

## Before Deliberation and Dissent: Take Curiosity Seriously

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In the exploratory spirit of John Dewey<sup>1</sup> and Alfred North Whitehead,<sup>2</sup> I am introducing this essay on curiosity,<sup>3</sup> not with analysis or theory, but with a narrative of actual educational events in all their richness of context. The events in this exemplar describe how a student portrayed as “problematic” by previous teachers eventually found success in a school where his sense of curiosity was encouraged. Data are taken from writings at the time and portfolio notes from faculty members and the author. Names have been changed to respect the privacy of the individuals. In the course of this discussion, I wish to demonstrate that curiosity is prior to, and embedded in, both deliberation and dissent.

### DANIEL AND THE SCHOOL BELL

Of all the third graders in his school, Daniel was the best known in the principal’s office. He would typically arrive by 9:05 in the morning and stay until his class went to lunch. He didn’t like the principal’s office all that much, but he seemed to have concluded that being there was better than being in class. His teacher concurred. School personnel estimated that Daniel spent slightly more than half of his time that year in his appointed chair near the office door. They made no attempt to feign regret when Daniel and his parents announced that they would be shifting schools at the end of the year.

I had come to appreciate Daniel in first grade when I worked with his class on enrichment projects in his local public school. That year we discovered that we shared a fascination for the vivid pageantry and romance of the Middle Ages. In my classes, Daniel quickly outgrew castle building and moved on to become an expert in the heraldry and battle strategies of the 11th century. He prepared for the medieval banquet with the zeal of a scholar, learning the ingredients of the most succulent feast dishes, and the dubious honor bestowed upon the knight chosen to be the king’s taster. Because he knew that banquet halls were strewn with straw to mop up the garbage of the revelers, he spent two days mowing dried grass in a vacant lot near his house. After filling ten debris bags, he figured he had enough hay to create a proper air of authenticity for his classroom. His teacher wisely suggested using the hay for the outdoor

festival area.

At the end of his second-grade year, Daniel's neighborhood school was closed due to declining enrollment, and students shifted to a more traditional public school. However, in fourth grade our acquaintance was reestablished when his parents enrolled him in a new progressive independent school. My earlier role as mentor cooled in the chillier reality of my new persona as his principal. Three weeks into the school year, Daniel was making periodic visits to my office, as he had in his previous school.

Despite the fact that she was a seasoned professional known for her sensitivity in understanding her students, his teacher Carol sometimes seemed to have met her match in Daniel. On those days that she felt herself to be losing the contest, Carol would call the office, demanding in a tense voice that I "come and get Daniel right now!"

Other times he arrived on his own, demonstrating his subtle control of classroom dynamics. One afternoon he appeared at my door with a chair in his hand.

"So, Daniel, what brings you today?" I asked.

"Well, Carol told me to take a seat; so, I did," he answered, keeping his face carefully deadpan.

I allowed the merest flicker of appreciation in my eye to match the glint in his, before responding, in the driest of tones, "And I see that you took it literally. Well, I suppose we're all lucky that she didn't ask you to give her a hand ... but what made you decide to bring the chair here?"

"Carol suggested the location as I was walking out the door," he responded, still resolutely even toned. "It just seemed appropriate."

"A wise decision," I agreed. "Well, since you and your chair are here now, you can finish your assignment in my office. What was it that you were supposed to be working on?"

"Fractions...in the workbook."

"Oh, I see. Then you'd better get your workbook so that you can finish them up."

The timing of Daniel's disruption came as no surprise to me. Although his mathematical ability could be prodigious in figuring out the timing of schoolyard sprinklers, or in calculating returns of money-making schemes, the same ability disintegrated alarmingly when he was asked to confine his talents to answering questions from arithmetic workbooks. Suddenly, computations took twice as long to complete and distractions preventing him from finishing his work rose up in legions out of nowhere.

In the weeks that followed, it remained touch and go with Daniel. He continued to try the patience not only of his classroom teacher, but also his art teacher, his science teacher, and his math specialist. In our staff meetings, we reported that we wavered between elation, frustration, and infuriation in our encounters with him. At times Daniel would be a brilliant student; at others he could be a teacher's nightmare. We agreed on one thing: that he seemed to be insatiably curious. We decided to try to encourage his curiosity instead of stifling it by engaging his help in the classroom and science lab. Daniel soon became the resident expert for the aging projection equipment of the school and teachers learned that he could coax a recalcitrant computer into operation faster than most adults.

As the school year progressed, we noticed that Daniel seemed to thrive when his curiosity was engaged. Broken equipment cried out to be repaired, or, even better, refashioned. He began to be increasingly successful in class. He impressed the math specialist with his ingenious function machine; his design for a suspension bridge won praise in science, and everyone admired his motorcycle sculpture with its whirring wheels and flashing lights. In time, even Carol, who bore the major burden of teaching Daniel, began to report with pride his ingenious analysis of the Aztec calendar, flashes of incisive writing, and parting shots of wit.

One spring afternoon, I worked quietly on the budget for the coming year, my head and hands intently focused on the figures before me, sorting out the implications of numbers on the spreadsheet. Absorbed as I was, it took some time to become aware of the figure moving slowly near my desk. Finally, fighting the pull of the columns in front of me, I looked up. Daniel, staring at the ceiling, was wandering vaguely up and down the length of my office.

“Daniel, can I do something for you?”

“I’m ahhh . . . just checking out the wiring for the bell system . . .”

“The bell system?”

It was well known that there was no bell system in our startup building that had once housed a church school. We had to signal the end of recess with an old brass hand bell.

“Yeah, the school bell on the playground that hasn’t worked all year.”

“There’s a bell on the playground?”

“Sure. It’s just above the front door. I’ve traced the wiring through the science lab and into your office. I think the trigger may be somewhere behind your desk. Would you mind if I take a look?”

“Wait a minute, I never knew anything about a bell. Show me where it is and how you traced it. Then you can hunt behind my desk.”

Sure enough, the antiquated bell was there on the playground, just where he said it was. And the trigger was behind my desk too, up on the wall. It took Daniel a month to get the wiring system sorted out. When he figured he had it fixed, we agreed to try ringing the bell to announce the close of school that day.

Daniel arrived at my office two minutes before 3:00. The trigger was high on the wall, probably placed there by some previous administrator so that kids would not be able not reach it. We certainly could not reach it.

Daniel noticed a chair near the office door and dragged it over behind my desk. He climbed up. He took a deep breath, nervously wiped the palms of his hands against his pants and pushed the button. It was a splendid, outrageous, ear-splitting clanging. It seemed to go ringing on and on, reverberating through the school, and making the normal end of day bustle sound quiet by comparison.

Daniel shot off the chair, swinging his arms high in victory, whooping with delight. No school dismissal was ever better!

## CURIOSITY, SERIOUSLY

Einstein would have applauded Daniel and his curiosity. When asked about his extraordinary achievement in physics, Einstein responded: “The important thing is not to stop questioning. Curiosity has its own reason for existing.”<sup>4</sup> Einstein was not alone in this assessment. Most eminent scientists attribute their motivation for research to their strong sense of curiosity. Any teacher, listening to the diverse outpourings of students after asking what they would like to learn about insects will agree with Einstein’s tribute to the curious mind. Parents, watching their child explore the possibilities of pots and pans in a kitchen cabinet, would be quick to nod in agreement. The park ranger struggling to respond to the countless questions of five-year olds on a nature walk would also testify to the power of curiosity. As a parent I have rejoiced in the fascinating twists and turns of my own children’s curiosity; as an educator I have often been humbled by the power of this most common of human attributes. The example of Daniel illustrates not only the resilience of this trait, but also some of its more troublesome aspects.

### EDUCATIONAL PERSPECTIVES ON CURIOSITY

Since most teachers agree that curiosity is key to learning, it may seem surprising to find that the concept is not typically analyzed in traditional accounts of educational theory. This disinterest in curiosity turns out to have deep roots, not only in education, but also in philosophy and psychology.<sup>5</sup> For one thing, curiosity has a rebellious, undisciplined quality about it, making its effects not easily amenable to controlled outcomes. Daniel, who personified these untidy qualities of curiosity, was not known to be model student, even by his most sympathetic teachers. If one views education largely as a matter of producing disciplined followers of prescribed social norms, then curiosity is not a helpful characteristic to encourage. Curiosity sparks one’s own personal searches and those searches may not serve the immediate societal goals of formal schooling.

Disinterest in curiosity has other roots as well.<sup>6</sup> During the Middle Ages most philosophical inquiry in the West was controlled by the church. Curiosity and the seeking of knowledge were opposed by those dedicated to establishing a catechism of strict beliefs. After all, the seeking of knowledge had caused Adam’s fall. Church fathers pointed to Greek stories of Icarus

who flew too close to the sun on his father's wings, and of Actaeon who drove Apollo's horses too close to the sun. These disaster tales of flying too high and seeking too much reinforced the church's goal of obedient belief. In this sense, the ultimate sin was curiosity.

Most traditional philosophical accounts of knowledge have tended to distinguish reason from emotion. Cartesian dualism has cast a shadow lasting nearly four hundred years over arguments not only for the existence of God, but also the reality of the known world, and the foundations of certainty.<sup>7</sup> Protestations of Dewey and Whitehead against this dualism were largely overlooked during the 20<sup>th</sup> century.<sup>8</sup> Only recently have philosophical accounts of emotion by Martha Nussbaum,<sup>9</sup> Ilhan Inan<sup>10</sup> and others begun to reexamine the subtle relationships of emotion and reason. In the meantime, academics described separate domains of reason and emotion, which psychologists differentiated as cognitive and affective domains. Curiosity, however, does not fit into these facile categories. Like the seductive piping of Pan, curiosity defies easy definition, measurement, and accountability standards. Consequently, curiosity was not mentioned in the 1956 taxonomy of ascending cognitive skills<sup>11</sup> to be acquired by students, nor in the 1972 taxonomy of psychomotor skills,<sup>12</sup> nor in the taxonomy of affective or emotional skills issued in 1973.<sup>13</sup> Therefore, most curriculum based on these sources avoided curiosity.

Curiosity also defies categorization as a purely human trait. Mind/body dualism traditionally drew a line between human and animal thought with the development of language in the humans. According to these accounts, humans could speak, and therefore think and learn, while animals acted from instinct.<sup>14</sup> However, we know that humans are not the only curious beings. Cats, dogs, birds, and apes have all been observed registering surprise at their reflections in mirrors and then trying to discover the location of the mysterious creature. Since many animal species as well as people exhibit curiosity, some held that it should be classified as an instinct.<sup>15</sup> But if curiosity does not result in a fixed pattern of actions, but rather the reverse, then it is difficult to see how it could be classified as an instinct. Still others, in an attempt to maintain a clear dividing line between animal and human thought, suggest that human curiosity must differ in some essential way from animal curiosity.<sup>16</sup> However, as we learn more

about the intricacies of animal thought, such barriers between human and animal thought are increasingly being eroded.<sup>17</sup>

Even thinkers who resist making a clear distinction between emotional and rational thought tend to avoid treating the topic of curiosity. Howard Gardner, who brought us the theory of multiple intelligences in 1983,<sup>18</sup> did not articulate a particular role for curiosity, nor did Nussbaum's *Upheavals of Thought*. At least two highly regarded guides to motivating diverse learners also avoid direct reference to curiosity.<sup>19</sup>

In fact, many educators and psychologists have suggested that an abundance of curiosity can be too much of a good thing. Children with extremely active curiosity may be characterized as unfocused, lacking in self-control, or even as deficient in attention mechanisms. Some of these children are labeled as suffering from an attention deficient disorder and may be treated with drugs to help them focus on their classroom assignments. Indeed, when Daniel was in third grade, his school officials suggested that he be tested for ADHD and treated with Ritalin.

Others argue that curiosity becomes disciplined or pruned as the child grows. Much of Piaget's work in cognitive development studied the process by which children learned to extend their curiosity by more effective forms of inquiry based in logical analyses.<sup>20</sup> The disciplining of the brain has been demonstrated by recent neurological research showing how synaptic pruning occurs in the brain during childhood and adolescence.<sup>21</sup> This pruning helps focus sustained logical thought and reduces rash unpredictable responses to cognitive problems as adolescence proceeds. There is increasing evidence that the continued development of the prefrontal cortex depends on pruning in the mid-section of the brain during adolescence. This research suggests a tension of sorts between a young child's naïve or unrestrained curiosity and the more sophisticated curiosity that develops as the child learns how to effectively pursue an inquiry, how to answer her own questions, and how to recognize what counts as a good answer to her question. Just how is mature curiosity different, if at all, from a child's naïve curiosity? The trick is to refine curiosity without destroying its intrinsic generative integrity. Ironically, Dewey and Whitehead pursued these same questions, before academic critics placed their works in

cold storage.<sup>22</sup> Both used the metaphor of an airplane rising on the wings of curiosity, gaining altitude from critical examination, and returning to earth for fresh insights before rising again.<sup>23</sup>

We know that curiosity is present from infancy to extreme old age. This proclivity to explore and to question is more like an itch, rather than a pleasure or a pain. It can be stimulated by novelty or simply by perceiving afresh what has already been known or explored. Once generated, the experience can be sustained until a question has been posed and answered, until an area has been entirely explored, until the possibilities have been exhausted, or in cases of encountering obstacles, until the enterprise has become completely frustrating. In this sense, the experience of curiosity seems to function similarly to Imre Lakatos's description of the research programs of scientists. Anomalous information spurs new research: new evidence answers some questions while raising others. What doesn't fit neatly into an understood pattern excites further attention. In this way, the open-ended evolution of a scientific research program is similar to that of a child's exploration of the world.<sup>24</sup>

Learning sparked by curiosity is self-motivating and open-ended. As Whitehead pointed out, curiosity spirals outward, leading the individual on a treasure hunt into the unknown.<sup>25</sup> The learning inspired by curiosity differs fundamentally from learning which is extrinsically motivated to serve particular social, political, or economic ends. Intrinsically motivated learning inspired by curiosity may be put to positive (or even negative) social, political, or economic ends but it is not subservient to those ends. It is prior to them. Just as Einstein understood that curiosity has its own reason for being, I would argue that the best learning, like curiosity, has its own reason for being, which is prior to its uses by current societal authorities. If we want our children to learn with depth and passion, we must tap into that very personal and intrinsic motivation. We must start with the child's curiosity.

#### STARTING WITH CURIOSITY: PROBLEMS AND RESPONSIBILITIES

Inquiring into the nature of curiosity asks us to revise simplistic categorizations of learning in order to study it further. This is an itch that should be scratched, not avoided, repressed, or medicated away. If understanding how to support and refine curiosity is critical to creating successful learning programs,

we must start with the children themselves, rather than society's goals for them. As we develop curriculum and learning projects, we must consider each child's genuine interests as legitimate subjects of inquiry. But starting with curiosity should not allow us to abrogate our responsibility as adults and educators and just let children go their own ways without guidance or support. Rather we must ask how best to support children's inquiry, how to help them learn to refine their searches, and how to proceed when their curiosity is at odds with group goals and needs.

Starting with curiosity requires us to examine the resources that support inquiry. We live in an age of media abundance, with vast sources of cultural information both positive and pernicious. Our environment contains sources of beauty and health; it also contains sources of pollutants and toxins. As Dewey<sup>26</sup> and Martin have shown,<sup>27</sup> our society is rife with potential harmful influences as well as cultural treasures. Martin<sup>28</sup> and Noddings<sup>29</sup> have argued that we need to select wisely from this abundance if we are to give our children resources for stimulating and supporting their healthy curiosity.

Asking how to support and refine curiosity requires examining what do we mean by "refinement." When does refinement become "containment?" In what ways do group goals and norms subtly shape the direction and process of the child's curiosity? What happens when the child's curiosity is at odds with group goals and needs? Curiosity is an autonomous goal, which may come into conflict with group goals. Philosophers such as Sandal<sup>30</sup> and Callan<sup>31</sup> have argued over whether community goals or autonomous goals should prevail in particular situations, but most agree that community and autonomous goals must come into conflict in some situations. What limits, if any, should be placed on an individual's evolving curiosity in these antagonistic situations? Must this be matter for legislation or conflict resolution, or is it reasonable to expect a communal spirit of curiosity to emerge in the form of group problem solving, much as scientific research programs emerge among groups of scientists over time? The answer to this conundrum may be to start small. Rather than approaching this question on a district, societal, or governmental level, let us start with the family and the classroom. I propose that enlightened classroom communities can build a sense of shared endeavor that celebrates children's curiosity as they

build cohesive and empathic social relationships.

### STARTING WITH THE CHILD: INSPIRING SOURCES

Given the importance of creating educational programs that support children's curiosity and the reluctance of many educators to address this topic with the care that it deserves, a reasonable course of action is to look back to some inspiring examples from the past. In this regard, we can look with confidence to the groundbreaking work of John Dewey, Maria Montessori, Loris Malaguzzio, and Jerome Bruner.

When John Dewey established the University of Chicago Laboratory School in 1896, he was committed to having children learn from each other as well as from their teachers. Dewey believed that children working together would spark each other's interest and curiosity as they learned essential skills of collaboration and democratic decision-making.<sup>32</sup> When Francis Parker joined the school in 1901, he infused the school with his conviction that children's curiosity about the world stimulated their learning as much as their social interactions.<sup>33</sup> Parker's commitment to encouraging curiosity led to an increased emphasis on nature study and exploratory outdoor field trips.

From Maria Montessori we are indebted to a vision of children as self-directed learners<sup>34</sup> assisted by teachers who are primarily observers of the child's actions and organizers of the child's environment. Montessori believed that this environment should be as peaceful, natural, and beautiful as possible, with easy access to the outdoors.<sup>35</sup> Care was taken to respect children's periods of intense concentration by allowing them to work alone for extended periods. The Montessori classroom, with its systematic resources in practical life, sensorial exploration, and cultural development, provided children with an open-ended but orderly invitation to give rein to their curiosity.

After the second world war, journalist Loris Malaguzzio committed himself to rebuilding bombed out schools in Northeastern Italy. Today the preschools that he created in Reggio Emilia<sup>36</sup> stand as models for early childhood development. Their beautiful, spacious environments and careful mix of individual learning spaces and group meeting areas foster deeply respectful relationships between teachers and students. Reggio Emilia schools are famous for their rich supply of resources for learning, and for their in-depth topical explorations lasting for several

months on themes of interest to young children, such as sunlight, water, or ants.

Jerome Bruner<sup>37</sup> brought distinguished scholars to work in collaboration with gifted teachers to encourage children to inquire fruitfully into the conceptual issues at the heart of each subject area. Their first collaboration produced the groundbreaking Physical Science Study Curriculum, which provided the model for the inquiry approach refined in later curriculum projects. Bruner and his colleagues produced some of America's most inventive and appealing curriculum projects including Elementary Science Study,<sup>38</sup> which recalled Parker's work by engaging students to investigate serious scientific questions with everyday equipment and materials. These collaborative curriculum projects<sup>39</sup> provided opportunities for educators to refine curiosity, sustain inquiry, and stimulate learning in depth. They developed critical thinking, encouraged transfer of knowledge from one study to another, and inspired today's inquiry projects, including Facing History,<sup>40</sup> The 1619 Project,<sup>41</sup> and the MARE curriculum of Lawrence Hall of Science.<sup>42</sup> A critical element of their success, however, was to begin with the child's own curiosity.

#### TAKING ACTION

From these visionaries we can deduce five key principles for encouraging curiosity:

1. Respect children's initiative. Provide ample opportunity for open-ended inquiry; allow children time and space to ask and follow through on their own questions.
2. Establish a climate of respect and caring between adult and child and among children.
3. Provide a rich environment for learning. Supply an array of resources, supplies, and tools in harmonious surroundings and orderly but non-restrictive organization.
4. Take curiosity further. Provide children the opportunity to explore conceptually rich topics of inquiry and encourage them to reflect further on their observations and investigations.
5. Go deeper; continue asking questions. As each cycle of exploration begins to bear intellectual fruit, help students ask, "*What should we do now? What do we need to know now? What new tools do we need to find out?*" By keeping the spiral of learning circling out, the adverse

effects of miseducation can be minimized, and children's sense of empowerment can be strengthened. If their actions lead to forms of dissent against injustice, so much the better.

#### DANIEL AND HIS TEACHERS REVISITED

Daniel is an example of a student whose intense curiosity and motivation to find answers to his questions led him to rebel against traditional classroom structures that dictated what and how he should be learning at each point of the school day. As an intelligent student, he soon learned that he could escape this torture by acting out and being removed from the classroom. During Daniel's third grade year he succeeded in spending most of his days outside the principal's office of his public elementary school.

But I knew Daniel as a different kind of student. As the founding principal in the small progressive school where he spent fourth through sixth grade, I watched Daniel emerge from the restless rebellion of his previous year to become an engaged, dynamic, and creative, if sometimes trying, learner. As his teachers learned to help him focus his questions in positive inquiry, his confidence as a student bloomed. In high school Daniel became editor of his school's award-winning newspaper that produced eloquent protests against American imperialism in the Middle East and racism here in the United States. At last word, Daniel was traveling across the Middle East, still asking tough questions.

Asking tough questions is just what we should be educating students to do, according to cyber-experts who look to the future. "Find things out, find out, find out! Inflammate your curiosity!" advises digerati genius Nathan Myhrvold.<sup>43</sup> Basic research informed by curiosity is fundamental to the infrastructure of emerging knowledge argues Robbert Dijkgraaf,<sup>44</sup> echoing Lakatos's analysis of research programs. When journalist Fareed Zakaria asked Eric Schmidt, former CEO of Google, how the fast-moving changes in technology would affect the educational needs of today's youth, his answer was similar. "What you really need to do is to teach people to be curious," Schmidt answered. "And then give them the skills to find answers to their questions and to sort out what is true from what is false."<sup>45</sup> Children should be educated to be global citizens, he continued; investigative skills are essential to a responsible global citizenry.

Schmidt's comments reflect the wisdom of Dewey and Whitehead. Both

philosophers examined the process by which curiosity can develop into deeper knowledge, reflection, and deliberation.<sup>46</sup> Indeed, Whitehead's articulation of precision is intended to spell out how the romance of curiosity is honed to permit more sophisticated inquiry.<sup>47</sup> Furthermore, both argued that the major goal of learning is to take positive action in the world.<sup>48</sup> Finally, they both walked their talk by dissenting vigorously from prevailing trends of thought they found injurious to society.<sup>49</sup> To ask leads to deliberation, and together, asking and deliberation can lead to dissent when needed. And these three working together just may save our democracy.

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45 Eric Schmidt, “Interview,” *Fareed Zakaria, GPS*, CNN, November 28, 2009.

46 See Dewey, “My Pedagogic Creed,” 19-32. See also Whitehead, “The Rhythm of Education,” in *Aims of Education*, 15-28.

47 Describing the phase of precision, Whitehead states “understand that (students) are not beginning these subjects, but putting together a previous discourse by an exact formulation of their main ideas. Whitehead, *Aims of Education*, 24. See also Nel Noddings, *Critical Lessons; What Our Schools Should Teach* (Cambridge: Cambridge University Press, 2006), 32-35.

48 See Dewey, “My Pedagogic Creed,” 22-23. See also Whitehead “The vitality of thought is in adventure. Ideas won’t keep. Something must be done about them.” Whitehead and Lucien Price, *Dialogues of Alfred North Whitehead*, as recorded by Lucien Price (New York: Mentor, 1956), 100.

49 See Dewey quoted by Sarah M. Stitzlein, *Teaching for Dissent: Citizenship Education and Political Action* (New York: Routledge, 2013), 1. See also

Whitehead's blast of American's ecological ignorance in Alexandre Poisson, "The Influence of A.N. Whitehead on the Future of Ecological Economics," *Minding Nature* 4, no. 1 (2011): 17.