafting, revision, elaboration and polishing. Children with bipolar disorder often have such poor frustration tolerance, and very often have a very negative reaction to the demand that they write.

Dr. Luck went on to say:

If a student has trouble self-monitoring, if she or he can’t regulate a flow of ideas and can’t pace him or herself, than each piece of the task that is uncompleted becomes a stress, and the stresses begin to accumulate until the student simply shuts down and refuses to even attempt the task.

Many of these processes that are called upon when a child writes are in the domain of what is called executive functioning. It is increasingly being recognized that a significant number of children with bipolar disorder have deficits in the realm known as executive functioning.

Executive Function Deficits

“Executive functioning” refers to a cluster of mental control abilities, including skills such as the capacity to plan ahead, choose and implement strategies, and organize one’s thinking and actions. Executive functions also include abilities such as maintaining awareness of what one is doing and staying on task, controlling one’s impulses, and monitoring the quality of one’s own performance and making adjustments if necessary.

Executive functioning is performed by the advanced parts of the brain—the frontal lobes and the pre-frontal cortex. Actually, brain imaging has shown that the frontal lobes may be divided into seventeen or more subregions, each responsible for a slightly different kind of work that the human performs. So a problem anywhere in this area will impact the way a child approaches and performs any task.

A Deeper Look at the Executive Functions Critical to the Writing Process

Whenever a human being approaches a problem or a project, he or she must recruit the following executive functions:

Analyze the problem

Plan and implement the strategy

Anticipate problems

Organize the way the strategy will be accomplished (break it down into its components and effectively assign a time segment for each sub-strategy to be accomplished)

Monitor the progress and assess whether the plan is working

Remain flexible and reformulate the plan of attack if the monitoring and assessment process shows it not to be working

Reassess the new strategy that has been implemented

Follow the adjusted plan through to the finish

As one can see, strategizing, organizing, marshaling intention into movement, flexibility (changing the approach when it is recognized that the original strategy isn't working), and constant monitoring are crucial to the completion of any task—and especially to writing and editing an essay, a book report, or piece of narrative writing.

Working memory (also governed by the frontal lobes and a significant part of executive functioning), is crucial to the writing process also.

Working Memory

Working memory involves the ability to hold data in short-term memory while manipulating it toward problem-solving or sequencing it in a logical order. As Dr. Mel Levine writes in *A Mind at a Time*:

(Many) kids have writing difficulty that stems from weaknesses related to active working memory, the part of memory that allows them to keep track of immediately relevant memory while doing a task. These students tend to forget aspects of the writing tasks while they are writing. For example, while trying to decide if they need a comma or a colon, they may lose track of ideas for the next sentence.

He brings the point home when he says:

Writing requires more memory than just about anything else a student is asked to do in school. Writers need to simultaneously retrieve spelling, punctuation, capitalization, letter formation rules, vocabulary and content information, transitions and connections, and all the other ingredients of written output.

Writing is an enormous academic strain for some students, especially those with graphomotor dysfunctions or significant weaknesses in attention, working memory, and organization of thought.

Graphomotor Dysfunctions

When you look at a child's handwriting on a piece of paper and see letters poorly formed, a difficulty with the spatial organization of the letters and words on the page, and heavy line pressure, you can quickly realize that the child is having difficulty in the graphomotor domain. This area of disability is called dysgraphia—a glitch between motor memory and its connection to the fingers.

As we mentioned earlier, a sequence of visualization and tiny, precise muscle movements translate the thought of a word into its written subunits (letters) that come together to make that word, that are grouped with other words to make sentences.

All this, plus strong working memory, sequencing, organization, and sustained attention go into the writing process before creativity and mature character development enter the picture. Children with

bipolar disorder are often extremely creative verbally, and would be on paper also, if they didn't often suffer difficulties in the skills that must precede creativity in the writing process.

No wonder children with these problems refuse to write, or produce very little on the written page. If they do write, they "dumb down" the output. Small wonder, then, that teachers and parents (and the children themselves) don't realize how smart or even gifted they might be. Parents find themselves increasingly anxious, frustrated, and angry at the child who puts off any written assignment until the last minute. They may first try to motivate the child, and when this doesn't do the trick, negative feelings quickly arise as evenings and weekends go sour—or worse. This is exhausting and demoralizing for the child and the parent. Because writing is a part of every school day, every subject, and most homework assignments, it is important to find out what is really going on to impede the writing process for the student.

Most early and significant learning disorders in the area of written expression will be expressed by the second or third grade (the graphomotor difficulties may be noticed earlier), so it is very important to intervene early when some of the remediation process is age-appropriate. For instance, a very young student will think nothing of using a multisensory approach and sculpting letters in the air or using graph paper; a fifth grader will sneer and become negative before you can explain the purpose of the exercise.

What Tests Would Reveal These Areas of Weakness In Written Expression?

There are many tests that can be administered to determine which areas of the writing process are problematic for a child, and each educational psychologist or neuropsychologist will use those based on his or her training and clinical experience. However, most evaluators on a child study team in a school system will rely on the following battery of tests:

Written Language Assessments

The Woodcock-Johnson Psychoeducational Battery—Revised is a norm-referenced test for ages three to eighty. Among other skills, it yields samples of dictation and writing.

The Wechsler Individual Achievement Test (WIAT-II) is a measurement tool used to gauge achievement skills and to help diagnose learning disabilities for preschool children through adults.

Tests of Written Language (TOWL) —The TOWL-3 is a written language assessment tool used with individuals ages 7 and-a-half to 17. It measures expressive skills in written language including: use of established rules for punctuation, capitalization, and spelling; the use of serviceable syntactic and semantic structures; and the ability to write logical, coherent and sequenced written products.

Tests of Sustained Attention

Tests that measure sustained attention are recommended also. Two that are widely used are the Connor Continuous Performance Tests and the Tests of Variable Attention (the TOVA). Both examine attention over a long period—fourteen to twenty-two and a half minutes—and are performed on a computer. These tests measure discrete aspects of attentional functioning. One or the other is frequently administered.

Tests of Executive Functions

The WISC-IV, the newest version of the well-known intelligence test, has some subtests that reveal executive function deficits. But more comprehensive tests (typically administered and interpreted by neuropsychologists) include:

The Wisconsin Card Sort

Tower Of Hanoi

Tower of London

Trails A & B

Stroop Color and Word Test

Another set of tests that a neuropsychologist may administer is to assess executive motor skills. While almost all tasks involve analysis, planning, monitoring, and possible adjustments of strategy (all executive functions controlled by the frontal lobes and pre-frontal cortex), many images and ideas must be translated into sequenced motor acts. These activities most likely involve the pre-frontal cortex and the motor cortex—the strip that begins the frontal lobes. Writing is very much a task of motor sequencing.

Tests that measure executive motor skills include:

Luria Test of Praxis

Fine Motor Coordination

Purdue Pegboard or the Grooved Pegboard

Hallstead-Reitan Finger Tapping Test

Because explanations of the above tests are beyond the purview of this newsletter, readers might want to read more detail in Chapter 11 of *The Bipolar Child, Revised*.

What Is the Process of Remediation?

The remediation process will depend on the areas of difficulty that are impacting the child's written expression.

If the problem is a dysgraphia, and the child is having trouble recalling the shape of letters (encoding) and sequencing them on to paper in a legible fashion, then a multi-sensory approach that is rehearsed and repetitive will help a great deal. An occupational therapist or a special education teacher may use a special pencil to encourage proper pencil grip, help a child align his or her arms and body in order to write, and use graph paper, or a paper with raised lines, to help the child recognize where to place and how to space letters. There are also slant boards that help the child work at a vertical surface as this promotes the development of proper hand and wrist position and keeps the paper from sliding. This and a foot stool will help the child's body from collapsing and his or her head from getting too close to the paper.

Special paper and slant boards are usually available in teacher supply stores. Therapro is a wonderful Web site that sells slant boards, pencil grips, and interesting products to promote better writing for youngsters. Visit their Web site at <http://www.theraproducts.com>.

Difficulties with spelling and the mechanics of writing such as capitalization and punctuation will also require a systematic, structured, and constantly rehearsed routine. Both the occupational services that help remediate dysgraphia and the remediation of poor mechanics of writing should take place two-to-three times a week and must be written into an Individual Education Plan (an IEP).

Along with special services, an IEP should list a number of accommodations or modifications to the scholastic demands placed on a child with written expression difficulties. These are excerpted from "The Educational Issues of Children With Bipolar Disorder" on the Web site of the Juvenile Bipolar Research Foundation at http://www.jbrf.org/edu_forums/accomodations.html and are used with permission:

I. Writing Disabilities or Dysgraphia

Symptom: Student writes in a slow and effortful manner. The mechanics of writing such as capitalization, using periods or commas and proper syntax, are haphazard and slow to appear.

Accommodations:

Teach and encourage the student to use a keyboard in class and to complete all assignments.

Assign a scribe to write longer or timed writing assignments.

Allow student to tape record classes. Do not penalize quality of note-taking or assume the student is not taking it all in aurally.

Provide paper copies of notes to the student.

Allow extra time for assignments.

Assign a scribe for important tests, or allow the student to give his answers orally.

Do not penalize the student for handwriting or spelling errors.

Have the parents investigate voice recognition software, such as “Dragon Naturally Speaking” (also available on <http://www.dyslexic.com>).

Have the parent investigate the QuickLink Pen. This is a hand-held electrical scanner that allows a student to scan relevant sentences or paragraphs from books, newspapers and articles and to transfer the information to a computer where the notes are printed for the student, bypassing laborious note-taking.

Available at <http://www.donjohnston.com>.

II. ATTENTIONAL AND ORGANIZATIONAL DIFFICULTIES

Symptom: Student has difficulty staying on task and paying attention for any length of time. Student is very fidgety in the classroom.

Accommodations:

Seat the student close to the teacher where the teacher can get student’s attention.

Schedule frequent breaks.

Offer choices, such as going to a study carrel in the library or to a quiet area outside the classroom.

Assign a study-buddy (use the phrase study-partner for an older student). The students can focus each other and acquire strategies for learning from each other.

Symptom: The student is disorganized and often misplaces needed books and materials. The student often forgets to bring home assignments and/or fails to turn in work.

Accommodations:

Use a “travel folder.” This is a pocket portfolio that has necessary papers to complete on the left-hand side (mark this “To Do”) and all completed homework is transferred to the right-hand side (mark this “Completed”).

Give the student a planner book and have teacher check that daily assignments are recorded properly.

Email or fax parents a list of assignments and news of upcoming projects or tests.

Have teacher or aide give the student a prompt before leaving school: “What do I need to do tonight and what materials would I need to accomplish it? I need: my coat, my recorder, my math book, my study sheet for French, my planner, my lunch box, my travel folder (French sheet is there...).” The teacher or aide could photocopy lists of materials and clothing and have student check items off as they are put in the bag. Student must be taught to pack backpack to return to school the same way with a prompt such as “What do I need for school today?” (A parent has to help out here.)

Provide a second set of textbooks for the home work area.

Teach the student to number assignments in the order in which they should be done before beginning a homework session (thus they will focus and begin a mode of strategy). Have the student start with an

assignment that is short and easy, but avoid saving the hardest or longest assignment for last. Have the student estimate how much time it will take to complete each assignment and measure the estimates against the actual time (these students have difficulty with time management). Have them use a stopwatch to assign chunks of time to each step of a study plan which will help move them on to the next step. Teach the student to preview questions at the end of each chapter to focus him or her on important concepts. The student should also preview photos, captions, and headings throughout the chapter before reading and when reviewing for a test.

Color-code subject folders and notebooks to match textbooks. For instance, if the math text is orange, place an orange strip of tape on the math folder and notebook so that student can quickly locate and assemble all materials needed for math. If school requires the books to be covered, color coordinate the books and folders.

If the student uses a locker, teach him or her to place all morning text books, notebooks, and folders on top shelf of locker, and all afternoon materials on lower or bottom shelf. This will help organize the student and ensure that he or she goes to class with the correct materials. Have the student (with the help of an assistant if necessary) clean out locker at least once a week. Schedule that cleanup on Fridays to ensure that P.E. clothes and needed materials arrive home for weekend use.

One additional note: Children in elementary school onward will be given city-and state-wide exams that use prompts in the writing sections (the children are supposed to use the prompt as a jumping off point and compose a narrative story that is interesting and rich in detail). This is a major stumbling block for children with disorders of written _expression. While researching this newsletter, we came across a truly valuable book by Barbara Mariconda called *The Most Wonderful Writing Lessons Ever*. It deconstructs the entire process and helps children and adults understand the building blocks that make up good narrative writing. Though the book is advertised for grades 2-4, it is used in high schools, and teachers and parents will find this book particularly helpful.

In Conclusion

Because the writing process is so integral to every subject in school, it is easy to see that a child struggling with written _expression will find the entire day torturous and humiliating. In the late afternoon and evening—typically difficult times for children with bipolar disorder—the child will feel especially burdened as he or she anticipates the frustration, fatigue, and failure that will accompany any homework assignments that require written work.

Children with bipolar disorder are coping with so many other difficulties.... If parents and teachers watch mindfully for any struggle in the area of written _expression, and move quickly to begin remediation and to institute accommodations, they can significantly lessen that burden. Early and sympathetic intervention will make a tremendous difference—in the early years, and in the vastly more complicated and difficult years of middle school and high school.

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