Learning to Stop, Stopping to Learn

Discovering the Contemplative Dimension in Education

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Contemplative pedagogy is a young and growing approach in American education. It invites new possibilities for the emergence of creativity and promotes depth of understanding and a more personal relationship with course content. The path to contemplative learning is different for each educator who travels it. Experiences that led to the development of a personal contemplative practice and its impact on the author's teaching, over time, are described. Focus is especially on the just begun contemplative methods used in teaching a 10th-grade mathematics course. In the process, the dimensions of centering, questioning, awareness, and community, central to the contemplative element of the course, are examined. To give the reader a taste of the course, poetry, stories, and quotations that the author shared with his students are included. The article concludes with a discussion of outcomes from the first year of the course, changes made in response to what has been learnt, and new questions that have arisen.

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To arrive at the simplest truth, as Newton knew and practiced, requires years of contemplation. Not activity. Not reasoning. Not calculating. Not busy behavior of any kind. Not reading. Not talking. Not making an effort. Not thinking. Simply bearing in mind what it is one needs to know. And yet those with the courage to tread this path to real discovery, apart from not being offered any practical guidance on how to do so, are actively discouraged, and they have to set about it in secret while pretending to be diligently engaged in the frantic diversions and conforming with the deadening personal opinions that are being continually thrust on them (Spencer-Brown, 1979).

Contemplation, the act of attending with nonjudgmental awareness or being open to things just as they are, has long been practiced and cultivated in the world's

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wisdom traditions. Although research on contemplation has been shown to benefit performance, character development, and insight,[1] contemplative pedagogy is a very recent development in the West.[2]

This article describes my first steps in weaving contemplative learning into an existing high school mathematics course.[3] My intention is to provide the benefits that contemplative learning can provide to all the students, guide those students who already possess a bent for contemplation as a way of knowing and learning, and provide other students an introduction to this form of learning. I will describe the experiences that influenced the creation of this course, its first days, and the four dimensions—centering, questioning, awareness, and community—that are central to its contemplative aspect. I will describe methods I am using to support these dimensions, such as employing poetry, stories, and quotations. I invite you, like my students, to read each of these contemplative passages slowly, then stop, close your eyes, and breathing in and out several times simply absorb it.

If you are using contemplative pedagogy now, I hope you will find resources in this essay that will enrich your teaching. If you have had personal experiences with contemplative practices but have not sought to share them with your students, may you find here the encouragement and support to begin. Finally, if contemplative practice is new to you, I hope you will see some possibilities for new directions to your own life and teaching in the story of my path to contemplative learning.

Origins

Math II is a 10th-grade honors geometry and trigonometry course, a course I have taught many times. This year we will be studying the same curriculum but shall be using contemplation as an additional means of learning. For me, the roots of this approach go back to 1973, my first year of teaching math at Sidwell Friends, a Quaker school in Washington, DC. It was then, in the weekly meeting for worship, when our entire upper school community sits in silence for 40 minutes in the Quaker manner, that I first encountered collective silence—silence occasionally punctuated by a spontaneous message from a student or faculty member. Into the space carved out by this silence, all manner of new understandings have come to me, a few born of the messages of others but most from within. Inspired by the power and possibility of silence, I have begun each of my classes for the last 32 years with a moment of silence. These moments mainly serve to help the students make the transition to my class and focus themselves on the activities at hand.

Quakers describe their attitude in worship as expectant waiting. Through activities such as prayer and silent recitation of Bible passages that center and quiet the conditioned, discursive thinking the mind habitually engages in, Quakers seek to create conditions in which the still, small voice of the spirit can be heard. From Spencer-Brown's (1979) description of Newton, the mental habits that enabled him to arrive at the simplest truth come close to those of Quakers in worship. Both are similar to those of artists opening themselves to the creative

muse.[4] In contrast, the following Sufi story parallels the all too common picture of the typical high school student's approach to solving challenging problems.

> Mulla Nasruddin was outside on his hands and knees below a lantern when a friend walked up. "What are you doing, Mulla?" his friend asked. "I'm looking for my key: I've lost it." So his friend got down on his hands and knees too and they both searched for a long time in the dirt beneath the lantern. Finding nothing, his friend finally turned to him and asked, "Where exactly did you lose it?" Nasruddin replied, "I lost it in the house, but there is more light out here." (Feldman & Kornfield, 1991, p. 99)

As a 10th-grade geometry student myself, I remember working on a geometry proof for the better part of a year. Lacking the tools to let go of my usual way of thinking, I, like Nasruddin, looked for the problem's solution only under the light. I had no sense there might be ways to look in the dark for solutions to problems; subsequently, I found otherwise.

During summer vacations from Sidwell Friends, I taught problem solving at St. Mary's Center, a residential summer program for gifted and talented junior high students. Through this program I was introduced to creative problem solving (CPS), a process developed by Sidney Parnes and Alex Osborn for working on real-life problems. Each of the five stages of this process begins with a divergent, brainstorming phase. The results then feed into a convergent, evaluation phase. Like contemplation, brainstorming requires nonjudgmental, nondiscursive thinking. In the CPS process, this is referred to as deferred judgment. Parnes (1981) described it as follows.

> The essence of deferred judgment is to allow a given period of time for listing all the ideas that come to mind regarding a problem, without judging them in any way. Forget about the quality of the ideas entirely and stretch for quantity. Combine or modify any of the ideas which have already been listed in order to produce additional ideas. Quantity and freedom of expression, without evaluation, are the key points which allow free reign to the imagination. Many of the psychological blocks caused by habit and past experience are broken down by the strange associations that take place during the "free wheeling" process of deferred judgment. (p. 85)

Impressed by the possibilities for enhancing student creativity by encouraging new kinds of thinking, I studied the CPS process at several of the annual CPS Institutes[5] and then took advantage of a sabbatical from Sidwell Friends to study creativity with Dr. Parnes in Buffalo State's creative studies department. Free wheeling, divergent thinking was far removed from the rational, linear thinking engaged in by my upper school students in learning and using mathematics. I was at a loss as to how to incorporate it. Indeed, with the introduction of contemplation into Math II 20 years later, I am only now making enhancement of student creativity as an explicit goal of a math course.

My sabbatical also gave me the opportunity to study with Parker Palmer at Pendle Hill, a Quaker study center outside of Philadelphia. Prior to meeting Parker, I had read his book, *To Know As We Are Known: A Spirituality of Education* (Palmer, 1983). I was intrigued by his definition of teaching as "creating a space where obedience to truth is practiced" (p. 69). Truth here refers to the truth of the subject matter and the truth that the teacher and each of the students bring to the educational encounter. This definition came alive in Parker's classes where he consistently created such a space. Parker introduced me to the practice of learning through contemplation using the teachings of Taoist sage Chuang Tzu as rendered by Merton (1965). Our class silently read a teaching, sat with it for a while, wrote in our journals, and then, speaking out of the silence, shared how the reading related to our life experience. The deep connections I experienced to these teachings, to Parker, to the other students, and to myself were unlike any I had previously experienced as a student.

I had the opportunity to take this teaching method back home when my school alternated small study groups with meeting for worship. I invited my group to read the Chuang Tzu book that Parker had used. At every meeting, two students would hand out copies of teachings they had selected during the past 2 weeks. The class worked with them exactly as we had with Parker—silently reading and reflecting on them, then sharing out of the silence. Though the students found the teachings challenging, their sharing was personal and often insightful. It never occurred to me that I would some day be able to incorporate such an approach in my math classes.

Several years later, when the upper school community was experiencing an unusual amount of stress, I began reading *The Miracle of Mindfulness* by Vietnamese Zen master Nhat Hanh (1975). I saw how useful his teaching might be to my very busy students and began to share short readings with my classes following our opening silence. From the initial passages about how to have unlimited time for oneself, students appreciated the importance of these readings as supplements to their mathematical learning.

Centering

Years later, I began studying with Thich Nhat Hanh himself and started a personal meditation practice.[6] These studies included an introduction to the custom of stopping at the sound of a bell and giving one's full attention to the present moment. I purchased a *ringong*, a small Japanese bell, and brought it to my math classes. I sounded it at the beginning of class and from time to time to help the students stop and center themselves. Time seemed to stop during those brief moments. The students responded to the bell with respect. Space, as Brown (2003, p. 89) describes below, opened up in the classroom.

Fire

What makes a fire burn
is space between the logs,
a breathing space.
Too much of a good thing,
too many logs
packed in too tight
can douse the flames
almost as surely
as a pail of water would.
So building fires
requires attention
to the spaces in between,
as much as to the wood.
When we are able to build
open spaces
in the same way
we have learned
to pile on the logs,
then we can come to see how
it is fuel, and absence of the fuel
together, that make fire possible.
We only need to lay a log
lightly from time to time.
A fire
grows
simply because the space is there,
with openings
in which the flame
that knows just how it wants to burn
can find its way.

As my meditation practice matured, my life started to slow down. I become more relaxed. In the health component of our freshman studies course, I began teaching meditation to help our ninth graders create more space in their lives and reduce stress.[7] Then, because math quizzes and tests were a source of stress for so many students, I started to offer guided meditations before each test and quiz. First, I asked students to get in touch with their emotions—excitement, nervousness, even fear—and then to observe these emotions without getting carried away by them. Next, I asked them to visualize a time when they had felt good about some mathematical accomplishment, perhaps learning to count or solving a particularly challenging algebra problem. After a couple of minutes of this, students were ready to begin work with a positive focus.

We all have anxiety and tension awaiting situations we may not be fully prepared for. Learning to be aware of such feelings and accepting them as natural already begins to create interior space. This is a significant life skill for students to learn. However, it is also important for students to know they are much more

than these particular feelings. This awareness makes it possible for students to make the choice to focus on other experiences that evoke feelings of competence and readiness. After her first quiz this year, a student wrote in her journal that "yesterday we were given a pop quiz, but we meditated beforehand. I barely had time to worry because the atmosphere was one of calmness and peace. A little silence went such a long way."

Because they had another teacher as their exam proctor, students in one of my courses had no time to meditate before taking their midyear exam last year. I visited them during a break from my proctoring assignment and handed them cards reminding them to stop and breathe. Many students found these reminders helpful. Before the final exam, the students asked me to distribute the breathe cards again. One student even reported that "I like to take a moment to meditate before tests and quizzes in other subjects to calm myself down and focus on the positive."

Our students have very full schedules. They do their math quickly, at best mastering the material and using it to solve problems successfully but rarely aware of their relationship to the work. Could students become more mindful of their thinking? I thought they could if I gave them time specifically dedicated to doing so. Thus, for the past 3 years my students have done 5 minutes of free writing every Friday. My instructions are, "Spend the next 5 minutes writing down whatever comes into your awareness. Do not stop writing. Should you find nothing in your mind, write 'my mind is blank' over and over until something shows up." I never read this writing. It is only for the students. Many take to it from the start. Others report being initially put off by the randomness of their minds but over time find their thinking becoming more coherent. The exercise of writing takes on real value. On the rare occasions I forget it is writing day, the students are quick to remind me.

In the summer of 2001, I joined other educators interested in fostering contemplative awareness, or mindfulness, in founding the Mindfulness in Education Network (MiEN).[8] The network's first action was to establish a listserv, which now includes 325 members ranging from kindergarten teachers to university professors and adult educators. Other MiEN members indicate concerns similar to mine—how to help students be more centered and present in class and, ultimately, in life. MiEN members are using bells, reading stories, and offering relaxation practices, yoga, eating meditation, and meditation on the breath in their classes. Teachers of younger children are weaving these experiences into their curricula. Subject matter teachers generally use these practices at the beginning of instructional periods or stop the regular learning activities to engage in them.

A New Vision

Through the Center for Contemplative Mind in Society,[9] I learned of a network of college and university professors who were using contemplative methods in their courses. In February of 2005, I attended the conference at Teachers College, Columbia University, on contemplative practices and education sponsored by the

center. Nearly 200 teachers from all levels of education attended. Many of the presenters were recipients of contemplative practice fellowships,[10] awarded jointly by the center and the American Council of Learned Societies. Presenters described some courses in which contemplative practices were primary objects of study, such as one on Buddhist psychology. In other courses, such as improvisational jazz, these practices helped students develop more presence in playing. In a creative writing course, contemplative practices were used by the students in the process of writing poems. In the closing talk of the conference, on "Love and Knowledge," Amherst College physics professor Zajonc (2006) described a course he and a colleague from Amherst's art history department offered. Throughout the course, they incorporate contemplation in a variety of forms as a means to learn and develop deep insights. Reported student reactions to the course included gratitude and surprise that such a course was offered by the college.

During the contemplative education conference, Mirabai Bush, the director of the center, announced it would be sponsoring a weeklong summer workshop at Smith College on contemplative curriculum development.[11] Inspired by Professor Zajonc's talk, I felt drawn to attend the workshop and develop contemplative learning methods for one of my mathematics courses. Math II seemed the best candidate. Spending time contemplating geometric figures would at the least provide opportunities for new insights to arise. Beyond that, I was in the dark about what new methods I might employ. My department head and principal had faith in my ability to develop something of merit. Valuing their support, I suggested that they might be hearing from surprised students and parents concerned that this new version of Math II was not providing adequate preparation for subsequent courses. I spent the summer anticipating the workshop with a mixture of excitement and nervousness, telling friends about the course I would be teaching and that I would know what it would look like only after the workshop.

Preparing for the workshop, I attended a nearby retreat with Thich Nhat Hanh. Besides helping me slow down and settle more deeply into a contemplative frame of mind, the retreat gave me an opportunity to participate in a discussion group with other educators. In one of our discussions, teachers looked ahead to the coming school year, some with foreboding. Referring to No Child Left Behind (NCLB) and state mandated testing, they questioned their ability to teach the whole child. Then a group member well acquainted with NCLB shared this verse from Gutherie's (1992, p. 6) "This Land Is Your Land."

> As I was walking, I saw a sign there
> And that sign said, "No Trespassing"
> But on the other side it didn't say nothing
> That side was made for you & me!

The participant went on to suggest that it would be helpful to look at the other side of NCLB. Its intent for all children to learn was something we all support. Furthermore, he suggested that if we teach with integrity, addressing the whole child, our students will meet mandated standards and much more.

My transition to the contemplative curriculum writing workshop was seamless. During the opening circle, each participant shared aspirations for including contemplative methods in their courses. Two professors related that with some trepidation they had taught courses using contemplative methods the previous year. In both cases, they were very surprised to discover that they had received the highest marks possible on their student evaluations. During the days that followed, we worked with contemplative reading and writing practices, a contemplative listening exercise, and guided meditations, all being used by workshop facilitators in their college courses. We did yoga and sitting and movement meditations daily. We heard about emerging contemplative studies concentrations at the University of Michigan and Brown University. We hosted science writer Daniel Goleman and meditation teacher Joseph Goldstein for guest lectures on the neuroscience of meditation and the theory and practice of meditation. All the while, we talked to each other: sharing questions, ideas, and resources. The workshop generated tremendous energy and enthusiasm among the participants. Regardless of how contemplative pedagogy was regarded by others back home, it expressed our deepest aspirations for teaching. Responding to these shared group feelings during an evening of poems, stories, and music, I read this strong admonition of Graham (1990).

> There is a vitality, a life force, an energy, a quickening, that is translated through you into action, and because there is only one of you in all time, this expression is unique. And if you block it, it will never exist through any other medium and will be lost. (p. 25)

These words spoke to our personal aspirations, as well as to our desires for our students.

I returned home with a few new ideas about contemplative teaching methods and, more importantly, a profound sense of trust in the whole endeavor. I knew I still had a lot to learn, that I would make mistakes. I also saw that it would take time for many of my students to reap the full benefits of contemplative methods of learning. I was clear about their value and would communicate that clarity to my students. I would use these methods myself and grow as a learner alongside them.

Implementing the Vision

I understood that my primary goal in adding contemplation to Math II was to create conditions that might evoke students' inner wisdom. The Sufi poet Rumi (2003, p. 127) speaks of this eloquently in the following poem.

Two Kinds of Intelligence

There are two kinds of intelligence: one acquired,
as a child in school memorizes facts and concepts
from books and from what the teacher says,
collecting information from the traditional sciences
as well as from the new sciences.

With such intelligence you rise in the world.
You get ranked ahead or behind others
in regard to your competence in retaining
information. You stroll with this intelligence
in and out of fields of knowledge, getting always more
marks on your preserving tablets.
There is another kind of tablet, one
already completed and preserved inside you.
A spring overflowing its springbox. A freshness
in the center of the chest. This other intelligence
does not turn yellow or stagnate. It's fluid,
and it doesn't move from outside to inside
through the conduits of plumbing-learning.
This second knowing is a fountainhead
from within you, moving out.

Planning the beginning of Math II, I wanted its different nature to be clear from the start. I purchased journals for my students and had them begin cultivating awareness of their inner intelligence and contemplating their thoughts and feelings from day one. While employing new approaches to teaching I started with content I had used in the past, a unit based on coordinate and construction problems, delaying the formalism of the textbook for a few weeks. Whereas some of the problems required only straightforward applications of previously studied methods, others were entirely new to the students and invited them to spend time experimenting with their construction tools or puzzling about the properties of figures and how to make use of them. Challenging problems were nothing new to this group of students, but formulating their own problems was. I chose a couple of problem sets that I had used in the past and replaced my questions about the figures with requests for student questions, hoping this would nurture another aspect of their inner intelligence—their capacity for wondering. My intent was to help them complement their usual analytical mode of thinking. Finally, because I wanted to convey implicitly to the students a sense that their work in this course would encompass a large scope, I selected an initial reading, *The Man Who Planted Trees* by Giono (2000), about the effect of a solitary individual, Elziard Bouffier, on a whole region of a country.

Depending on the educational setting and student population for whom the course is intended, some educators may want to be forthright about the contemplative methods that students can expect to encounter in their courses. For example, in the syllabus of one of her courses, English professor O'Reilley (1998) includes the following description.

> This course moves rather slowly and covers material in depth rather than breadth. Try to be patient with going back over material in silence and slow time. I don't like to talk all the time, or to hear other people talk all the time. I often have to sit quietly in order to come up with an answer or analysis; sometimes I have to write a little, and perhaps I will stop class to do that: or perhaps that is

> not stopping class, but continuing class in a different way. I think that if we proceed in this rather contemplative manner we can get to deeper understandings. This is not McSchool; there are no golden arches out front. (p. 7)

At Sidwell Friends, where meeting for worship provides students with a regular experience of silence and contemplation, I chose not to spell out my method and goals for the course directly. I would ask for weekly feedback and would continue using whatever students were finding meaningful and modify or drop the rest.

First Days

Monday, we begin our year in Math II with a shortened class period. I commence class as usual sounding my bell. Its pure sound resonates into the still classroom for almost half a minute. Then I distribute composition books, and we all write our responses to the prompt, "This year . . . " The students write in the back section of their journals. The back section is reserved for personal writing, which I will not read. Before our class ends, I distribute copies of Giono's story and ask students to type a one-page, first person response to it, which another student and I will read.

Tuesday, a student draws names out of a hat to determine the groups of four that will work together for the first unit (about 6 weeks). After students divide into groups, I ask the oldest and the youngest members to exchange papers and ask the two in the middle to exchange theirs as well. The students read each other's responses, reflect on their own responses in the light of the new one, then write thank you on the new one, sign, and return them. I give the groups a foundational knowledge list of geometric constructions and algebraic methods, which I want them to know. Groups discuss the items on the list, helping each other recall things they have learned over the past several years. I end class giving students descriptions of three coordinate geometry figures to take home. I ask the students to formulate their own questions related to each figure and then try to answer them.

Questions

Student reactions varied to the first days of class. All students appreciated the opportunity to develop and try to answer their own questions. Groups enjoyed discussing them and sharing unusual questions with the rest of the class. Dillon (1988) points out that most students learn in school not to ask questions or just to ask questions the teacher would like to have asked, not their own questions. One of my students wrote at the end of her first week that "it demands a much more focused, active brain to ask questions than it does to passively answer them."

I would agree with her if she changed this to read "ask intelligent questions" or "ask interesting questions." My students are so conditioned by a culture that constantly judges and evaluates their answers that they want to ask only good, expert questions. How many of these students had any difficulty asking questions when

they were 5 years old? The process of drawing out the inner intelligence of these students involves helping them get back in touch with their beginner's mind, described below by Japanese Zen master Suzuki (1973).

> In Japan we have the phrase *soshin*, which means "beginner's mind." . . . Our "original mind" includes everything with itself. It is always rich and sufficient within itself . . . This does not mean a closed mind, but actually an empty mind and a ready mind. If your mind is empty, it is always ready for anything; it is open to everything. In the beginner's mind there are many possibilities; in the expert's mind there are few. (p. 21)

Recently, when the class began reading the first complex material in the textbook, I asked them not to look at the problems but to write four questions of their own, three of which they could answer from their reading of the text and one of which they could not. I copied their questions and asked each student to pick the one or two they found most interesting and write them in their journals, describing the qualities that made these particular questions interesting. One student, because of his interest in space, chose a question about extending a concept from two to three dimensions. Another picked a question because she "had no idea how to go about answering it." Others selected a question because it was "slyly subversive to the book and math," or was "shrouded in mystery," or "because it made me smile."

I began the class on questions by giving the class the following words of the poet Rilke (2001).

> Have patience with everything unresolved in your heart and try to love the questions themselves as if they were locked rooms or books written in a very foreign language. Don't search for answers now, because you would not be able to live them. And the point is to live everything. Live the questions now. Perhaps then, someday far in the future, you will gradually, without even noticing it, live your way into the answer. (p. 34)

I then asked students to respond to this quoted material in their journals. The students' responses to Rilke were in the back section of their journals. I did not read them but wonder if many were sympathetic. These students will work hard to find answers, but if they are unable to find them or learn them from someone else, many will let the questions go and move on. Yet this is precisely the approach that enabled Newton and many other great thinkers to come up with their most significant insights. Thus, one of my goals this year is to ask students to consider questions large enough to require living with, questions that I give them, and questions they raise themselves.

Awareness

I see the Giono (2000) reading and others I will use throughout the year on topics ranging from adversity to finding meaning in life as seeds of awareness.

Like the seeds Bouffier planted, it will take a while for them to sprout and mature. Such is often the nature of contemplative learning. I can water these seeds by referring to the stories at opportune moments and occasionally asking the class to return to them by devoting class time for writing. I have already asked the students to pick one passage from Giono's story that stands out for them and do free writing in response to it, and I have had the students do free writing with the prompt, "The seeds I've been planting in class so far this year . . . " It is my hope that by the end of the year all students will find it natural to use the readings I give them as lenses that will allow them to look at their experiences with greater awareness. The following journal entry written at the end of the fifth week suggests that this may already be occurring, "I wonder about the passages that we read and they sort of linger in my mind. I sometimes find it annoying that I remember these stories."

Over the years I have collected poems, quotations, and teaching stories from a variety of wisdom traditions. Some, like the Rilke quote, speak directly to aspects of teaching and learning. All focus in one way or another on living with greater awareness. These readings help students stop and focus on what they are doing in a broad sense, just as their stopping to look and write about their experiences of working on a single problem helps them better understand who they are as developing math students. Nhat Hanh's (1975) dishwashing story, given below, has generated a lot of reaction.

> In the United States, I have a close friend named Jim Forest. When I first met him eight years ago, he was working with the Catholic Peace Fellowship. Last winter, Jim came to visit. I usually wash the dishes after we've finished the evening meal, before sitting down and drinking tea with everyone else. One night, Jim asked if he might do the dishes. I said, "Go ahead, but if you wash the dishes you must know the way to wash them." Jim replied, "Come on, you think I don't know how to wash the dishes?" I answered, "There are two ways to wash the dishes. The first is to wash the dishes in order to have clean dishes and the second is to wash the dishes in order to wash the dishes." Jim was delighted and said, "I choose the second way—to wash the dishes to wash the dishes." From then on, Jim knew how to wash the dishes. I transferred the "responsibility" to him for an entire week.
>
> If while washing dishes, we think only of the cup of tea that awaits us, thus hurrying to get the dishes out of the way as if they were a nuisance, then we are not "washing the dishes to wash the dishes." What's more, we are not alive during the time we are washing the dishes. In fact we are completely incapable of realizing the miracle of life while standing at the sink. If we can't wash the dishes, the chances are we won't be able to drink our tea either. While drinking the cup of tea, we will only be thinking of other things, barely aware of the cup in our hands. Thus we are sucked away into the future—and we are incapable of actually living one minute of life. (p. 4)

This story challenges students to be fully present, to be completely aware of what they are doing in the present moment. All students recognize the importance of their actions when they feel that the activity of the moment is important, but

dishwashing? Whatever their take on dishwashing, I ask all the students to do their homework to do their homework, not to get it finished, and they understand. Recently, I had a conversation with a student who wrote in her journal about the stress she had experienced in preparing for the first test. She related how thinking about the test had a negative effect on her studying. I wondered whether she was disturbed by thoughts about outcomes in all her activities. She replied that thoughts about how a scarf would turn out never intruded on her knitting. I suggested that she experience studying for tests as another form of knitting, trusting that the scarf would turn out fine if she gave herself fully to her knitting.

In the past, I read to my class after the opening silence and then moved on to discussions of the homework due that day. Inspired by Mary Rose O'Reilley's summer workshop presentation on *lectio divinia* (sacred reading), I am now giving the students stories, poems, and quotations to read silently, followed by free writing in the back section of their journals.

Community

I see greater potential for these readings once the safety level is sufficient for students to share responses with each other as a class in the manner of the adult circles of trust described by Palmer (2004, chap v) and used in his Courage to Teach programs.[12] Then, the contact that Satir (2003, p. 123) described in the following poem may occur.

Making Contact

I believe
The greatest gift
I can conceive of having
from anyone
is
to be seen by them,
heard by them,
to be understood
and
touched by them.
The greatest gift
I can give
is
to see, hear, understand
and to touch
another person.
When this is done
I feel
contact has been made.

Creating a sense of community within the classroom has always been a high priority for me. For many years, my students have spent most of their time in class

working cooperatively in small groups. Cooperative learning provides an efficient means for students to go over homework and opportunities for them to become aware of different solution methods. Working on challenging class problems together gives students opportunities to develop group problem-solving skills. This year's emphasis on contemplation adds new dimension to student groups. Reflection and contemplation come naturally to some students. Their stillness, concentration, and journal writing support other group members in becoming similarly engaged. Recently, a colleague, after visiting a Math II class, told me how impressed she was with the quality of the group discussions of problems—connecting this with the unhurried pace and focus of the class established by the opening period of silence, reading, and journal writing.

Safety and a welcoming atmosphere are prerequisites for personal sharing of any kind. O'Reilley (1998) wrote the following.

> Attention: deep listening. People are dying in spirit for lack of it. In academic culture most listening is critical listening. We tend to pay attention only long enough to develop a counterargument; we critique the student's or the colleague's ideas; we mentally grade and pigeonhole each other. In society at large, people often listen with an agenda, to sell or petition or seduce. Seldom is there a deep, openhearted, unjudging reception of the other. And so we all talk louder and more stridently and with a terrible desperation. By contrast, if someone truly listens to me, my spirit begins to expand. (p. 19)

Deep listening is a most important and useful form of contemplation. As a way of beginning to teach students to listen deeply, I have asked them to pair up after writing responses to some of the readings. Each student takes a turn for 1½ minutes to share any or all of his or her response to the reading while the other student just listens. No questions are asked, and no reactions to what's been shared are given. In a similar vein, I ask the students to respond to each others' written sharings with simple thank yous, knowing that even constructive criticism can inhibit some students. For one early problem assignment, students exchanged papers and wrote something they liked about the other's work on the paper. This activity generated a lot of vague responses ("I liked your solution to problem 3") but few very thoughtful ones. It might be more fruitful to ask students to write one thing that they learned from reading the other's work.

I have had stickers made that say "I learn for you." I ask the students to put them on the front of their book covers to remind them each night that they are doing the homework not only for their own benefit but for the benefit of the rest of the class as well. At the same time, the other students are learning for them. I have also asked students to write thank you notes to other members of their groups when each unit comes to an end. This year I have added a new mid-unit group awareness activity, asking the students to do free writing to the prompt, "My group . . ." Then I ask them to reflect on ways their group could be more effective and write in their journals things they could do differently to help this happen.

Conclusion

Taking time to stop, to dwell on questions, ideas, methods, and personal experience creates a different classroom culture from what these students are accustomed to. It is new and challenging. Often it lacks the immediate payoffs that students are looking for. It is not using time to get to one more problem or to finish everything and tie it up with a neat ribbon. It means going slowly enough to see there is more to what they are working on, slowly enough to be aware of what they are doing and with whom, slowly enough to truly look in the way Moffitt (2003, p. 125) described.

> To Look at Any Thing
>
> To look at any thing,
> If you would know that thing,
> You must look at it long:
> To look at this green and say,
> "I have seen spring in these
> Woods," will not do—you must
> Be the thing you see:
> You must be the dark snakes of
> Stems and ferny plumes of leaves,
> You must enter in
> To the small silences between
> The leaves,
> You must take your time
> And touch the very peace
> They issue from.

After 7 weeks, student reactions run the gamut from those few students who are still wanting to spend more time doing math to ones like that of the young man who wrote, "this course is not just on math, but on ways of improving your life from time management to peaceful existence."

The focus of Math II is, quite definitely, mathematics but invites finding deep and personal connections with the mathematics. To provide my students with an image of such a connection, I gave them the following interview to contemplate.

> Terry Gross [National Public Radio]: Can you share some of your favorite comments from readers that you've gotten over the years?
>
> Maurice Sendak: Oh, there's so many. Can I give you just one that I really like? It was from a little boy. He sent me a charming card with a little drawing. I loved it. I answer all my children's letters—sometimes very hastily—but this one I lingered over. I sent him a postcard and I drew a picture of a Wild Thing on it. I wrote, "Dear Jim, I loved your card." Then I got a letter back from his mother and she said, "Jim loved your card so much he ate it." That to me was one of the highest compliments I've ever received. He didn't care that it was an original drawing or anything. He saw it, he loved it, he ate it. (Safransky, 1990, p. 10)

Spending time in these ways does mean some cutting back on the volume of assigned problems, but it allows the usual assessments of learning that quizzes, tests, and exams provide. In addition, on Friday afternoons I read entries that the students have written in the front of their journals that week. These may include reflections on their work on a particular problem, insights and questions related to recent work, and that day's free writing. The latter always begins, "This week my experiences in Math II . . ." With gratitude for the small window on their growth each student has given me, I write "Thank you" at the end of the latest journal entry and sign my name.

Looking Back

A year has passed since I wrote the above. The student evaluations of the course were very positive. One student felt the time spent doing meditation and journal writing would have been better spent "learning math." But on the whole, student learning was consistently as good as or better than that of prior years as evidenced by work done on tests and exams. One reason for this (confirming my colleague's previously mentioned observation) was suggested by a student. "Writing down my thoughts and emotions, giving myself time to purely focus on whatever was going on in my mind, allowed me to focus for the next 40 minutes on math more easily."

The contemplative dimension of the course led to increased awareness and decreased anxiety for most of the students. Outcomes of particular activities and the course as a whole suggested some modifications. I have begun to implement these in this year's course and have some new questions to live with.

Public Journal Writing

In course evaluations, several students confirmed my suspicion that being asked to write about their weekly experiences (regularly during the first semester and occasionally during the second) was not profitable. The prompt was too general to help many students focus beneath the surface and identify more significant things. This year I have tried prompts like this. "Think about the last two weeks. Tell me about a time when something related to the course disturbed you." I am receiving more reflective responses.

A few students also questioned writing about math in their journals, not perceiving connections between contemplation and learning mathematics. Some journal writing, such as organizing recently learned geometric properties, seemed to lead to little in the way of contemplation or learning. On the other hand, questions such as "Given the lengths of its sides, should it be possible to determine the area of a triangle? The area of a parallelogram?" naturally invited students to pause and reflect.

This year, before working on some particularly challenging in-class problems, I have asked students to write what they see in the problems and their initial questions about them. Some students found this interrupted their natural thought process. Others found it helpful. One wrote, "writing what I'm thinking about . . . gave me a second to look from a new angle at the problem which helped me figure out how to do my proof."

Over the course of the year, front of the journal writing began to establish a contemplative mode of learning. My reading the journal entries was not needed for this to happen; but, for example, when I asked the students to identify and record questions they had toward the end of a unit, being able to read their responses helped me better appreciate which topics might need more review. It was also helpful to get student reflections on things such as drafts of comments I was preparing for their report cards and their experiences with just-returned tests.

Private Journal Writing

Doing free writing and response writing several times a week seemed to help most students begin to develop the habit of paying better attention to themselves and to life. Recording thoughts and feelings increased the students' awareness of them. Some found responding to readings especially rewarding. One commented, "made me examine my life." Others preferred free writing. A few weeks into the course there was a request for a wider variety of readings. The Internet provided quotations on topics ranging from problem solving to the wisdom of Yogi Berra.

Although I never read the back of the journal entries, at the end of the year I asked the students to read all their own back-of-the-journal entries and to write a paper describing one of these entries and why it was meaningful. Many picked free writing entries written early in the year and commented on how much their attitudes about the course or their understanding of mathematics had changed. One wrote the following.

> What I have learned is that dealing with adversity and solving difficult problems is as much about the way you think about thinking about the problem as it is the problem itself. If you allow yourself to forget about the intimidation, to forget about your preconceived notions about what you are doing, if you get into a focused, creative mindset, and immerse yourself in the situation then and only then can you reach your full potential.

Some picked readings that led them to a new or deeper understanding about themselves or life. One student commented on her earlier response to a commencement address by Steve Jobs.

> I began to think that maybe it was not so bad to be clueless (about life direction); I am not as restricted by my own thoughts, and on the contrary, am quite free to explore and try to find something that I really do love.

Meditation

Last year, most of the students found meditation before tests and quizzes calming and helpful. One student wrote, "meditation before quizzes and tests helps me relax and get less stressed before taking the quiz/test. It lets me focus more on solving the problems and less on how well I'm going to do."

However, the degree to which meditation helped varied. I explain to students that the mind is like a television set. It has many channels, including, for example, the happiness, the boredom, the confidence, and the anxiety channels. Everyone of us has the same channels, but some channels have better reception than others. The strongest ones are default channels, ones that tune in automatically a lot of the time.

Some students approach tests feeling ready and confident. Meditation helps even these. A strong math student explained, "I have put myself in the mindset of discovery before my quizzes and tests and have faith in my ability to divine answers to questions not seen before within limited periods of time."

Others, with similar understanding and preparation, invariably find themselves nervous. Although some of the students in the former group might benefit from a meditation to help them focus, a meditation on positive math experiences would be more relevant to those in the latter group to help them get over their anxiety. Still, some with strong anxiety channels will revert to their anxiety default mode as soon as they encounter difficulties. I suggest to these students that they stop working, close their eyes, and breathe a few times, then change their mental channel back to a positive one. Repeatedly tuning to positive channels strengthens their signal so that eventually they may become default channels. In an environment where stress is often debilitating, it is encouraging to have a student say that "At first I was doubtful that it (meditation) would help, but it turns out that it focused me and calmed me down more than anything."

Questions

I was least successful in my attempts to promote student questioning. The students were not used to formulating questions, and many felt awkward about sharing them. Returning to Rilke's quotation, I realized that my goals for the students were that they develop their curiosity and value uncertainty and puzzlement. These qualities could be nurtured in a private way. To that end, I have begun to ask students to write about their uncertainties in the backs of their journals every few weeks. The students see this as helping them to become more aware of their uncertainties, giving them space to think about them, and perhaps to raise questions in class. Not surprisingly, some students find themselves uncertain as to what their uncertainties are.

Slowing Down

As I reflected on this year focused on promoting student awareness, I saw that although I was able to establish short periods of time for contemplative learning during class, a significant part of student learning took place at home, where old habits prevailed.

For the past few years, I have had an understanding with my students that I expect them to work up to 45 minutes each night—to study the new material and solve as many problems as they can in that time. As I see it, both a 45 minute homework session and a 45 minute period of meditation should invite the participant to be fully present to the matter at hand. Last year, to try to make this point, I gave my students Nhat Hanh's story about the practice of washing dishes. But most students understood the story only at the intellectual level at best. This year, we devoted our short first class to a very concrete activity, raisin-eating meditation. I instructed the students to take 5 minutes to eat three raisins with full awareness of their taste and texture, putting one in the mouth only when no trace of the previous one remained. If they were not able to eat all three in the time allotted, that was fine. The next day, I explained that I wanted the students to do their homework with the same concentration they had given to eating the raisins.

> Chew each homework problem thoroughly. Digest it fully before going on to the next one. In that way you'll receive the full nourishment that the problem has to offer you. Even if you don't have time to do every problem, you'll find that you will come away with a better understanding of the material than if you work hurriedly in order to complete it.

After his first 3 weeks of class this year, one student reflected on what he wanted to improve.

> I often do it (homework) to get it done. Rather than think about the problems that I am doing, I rattle off answers so I can move on to other homework, which negatively impacts my ability to actually learn the material.

Another student, having completed Math II last year, wrote that "now I study more and am more disciplined, mostly because of the dishes (dishwashing) passage, so I don't consider studying a chore, I try to enjoy it."

Choice

Giving students options has been important. One recent Friday afternoon, a student complained that he was too tired to do free writing. I invited him and any others who were feeling fatigued to join me in the front of the room. Standing on my toes, I demonstrated a yoga bending and stretching exercise that brings energy from the feet up to the head. While the rest of the class wrote, we performed this

exercise 10 times and then sat down to write with new energy. Yoga, led by a student at the beginning of class, is now a regular option for students who feel they will benefit from it.

Regarding meditation before tests and quizzes, a student shared in his evaluation that sitting and meditating only made him more nervous. He would have preferred the option of a walking meditation. This year, after the class was accustomed to meditating, I gave them the option of writing in their journals instead. Initially, almost half the students took this option. Since then, all but one, who finds drawing in his journal more quieting for his mind, have returned to meditating.

I hope that providing students a variety of contemplative opportunities on a regular basis (doing yoga; meditating or journaling on readings, math problems, their own thoughts and emotions, prior math experiences; the taste and texture of a raisin) enables students to find contemplative practices that are meaningful to them. In the end, students always make their own meaning out of their contemplative experiences. One wrote that, in responding to readings, she would often "stray away from it (the reading) to my own thoughts." Another went further and wrote the following.

> I have learned great things from myself in the way that I respond to quotes in my journal and in how I respond to myself in free writing. In writing continuously, I often write things that I did not understand consciously before they hit the paper.

New Questions

Responding to a question about ways they had changed as a result of their experience in past year's course, one student wrote, "I haven't changed but I think differently." For most students, for most people, contemplation is a new way of thinking. New ways of thinking evolve over time and do so in ways organic to the individuals.

My hope for each student is that in the learning process he or she will find one or several contemplative practices to be of value. Given that new ways of thinking take time to develop, I wonder how much time might profitably be spent each day doing some form of contemplative learning. I wonder about the trade-off between giving students opportunities to try a number of contemplative practices and using a smaller number of practices more often. And I wonder about how my students will take their contemplative experiences in my class out into a world hurrying toward the future, seldom giving support to being present in the here and now. My optimism is buoyed when a student reports that "Journaling and meditation have made me a more thoughtful person. I usually think more before doing things these days."

On a larger scale, I ponder how to promote the inclusion of the contemplative dimension in public, as well as independent, school education. Many of the challenges my students face—stress, busyness, difficulty maintaining focus—are common among today's young people and their teachers as well. We must not ask

teachers who lack contemplative experience in their own lives to attempt to engage their student in contemplative learning. So I conclude with an invitation to those educators with some contemplative experience to find ways to share this gift with their students and an invitation to those for whom contemplative practice is a new idea—to explore it as an option for their own well-being and growth, as well as for the growth and well-being of their students.

Notes

1. For a discussion of the benefits of contemplative practice and a number of its applications to teaching, see Hart (2004).

2. An extensive report on contemplative pedagogy in K-12 education can be found in Garrison Institute (n.d.). Information on contemplative pedagogy in higher education can be found in Klimburg-Salter (n.d.).

3. I am indebted to Thich Nhat Hanh, Parker Palmer, and Sidney Parnes whose teaching and way of being have inspired me to follow the path of contemplation and contemplative learning. I would also like to thank Neal Tonken, colleague and enthusiastic supporter of my teaching and writing, and Elisabeth Dearborn, my sensitive editor and partner on the path.

4. A good description of the process of opening to the creative muse can be found in Nachmanovitch (1990).

5. Information on the annual Creative Problem Solving Institute (CPSI) is available at the CPSI Web site http://www.cpsiconference.com.

6. My ongoing meditation practice has led to many insights about my life and my teaching. See Brady (2005) and Brady (n.d.b).

7. Elsewhere I have described my teaching method. See Brady (2004) and Brady (n.d.a).

8. The MiEN Web site, http://www.mindfuled.org, contains articles on mindfulness in education, a mindfulness bibliography, information on how to join the MiEN listserv, and free software, which installs a mindfulness bell in personal computers.

9. The center's Web site, http://www.contemplativemind.org/programs/academic/, contains information about programs for educators sponsored by the center and publications related to contemplation in education.

10. Information about the contemplative practice fellowship program is available on the center's Web site,
http://www.contemplativemind.org/programs/academic/fellowships.html/.

11. For a more detailed description of the workshop, see Gravois (2005).

12. Information on courage to teach programs, writings, and other resources related to Parker Palmer's work are available on the Center for Courage and Renewal's Web site, http://www.couragerenewal.org/.

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