

# Heidegger and Technology: On Thinking and Teaching Anew

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Something has gone wrong. This is the claim, at least, of an eclectic mix of philosophers. Such proclamation unites thinkers as diverse as Hannah Arendt, Michel Foucault, and Alasdair MacIntyre—all of whom, despite significant disagreements, nonetheless could rightly be called critics of modernity. Among these critics, Martin Heidegger stands out, providing a descriptively powerful interpretation of our contemporary moment. In this paper, I intend to explore his critique and its implications for the study and practice of education.

## THE PROBLEM OF MODERNITY

According to Martin Heidegger, each epoch is grounded in our understanding of being—that is, in the pre-theoretical way things just show up to us. In medieval Christendom, for example, things showed up as a part of a created order, imbued automatically with significance. Belief in God, Heidegger contends, as Charles Taylor does following Heidegger's footsteps, was not something people wrestled with, eventually arriving at a conclusion. Rather, theism, along with its “enchanted” outlook, constituted the background, the way people took things to be, or to put it differently, the way being showed itself, prior to any explicit cognitive act.<sup>1</sup>

Modernity, obviously, is different. In contrast with medieval Christendom, today even those who believe in God do so from a different horizon. In other words, the background has shifted. And, irrespective of the merit of belief in God, or even the question of theism at all, many critics of modernity recognize the problematic nature of our epoch. Kierkegaard calls it an age of passive reflection, one that dissolves all significant differences.<sup>2</sup> Similarly, Charles

Taylor refers to the “malaise of modernity,” a feeling of disenchantment, the sense that we’ve lost our source of meaning.

Heidegger is well situated among these critics of modernity. Modernity, he asserts, is essentially characterized by technology—which is something far more significant than the mere application of human technique or a mere means to an end. Technology, according to Heidegger, is a way of revealing entities, a way in which things are made to show up to us—again, a kind of background. He calls technology’s way of revealing “Ge-stell,” which can be translated as “enframing.” Enframing reveals by challenging, imposing, and engineering; and consequently, it makes all entities—everything—show up as orderable, replaceable, and homogenous. In his words, all things show up as “Bestand,” which translates to “standing reserve,” or perhaps more poignantly, “resources.”

While Heidegger’s language is notoriously dense, he describes the reign of enframing, where all things stand reserve, with striking clarity. Nature now appears to be nothing more than an object to be imposed upon for our various uses.

In the context of interlocking processes pertaining to the orderly disposition of electrical energy, even the Rhine itself appears as something at our command. The hydroelectric plant is not built into the Rhine River as was the old wooden bridge that joined bank with bank for hundreds of years. Rather the river is dammed up into the power plant. What the river is now, namely, a water power supplier, derives from the essence of the power station.<sup>3</sup>

Even the beauty of nature, and those who “consume” that beauty, show up as objects of use. He goes on:

But, it will be replied, the Rhine is still a river in the landscape, is it not? Perhaps. But how? In no other way than as an object on call for inspection by a tour group ordered there by the vacation industry.<sup>4</sup>

Since everything shows up as that which is to be used, stored, and reused in an

endless cycle, the very word “object” is inappropriate. All things appear to us as mere pieces, standing reserve. Revealed through enframing, what is calculable is what counts—so everything is reduced to the calculable.

It is not difficult to find signs of enframing lurking in our modern education system. Teachers and scholars have long recognized our contemporary educational malaise, which often evokes words such as “instrumentalization,” “quantification,” and “commodification.” Heidegger’s description of everything standing reserve, becoming resources, seems especially apt. Schools and universities show up as the incubators of an ever more productive workforce—or, for those entering these institutions, they show up as a means of securing work. Education itself is defined by what is measurable, test scores, since what is measurable is useful—useful to schools as data and to individuals as credentials. Students themselves show up as numbers, data; teachers as endlessly replaceable, endlessly interchangeable managers. As Christopher Higgins puts it, “In the name of accountability, we are turning educators into accountants.”<sup>5</sup>

It is not difficult to agree, at least to some extent, with Heidegger’s harrowing description of our age. In fact, in light of the astronomical advances in modern technology since he wrote his essay, Heidegger’s foresight seems almost prophetic. Given the descriptive power of his work, one can hardly read it without asking a natural follow up question: Why? What brought upon an age where objects crumble into the cyclical homogeneous standing reserve? For many, no doubt, this question is motivated by another: What can we do? And for those of us who think about education, such questions take on specific urgency, since it is so easy to see the multitude of ways that our educational system is held captive by the power of *Ge-stell*.

#### WHERE SIGNIFICANCE COMES FROM

We can start with what went wrong. Søren Kierkegaard harshly criticizes modernity as an age of passionless reflection. Modernity, in Kierkegaard’s telling, created a great “leveling” of all things, a breakdown of the salient differences that make human life meaningful. The distinction between form and content, public and private, speaking and silence—these have all dissolved. “[E]verything

*continues,” he writes, “whilst by a dialectical deceit, privetisme, it supplies a secret interpretation—that it does not exist.”*<sup>6</sup>

What is the cause of this great leveling? According to Kierkegaard, our age “*reduces the inward reality of all relationships to a reflective tension which leaves everything standing but makes the whole of life ambiguous.*”<sup>7</sup> Notice what our age passes over. Things, and relationships, possess an inward reality, a sort of depth or character. Salience depends upon this inwardness. When we ignore this inwardness, reality shows up as homogeneous, and all things lose their weight. Speech, for example, becomes talkativeness, “the exteriorized caricature of inwardness.”<sup>8</sup> Thus, for things to stand, for entities to show up as significant and salient, we must be aware of their inwardness—their depth.

Kierkegaard’s account offers us a helpful way to think about Heidegger. For Heidegger too, it is a kind of depth that sustains all meaning. His language, however, is far more obscure. In one of his accounts, he asserts that things become deep and salient when earth protrudes into world. In fact, truth itself arises from the conflict between earth and world. Put in different terms, things are meaningful—and not homogeneous—where some element of the mysterious, the unmanageable, the recalcitrant, breaks into what is familiar to us. But to understand this at all, we need to unpack Heidegger’s idiosyncratic language, particularly these concepts of earth and world. This will give us insight into the meaning that we seem to have lost in modernity.

For most of us, the concept of world is an intuitive one. We all find ourselves in various roles, perhaps as family members, or as citizens, or as students and teachers. These roles, which we are always thrown into, entail specific aims. And in light of these roles and aims, certain things become intelligible to us—that is, certain actions and entities just make sense to us. A space of intelligibility is open to all of us, and we didn’t think our way into this intelligibility; rather, we simply always occupy it.

This context of significance is what Heidegger called “world.” “The world,” he writes, “is the self-opening openness of the broad paths of simple and essential decisions in the destiny of a historical people.”<sup>9</sup> In other words,

world is what makes sense, what is open, what is revealed as possible, to people situated in a particular time and place. The world is the fitting, the graspable, and the manageable. Thus, in some respects, world might seem to be what is underwhelming—though, as we will see, Heidegger argues that even this ordinary world is “extra-ordinary” and “uncanny.”<sup>10</sup>

In contrast with the world, the “self-opening openness,” earth is, according to Heidegger, what appears to us as self-closing.<sup>11</sup> It is important to distinguish “earth,” as a concept that Heidegger employs, from our typical understanding of the word. When he uses the word “earth,” Heidegger isn’t simply speaking of the third planet from the sun, or the giant ball of matter that happens to be suitable for life. “The earth,” he writes, “is the unforced coming forth of the continually self-closing.”<sup>12</sup> In saying this, Heidegger identifies two important features of earth. First, in contrast with the intelligibility of world, earth continually closes itself. Earth is what doesn’t fit, what is always ungraspable and unmanageable. As such, it will always be overwhelming. Second, while earth is always concealed, it still shows up to us—it just shows up as concealed. Earth is what we experience as beyond our ken. Thus, we encounter the earth as always giving more—more than we could ever fit into our world.

Earth, therefore, is the depth—the depth upon which our intelligible world rests, the depth which we catch a glimpse of when we encounter the inexhaustible richness of nature. A passage from Wendell Berry’s novel *Jayber Crow* illustrates this concept particularly well. In it, the protagonist, Jayber, reflects on the river near his secluded home.

No matter how much it may be used by towing companies and water companies and commercial fishermen and trappers and the like, the river doesn’t belong to the workaday world. And no matter how much it is used by pleasure boaters and water-skiers and the like, it doesn’t belong to the vacation world either. It is never *concerned*, if you can see what I mean. Nothing keeps its own way more than the river does. Sometimes, living right beside it, I forget it. Going about my various tasks, I don’t think about it. And then it seems just to

flow back into my mind. I stop and look at it. I think of its parallel, never-meeting banks, of all the landscape, a single opening from its springs in the mountains all the way to its mouth. It is a beautiful thought, one of the most beautiful of all thoughts. I think it not in my brain only but in my heart and in all the lengths of my bones.<sup>13</sup>

Berry is describing the earth, protruding into the world, showing itself as inexhaustible. Engaging in our worldly activities, in the workaday world and the vacation world, we might not remember the earth—but we always fail to fully exhaust it. This brings to mind Heidegger's description of the Rhine, reduced by enframing to mere resources; in enframing, we forget earth entirely. The earth, as Berry shows, never fully fits in; it is that reliable ground upon which our world rests. Even Jayber, who seems more aware of the river, in its inexhaustible presence, forgets about it. When he thinks about it, his thought is something other than mere calculative cognition. This gives us a glimpse of the sort of thinking Heidegger says we've lost in our thoughtless age.

This brings us one step closer to our goal—that is, one step closer to finding the source of significance, the wellspring that has so malfunctioned in modernity. Recall what I said earlier: that, according to Heidegger, truth, the shining forth of things, arises through the conflict between earth and world. When truth is happening, world rests upon the earth, and the earth protrudes into world. That is to say, first of all, the intelligibility of our lives rests upon an overwhelming background, one that always exceeds our grasp. But, secondly, even in our worldly pursuits, the unintelligible confronts us, giving us the sense of the overwhelming, the inexhaustible. Our intelligible life is meaningful because it can never run out—it can never be used up—so long as the earth confronts us. But while the earth *can* confront us, it can also be forgotten and ignored. Here we arrive at the root of our malfunction.

Depth, the inwardness that Kierkegaard said we've abandoned, arises precisely from the give and take, the conflict, between earth and world. When earth protrudes—when what is within our grasp shows up as not quite within our grasp—things gleam with significance. According to Heidegger, great works of

art are especially capable of “setting forth” the earth, making the overwhelming show up to us. In doing this, great works of art give things their salience, their distinctive character. He uses the Greek temple as an example.

The temple’s firm towering makes visible the invisible space of the air. The steadfastness of the work stands out against the surge of the tide, and in its own repose, brings out the raging of the surf. Tree, grass, eagle and bull, snake and cricket first enter their distinctive shapes and thus come to appearance as what they are.<sup>14</sup>

To some extent, these things fit into the Greek world. Crickets and grass can be made partially intelligible. But things will never survive being taken as fully intelligibility. All things, insofar as they stand out distinctly as things, are pervaded by an inexhaustible depth. As the poet Gerard Manley Hopkins put it: “And for all this, nature is never spent; There lives the dearest freshness deep down things.”<sup>15</sup>

This is worth reflecting on. Things gain their salience—their texture—when earth protrudes. Thus, when we try to fully grasp the things we encounter, we eradicate the earth, and the objects vanish.

If we try to grasp the stone’s heaviness ... by placing it on a pair of scales, then we bring its heaviness into the calculable form of weight. This perhaps very precise determination of the stone is a number, but the heaviness of the weight has escaped us. Color shines and wants only to shine. If we try to make it comprehensible by analyzing it into numbers of oscillations it is gone. It shows itself only when it remains undisclosed and unexplained. Earth shatters every attempt to penetrate it. It turns every merely calculational intrusion into an act of destruction. Though such destruction may be accomplished by the appearance of mastery and progress in the form of the technological-scientific objectification of nature, this mastery remains, nonetheless, an impotence

of the will.<sup>16</sup>

But the modern world, according to Heidegger, is characterized precisely by the attempt to take things as calculable and comprehensible.

### THE WORLD AS PICTURE

In the early 20th century, charged with the task of creating a more efficient factory, the engineer Frederick Winslow Taylor developed what he called a theory of “scientific management.” As the name of his theory suggests, Taylor was interested in establishing a more scientific or “rational” approach to production. He achieved this, at least in appearance, by breaking down production into its constitutive parts and then finding rules to make those parts more efficient. Managers, therefore, dealing with the dispersed knowledge of workers, were to engage in the task of “classifying, tabulating, and reducing all this knowledge to rules, laws, and formulae,” so that all planning in production could “be done by management in accordance with science.”<sup>17</sup>

Taylor’s method, which became known as “Taylorism,” embodies certain assumptions about the nature of reality. By positing that knowledge can be reduced to “rules, laws, and formulae,” Taylor implies that what is important—the salient features of reality—can be explicitly and exhaustively described. In principle, then, nothing is opaque. The world of the artisan can fit entirely into the manager’s picture, and what fits into the picture is what counts.

In an essay called “The Age of the World Picture,” Heidegger describes modernity as virtually epitomized by Taylorism. Instead of focusing on technology, Heidegger examines science, arguing modern science is one of the “essential phenomena” of our age—and so it can point the way toward the essence of modernity as such. Ultimately, Heidegger suggests, things show up to us in the modern age much in the same way that they show up to modern scientists—they show up as “representable.”

But what is modern science? According to Heidegger: research. This the activity of representing, explaining, and predicting.

Research has disposal over anything that is when it can either calculate it in its future course in advance or verify a calculation about it as past. Nature, in being calculated in advance, and history, in being historiographically verified as past, become, as it were, “set in place.” Nature and history become the objects of a representing that explains. Such representing counts on nature and takes account of history. Only that which becomes object in this way is—is considered to be in being.<sup>18</sup>

Research, in other words, treats its subject matter as unproblematically knowable. When we engage in research, we treat whatever we are examining as, in principle, knowable, representable, and calculable. Thus, our objects of study can all fit together, making a system or picture of the world.

So as the title of his essay suggests, ours is the “age of the world picture.” That is to say, things show up to us as objects within a collection of objects—which we, as knowing subjects, manipulate and to which we ascribe value. Entities show up to us as fitting into our picture. What counts is representable. What counts is the what is “set up” and “set forth” by humanity. What counts is calculable. From this point of view, everything, at least in principle, can be made intelligible. And what isn’t potentially intelligible is simply left out of the picture. Thus, in this modern age, we can be employed as professional thinkers—thought leaders—and nonetheless excise a deeper kind of thinking from our world.

Again, this assessment of modernity should sound familiar to those involved in education. Our education system is dominated by the assumption that what is measurable is what matters. Thus, the measurable quantities drive school policy—test scores, attendance rates, graduation rates, “results.” And, relatedly, it is almost unquestionable that every problem can be solved by management—classroom management, behavior management, parent relationship management, time management. Teachers manage students; school leaders manage teachers; charter management organizations, whose leaders increasingly refer to themselves as “CEOs,” manage schools. And this whole process, I might

add, grows ever more beholden to data—that ultimate measurable quantity.

All of this should be no surprise. After all, Taylorism made its way into education theory in the twentieth century.<sup>19</sup> To put it in Heideggerian language, everything is taken as predictable and explainable. Education researchers, thus, have every reason to dissect the classroom, which appears only as a collection of objects—objects that we manipulate through cutting edge management technique.

### THE AGE OF THE WORLD PICTURE AS THE AGE OF TECHNOLOGY

Recall the questions I began with. What is the essence, the defining characteristic, of our age? Why is modernity the way it is? What has caused this malaise? What can we do? All of these questions shed light on education in modernity, what counts as education in the first place, what we might overlook, what has gone wrong. Our discussion of Heidegger now suggests a few answers.

I have established that, at least according to Heidegger, our age is defined by technology, the enframing of all things, which renders everything as a homogenous collection of pieces, resources standing reserve. Why has our world been rendered this way? The answer might now be clearer. Heidegger has given us two key observations. First, the shining, significant, distinct way that things stand out depends upon the earth. In order to find significance, in order for things to be differentiated, we must harbor the inexhaustible depth that protrudes into our world. Second, representation, the objectivity that we implicitly embrace in the age of the world picture, denies the earth. Our tendency is to take every—at least in principle—as intelligible, or capable of being made intelligible. What cannot fit into our picture simply does not count.

From these two premises, Heidegger's main point, articulated in "The Question Concerning Technology," follows: our age, the age of objective representation, destroys the capacity for things to stand out to us, even the objects themselves. In other words, Taylorism—reducing everything to "rules, laws, formulae"—depends upon and enforces the homogeneity, the non-significance

of everything.

To paraphrase Heidegger, we have turned our ways of seeing and revealing things into an act of destruction. If everything is manageable, then of course everything is also, ultimately, homogeneous. The earth is a depository of useful metals; food is calories; the river is electricity. We even show up to ourselves in a way that lacks depth. In the bureaucratic world, humans appear to be interchangeable, and we are referred to as “human capital” or “consumers.” Perhaps as a result, we commonly think of our lives through the rubric of time management and time allocation. Most significantly, our very thinking—even in its most laborious forms—is so often focused only on the calculative. But “this mastery,” as Heidegger put it, “remains, nonetheless, an impotence of the will.”

### CONCLUSION: THINKING ANEW

In our education system, this impotence of the will has long been evident. Education itself, according to a dominant social narrative, shows up as a tool, a means toward acquiring more resources. It is a part of a never-ending cycle. The resources we acquire will in turn be means to acquiring more resources. Thus, in reflecting on education, Alasdair MacIntyre lamented that nothing stands as worthwhile in itself; everything is done for the sake of “getting on”:

One gets on from one stage to the next on an endless conveyor belt. One goes to a primary school in order to pass the eleven plus in order to go to a grammar school in order to go to a university in order to get a degree in order to get a job in order to rise in one’s profession in order to get a pension. And those who have fallen out are not people who have found a true end; they are mostly people who have got off, or have been pushed off, the conveyor belt.<sup>20</sup>

And since education has been so enframed, we cannot help but ask: what do we do? How do we stop the expansive reach of technology?

The danger of technology, according to Heidegger, is that humans will

close themselves off to other ways of revealing—and, therefore, that we will close ourselves off to the depth of being human. This is perhaps primarily a problem of education. As Heidegger understands it, it is something distinctly human to be able to catch a glimpse of the inexhaustible, respond with awe and wonder, and as a result, recognize our world as deep and significant. To inspire such awe, to urge this receptivity, to instill a hunger for the inexhaustible—this is the educator's task. And yet, enframing, as we've seen, reveals the world as entirely exhaustible, a smoothly operating system. Enframing, therefore, does not merely distort our education system; it is inimical to the very substance of education.

This means, however, that my driving question is problematic. One can hardly ask the question “what do we do?” without engendering a technological way of thinking, the implicit assumption that all we need to do is arrange things more optimally. In other words, by merely “solving the problem” of technology, we still face the pressure to treat things as manageable, within our grasp, and thus standing reserve. The only real alternative is to actively embrace a different mode of thinking. This, I contend, is the only way forward for educators: not to find a “solution,” but to think anew.

What does all of this mean for education? What can educators and philosophers of education do, as everything solid crumbles into the standing reserve? In light of Heidegger's analysis, a few ideas present themselves.

For education theorists, Heidegger's critique has one obvious implication. To put it succinctly, we must root out the temptation to think of education primarily as a research project. If education theory remains at the level of overcoming technical problems with better plans, then we will never overcome the reign of calculative thinking.

Of course, many philosophers of education are already attuned to the problems of merely calculative theory. For those who are already in agreement, Heidegger's thought provides two helpful contributions. First, Heidegger implicitly critiques out measurement and testing culture. To paraphrase again, if we try to put our student's education on scales or analyze it in the form of

numbers, we might get a precise and even useful measurement, but the education itself will vanish. By listening to Heidegger, theorists are reminded of what many practitioners already know through daily observation. We can't solve our problems through a more accurate test, or through well-researched "growth indicators," or through tracking our progress more meticulously. So often, this solutions-oriented approach serves only to increase our sense of control, our grasp on things—and by embracing it, we block out the inexhaustible.

Second, Heidegger reminds us of the limitations of problem solving. A common approach to questions in education can be summarized in this simple formula: identify a problem in education, isolate this problem's particular causes, then propose a research-based solution that would alter those causes. I do not want to suggest that this approach is inherently wrong. Heidegger urges us, however, to remember that this is only one way of thinking—and entails a sort of danger. The danger, especially in our age, is that this sort of calculative thinking will dominate and choke out other, more essential, ways of thinking.

To these implications, there is also a pedagogical analogue. Teachers must constantly remind themselves—in opposition to the implicit mantra of many schools—that learning and teaching are not problems to be solved. Classrooms are not something to be managed. If Heidegger is correct, it seems that our education system would benefit greatly from a moratorium on any reference to "management." Attentive philosophers of education, such as J. F. Donnelly, have proposed that we rethink the student-teacher relationship, so that we stop prioritizing the cognitive and the calculative.<sup>21</sup>

I have suggested that the only way forward is to "think anew." It is important to recognize that we cannot change our understanding of being, the way things show up to us. What we can do, however, is foster a different way of thinking. Heidegger says that this must start with *gelassenheit*—letting things be—and "openness to the mystery."<sup>22</sup> If we want to overcome the dominance of our technological era, we must first practice recognizing the sheer mystery and miracle of reality.

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- 1 Charles Taylor, *A Secular Age* (Cambridge: Harvard University Press, 2007).
  - 2 Soren Kierkegaard, *The Present Age* (New York: Harper, 2010).
  - 3 Martin Heidegger, "The Question Concerning Technology," in *The Question Concerning Technology and Other Essays*, trans. William Lovitt, (New York, Harper: 1977), 16.
  - 4 Ibid.
  - 5 Chris Higgins, "The Possibility of Public Education in an Instrumentalist Age," *Educational Theory* 61, no. 4 (2011), 453.
  - 6 Kierkegaard, *The Present Age*, 14.
  - 7 Ibid.
  - 8 Ibid., 45.
  - 9 Martin Heidegger, "Origin of the Work of Art," in *Off the Beaten Track*, trans. Julian Young and Kenneth Haynes (Cambridge: Cambridge University Press: 2002), 26.
  - 10 Ibid.
  - 11 It should be noted that, when Heidegger uses the word "earth" in this sense, it has little to do with his later use of the word in relation to the so-called "fourfold."
  - 12 Heidegger, "Origin of the Work of Art," 26.
  - 13 Wendell Berry, *Jayber Crow* (Berkeley: Counterpoint, 2000), 310.
  - 14 Heidegger, "Origin of the Work of Art," 21.
  - 15 Gerard Manley Hopkins, "God's Grandeur," in *The Poems of Gerard Manley Hopkins*, (London: Oxford University Press, 1944), 26.
  - 16 Heidegger, "Origin of the Work of Art," 25.
  - 17 Frederick W. Taylor, quoted in James C. Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven, 1998), 336.
  - 18 Martin Heidegger, "The Age of the World Picture," in *The Question Concerning Technology and Other Essays*, trans. William Lovitt (New York, Harper: 1977), 126-127.
  - 19 See, for example: J. M. Rice, *Scientific Management in Education* (New York: Arno, 1969).
  - 20 Alasdair MacIntyre, "Against Utilitarianism," in *Aims in Education: The Philosophic Approach*, (Manchester: Manchester University Press, 1964), 1.
  - 21 J. F. Donnelly, "Schooling Heidegger: On Being in Teaching," *Teaching and Teacher Education* 15 (1999): 933-949.
  - 22 Martin Heidegger, "Memorial Address," in *Discourse on Thinking*, trans. John M. Anderson and E. Hans Freund (New York, Harper: 1966), 54-55.