

The Pragmatic Origins of Critical Thinking

Abstract

Because of the ancient origins of many aspects of critical-thinking, notably logic and language skills that can be traced to traditional rhetoric, it is easy to perceive of the concept of critical thinking itself as also being ancient, or at least pre-modern. Yet the notion that there exists a form of thinking distinct from other mental qualities such as intelligence and wisdom, one unique enough to be termed “critical,” is a twentieth-century construct, one that can be traced to a specific philosophical tradition: American Pragmatism.

Pragmatism

Pragmatism is considered the only major Western philosophical tradition whose geographical origin was not in Europe but the United States.

Just as other schools of philosophy can be traced to a single individual (such as Phenomenology, the invention of which is generally credited to Germany’s Edmund Husserl), Pragmatism has its origin in the work of the nineteenth and early twentieth century American philosopher Charles Sanders Peirce. Son of Harvard professor of astronomy and mathematics Benjamin Peirce, Charles was trained in logic, science and mathematics at a young age in the hope that he would eventually grow to become America’s answer to Immanuel Kant.

In spite of this training (or possibly because of it) Peirce grew to be a prickly and irascible adult (although some of his dispositions may have also been a result of physical ailments, as well as

likely depression). His choice to live with the woman who would become his second wife before legally divorcing his first cost him a teaching position at Johns Hopkins University, and the enmity of powerful academics, notably Harvard President Charles Elliot who repeatedly refused Peirce a teaching position there, kept him from the academic life that might have given him formal outlets for his prodigious work in philosophy, mathematics and science.

While making a living performing geographical and scientific research for U.S. government agencies, Peirce wrote incessantly in notebooks still being analyzed for the insights he generated more than a century ago.¹ Today he is generally acknowledged as having made important contributions to many fields, including logic and mathematics. During his lifetime, however, Peirce published two of his most important philosophical works not in academic journals but in the early scientific trade magazine *Popular Science Monthly*.

Peirce's conception of Pragmatic philosophy appeared in the 1878 issue of that publication, in an article entitled "How to Make Our Ideas Clear,"² In that work, Peirce spells out his "Pragmatic Maxim," which underlies the entire Pragmatist project:

"Consider what effects, which might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of those effects is the whole of our conception of the object."

¹ The Charles S. Peirce Society, member of the International Federation of Philosophical Societies, maintains a list of archives, resources and research related to ongoing work on Peirce's writings at <https://peircesociety.org/resources> (accessed August 1, 2019).

² See Charles S. Peirce, "How to Make Our Ideas Clear," *Popular Science Monthly* 12 (January 1878): 286-302. <http://www.peirce.org/writings/p119.html> (accessed August 1, 2019).

The scope of this seemingly simple idea, the heart of philosophical Pragmatism, can be illustrated using the example of a knife sitting next to a stick of butter. If asked to cut one with the other, every rational person would reach for the knife and use it to cut the butter while an irrational person who tried the opposite would fail. Anyone asked why they used the knife to cut the butter, rather than vice-versa, would likely say something along the lines of: “because the knife is sharp.” But what does that phrase mean philosophically?

To the Platonist, it might mean there exists an idea of “sharpness” beyond the observable world, i.e., the ideal form of “the sharp.” Under this conception, the knife would partake in this Platonic form to a greater degree than does the butter. More empirically minded thinkers might search for one or more measurable qualities, such as hardness of the metal (hardness being a quality Peirce himself explored in “Fixation of Belief”), the ratio of widths at the top and bottom of the blade, or some other material or shape consideration, to distinguish the knife from the butter.

In contrast, a Pragmatic approach points out that neither the knife nor the butter possesses sharpness – of any degree – *in and of itself*. Rather, Pragmatism claims that the act of choosing the knife to perform the act of cutting is what determines that the knife is sharp, or at least sharper than the butter. In Pragmatic Maxim terms, our conception of the effect of using the knife to cut something is what makes the knife sharp, not some property, measurable or idealistic, of the knife itself.

This concept can be applied to other things in the world whose reality might be hard to pin down, such as money or beauty, which can be understood Pragmatically by their effects, rather than their physical or internal metaphysical qualities. Indeed, Peirce's Pragmatism provided a new way of looking at a host of constructs stuck between the concrete and the abstract, including thinking.

This sort of Pragmatic approach to thinking can be seen in an earlier paper Peirce wrote for *Popular Science Monthly* called "The Fixation of Belief"³ which describes thinking not as a thing in itself, but rather as a means to an end. What end might thinking serve? For Peirce, it was the elimination of doubt.

Doubt, for Peirce, is something that human beings instinctively loath, a disturbance that causes us discomfort we are all eager to dispel. Thinking thus serves as the means to rid ourselves of the pain of doubt, which we do through the generation of beliefs.

"The irritation of doubt is the only immediate motive for the struggle to attain belief. It is certainly best for us that our beliefs should be such as may truly guide our actions so as to satisfy our desires; and this reflection will make us reject every belief which does not seem to have been so formed as to insure this result. But it will only do so by creating a doubt in the place of that belief. With the doubt, therefore, the struggle begins, and with the cessation of doubt it ends. Hence, the sole object of inquiry is the settlement of opinion. We may fancy that this is not enough for us, and that we seek, not merely an

³ See Charles S. Peirce, "The Fixation of Belief," *Popular Science Monthly* 12 (November 1877): 1-15. <http://www.peirce.org/writings/p107.html> (accessed August 1, 2019).

opinion, but a true opinion. But put this fancy to the test, and it proves groundless; for as soon as a firm belief is reached we are entirely satisfied, whether the belief be true or false.”

Having recognized the end that thinking serves, Peirce goes on to propose four different ways doubt-eliminating beliefs we think up become fixed in our minds. First is an *a priori* method that involves believing or continuing to believe things that make one comfortable, possibly because they already fit within one’s world view. Beliefs can also be established and fixed by *authority* which involves turning to political or religious leaders, or general societal norms, to determine which beliefs are allowable and which are not. Iconoclasts who bristle at having their beliefs fixed by authority figures can turn to another method – *tenacity* – which involves proposing an alternative set of beliefs and holding on to those beliefs tightly, regardless of the cost.

All of these methods can manage the task of dispelling doubt, although none of them are necessarily the best choice if one wants to get closer to truth. Today’s epidemic of confirmation bias, information bubbles and tribalism can be seen as the result of the popularity of *a priori* thinking, which can hardly be described as dedicated to objectively separating truth from falsehood. Similarly, authority and tenacity may have their places in certain aspects of life and society, but neither lends itself to the kind of questioning, objective weighting of evidence, or willingness to change one’s mind considered important to truth-seeking.

To eliminate doubt productively, i.e., in ways likely to replace false beliefs with true ones, Peirce proposes science as a model, given the ability of systematic, scientific methodologies to eliminate (or at least minimize) doubt while also getting us asymptotically closer to beliefs likely to be true. As he describes in *The Fixation of Belief*:

“This [method of scientific investigation] is the only one of the four methods which presents any distinction of a right and a wrong way. If I adopt the method of tenacity, and shut myself out from all influences, whatever I think necessary to doing this, is necessary according to that method. So with the method of authority: the state may try to put down heresy by means which, from a scientific point of view, seem very ill-calculated to accomplish its purposes; but the only test on that method is what the state thinks; so that it cannot pursue the method wrongly. So with the *a priori* method. The very essence of it is to think as one is inclined to think.”

From Peirce’s two *Popular Science Monthly* articles, one can begin to see a framework developing for systematic thought that begins by understanding thinking as a means to an end (the elimination of doubt) with scientific reasoning proposed as the most productive model for channeling thinking in ways likely to generate true beliefs.

The second major figure in the history of Pragmatic philosophy was a Harvard schoolmate of Peirce’s: William James. Brother of the American novelist Henry James, William’s 1890

*Principles of Psychology*⁴ anchored scientific psychology in America at the turn of the century, including at Harvard where James taught the nation's first college course on the subject.

Pragmatic principles can be seen running through all of James' work, including his famous 1902 analysis of the practical purposes of religion: *The Varieties of Religious Experience*.⁵ It was James who first credited Peirce as having created a distinct Pragmatist school of philosophy and he continued to support his old classmate, professionally and financially, throughout their lives.⁶

It is with the third great name in early Pragmatic philosophy, educational pioneer and social reformer John Dewey, that we see a distinct concept that would eventually be termed "critical thinking" emerging from already-established Pragmatist principles.

John Dewey is rightly considered one of the most important American intellectuals of the twentieth century, a writer, teacher and activist whose work spanned philosophy, psychology, political science and the field he is most well-known for today: education.

As industrialization, urbanization and population growth dramatically increased complexities associated with managing a modern society, early twentieth-century thinkers began to examine the role of experts in managing that complexity, with writers like Walter Lippmann, in his 1922 book *Public Opinion*,⁷ questioning whether the average citizen had the knowledge and reasoning ability necessary to play a role in decision-making in a modern society.

⁴ William James, *The Principles of Psychology* (New York: Henry Holt and Company, 1890).

⁵ William James, *The Varieties of Religious Experience* (London: Longmans, Green and Company, 1902).

⁶ Louis Menand's Pulitzer Prize winning intellectual history *The Metaphysical Club: The Story of Ideas in America* (New York: Farrar, Straus and Giroux, 2007) includes biographies of Peirce, James and other thinkers involved with the creation and development of Pragmatist philosophy.

⁷ Walter Lippmann, *Public Opinion* (New York: Harcourt, Brace and Co., 1922).

Dewey, a professor at the University of Chicago and later Columbia, accepted that the world was indeed becoming more complex, requiring an increasing role for experts in many aspects of life. But in both a review of Lippman's *Public Opinion*⁸ and his own book on the problems Lippman raised,⁹ Dewey rejected skepticism about the ability of citizens to perform their democratic decision-making function, claiming that America's education system could and should be reformed to achieve the goal of creating citizens equipped with the knowledge and thinking skills democracy required of them. His vision for an education system that could create informed, thinking citizens had already been spelled by then in his most famous work, the 1916 *Democracy and Education*.¹⁰ But it was in an earlier work, Dewey's 1910 *How We Think*,¹¹ that we learn about the form Dewey believed such thinking should take.

How We Think draws directly from insights found in earlier Pragmatist works, starting with the notion that thinking serves the end of dispelling doubt, as when Dewey describes "Phases of Reflective Thinking" that involve "(1) a state of doubt, hesitation, perplexity, mental difficulty, in which thinking originates; and (2) an act of searching, hunting, inquiring, to find material that will resolve the doubt, settle and dispose of the perplexity."¹²

⁸ John Dewey "Review of Public Opinion by Walter Lippmann," *New Republic* 30 (1922): 286-288.

⁹ John Dewey, *The Public and its Problems* (New York: Henry Holt and Company, 1927).

¹⁰ John Dewey, *Democracy and Education* (New York: Macmillan, 1916).

¹¹ John Dewey, *John Dewey The Later Works, 1925-1953, Essays and How We Think*, ed. Jo Ann Boydston (Carbondale, IL: Southern Illinois Press, 2008).

¹² Dewey, *How We Think*, 121.

With his own emphasis on education, Dewey applied this insight to understanding aspects of the human makeup such as curiosity, pointing out that from the earliest age children use whatever abilities they have (touch, taste, motion) to make sense of the world around them.

“The most casual observation of the activities of a young child reveals a ceaseless display of exploring and testing activity. Objects are sucked, fingered, and thumbed, drawn and pushed; handled and thrown; in short, they are experimented with until they cease to yield new qualities.”¹³

Dewey continues to explore how the unstructured (and largely physical) curiosity of the infant can evolve into the intellectual curiosity of the adult, if formal education or some other factor does not stifle a person’s natural tendency to question and explore in order to find answers that can end troubling doubt.

For Dewey, those factors include social conditions that “put a premium on correct inference in matters where action based on valid thought is socially important,”¹⁴ as well as “‘primitive credulity,’ a natural tendency to believe anything that is suggested unless there is overpowering evidence to the contrary.”¹⁵ While Dewey draws on philosophers like Locke and Bacon when exploring various sources for poor reasoning, Peirce’s authority (based on social norms) and *a priori* thinking can clearly be identified in Dewey’s selection of ways our thinking can go astray.

¹³ Dewey, *How We Think*, 142.

¹⁴ Dewey, *How We Think*, 130.

¹⁵ Dewey, *How We Think*, 130.

Dewey's debt to Peirce is spelled out most clearly in an early section of "How We Think" in which he contrasts thought with belief:

"There is nothing in the mere fact of thought as identical with belief that reveals whether the belief is well founded or not. Two different men say, 'I believe the world is spherical.' One man, if challenged, could produce little or no evidence for thinking as he does. It is an idea that he has picked up from others and that he accepts because the idea is generally current, not because he has examined into the matter and not because his own mind has taken any active part in reaching and framing the belief.

"Such 'thoughts,' grow up unconsciously. They are picked up – we know not how. From obscure sources and by unnoticed channels they insinuate themselves into the mind and become unconsciously a part of our mental furniture. Tradition, instruction, imitation – all of which depend upon authority in some form, or appeal to our own advantage, or fall in with a strong passion – are responsible for them. Such thoughts are prejudices; that is, prejudgments, not conclusions reached as the result of personal mental activity, such as observing, collecting and examining evidence."¹⁶

Through this lens, one can view Dewey's progressive model for education, which emphasized teachers guiding students towards discovery rather than handing out truths from the front of the

¹⁶ *How We Think* p. 116.

classroom, as a means for minimizing the role of authority (in this case, the authority of the teacher) in the belief-formation process of students.

Like Peirce, Dewey saw an alternatives to authority and other unproductive models for belief-formation which he termed “logic,” by which he meant a mode of reasoning inspired by science that involves proposing a hypothesis to answer a doubt-inspired question, gathering and weighting evidence to confirm or counter that hypothesis, and drawing conclusions in order to form beliefs based on this sort of structured analysis. While well-versed in both traditional logic and science, Dewey stressed that the science-inspired reasoning process he advocated can and should be applied to the study of any field, indeed that it was a general skill that people could apply throughout their schooling and into their lives as adults and democratic citizens.

Dewey had a name for this type of reasoning: “reflective thinking,” which he defined as “Active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends...”¹⁷

This description is often claimed to have been the first definition of what would eventually be termed not “reflective,” but “critical thinking,” and while “How We Think” has been cited as an origin point for the conception that a form of thinking distinct enough to be called “critical” exists,¹⁸ the Pragmatic origins and impact of that insight are less-often acknowledged.

¹⁷ *How We Think* p. 118.

¹⁸ See, for example, Robert H. Ennis, “Critical Thinking: A Streamlined Conception,” in *The Palgrave Handbook of Critical Thinking in Higher Education*, ed. M. Davies and R. Barnett (New York: Macmillan, 2015), 31–47.

But if we embrace the Pragmatic Maxim that says the practical consequence of our actions is what gives ideas meaning, might the idea of “critical thinking” derive entirely from thinking critically? To put it less paradoxically, perhaps critical thinking is not some distinct property of the mind waiting to be discovered by cognitive scientists, psychologists, and philosophers; or a field, like chemistry or biology, requiring definition and mapping of learning progressions, but is rather defined daily by the behavior and actions of those who live by a set of critical-thinking norms. If this is the case, then the work of critical thinking researchers and educators is not one of discovery, but invention.

In 2018, my son and I made a pilgrimage to Peirce’s last home and burial place in Milford, Pennsylvania, where a modern, geometric monument was built around Peirce’s original unadorned gravestone by previous pilgrims who wanted to pay homage to a man who had contributed so much to mathematics and science and whom many consider to be America’s greatest philosopher. The house he lived in at the end of his troubled but productive life is now an office for the National Park Service, although a few remnants of his life (and death) remain in place for occasional visitors, like us, interested in paying homage to a man without whom the notion of critical thinking might have never been put into action—which, by Pragmatic standards, means it might never have existed.