

Neurodiversity

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In recent years, cover stories in *Time* and *Newsweek* and articles from sources as diverse as the *New York Times* and *Wired* magazine have reported the inexplicable rise of Autism Spectrum Disorders (Nash; Wallis; Kalb; Blakeslee; Silberman; Frombonne, “Prevalence” 87). In the 1970s, the prevalence of autism was estimated to be twenty per ten thousand, but in May 2006 the Centers for Disease Control and Prevention (CDC) released findings from a survey of parents that estimate the rate is now between fifty-five and fifty-seven per ten thousand (“CDC Releases”). When I walk through my town, my experience seems to verify this increase—the boy in the toy store obsessively running a wooden train back and forth; the teenager on the sidewalk flapping her hands in excitement; the young man at the corner table in the coffee shop who sits facing the wall, endlessly rocking; and the two private schools dedicated entirely to educating students with autism, each of which has far fewer openings than can fulfill the demand.

For those who have missed the media frenzy, autism is a neurobiological disorder that often becomes evident in very early childhood and is characterized by impairments in social interaction and communication, and also by fixed and repetitive behavior (*Diagnostic*). This definition is applied to a wide range of people who vary significantly in abilities and character—from those who are called “highly functional” to others who have profound cognitive disabilities and little to no language. People with Asperger’s Syndrome, who are my primary concern in this article, are on the less severe end of the autism spectrum; they tend to possess average to above-average cognitive and verbal abilities, while they also exhibit impaired social abili-

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ties and the fixed patterns of interest typical of autism. Occasionally, they display extraordinary intelligence in one realm, such as engineering or computer science. Like “little professors,” as they are sometimes called, they can demonstrate a remarkable attention to detail as well as a tendency to talk at length about arcane topics without awareness of whether their audience shows any interest.

With autism’s rise in prevalence, as well as our growing awareness, the disorder is also developing an increasingly powerful cultural resonance. I have heard casual insults—“Don’t be autistic!”—as well as offhand references to “autistic personality,” “ethical autism,” and “autistic economics.” In addition, fed by our limited, distorted understanding of what it means to have autism, the disease appears to have become a disturbing new metaphor for the postmodern self, disengaged from the world and from others. This metaphor may imply that we identify with the alienation of autism, but our appropriation of the diagnosis to represent the emptiness of contemporary lives and our transformation of the word “autistic” into an insult suggest a prejudice fueled by a profound discomfort with and fear of neurological difference.

We have arrived at a historical moment, however, when those of us who teach at colleges and universities must examine our unease, because we are about to see a change in our student population. Increasing numbers of students with Asperger’s Syndrome, autism, and other disorders from the spectrum will soon arrive in our college classrooms—if they are not there already. Students who entered college in fall 2005 were likely born in 1987, the year in which the third edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-III)* broadened the definition of pervasive developmental disorders, thereby widening the concept of infantile autism (Frombonne, “Is There” 412). The dramatic increase in autism may, in fact, be correlated with these broadened criteria and with increased awareness of the disorders (Frombonne, “Epidemiological” and “Prevalence”; Croen et al.). Or it may be correlated with some new, not-yet-identified environmental trigger. In addition, Asperger’s Syndrome was not included in the *DSM* until 1994. Because the diagnostic criteria for Asperger’s are so new, there are few reliable estimates of its prevalence independent of other Autism Spectrum Disorders, but in 2003 researcher Eric Frombonne approximated it to be 2.5 in 10,000, or about one-quarter of all ASDs (Frombonne, “Epidemiological” 373). With the increase in recognition that began in 1987, early educational intervention for children with Autism Spectrum Disorders expanded. Because of the efforts of researchers, educators, and parents, more such children receive early training designed to facilitate the development of language and social skills, and this has enabled a greater proportion to function in regular classrooms. Some of these students are now ready for college.

Their numbers may not be large; if five or six people per thousand have Asperger’s or another Autism Spectrum Disorder (a rate that corresponds to the recent CDC parent survey), even large universities may see only a few such students a year. How-

ever, because of the nature of their differences, these students will raise urgent questions about how to teach them. Writing, which is a social practice, will be a particular challenge for some students on the spectrum because it does not tap into their typical strengths. In the field of composition we have approached questions of difference with a determination to find appropriate, respectful, and effective ways of teaching. And, in fact, some students with Autism Spectrum Disorders may not want to express themselves more conventionally. A growing and vocal set of autistic activists—under the banner of “neurodiversity”—are demanding that autism be accepted and respected not as a disorder, but as a variation in “brain wiring” (Seidel; Harmon). No matter what, there is a confoundingness to neurological difference that throws our conventional narratives of learning into question. The crux of the problem is this: substantial neurological difference in college-age students cannot be “remediated” away.

THE CURIOUS INCIDENT OF THE FICTIONAL STUDENT AND THE MYTHICAL TEACHER

The story we would like to believe about teaching writing to students with Asperger’s is readily available in Mark Haddon’s popular 2003 novel *The Curious Incident of the Dog in the Night-Time*, a clever—though fictional—portrait of an Aspergerian way of thinking and composing. The novel is a mystery ostensibly written by its fifteen-year-old narrator, Christopher Boone, who has Asperger’s. The mystery begins when Christopher discovers that a neighbor’s dog, Wellington, has been stabbed with a garden fork. Distraught over the dog’s death, Christopher, who is a fan of Sherlock Holmes, decides that he will find the murderer and write a mystery for a school assignment. In no other circumstances would he have chosen to write a book on his own: he dislikes most fiction, sees metaphors as lies, and can write about the search for Wellington’s killer only because he can do so by telling the truth and using logic. Unfortunately, when he takes on the puzzle of Wellington’s murder, he quickly becomes mired in the mess of human relationships about which he had been oblivious. Ultimately, Christopher discovers that his own father killed the dog for reasons that are incomprehensible to the boy. Having solved one mystery, he now must work on much larger ones: how to get to London on his own to find his mother, how to remake his life away from a father whom he distrusts and fears, and how to exist in a complex social world. Christopher closes his book by mapping out his future—A-level exams in math and physics, a university degree with honors in science—all of which he knows he can do, he says, “because I went to London on my own, and because I solved the mystery of **Who Killed Wellington?** And I found my mother and I was brave and I wrote a book and that means I can do anything” (221, boldface in original).

Christopher's crowning achievement, writing his book, is possible because of his teacher Siobhan, who has coached him for eight years to negotiate his way in a world of difference. She has taught him survival skills for social situations and for frightening moments when he is overwhelmed by sensations. It was she who originally suggested that he write about the mystery of Wellington and who offered advice along the way. In many ways, Haddon's construction of Christopher's writing seems accurately to represent how someone with Asperger's might write. In his story, Christopher has not internalized knowledge of narrative conventions or readers' expectations. His writing contains eccentric tangents, and he devotes a quarter of the novel to an extraordinarily detailed account of his journey to London by train and subway, a journey ceaselessly complicated by his Asperger's. He also numbers his chapters with prime numbers and fills them with diagrams, graphs, maps, lists, puzzles, equations, and timetables. Ultimately, Haddon's novel sustains an unresolved tension between the mystery that Christopher intends to write about who killed Wellington and the mystery that unfolds for the reader; this richer mystery concerns why relationships are such pervasive failures in the metaphorically autistic environment in which Christopher lives.

While the narrator is certainly eccentric, with his commitment to recording only the truth because fictions, "proper novels," as he calls them, make him feel scared and sick (19–20), the story of the teacher who reaches the unreachable student and enables him to discover his potential is utterly familiar. The plot device of the teacher-savior is a hint of stock fiction in a text that elsewhere takes considerable narrative risks. Haddon optimistically imagines a world where difference does not matter much, where it is possible for a student with Asperger's both to compose a text like *Curious Incident* and to be certain that he will advance to university. But how could a college teacher reading the end of this novel do anything but wonder what will happen to Christopher—mathematically and verbally gifted as he is—when he finally arrives at university?

THE THEORY OF MIND AND THE ACADEMIC ESSAY

As if to help me answer that question, Gregory appeared in my class. From the first day, his difference was obvious. He participated enthusiastically, but his voice seemed too loud and insistent, and his comments focused narrowly on his own idiosyncratic concerns, revealing a rigidly mechanical way of thinking about writing. He began the course by obsessively reading and rereading an MLA style manual and asking scores of detailed questions about correct citation form. He repeatedly requested explicit instructions on how to write each paper and fix each problem. Given this behavior and other quirks—a tendency to rock in his chair, an inability to under-

stand humor, problems with attention and small-group work—I suspected that Gregory had Asperger’s Syndrome.

Although I am confident that this diagnosis is correct, I was never able to confirm it medically. I was told there was no indication of any disorder or disability in Gregory’s file—a fact that surprised the administrator who reported the news as much as it surprised me. I then sought opinions from a neurologist and parents of children with autism, all of whom agreed that any student with such behavior—especially one so fixated on the rules of MLA citation—must be on the spectrum. I also talked at length with one of Gregory’s high school English teachers. She identified him from my description and confirmed that many people in his former school—from teachers, to administrators, to social workers—recognized his Asperger’s and urged his parents to have him classified so he would be eligible for special services. The parents steadfastly refused, however, perhaps because they were concerned about the stigma of the label and the limits it might impose on their very bright son.

Even after these efforts to confirm my initial impression, however, I had little sense of how Asperger’s would present obstacles to Gregory as a college writer. It would have been helpful if I had known the work of autism experts Uta Frith and Francesca Happé. These researchers have examined the verbal communication of people with autism and found that, even for those whose vocabulary and syntax appear to be comparable to those of neurotypical adults, communication and comprehension remain impaired when they must take into account a listener’s thoughts and feelings—such as when a listener needs to be supplied with missing facts—or when the writer must understand terms for emotions and mental states (“Language and Communication” 98–99). Frith and Happé also assert that, even when syntax and word use appear normal, as is often the case for people with Asperger’s, impairments may remain in what they call “mentalizing”—that is, “the ability to think thoughts about thoughts,” or to be reflective (101–02). In a more recent article about Asperger’s, Frith explores the interconnection of social impairments and communication problems. She maintains, for instance, that “one way to describe the social impairment of people with Asperger Syndrome is as an extreme form of egocentrism,” an egocentrism that is different from normal selfishness in that it is not deliberate and does not serve the individual’s best interest (676). “Another way to describe the social impairment,” she goes on to say, “is as a failure of empathy, involving a poor ability to be in tune with the feelings of other people” (676). Either of these traits—egocentrism or limited empathy—would certainly hinder the ability to write for an audience.

The challenges people with Autism Spectrum Disorders face in conversation and writing can also be explained by a hypothesis known as “theory of mind.” In the literature on autism, the term “theory of mind” refers to “the ability of [the neurotypical] to attribute mental states (such as beliefs, desires, and intentions) to

themselves and other people, as a way of making sense of and predicting behaviour” (Tager-Flusberg, Baron-Cohen, and Cohen 3). This theory maintains that many people with autism are unable to ascribe mental states to themselves or to others, which extends to being unable to comprehend the behavior of others in terms of mental states (Baron-Cohen, *Mindblindness* 55). Physicians and researchers typically test theory of mind by asking a subject to distinguish between her own knowledge and someone else’s possibly different or false belief. That is, they test the ability to predict the thinking of an unfamiliar mind, to *imagine* a mind that knows or believes something different from the subject’s own. In *Curious Incident*, for example, a teacher tests Christopher’s theory of mind when he is a young boy by showing him what looks like a cylindrical container of Smarties candy, but which, when opened, contains a red pencil. She then asks the young Christopher what his mother would think was in the tube, and he responds, “a pencil” (115), demonstrating that he cannot differentiate his own knowledge from his mother’s false belief. Autism researcher Simon Baron-Cohen similarly tests theory of mind and reports that neurotypical children over age three recognize that another person will not share their knowledge of what is hidden, while most children with autism and some with Asperger’s cannot imagine the difference of another perspective (*Mindblindness* 69–72). Clearly, an inability or limited ability to theorize other minds, as with egocentrism or limited empathy, would make communication a challenge (Frith and Happé 99).

It is important to acknowledge that the theory of mind hypothesis is not universally accepted, especially within the autism community. I have heard physicians and parents insist that particular individuals with autism or Asperger’s have a keen, even overwhelmingly acute, sensitivity to others and that their social difficulties stem instead from problems processing information and sensation. Opposition to the theory within the autism community generally objects to the language of deficit and failure that often accompanies discussion of theory of mind or takes issue with the science behind the theory.¹

I should also note that, while the scientific literature focuses on impairments in the communication of people on the autism spectrum, there is evidence for a very different picture of writing and the autistic spectrum. Uta Frith observes anecdotally that people with Asperger’s Syndrome often prefer to communicate in writing, rather than to participate in rapid exchanges of conversation. After all, when they write, they have time to think and perhaps “to use an explicit theory of mind to compute effects on the recipient of the message” (“Confusions and Controversies” 677). Support for the appeal of writing within this population abounds in the many Internet forums, chat rooms, listservs, and Web sites that provide people with autism a way to communicate with others like them, thereby creating what some have called an autistic community and even an autistic culture (*Wrong Planet; Autistic*

Culture). Thus, it seems, our students with Asperger's may be active writers, even as they struggle to produce academic essays for a neurotypical audience.

Although no current research can explain precisely why and how people with Asperger's communicate differently than do neurotypical writers, the insights of Frith, Happé, Baron-Cohen, and others resonate powerfully with my memories of teaching Gregory. He seemed quite intelligent, but his lack of social perceptiveness made me wonder how he would function independently outside a university environment and whether he would ever learn to have a normal conversation, stand at a socially acceptable distance, or develop friendships. As I became familiar with his prose, I noticed that, although the syntax of his complex sentences was usually correct, he could not structure his thoughts or revise his arguments by imagining a reader who did not already know what he knew. Without a sense of a reader, he had serious difficulty creating transitions, filtering background information, and constructing arguments and counterarguments. To an experienced writing instructor, this list may sound typical of many college writers. I agree. In general, Gregory's problems were not different in kind from those of other students; rather, they were different in degree and persistence. The problems in his prose were most evident in specific contexts. There was a marked contrast, for instance, between the precision and correctness of his syntax and his disjointed ideas. His writing, in other words, simultaneously exhibited characteristics of the most and the least adept writers, presenting sophisticated ideas in unexpectedly "writer-based" rather than "reader-based" prose. In addition, as the semester progressed, he did not respond to instruction and feedback as other students did, even though he gave every indication that he was eager to understand my instructions and to meet the expectations of the course. He repeatedly questioned me about draft comments over e-mail and requested that I give specific directions rather than let him explore ideas and arguments independently. But, even with all this extra instruction and his own good will, as the semester progressed we ended up reviewing similar issues in every essay because Gregory never developed a clear sense of how to compose an academic argument for an audience.

Ultimately, my semester with Gregory made me ask what it means to have students in my class who think and learn in ways that are substantially different from the norm. Gregory did not learn to write academic essays as other students do—not because he did not try, and not because he did not have islands of brilliance, but because there were ways that his brain processed information, sensation, and ideas that seemed fixed and atypical. Working with him demanded that I think anew about the organization of the classroom, the goals of the course, and even the possibilities of pedagogy. My experience with Gregory also made me consider how the academic essay, with its linear structure and intolerance for tangents, is rooted in "normal" neurology. His presence inspired questions about the interconnectedness of the body,

the world, and writing: in particular, about what happens when embodied difference—in this case neurological difference—disrupts the usual relationship between writer and audience. His presence also launched me on an exploration of how we define diversity in the academy.

WRITING FROM THE SPECTRUM

It would be ideal at this point to reproduce a few passages from Gregory's essays to advance a discussion of my pedagogical negotiation with his capabilities, disabilities, and differences. But doing so would pose insurmountable problems because, although Gregory granted me permission to use his essays for research, I have no doubt that his writing would be unmistakable to numerous students and professors at the university. I must also avoid revealing details that would expose Gregory's identity because, as far as I know, he remains undiagnosed and is perhaps still unaware of his Asperger's.

For these reasons, I have searched for prose in the public domain by people with autism or Asperger's that could help me both understand and capture what was unique about Gregory's writing. A recent surge in autistic autobiographies provides one resource, and the Web offers a vast archive of writing from the autistic spectrum. Some of the most striking compositions I found on the Internet are by autistic poet Sondra Williams, who on her listserv and in occasional published pieces writes in her own "dialect," with a syntax that she says is "true to who she really is and how she thinks." In a published e-mail exchange, when Williams is asked about her "unique manner of communicating," she responds:

I can be to use typical English but when doing so it is not true thinking from me (except when in the dancing words)—(poetry) but mostly the typical words from my lips are scripted materials I to be to stored in my head, when allowed to be the whole of me I to be happiest in life.

By "scripted words," Williams appears to mean traditionally structured expressions about issues or situations that she has already thought through—perhaps articulations that she can recall, rather than ones that are spontaneously generated.

While Williams's informal "unscripted" prose is fascinating, with its jumble of infinitive verbs and unfamiliar phrasings, it has nothing in common with Gregory's writing, which, as I have said, was not unique in the kinds of problems it exhibited, but rather in their proportion or intensity, and in their apparent intractability. Clearly, individual examples can only plot out individual points along the spectrum representing "autistic writing." Eventually, however, I found in Temple Grandin's work publicly available prose that could stand in for Gregory's essays. Grandin is a professor of animal science at Colorado State University who first gained fame as the

subject of Oliver Sacks's essay "An Anthropologist on Mars." She is also an experienced author, having written two autobiographies, a popular book on animal behavior, essays and lectures on autism, and many professional articles and books in animal science. Instead of examining these texts, however, I want to focus on two Web-published essays. The first, about the dimensions of Grandin's cognitive difference, is entitled "My Experiences with Visual Thinking Sensory Problems and Communication Difficulties" [separator commas absent in original]. The second, about Asperger's, is entitled "Genius May Be an Abnormality: Educating Students with Asperger's Syndrome or High Functioning Autism." I am intrigued by these little-known pieces not only because their topics are relevant to any discussion of neurological difference in higher education, but also because I seek examples of writing that I can be confident are largely Grandin's own. Her more popular texts are certainly edited. In fact, her first autobiography, *Emergence: Labeled Autistic*, and her more recent book on animal behavior, *Animals in Translation: Using the Mysteries of Autism to Decode Animal Behavior*, are both coauthored.

Before presenting examples from Grandin's prose, I must explain that the passages I have chosen may not appear much different from the work of some college writers, and this, in itself, is startling. Grandin, of course, is not a college writer; she is a professor whose job requires her to write frequently and well. Her writing is "autistic" in large part because, even after she has written six books and dozens of articles, she still cannot consistently define a line of argument, guide a reader from one point to the next, or supply background for references that will otherwise be unclear.

While Grandin's biography provides one essential context for recognizing what is autistic about her prose, the specific peculiarities of her writing are best understood in their textual context. That is, in order for a reader of *this* essay to see the quirks in Grandin's writing that have to do with coherence or sequence, I cannot just provide isolated sentences. I have therefore selected two adjacent paragraphs from "My Experiences with Visual Thinking Sensory Problems and Communication Difficulties." In this text, Grandin defines her cognitive process as visual because it seems to her as if her thoughts are images stored on a videotape instead of in language. For instance, she uses a mental picture of sliding glass doors to understand relationships: "Relationships must be approached gently because barging forward too quickly may shatter the door." After offering further examples of how images enable her to understand abstract concepts, she writes:

I no longer use sliding doors to understand personal relationships, but I still have to relate a particular relationship with something I have read or experienced. For example, a fight between my neighbors was like the United States and Europe fighting over customs duties. All my memories are visual images of specific events. New thoughts and equipment designs are combinations and rearrangements of things I

have previously experienced. I have a need to see and operate all types of livestock equipment because that programs the “visual computer.”

As she continues, Grandin drops the idea of the visual computer, producing a wide, unbridged gap: she shifts to discussing how visual thinking can affect language, using examples from Clara Claiborne Park’s *The Siege*, in which Park discusses her autistic daughter Jessy. Although I have now presented some context, the passage below may still seem jarring. It may seem that we are not prepared for the references to Park’s book or to Charles Hart’s memoir *Without Reason*. In fact, Grandin’s paragraph contains her first references to these texts. That is, she offers much less preparation for her discussion of Jessy Park’s language than I have:

Park (1967) also explained that her daughter learned nouns first. Nouns are easy because they can be associated with pictures in one’s mind. Inappropriate words are often used. For example, the name Dick was used to refer to painting. This happened because Park’s daughter saw a picture of Dick painting furniture in a book. Park (1967) also describes why her daughter had problems with pronoun reversal and won’t use the word I. She thinks her name is you because that’s what people called her. Charlie Hart summed up autistic thinking with this statement about his autistic son Ted: “Ted’s thought precesses [sic] aren’t logical, they are associational” (Hart 1989).

At the beginning of the next paragraph, Grandin changes focus again, asserting: “I still have difficulty with long strings of verbal information.”

What are we to make of this prose, with its shifts in subject positions, jumps in topic, unclear references, and lack of transitions? Certainly, Grandin’s way of communicating is much more accessible to the typical reader than that of Jessy Park or Sondra Williams; she uses pronouns and verbs as we expect and has control over a conventional vocabulary. But there is an unfamiliar logic at work that is challenging to follow if we cannot see what Grandin calls “the video cassette recorder in [her] imagination”—if we do not, for instance, already know who Park and Hart are.

In “An Anthropologist on Mars,” Oliver Sacks also observes that Grandin’s prose contains “peculiar narrational gaps and discontinuities, sudden, perplexing changes of topic” (253). Similar breaks and turns, he says, can be found “in the writing of other very able autistic adults, not excluding some with marked literary gifts” (235). These “narrational gaps” occur not only as Grandin moves from sentence to sentence, as in the paragraphs above; they are, in fact, even more noticeable as she moves from paragraph to paragraph. In Grandin’s essay “Genius May Be an Abnormality,” for instance, such breaks are evident in the arc of the four-paragraph introduction. Grandin begins the essay conventionally with a statement of her argument: “[I]ntellectually gifted children are denied opportunities because they are being labeled either Asperger’s or high functioning autism.” She then makes the pragmatic recommendation that skills such as computer programming are a suitable focus for many with autism or Asperger’s. “Educators need to become aware,” she

insists, that for these students, as for themselves, “intellectually satisfying work makes life meaningful.” After this passionate plea to teachers, however, the next two paragraphs of the introduction jump to a personal account of her grief-stricken response to the destruction of her university’s library in a flood and a discussion of her two core beliefs: that thoughts live in books, and that her own life has meaning because her designs for livestock equipment continue to be used. Grandin follows this discussion about the meaning of life with a paragraph about the open code of Linux software. She compares Linux to “a living thing that is continually evolving and improving” and asserts that its contributors offer “‘intellectual DNA’ that will live forever in cyber-space.” Because Grandin does not explicitly articulate the connections between these topics, it might seem that there is no overarching coherence to her ideas, but there is. She uses her personal stories and convictions to demonstrate the need for all people, including those on the autistic spectrum, to have meaningful work, and she unveils how she and others like her define meaning in ways that may be surprising. Nevertheless, she does not signal to her readers that this is her project and therefore the leaps she makes in the space of four paragraphs may be more than typical readers are prepared to follow. Indeed, if this essay had appeared in a pile with those of my students, my normative response would have been to recommend that she hold onto her inspiration and ideas, but define her line of argument more clearly for her reader.

In general, though, Grandin’s work has been exempt from such normative judgments. She remains protected in part because she is not a student, but rather a writer whose work we generally encounter in texts published by Scribner or Vintage. She has, in other words, the imprimatur of the Author, a status we do not typically grant our students, especially those whose writing appears to transgress or resist conventions. As Gail Stygall notes in her article, “Resisting Privilege: Basic Writing and Foucault’s Author Function”:

If an author writes a passage that is unclear or that is not obviously related to what came before it, then readers assume there is a reason for it, embedded in the author’s intent or milieu. If a basic writer does so, then teacher-readers often construct a non-literate, non-logical writer [. . .], or construct a less sophisticated, pre-conceptual thinker [. . .], or even construct a mysterious Other. (325)

So, although Grandin’s prose shares characteristics with the writing of the “non-authors” in our classes, readers tend not to criticize her prose as deficient. Perhaps readers also grant her leeway—more leeway than I gave to Gregory—because much of her popular writing takes as its subject the difference of her mind, a difference that, in itself, explains why she expresses herself in unexpected ways. Because Gregory did not have explicit knowledge of his neurological difference, he could not identify himself as an author with Asperger’s, and thus did not have the option of using his writing to reflect on his way of being in the world.

COMPOSITION, SOCIAL CONSTRUCTION,
AND NEUROLOGICAL DIFFERENCE

Because Gregory's prose shares the "peculiar narrational gaps and discontinuities" of Grandin's, and because this way of writing seems, at least in part, to be a consequence of his neurology, what sort of pedagogy does this call for? As I sought an answer to this question, it was difficult for me to find a foothold in composition scholarship. Research about basic writing published since the social turn in the 1980s, such as that by Patricia Bizzell and David Bartholomae, is concerned with student writers as outsiders to academic institutions who must work with, against, through, and around unfamiliar ways of thinking and writing. Gregory is certainly such an outsider. On the other hand, he does not seem to use his writing reflectively to rework and revise his relation to cultures, discourses, ideologies, and institutions, as the work of Bruce Horner, Min-Zhan Lu, and John Trimbur might lead one to expect. Such pedagogy, which is influenced by theories of social construction, remains important to the field, but this pedagogy encounters its limit case when confronted with a student who has difficulty perceiving and comprehending the complexities of the social and cultural world because his neurology does not enable him to imagine the minds of others. Thus, although the pedagogical challenge Gregory poses surely involves the cultural forces that construct his experience and our understanding of the autism spectrum, it is fundamentally a pedagogical challenge that is rooted in, and produced by, neurological difference.

As I searched further for pedagogical guidance, I found myself drawn to some surprising sources. The phrase "writer-based prose" that I used earlier to describe Gregory's writing returns me to early scholarship on basic writing, in particular to the work of Linda Flower, whose research on the relation of cognitive science to process was central to composition studies in the 1970s and 1980s, before the social turn. In her 1979 article "Writer-Based Prose: A Cognitive Basis for Problems in Writing," Flower defines her key term as follows:

In *function*, Writer-Based prose is a verbal expression written by a writer to himself and for himself. It is the record and the working of his own verbal thought. In its *structure*, Writer-Based prose reflects the associative, narrative path of the writer's own confrontation with her subject. In its *language*, it reveals her use of privately loaded terms and shifting but unexpressed contexts for her statements. (19–20)

The idea of egocentric writing that reveals a student's contexts and patterns of thought was a productive place to begin to understand Gregory's idiosyncratic essays. Like the inexperienced writers Flower describes, he struggled to produce text that "creates a shared language and shared context between writer and reader [. . . and that] offers the reader an issue-centered rhetorical structure rather than a replay of the writer's discovery process" (20). Flower's descriptions of the transformations that

produce Reader-Based prose are also helpful in identifying the nature of many of Gregory's writing problems: defining "a focus of mutual interest"; moving from facts or details to an argument; creating a "rhetorical structure built on [. . .] logical and hierarchical relationships" (37). I recognize that Flower's argument is about cognitively typical writers and that the field of composition has since questioned the idea that any student finds writing for readers to be "intuitive" or "natural" (26, 34) because these terms imply that a writer's potential is essential and unchangeable. Such a view of writing is certainly at odds with our more recent conviction that writers should learn to work within different frames and conventions and with different models of audience. But, for the student with Asperger's, a pedagogical practice focused on rhetorical strategies and shifting audiences may have little chance of succeeding. With such students in mind, and to further heighten our own awareness of neurological difference, I submit that cognitive science is likely to prove to be a more valuable resource, as Flower's recent work on a social cognitive theory of writing illustrates (*Construction*).

To call for a return to cognitive science, however, is a controversial move that has the potential to lead into dangerous terrain. In "The Language of Exclusion," Mike Rose argues that writing instruction, particularly instruction influenced by developmental theories, has long been haunted by the word "remedial," which has its origins in medicine, and implies disease and innate defect. According to Rose, in education the term "remedial"

quickly generalized beyond the description of students who might have had neurological problems to those with broader, though special, educational problems and then to those normal learners who are not up to a particular set of standards in a particular era at particular institutions. (349)

He argues that medical labels reinforce the perception that some students have no rightful place in academia. Medical language, that is, generates the conditions for exclusion (349–51). Later, in "Narrowing the Mind and Page: Remedial Writers and Cognitive Reductionism," Rose similarly resists "singular, unitary cognitive explanations for poor school performance" (345), strongly criticizing a reductive tendency in composition to apply cognitive theories from psychology, neurology, and even literary studies to basic writing. When we implement such theories without sufficient historical and sociopolitical reflection, he maintains, we create the false appearance of "basic differences in perception, reasoning, or language" (345). The supposedly neutral and descriptive distinctions between different styles of cognition are not, he argues, culturally neutral. Instead, they encode social hierarchies (346).

Rose's argument about the potentially destructive consequences of categorizing students is certainly compelling. Using his logic, labeling students like Gregory with Asperger's could lead to exclusionary practices that are based on the judgment that their differences are *too* different for higher education. What then are we to do

about the bright, intellectually able, yet cognitively atypical students who are entering our college classrooms? Despite our awareness of the dangers of medicalization, we may need to return carefully and critically to medical frameworks to discover what neuroscience has to offer.

To some extent, this recommendation has been modeled already by disability studies, which has opened a conversation about bodily variation and thus broadened the conception of diversity in the academy. In his introduction to the *Disability Studies Reader*, Lennard Davis argues that disability makes visible the limits of other approaches to difference. Although he admits that disability, unlike race, class, and gender, “has been seen as eccentric, therapeutically oriented, out-of-the-mainstream, and certainly not representative of the human condition,” he challenges this perception with a question that points to the broad implications of disability studies: “What is more representative of the human condition than the body and its vicissitudes?” (2). Davis points out that those of us in higher education have not thought carefully enough about the degree to which our ways of communicating and creating depend on the body, and thus how typical modes of expression are the products of “normal” bodies. He explores this idea in detail in “Deafness and Insight: The Deafened Moment as a Critical Modality,” where he argues that disabilities generate epistemological differences that have been long overlooked (886). Deafness, or the “deafened moment,” he argues, constitutes a “critical modality” (882–83) and a “process of knowing” (886). He concludes:

[F]rom a philosophical viewpoint, the notion of disability reveals the epistemological bases and dialectical relations inherent in any notion of aesthetics. One might even say that the consideration of disability in this context, rather than being a marginal and eccentric focus of study, goes to the very heart of issues of representation, communication, language, ideology, and so on. In fact, those who pay attention to art and cultural production have really thought very little about the way such endeavors are based on normative practices that imply a normative body and normative communication. (898–99)

Although there are certainly differences between epistemology and cognition, Davis’s discussion of embodied ways of knowing can offer insight into cognitive difference in the writing classroom. If we think about how cognitive styles affect written expression and if we respect the significance of neurological variation, then we must also consider the ways in which academic essays are based in conventional practices that assume a typical neurology. The challenge for writing teachers then is to find methods for teaching a range of students about academic expectations and, at the same time, to enable those students to communicate better the insights that come from their own ways of knowing—whether the students develop these ways of knowing through biology, culture, history, social and personal experience, or (most likely) an untraceable interaction of these elements.

One conclusion that could be drawn at this point is that an appropriate pedagogy for Gregory would have been to nurture an Aspergerian alternative discourse. Indeed, some autistic activists are claiming rights as a minority culture, and discussions about the legitimacy of alternative autistic discourses are a logical next step. Without an official diagnosis, however, I had no grounds for taking this course of action. Even if I had preferred such an option, to exempt Gregory from the expectations and standards to which all other first-year students were held would have marked him all the more as an academic outsider. Even more important, if I had freed him from the constraint of conventions within a course that was designed to introduce new college students to academic writing, I would have denied him the opportunity to learn to communicate effectively in a university setting. Only because we worked closely to decode the practices of the academic world could he apprehend the challenge he faced as a college writer and the strengths he could bring to this task.

Ultimately, any success that I had with Gregory involved accepting the significance of his neurological difference without assuming that this difference totally defined him. When I attended to how he responded to the class, the writing process, and my comments, I gradually grew to understand how to individualize his instruction. At first, for example, his requests for extra conferences, detailed queries about my written comments, and regular e-mails asking me to look at this or that section of a new draft seemed obsessive. I later recognized, however, that his questions expressed his need to literalize the audience that he could not imagine. As a consequence, I began to narrate my experience as a reader during conferences with him. I coached him as he took notes on my observations and charted plans for revision. I was often more directive and rule-bound than I would have been with other students. For instance, I required that he compose transition and topic sentences at the start of every paragraph, at least in the first draft. This made it easier for him to generate a line of argument and to see it. In addition, I encouraged him to meet with tutors in the writing center and advised some tutors on how to work with him. My goal could not be for Gregory to internalize a sense of a reader or the logic of discourse; instead, I counseled him as he developed a process that would work for him in the future. He needed to learn that his writing and revising process required structured exchanges with numerous readers—tutors, peers, professors, and others—and conscientious attention to their responses. Though he had seemed virtually impossible to teach at the beginning of the semester, Gregory finished it performing solidly in the middle of the class.

Although I have just described one approach to a single student who exhibited significant cognitive differences from my neurotypical students, I do not believe I have discovered the pedagogical key to teaching writing to all college students on the autistic spectrum. In fact, I am keenly aware that the next such student I encounter may require a new approach. Frith confirms that although there is “great hetero-

genicity of autistic disorder, individual programmes with one-to-one instruction” along with “explicit teaching of otherwise implicit rules” will likely be the best approaches to helping students with Asperger’s adapt as they mature (683). Ami Klin and Fred R. Volkmar of the Yale Child Study Center concur that the label of Asperger’s is best understood only as conveying a probable pattern of difficulties, not a definite set of problems and needs. Similar observations appear in a 2004 *Chronicle of Higher Education* article, “Asperger’s Confounds Colleges,” in which Elizabeth F. Farrell explores the complications of accommodating students who may excel in one area but who cannot, for instance, “write a coherent essay in [a] favorite subject.” Even with all we know about Asperger’s, the question of what support academia should offer such students is likely to remain vexed. We are only beginning to sense the challenges before higher education as it recognizes neurological difference as a difference worth accommodating.

BIOLOGY WITHOUT DETERMINISM?

While the presence of students like Gregory in our college classes will surely compel us to develop new theories, practices, and policies, it will simultaneously require us to revise our current conception of difference. We will have to acknowledge that some differences are biologically as well as culturally constructed. If we do this, we will then have to figure out how we—and our institutions—can bring biology into the picture without letting biological determinism, and thus a new “language of exclusion,” take over. The most noteworthy recent incident that demonstrates the dangers of such determinism in the academy occurred far outside the realm of composition, but the event is so extraordinary it is well worth our consideration.

In January 2005, at a National Bureau of Economic Research conference about women and the science and engineering workforce, Harvard’s president, Lawrence Summers, ignited a firestorm when he speculated that there may be an innate difference in aptitude for scientific thinking between men and women and that this difference could explain why there are fewer women in advanced academic positions in the sciences (Summers). Summers defended himself by asserting that he was merely being provocative, hoping to inspire genuine exploration of the disproportionate representation of women and men in tenured jobs in math, engineering, and the sciences (Dillon 16), but much of the professoriate understandably responded with outrage.

Summers’s statements have repeatedly been dissected and critiqued, but few have looked with a similarly analytic eye at the academy’s denunciation of Summers and his argument. The forceful repudiations that appeared in the press in the weeks following the speech express fury not only about his offensive claims about gender, but also about his argument that biology controls intelligence and behavior. Letters

to the editor that appeared in major U.S. newspapers in the weeks following his speech, particularly those that appeared in the *Chronicle of Higher Education*, express dismay that Summers, from a position of extraordinary influence, dismissed substantial evidence about cultural and institutional barriers to women by focusing on supposedly natural laws (Muller, Ride, and Fouke; Schwartz; Singer, Barkley, and Taylor; Swift). Letters in the *New York Times*, the *Boston Globe*, the *Chronicle*, and elsewhere also attempt to steer the discussion away from Summers's provocations and return to the question of how to create the conditions for women to excel and advance in the sciences (Bullock; Hennessey, Hockfield, and Tilghman; McCauley; Muller et al.; Schwartz; Singer, Barkley, and Taylor; Swift; Turgeon). Although a few voices on the opposing side argued that scholars should be permitted to inquire about cognitive differences between the sexes (Ballantyne; Bryson; McGovern), they were not strong enough to silence the calls for Summers to resign his post at Harvard, an event that eventually came to pass in February 2006. Although I firmly believe that the primary critique of Summers must address the institutional and cultural obstacles to women in science, it is also significant that many of the critical replies to the speech—especially those in the *Chronicle*—suggest how unsettling it is in an educational setting to contemplate the idea of innate cognitive difference. After all, the very idea of teaching is undermined if we believe that such differences can block a student from learning in a science class, or—to use an example more familiar to readers of this journal—a writing class.

Summers, it would appear, had little sense of how controversial his ideas would be, or that his academic audience, in addition to rejecting his argument about gender difference, would take offense at his neurological determinism. In his speech, he thus attempts to justify his argument about women in science by yoking it to what he presumably believes is a more acceptable argument about the power of biology over culture. Offering anecdotal evidence, he speaks, for instance, of his recent return from Israel, and specifically of the kibbutz movement. It began with the goal of egalitarianism in the distribution of jobs—men and women both fixing tractors and providing day care. But now, he says, all the kibbutzes have “evolved” in the same direction, “under the pressure of what everyone wanted”: men fix the tractors and women work in the nurseries. The implication in his use of the word “evolved,” of course, is that the return to a conventional division of labor fulfills a natural order. He also points to his daughters who, when given trucks instead of dolls for toys, created truck families instead of construction sites.

Summers then offers an analogy that is particularly resonant for my argument. He asserts that “most of what we’ve learned from empirical psychology in the last fifteen years has been that people *naturally* attribute things to socialization that are in fact not attributable to socialization” (emphasis added). And then he attempts to uphold this clever but unsupported claim—that the idea of social construction is a

natural error—by turning, remarkably, to the example of . . . autism. In recent years, Summers asserts, we have rejected the mistaken belief that autism is a psychological problem caused by parental rejection, and we now accept it as a physiological disorder. According to Summers:

The confident assertions that autism was a reflection of parental characteristics that were absolutely supported and that people knew from years of observational evidence have now been proven to be wrong. And so, the human mind has a tendency to grab to the socialization hypothesis when you can see it, and it often turns out not to be true.

Thus he uses a widely recognized example of the misapplication of social construction—the idea that autism is caused by negative emotional experiences—to support his argument about the apparently immutable nature of male and female brains and behavior. As the widespread condemnation of Summers demonstrated, however, this effort to naturalize conventional gender differences through an analogy to a neurological disorder is a deeply disturbing display of the false logic of biological determinism.

Alas, the controversy does not end there. If Summers's speech is disquieting, so, too, is an analysis of Summers himself that appeared in *Boston Magazine*. Richard Bradley's article "Lawrence of Absurdia" catalogues Summers's many political and social offenses, from his days at the World Bank in the early 1980s to his presidency at Harvard. In the end, Bradley expresses publicly a neurological diagnosis of Summers's behavior, one that has apparently long been privately whispered at Harvard: Lawrence Summers has Asperger's.

With "half gossip, half scientific speculation," Bradley calls upon a popular understanding of Asperger's to supply an explanation for everything that bewildered and embarrassed Harvard about its president. Bradley implies that Summers exhibits many of the characteristics of Asperger's. He is "unnervingly smart" and has difficulty "handling change and transition." He is also socially awkward, in part because he is "linguistically tone-deaf" to the connotation of words, with the consequence that he can seem as if he is not listening. In other words, Bradley provides yet another reason to dismiss both Summers's remarks about women and his ability to lead Harvard. In a twist of fate, Summers becomes the object of the sort of biological determinism he himself advanced: the implication of the rumors is that Summers cannot succeed as president of Harvard because he is *naturally, biologically* unable to meet the requirements of the job. While rumors of Asperger's cannot be blamed for the fall of Lawrence Summers, Bradley's exposé does demonstrate that the idea of neurological difference continues to carry a damning stigma—and more so in academia than in, say, the computer industry, where persistent speculation about Bill Gates's place on the autistic spectrum has not caused people to question his

ability to lead Microsoft. Bradley's story about Summers, like Summers's story about women and science, draws our attention to the dangers inherent in the idea of innate cognitive difference.

The task now before us is to heed the warnings of the Summers controversy while also creating pedagogical theories and practices that are responsive to neurological difference. This project will certainly be a challenge. We can find impetus and direction not only from cognitive science and neurobiology, but also within our own field, by returning to Mina Shaughnessy, who writes in *Errors and Expectations* that to teach students well we must understand "the intelligence of their mistakes" (11). Indeed, when I attend to the *intelligence* that informs Gregory's mistakes—when I examine the particular characteristics of his writing that reveal his ways of thinking—I see both his unique mental capacities *and* the impairments of his Asperger's. The social turn has rightly made us wary of the cultural and ideological forces that shape medical categories and paradigms, but we can accept the presence of these forces without concluding that all medical information is invalid. Similarly, we can believe that putting all students into neurological categories would be a grave educational and ethical error, while we also recognize that those on the autistic spectrum will benefit if we allow neurological research to contribute to—but not determine—our understanding of "the intelligence of their mistakes."

As I seek a middle ground between a constructionist rejection of scientific positivism and the extreme of biological determinism, I turn again to Shaughnessy, this time to her essay "Diving In: An Introduction to Basic Writing," a witty parody of the developmental stages once used to label students. In this essay Shaughnessy considers the obstacles to understanding between basic writers and their teachers. She writes: "[A]s we come to know these students better, we begin to see that the greatest barrier to our work with them is our ignorance of them and of the very subject we have contracted to teach" (317). I am aware that there is a certain irony in quoting a passage from Shaughnessy's argument against cognitive science as I call for renewed acceptance of the knowledge offered by neuroscience. Yet I would like to reclaim her wisdom about the barrier of ignorance for our present context and to draw the conclusion that I feel composition must draw right now: uncomfortable as the idea of innate cognitive difference may make us, it is time to open ourselves to learning as much as we can about the neurology of autism and Asperger's. We must expand our sense of the depth and reach of difference—not so that we can exclude, but so that we can teach.

NOTE

1. Arguments supporting the theory-of-mind hypothesis are pervasive in the scientific literature about autism. The many significant contributions to the study of theory of mind include the work of

Simon Baron-Cohen, Helen Tager-Flusberg, and Donald J. Cohen, *Understanding Other Minds: Perspectives from Autism*; Uta Frith's review lecture, "Confusions and Controversies about Asperger Syndrome"; and Alan Leslie's "'Theory of Mind' as a Mechanism for Selective Attention." Some of the opposition to theory of mind comes from within the autism community and is published online. For a selection of blog entries, self-published articles, and transcripts that express opposition to the theory of mind hypothesis, see the "Theory of Mind and Autism" section of Kathleen Seidel's *Neurodiversity.com*.

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To express *your* ideas about college students with autism, visit our new interactive Web site, *College English* Dialogues (www.indiana.edu/~cedialog).