The ancients knew that somehow value and virtue in life is not only about the good and the true, it is also beautiful. Through beauty we recognize qualities that make one thing more inviting and sometimes more valuable than another; this provides meaning and a kind of magnetism to our experience of life. We cannot necessarily measure it precisely or even explain it, and therefore it has been more difficult to incorporate into standardized modern curriculum. But somehow beauty sends a “ping” into our depths and we find ourselves drawn toward it.

The attention to beauty is so culturally and historically ubiquitous that it is surely natural to human existence. In human culture, beauty shows up in two important bookends (and lightning rods) that we have used to make sense of our existence: religion and evolution. Taking a moment to notice how beauty finds its way into these two very different realms helps to demonstrate just how significant and pervasive it is.

Religion has been a way of pointing to what is of highest value in human existence. Every religious tradition creates beauty to express or honor what is understood as most sacred. Creating and beholding beauty has served as both an act of devotion—an outpouring expressing our connection and commitment—and an invocation, designed to move us into reverence. From European cathedrals to Islamic mosques, from gospel hymns to Hindu chants, from Russian icons to Tibetan sand paintings, beauty is offered as a gift and a prayer to what is most sacred to us. It is a testament to the importance we place on the sacred, and testifies equally to how dear we hold beauty to be, as a bridge to the divine.

Beauty of a different sort shapes another way we have learned to think about creation: the process of evolution. Beauty long befuddled Darwin: “The sight of a feather in a peacock’s tail, whenever I gaze at it, makes me sick!” (Darwin, 1887, p. 296). He first believed that only adaptations favoring stronger or more effective design of creatures would win the day and enable them to pass their traits along through natural selection. But he eventually discovered something else. Evolution was not only practical, for some reason it liked a kind of beauty. In time, Darwin came to understand that natural selection had a mate in sexual selection. And sexual selection leaned toward attributes that seemed aesthetically interesting—like the male peacock’s feathers, the male baboon’s rump, or the redness of the dot on a bird’s beak. Evolution, so it seems, favors beauty.

“Beauty will save the world,” writes Russian novelist Fyodor Dostoyevsky in The Idiot. Philosopher Alfred North Whitehead says the teleology of the universe is the production of beauty. Helen was said to have a face so beautiful that it launched a thousand ships. Even the face of an industrial era icon,
the Chairman of General Motors Corporation at the time, said that his company’s job was to produce “moving sculpture.” This behemoth of the machine age defined even industrial corporate work as art. In fact, manufacturing has made a turn toward beauty. Apple, among others, has made products that are aesthetically pleasing in form and function and absolutely central to its great success. We can now buy toilet bowl brushes with attention to more than the stiffness of their bristles. While industrial design and marketing recognize the value in beauty, our contemporary education has yet to realize that beauty has even more “cred” in the human mind than it does on the street or in the marketplace.

Educators need to recognize that beauty is more than ornamentation. It cuts more deeply. There is something in beauty that touches our common humanity. We hunger for it; in and of itself beauty is nourishment and a necessity.

It is not simply the surface that makes the beautiful. Sometimes we confuse the shell with the nut. But beauty instead reflects some underlying quality that is revealed when form and perception meet and open to one another. In the beautiful object or act, we see what we want to join with. C. S. Lewis (1942) said it this way:

We do not want merely to see beauty . . . We want something else that can hardly be put into words—to be united with the beauty we see, to pass into it, to receive it into ourselves, to bathe in it, to become part of it.

(p. 8)

In the third century, Plotinus made similar sense of the strange gravitational pull of beauty, saying that our earthly embodiment means that you and I are splintered from the divine. Our soul carries its imprint and in beauty we get a glimpse of that divinity, our true home base. Whenever we get a sense of the perfection of that other world, our soul strives to reunite with it.

Said in a more contemporary way, we are “hardwired” for beauty. That ping, that magnetism, connects to something both deep within us and far beyond us. When we see yellow, it is not just somewhere; it is recognized inside and resonates universally. In this way, beauty brings knower and knowledge closer to one another and reveals a vibrant, holistic dimension of life toward which contemporary education can open.

**Beauty in Science**

While it is not hard to recognize the role of beauty in the arts and humanities—the arc of a dancer’s movement or the turn of a phrase—it is more surprising that even the supposed detachment and objectivity of science seems to have beauty entwined in its roots.

Modernity split science from the arts. But the differences between them were turned into artificial division, absolutized as if they had nothing to do with one another and no way to relate. Resonance and reason, feeling and fact, were “officially” divorced from one another and our schooling, and we, ourselves, fragmented.

Bridging the supposed gulf between science and beauty, Robert Augros and George Stanciu, in The New Story of Science (1984), show “all of the most eminent physicists of the twentieth century agree that beauty is the primary standard for scientific truth” (p. 39). French mathematician and theoretical physicist Henri Poincaré (2003), for instance, understood the role of beauty in science in this way:

The scientist does not study nature because it is useful to do so. He studies it because he takes pleasure in it; and he takes pleasure in it because it is beautiful. If nature were not beautiful, it would not be worth knowing and life would not be worth living . . . I mean the intimate beauty which comes from the harmonious order of its parts and which a pure intelligence can grasp.

(p. 22)
Plato long ago understood that one kind of beauty comes through the universality of the logic of mathematics. For Plato, it is particularly the qualities—harmony, balance, and proportion—within the object or act that we love, not the objects themselves.

Akin to Plato's sense of beauty, mathematician Steven Strogatz finds a hidden world during a schoolroom lesson involving graphing the swing of a pendulum, which formed a parabola:

> It was in that moment that I suddenly understood what people mean when they say there’s a law of nature. There was this sort of veil over reality, a hidden universe that you couldn’t see unless you knew math. It’s a very intimate personal thing, this feeling of wonder of a sense of living in an incomprehensible and beautiful universe. But partly comprehensible, that’s the beauty of it. (Abumrad, 2008)

This deep encounter at the edge of knowledge and mystery often comes with awe and reverence. I recall the feeling of mystery and intrigue each time I entered Mr. Simpson's sixth-grade science class. He was an environmentalist and naturalist ahead of his time, at least in my little rural town. I would see this tall, respectable-looking man walk home from school and pick up all the trash between his house and the school; he spoke of poison apples (pesticide laden) and the particularities of the coloring on birds; he developed a nature trail behind the school. His room always seemed to have layers and layers of fascinating real stuff, from a wasp's nest to a human skeleton, to rocks and minerals.

While I had some interest in science and the natural word, it was Mr. Simpson's fascination and slightly eccentric personality that drew in many of my classmates and me far enough to find what was beautiful. There was mystery and wonder here, not just facts to be picked up. Maybe the most important thing about his pedagogy was that he was still openly fascinated by the things and processes of the world and did not hide it. He might get "off track," speculating on the development of a particular rock or imagining the owner of some bone, just "thinking out loud," wondering beneath the surface.

Most significantly, this meant that we could be fascinated and wonder too. And amidst the growing concern to both find the one right answer and avoid being "uncool," we did not have to be afraid to show our fascination. He entered the mystery with us, led us in really, with a profound appreciation for the beauty of the thing. I suppose he had a curriculum to follow, but he wanted to show us stuff, and have us show him our little found treasures, a special rock or a piece of honeycomb. He helped us to see the world as treasure, as beautiful.

Bringing the object or idea to life was engendered by Mr. Simpson’s simple and profound shift toward appreciation, curiosity, and beholding rather than simply categorizing or pinning the object or idea down like a dead bug to a mat.

Religionist Abraham Heschel (1972) recognized the significance and rarity of this way of seeing in schooling:

> Our systems of education stress the importance of enabling the student to exploit the power aspect of reality. . . . We teach the children how to measure, how to weigh. We fail to teach them how to revere, how to sense wonder and awe. (p. 36)

Beauty takes endless forms: a great work of art, a perfect lapis sky, but also a perfect pitch in baseball, a meal prepared with special attention to detail, the deep peace of an infant asleep in loving arms, an act of kindness or courage that somehow embodies immanence and transcendence all at once. We hunger for this depth. We are trying to capture something that speaks to excellence, or goodness or reality. Or maybe that splinter of the divine that Plotinus understood, or those laws of nature, or something we cannot quite put our finger on, but that we recognize nonetheless as awakening a vital aspect of our consciousness that ties somehow to the depth of the world.
Beauty as Catalyst in Teaching and Learning

First and foremost, beauty works through the emotions. It builds a closer link between feeling and thinking. It activates interest, even passion and wonder, and then raises questions. What makes this more beautiful than that? What draws me to this? Are a few sparse lines of Picasso’s drawing of a bull “true,” capturing some essence that is deeply satisfying, and if so, how is this so? How can I have more of this feeling I get in the presence of beauty: awe, love, inspiration, goodness, perfection, etc.? In this sense, beauty joins with considerations of quality, meaning, understanding, imagination, discernment, and self-reflection.

Educator Joe Winston (2011) argues that the likes of Shakespeare will not be understood by students or teachers and hence not valued until they experience the beauty of the writing. “Learning through beauty is here associated with joy, hope and fulfillment, as motivating a quest for understanding based upon our deepest desires” (p. 18).

It is built on a tradition of ideas that explicitly does not confine beauty to the arts, but sees it as evident in human action, human character, in the natural world, in ideas, philosophy, and the foundational principles of science.

In order to make learning an experience of beauty, our teaching must also be beautiful in some way. When asked to describe an influential teacher, Linda, now a successful teacher herself, told me that it was something about being beauty, that lived experience of being touched and immersed, that transformed a lesson into something extraordinary.

It was an English class, an American mid-century poetry class. The way the guy read the poems, just to demonstrate. He was so completely into them. He was an older guy, looked like it was probably his last year of teaching . . . it was just sort of haunting. I felt he was living this experience with the poem rather than just teaching it. And I don’t know if that’s something I can try to bring in or not but sometimes I feel that in some of the texts I have students read, I can’t have his passion but sometimes I still feel the experience at least. He was feeling it as he was teaching it.

Beauty activates desire and desire reaches for satisfaction, and in so doing provides intrinsic motivation. The modern world, claims Richard Sennett (2009) in his book The Craftsman, has two key methods for urging us to work hard and work well: competition against others, and a moral imperative to do work for the sake of the community. Both approaches are employed in educational practice and both have their difficulties. As an alternative or complement, the self-directed and deeply satisfying and fulfilling experience that comes from doing something with quality, with beauty—a well-crafted paragraph, painting, even a mathematical proof—provides self-sustaining motivation.

Beauty also tends to invite replication. That is, when we see something that is beautiful in some way we want to imitate it, capture it, to join with it. Exploring examples of quality and beauty can provide a magnetizing and catalyzing effect. We try to emulate the moves of our hero on the basketball court. We fall in love with a song and try to sing it or play it until we get it just right, or as right as we can. In such absorbed activity the process becomes more autotelic, meaning that the purpose is in doing itself. Self-consciousness recedes as we find ourselves immersed in the activity, and we are in “flow” (Csikszentmihalyi, 2008).

In many ways, contemporary schooling treats curriculum and the process of learning as if it were not substantial or sustaining on its own. Of course, it is not when we do not scratch beneath the surface and instead simply ask for recall for an examination and pledge allegiance to a test. When we have only a superficial meal prepared for a test, it is hard for the mind and heart to get engaged or
nourished. And we know that ultimately carrots and sticks—extrinsic motivators—may actually spoil
the opportunity for direct relevance and resonance.

In addition to the problem of superficial curricula, today’s technology can so easily provide us a
shell and not the nut. The quick flash of an image designed to grab our attention—sex, violence, and
so forth—may activate an instinctual response to try to grab more, inviting titillation without ever
moving past the initial reaction and into a full-bodied, full-minded experience. We know how to
turn ourselves on (as do marketers), but that image does not quite satisfy and may lead to fixation on
a narrow bandwidth of intense but shallow stimulation instead of an embodied experience of beauty.

Beauty can serve as medicine. Simply beholding beauty can be transformative; a bouquet of flow-
ers brightens a day, time in nature seems to feed us, gorgeous surroundings or song brighten our
senses and our mood. Beauty provides a bliss station, a restorative touchstone. And perhaps there is
no more powerful and enduring source of healing and beauty than nature.

Beauty serves as inspiration and nourishment. There is something about nature that resonates
with us deeply and directly: “‘Nature is on the inside,’ says Cezanne. Quality, light, color, depth,
which are there before us, are there only because they awaken an echo in our body and because the
body welcomes them” (Merleau-Ponty, 1964, p. 164). In this sense, we are not just on the earth we
are of it. Our name, human, reminds us of our origin. The word human comes from humus, which
means earth. As naturalist John Muir (1979) understood: “The sun shines not on us but in us. The
rivers flow not past, but through us” (p. 92).

Our thinking capacity enables us to imagine that we are separated from the world and permits us
to live as if we are. Objectivism and reductionism help maintain this distance. The direct experience
of nature helps us to reseat ourselves in the world and its beauty, our shared beauty.

There are plenty of wonderful examples that bring nature to schooling; the bottom line is to
help bring ourselves and our charges into a direct personal connection with the natural world. It is
in moments of communion and connection with nature that, as Thomas Berry said, “lays down the
enduring value of beauty, wonder and intimacy. A sense of the sacred begins here” (Toben, 2011,
p. 19). This experience is not only for students but also for educators: “Like other artists, educators
rediscover spirit through turning to the physical world” (Richards, 1980, p. 79).

**Beauty From the Inside Out**

From where does beauty arise? Perhaps most profoundly, we find beauty not just in outward nature,
but in our most inward constitution: within our own depths. We will not find a brain part responsi-
ble for beauty but we may be able to see something else. While our individual sense of beauty may
sometimes be radically variable and individual (“You like this picture; I prefer that one”), the process
of knowing that enables beauty may be somewhat more universal. Specifically, the interplay of har-
mony and intensity may constitute a dynamic process underlying both learning and beauty.

One primary way the mind develops is through an intertwined process of differentiation and integ-
ration. We make distinctions and then bring together parts advancing into a new patterned whole.
We notice the difference between the sound and meaning of words: Dad and Dog, or give names to
different shades of yellow: sunflower, saffron, butter, banana, and then find a way for them to coexist
in our mental map or schema of the world. Beauty is so universal to our existence and so useful for
learning because it may be fundamentally tied to this same process of knowing.

Philosopher Alfred North Whitehead argued that beauty emerges out of a process of differentia-
tion or contrast on the one hand, and integration or harmony on the other. Light and shadow join
with one another to produce a mood and image; various tones merge together and are contrasted
with silence or gaps to form rhythm and melody; tension is built and released in a powerful story or
a song. Contradictions become contrasts and contrasts elicit depth (Sherburne, 1966, p. 216). In a
state of beauty, the contrast between parts brings everything into focus, so that “the parts contribute to the massive feeling of the whole, and the whole contributes to the intensity of feeling of the parts” (Whitehead, 1967, p. 252).

For Whitehead, the challenge of beauty is the dual aim of harmony and intensity, unity in diversity (or integration amidst differentiation). If the contrast is too great, there is a “painful clash” and the result can be a mess (p. 252). If the inclusion is too limited, the lack of diversity leads to tameness and monotony. Beauty rests on “not only the absence of conflict (harmony), but also the realization of new contrasts (intensity)” (Henning, 2010, p. 202) and “contrasts of contrasts” (Whitehead, 1978, p. 22). In Whitehead’s conception, “Contrast is the opposite of incompatibility . . . to set in contrast with means to put in a unity with” (Sherburne, 1966, p. 216). This is not static but continues to expand as we come to recognize subtler or previously unseen contrasts as well as freshly perceived patterns or integrations.

Anticipating the emergent episteme, Whitehead says that value is achieved from “the vivid grasp of the interdependence of the one and the many” (Whitehead, 1968, p. 60). Essentially the whole point of existence, he contends, is the creation of beauty, this fusion of discord and harmony, of parts and wholes, of difference and integration.

In a learning situation, we can help students deepen understanding by directing their focus on differentiation and integration. We will use the word “beauty” here, but we could just as easily use other words that capture the particularities of experience such as: “better or worse,” “more or less desirable,” “quality,” “colder,” “fairer,” “meaner”, and so forth depending on the direction of the lesson. The point is just to draw out contrast and harmony. Here is a handful of the type of directions that may help to do so. Notice that everything depends on subjective experience in a dialogue between inner and outer that engages the whole person.

- Experiencing beauty: Think of something that is beautiful (or fair or wise or ugly or whatever might be useful to frame the particular topic) to you. What is your experience, the feeling, thoughts and sensations that are evoked?
- Quality and discernment: What makes this more beautiful (or better, worse, etc.) than that?
- Identity: When and how has beauty made an impact on you?
- Epistemology: How do you know something is beautiful? What makes it so?
- Values: When is beauty also good or true?
- Classical beauty: Notice harmony, balance, pattern, The Golden Mean, etc.
- Radical beauty: Notice something that has great intensity but that may not be appreciated by everyone.
- Natural beauty: What do you notice about the natural world and about your experience while in it?
- Transformation and paradox: When does beauty become ugly? (e.g., A great athlete does something dastardly—takes a cheap shot, for example.) By what means does something ugly become beautiful?
- Perception and projection: Has something grown more or less beautiful over time through your eyes or others?

**Beauty Through Presence**

As a unique moment of harmony and intensity, every occasion is, to some degree, beautiful. Beauty reflects the quality of our knowing as much as it does the object before us. Beauty may indeed exist outside of the knower—a great work of art or a magnificent tree—but it is comprehended or covered over, enacted or ignored, by the human mind and heart. Perhaps the most important key of all to understanding the creation of beauty is that we co-create it through the quality of our presence: as
when we open awareness—our feelings, thoughts, sensations—to the soul of something or someone, we can notice beneath the surface.

As we dive in, the world unfolds before us and within us. Like a great naturalist, we begin to see more depth, more subtlety and, ultimately, more beauty. The opening of awareness and perception can reveal the beauty in all things. William Blake, English poet and mystic, tells us, “If the doors of perception were cleansed, everything would appear to man as it is, infinite. For man has closed himself up, till he sees all things thro’ narrow chinks of his cavern” (Blake, 1966, p. 154).

The beautiful depends on presence. There is a difference between racing through an art museum to see if you can see everything and instead beholding, and communing with a work of art. This is a shift from quantity to quality. In a classroom, there is always pressure to move on to the next demand of the curriculum. But there is also the opportunity to move into depth rather than on to the next surface. When we dive in we have a better chance of finding the whole story or pattern of the discipline rather than merely the facts that lie on the surface.

Are we awake to what is before us or are we just going through the motions? Whether a glimpse into history, the shape of geometry, the taste of our meal, or the turn of a phrase, the lesson from beauty is that depth, richness, and nourishment in learning requires our engagement, our presence.

Beauty is fundamental to human consciousness, yet essentially absent from most contemporary considerations of curriculum and pedagogy. In teaching and learning, beauty unites knowing and being and, in so doing, provides a means to bring depth and vitality to education.

Beauty activates and awakens something both within and between and reveals itself to the extent we open to it. When consciousness attunes to beauty, beauty has the potential to tune us up, opening to possibilities of discovery, awe, and nourishment.

Maybe beauty will save the world.

Note
1 Portions of this chapter have been excerpted from Hart, T. (2014). The integrative mind: Transformative education for a world on fire. Lanham, MD: Rowman and Littlefield.

References
Lewis, C. S. (1942). The weight of glory. London: Society for promoting Christian values. (Preached originally as a sermon in the Church of St Mary the Virgin, Oxford, UK, on June 8, 1942.)


