Discomfort, Doubt, and the Edge of Learning

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Abstract

Discomfort is a constant presence in the practice of medicine and an oft-ignored feature of medical education. Nonetheless, if approached with thoughtfulness, patience, and understanding, discomfort may play a critical role in the education of physicians who practice with excellence, compassion, and justice. Taking Plato's notion of aporia—a moment of discomfort, perplexity, or impasse—as a starting point, the author follows the meandering path of aporia through Western philosophy and educational theory to argue for the importance of discomfort in opening up and orienting perspectives toward just and humanistic practice. Practical applications of this approach include problem-posing questions (from the work of Brazilian education theorist Paulo Freire), exercises to "make strange" beliefs and assumptions that are taken for granted, and the use of stories—especially stories without endings—all of which may prompt reflection and dialogical exchange. Framing this type of teaching and learning in Russian psychologist L.S. Vygotsky's theories of development, the author proposes that mentorship and dialogical interactions may help learners to navigate through moments of discomfort and uncertainty and extend the edge of learning. This approach may give birth to a zone of proximal development that is enriched with explorations of self, others, and the world.

> So, the work of midwives is a highly important one; but it is not so important as my own ... there is not in midwifery the further complication, that the patients are sometimes delivered of phantoms and sometimes of realities, and that the two are hard to distinguish....
>
> —Socrates in *Theaetetus* 150b[1]

In one of the most celebrated of Plato's dialogues, Socrates poses the question, "What is knowledge?" His interlocutor is a brilliant young mathematician, Theaetetus, who proposes successive definitions of knowledge and explains each with eloquence and insight. Unfortunately for him, Socrates methodically demolishes each definition through questions that lead the young man into contradicting himself to the point of acknowledging the fallacy of each of his original claims. This is the famous Socratic elenchus, a process by which questions lead the examinee to cast doubt on his or her beliefs or certainty.[2] The dialogue ends without an ending: after thoroughly confounding Theaetetus in the latter's attempts to come up with a suitable definition, Socrates does not provide his own answer to the question. Instead, he abruptly bids goodbye to the young scholar and his mentor Theodorus and goes off to begin his own trial for corruption of Athenian youth, which eventually ends in his conviction and death. Theaetetus and his mentor, as well as the audience, are left in a state of perplexity.

The dialogue in *Theaetetus*, as well as other works by Plato, is characteristic of aporia, which can be translated as doubt, discomfort, a state of puzzlement, or an impasse.[2] Socrates identifies himself as the son of the midwife Phaenarete or "she who brings virtue to light" (*Theaetetus*, 149a)[1] and sees himself as performing a similar vocation: he is responsible for inducing the pain of labor to deliver true beliefs into the world (*Theaetetus*, 157d).[2]

Whereas much attention has centered on the elenchus and its twists and turns of logic, I wish to explore that moment of uncertainty, discomfort, and puzzlement that is the result. Taking the Platonic notion of aporia in hand, I would ask, what is the role of discomfort or doubt in the process of learning? The Nietzschean aphorism of whatever does not kill me will make me stronger is often used to encourage resilience and perseverance during the rigors of medical training; however, it is equally frequently used to excuse the brutalizing and dehumanizing experiences that often come with this educational ordeal by fire. But how can perplexity and doubt play a role in the development of a humanistic orientation in medicine? In other words, through what mechanisms can discomfort push individuals out of their comfort zones and create the means to look at preconceived ideas, beliefs, and assumptions in new and generative ways? This essay is meant to trace the meandering paths of aporia through a variety of disciplines to build a conceptual framework for how the creative use of discomfort may give rise to a profound and transformative understanding of the human dimensions of medicine. To illustrate these points, 3 specific techniques are described: the use of Brazilian education theorist Paulo Freire's notion of "problem-posing" questions; the technique of "making strange" taken from modern art; and the engagement of provocative narratives, and in particular, stories without endings, to prompt critical reflection of self, others, and the world. The overarching goal of this essay is to propose that moments of profound doubt and uncertainty, when engaged with empathy, thoughtfulness, and understanding, may become critical foundations in the development of reflexive, humanistic practice.

Discomfort: A Brief History

Theories of learning in the contemporary West find their roots in philosophy, and the role of discomfort or doubt in

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Acad Med. 2022;97:649–654.
First published online January 11, 2022
doi: 10.1097/ACM.0000000000004588

learning stems in part from its central location in the Western philosophical tradition. From the aporia of Plato's elenchus, the concept again takes center stage in the idea of Cartesian doubt, in which a critical gaze is turned to fundamental beliefs and conceptions about being.[3] This troubled questioning, in which René Descartes wonders whether reality and the self are but the illusion of a malign spirit, finds its ultimate solution in his magisterial statement, "cogito, ergo sum." A century and a half later, G.W.F. Hegel sees conflict as the root of a dialectical movement in which spirit (Geist) gains self-awareness and unity through transcendence,[4(p229)] and 120 years after that, Martin Heidegger expresses the angst that Dasein (Being) experiences when confronting the mystery of its own existence and the possibilities of being. He calls this condition "uncanniness," a sense of "not-being-home" in the world.[5(p233)] Out of these states of bewilderment comes enlightenment: moments of doubt lead the self to double back in reflection to open up new ways of understanding existence, human beings, and the world.

In education, John Dewey emphasizes the central role of perplexity when he proposes that reflection is provoked by encountering a figurative fork in the road:

> Thinking begins in what may fairly enough be called a forked road situation, a situation which is ambiguous, which presents a dilemma, which proposes alternatives. As long as our activity glides smoothly along from one thing to another or as long as we permit our imagination to entertain fancies at pleasure, there is no call for reflection. Difficulty or obstruction in the way of reaching a belief brings us, however, to a pause. In the suspense of uncertainty, we metaphorically climb a tree; we try to find some standpoint from which we may survey additional facts and, getting a more commanding view of the situation, may decide how the facts stand related to one another.[6(p10)]

This phenomenon of encountering a dilemma has also been described as a central factor in the cognitive development of children. According to Jean Piaget, cognitive development involves a series of stages or equilibria in which a child assimilates new knowledge through exposure to new "external elements" (e.g., new thoughts, feelings, people, experiences). Accommodation of these new elements into existing cognitive structures leads to the establishment of progressively more complex states of cognition; however, states in which there is an imbalance between affirmations or negations of, or conflicts between, previously held schemes may lead to a disruption of the previous state and the creation of so-called cognitive disequilibrium.[7(p15)] This state of discomfort prompts a search for new answers and the establishment of a new equilibrium of understanding. When speaking of different views on whether disequilibria are inherent in an individual child's reactions or are part of a historical stage in development, Piaget states:

> It should be stressed that both interpretations assign disequilibrium and conflict the same role in development. In both cases, they motivate searching; without them, knowledge would remain static. But in both cases also, disequilibria play only a triggering role. Their fecundity is measured in terms of the possibility of overcoming or escaping from them. It is obvious, therefore, that the real source of progress is re-equilibration. Naturally, this is not meant in the sense of returning to previous forms of equilibrium. It was the inadequacy of those forms that led to disequilibrium and the need to re-equilibrate. Progress is produced by re-equilibration that leads to new forms that are better than previous ones. We have called this process, "optimizing re-equilibration." Without dis-equilibration, it would not occur.[7(p11)]

Simply put, Piaget posits that when a child encounters an unfamiliar face, feeling, thought, situation, or experience that somehow challenges or questions his or her previous understanding of self, others, and the world, the child has a moment of discomfort in which he or she is thrown off balance. Balance is established not by returning to old ways of thinking but through the search for new answers, which in turn leads to a more complex worldview.

Discomfort, Emotions, and Transformation of Perspective

It should be noted, however, that although doubt, discomfort, perplexity, or uncertainty describes affective states, the results of these moments are often described as changes in cognition or reason. What about the affective dimensions of these moments of learning? The concept of transformative learning provides a conceptual solution to this apparent paradox.

In defining transformative learning, Jack Mezirow adapts the early work of the German philosopher Jürgen Habermas and proposes that unlike the instrumental approach to learning how to manipulate processes and things, communicative learning involves understanding the meaning making that others create for themselves through social interaction. Communicative learning consists of conversations about feelings, experiences, values, and perspectives and gives rise to new ways of thinking, knowing, and being. What often triggers these conversations and this type of learning is a situation of uncertainty and disorientation—a "disorienting dilemma" in Mezirow's words:

> [P]erspective transformation occurs in response to an externally imposed disorienting dilemma—a divorce, death of a loved one, change in job status, retirement, or other. The disorienting dilemma may be evoked by an eye-opening discussion, book, poem, or painting or by one's efforts to understand a different culture that challenges one's presuppositions. Anomalies and dilemmas of which old ways of knowing cannot make sense become catalysts or "trigger events" that precipitate critical reflection and transformations.[8(pp13–14)]

In transformative learning, it is not just *what* one knows that changes; rather, it is *how* one knows something, how one sees oneself and others, and how one exists and acts in the world. This fundamental transformation is often initiated through periods of instability and aporia: in the words of Dante's *Inferno*, one must find one's way "as through a darkened wood."[9(Canto I)]

Discomfort and Social Consciousness

An important part of transformative learning is the development of a critical gaze on issues of culture and society. Freire called this type of reflection "critical consciousness" (conscientização), which arises through efforts to understand and address the social and moral paradoxes, inconsistencies, and injustice in the world.[10] The development of one's ability to perceive that phenomena, such as poverty, hunger, and destitution, are not natural but socially constructed and the drive to identify and

confront the inequities of power that give rise to such suffering are, according to Freire, often provoked by contradictions and conflict. In words that echo Socrates, Horton and Freire assert that "conflicts are the midwife of consciousness."[11(p187)]

Similarly, the writer bell hooks asserts that discomfort is not only an integral part of learning but also an essential and unavoidable aspect of teaching.[12] When attempting to hold discussions on race in classroom settings, the hierarchies that exist in society at large invariably find their way into the classroom and into student interactions.[13] According to hooks, attempts to create "safe spaces" for these types of conversations often end in silencing students from marginalized groups or presenting them as the objectified Other in which their individuality and agency are lost. Rather, hooks argues for an environment in which all voices are heard and acknowledged and discomfort is explicitly addressed.[12]

The education and cultural scholar Megan Boler directly addresses the educational value of discomfort in teaching about issues of racism and homophobia through "a pedagogy of discomfort" that "invites students to leave the familiar shores of learned beliefs and habits, and swim further out into the 'foreign' and risky depths of the sea of ethical and moral differences."[14(p181)] Boler distinguishes between "moral anger," in which one expresses anger toward causes of injustice, and "defensive anger," when feeling threatened in terms of one's identity or position in a privileged, unjust society. She argues that to develop a more nuanced, inclusive "historicized ethics," we need to be willing to listen deeply to others, engage in a form of collective witnessing rather than solitary reflection, and entertain the notion that one's self-identity may be flexible and capable of change.[14]

Creating Discomfort or Just Opening the Door and Inviting It In?

So is the discomfort that serves as a stimulus for transformative learning in medical education encountered or created? I would argue that it is both. As colleagues and I have suggested elsewhere,[13] medicine is a space in which discomfort, at least for the uninitiated and new entrant, is pronounced and ubiquitous. Moments of discomfort do not need to be created but rather mediated and addressed. Pain, suffering, and death, secretions, excretions, and gore are part of the ambience of medicine. One is assaulted on cognitive, affective, and experiential levels by the smells, sights, and sounds of illness and injury. For newly minted clinical clerks, discomfort is constant and only recedes when one becomes inured to the novelty of clinical practice, to its fundamental weirdness. In this challenging environment, one often copes by switching off one's feelings through depersonalizing and distancing oneself from the sufferings of others. This coping occurs consciously or unconsciously by objectification, by becoming excessively technical, or through the use of derogatory, cynical, or gallows humor.[15–17] Indeed, one might argue that the very fact that one may treat the most traumatic events with a certain insouciance is an underlying theme of the resilience reinforced and even encouraged by the hidden curriculum. In this vein, medical education scholar Johanna Shapiro has argued that in fact, a chief role in medical education is to create "professional alexithymia," that is, a deliberate discounting or ignoring of the emotional dimensions of clinical care—the emotions of patients, of learners, and of faculty role models.[18] In other words, one develops what Boler terms as "inscribed habits of (in)attention"[14(p186)] to disturbing events and situations.

In contrast, once one becomes less sensitive to the jarring sights, sounds, and events that surround us, how do we look at this world with fresh eyes? How do we deal with the inscribed habits of (in)attention that already exist so that we may explore the complex psychosocial, economic, ethical, and historical factors that underlie illness and its manifestations? To pierce the veil of tacit assumptions and habitual frames of reference, creating moments of discomfort may be required. This approach may be particularly important in attempting to understand the dynamics of the hidden curriculum and its influences on the fostering of a sense of powerlessness to confront long-standing societal problems among health care professionals. In this setting, one may use discomfort to understand the differences in privilege and power that lead to societal inequities and human suffering. In Freire's lexicon, this approach is called "naming the world."[10(p88)] It is a way of peeling back the appearance of naturalness and destiny built around gaping disparities in the social determinants of health and instead of memorizing social determinants as immutable categories of impoverishment, using learning and engaged dialogue as a springboard for action for social change.[19]

Approaches to a Pedagogy of Discomfort

How does one disrupt the comfortable matrix of appearances and problematize one's assumptions, habitual ways of seeing and knowing, hidden preferences, biases, and beliefs? Using Freire's paradigm of problem-posing education,[10(p79)] one may pose questions, raise paradoxes, and encourage learners and themselves to engage their own identities, perspectives, and lived experiences to highlight contradictions and collaboratively work toward solutions. These questions may bring to light issues of history and responsibility that extend far beyond the immediate clinical encounter.

For example, when facing suspicion or hostility during an initial encounter with an Indigenous patient, one might ask a learner, "Why did she seem so suspicious when we just met?" In addition to considerations of possible reasons based on individual differences, one might open up the conversation to questions of history, colonialism, discrimination, cultural genocide, and intergenerational trauma.[20] Furthermore, in responding to questions of individual responsibility of lifestyle choices with another patient, one may also raise questions of collective responsibility in supporting or condoning conditions leading to systemic discrimination, deprivation, and oppression. One might also consider the notion of the "difficult patient" to probe the role of power, labeling, stigmatization, and race in clinical interactions.

Another way to provoke reflection and thought is a sort of modern aporia—the story without an ending. Stories told by clinicians to learners are legion: rare or puzzling diagnoses made, difficult surgeries done, lives saved. These so-called war stories portray the protagonist (usually the clinician) in heroic terms and end with a lesson to be learned. These stories fit into what the sociologist Arthur Frank refers to

as the listeners' narrative habitus, "a disposition to hear some stories as those that one ought to listen to, to repeat on appropriate occasions, and ought to be guided by."[21(p53)] Stories help to frame one's expectations, values, ambitions, and identity. They often act as ready-made lessons in clinical survival and professional culture. However, what if one tells a story that ends without an ending? What if the story leaves the learners in suspense and prompts them to create their own closure? In this moment of perplexity and uncertainty, learners must marshal their own life experiences, values, identities, and worldview to fill in the blanks. In this sense, the story without an ending acts in much the same way as Plato's pro-oiminion: "a prelude and preface, most artfully prepared, to that which must be completed subsequently"[2(p72)]—in other words, as a prelude to professional identity development.

Disruption of preconceived ideas and ready-made assumptions may also be achieved by "making strange."[22] In previous work, a colleague and I have described how modern art and literature may be used to "make strange" (i.e., to twist the perception of everyday beliefs, assumptions, and practices to prompt a look at the world with fresh eyes to generate new beliefs and perspectives).[22] This process may be used to great effect in stimulating dialogue about how certain practices become normalized that are, in effect, nonsensical or weird. Recently, a colleague of mine, a hospitalist educator, mentioned that she uses this technique with new clerks on the wards. She calls it "tell me what's weird." On the first day of an inpatient clerkship, she asks the medical students to keep a list of the things, phrases, and practices that they find "weird" or "strange" as newcomers to the world of medicine. Then at the end of the week, the team talks about these observations as a way of exploring manifestations of the hidden curriculum. This act of "making strange" harnesses the power of aporia to create a moment of puzzlement that may give rise to a line of questioning of the obvious, the accepted, and the status quo.

Both of these approaches—telling stories without endings and "making strange"—perhaps underscore the power that aporia may have in facilitating reflection and change. In a manner similar to that of dialogue,[23] these moments of discomfort prompt the engagement of the individual not only cognitively but also emotionally and experientially. The individual works through these situations, not as the dispassionate res cogitans of Descartes, but as a fully sentient human being whose very self is capable of transformation.[24]

While educationally and developmentally useful, this pedagogy of discomfort is not without emotional and psychological risks. Questions, stories, paradoxes, and conversations may uncover uncomfortable truths or reveal underlying, poorly repressed tensions and conflicts. These moments may create great discomfort among learners and disrupt group dynamics. They may expose a degree of vulnerability that individuals experiencing such an event, as well as those who teach and work with them, are unprepared to handle.[13] In a very real sense, they may create a type of "educational iatrogenic trauma" in attempting to broach very sensitive and contentious topics.[13] Individuals of positions of relative privilege and power—for example, White men—may feel threatened and defensive; such conversations may challenge firmly held ideas of self-identity, autonomy, authority, merit, and innocence. For individuals from marginalized groups, such conversations may threaten people who already feel vulnerable by forcing acknowledgment of a relative lack of privilege and power, public disclosure of highly personal struggles, or pressures to act as "spokespersons for their people."[13,25] For some, these conversations are opportunities to show liberal pride; for others, they may trigger memories of personal experiences of trauma and violence.[26]

It should also be noted that the type of provocative discomfort described above is decidedly different from the traditional use of a series of pointed questions to cause distress and publicly humiliate learners known colloquially as "pimping."[27,28] This latter approach, which is incorrectly but frequently referred to as the Socratic method, is neither Socratic[27,29] nor educational. Rather, it is a blunt instrument of power and violence to maintain hierarchy and preserve the status quo. In the proposed approaches, the purpose of questioning is to critically examine assumptions and biases by embodying Freire's notion of education as a practice of freedom.[10] Its purpose is not to harass, bully, and oppress.

Given the risks, are these aporetic moments worthwhile? I would argue that when used properly, they are, because of their capacity to act as a stimulus for transformation and growth. To create or engage in these moments, however, the educator must assume the responsibility to provide safety and support. The writer bell hooks criticizes the notion of educational safe spaces as places that for marginalized students are often not safe. "As the classroom becomes more and more diverse, teachers are faced with the way the politics of domination are often reproduced in the educational setting."[12(p33)] These spaces may be rendered safer by openly acknowledging discomfort and normalizing uncomfortable or troubling reactions, by the educator's disclosure of their own discomfort and vulnerability, and through emphasis of a belief that caring for others—both clinically and educationally—is grounded in personal relationships, identities, and concern. These spaces are made safer through the creation of opportunities for marginalized learners to speak out or to keep silent and through deep listening, respect, and humility. Above all, safety must be determined by the most vulnerable and marginalized. Often those who are required to risk the most in disclosure are the ones with the most to lose.

As is implied in the discussion above, a key component in working and learning through discomfort is the teacher or mentor; however, not only is it the role that the more experienced individual plays but how that individual communicates with the learner. Learning through conversations and interactions with a more experienced other does not occur solely through the transfer of knowledge or skills. It is not a simple reproduction of knowing through a cognitive exchange. Instead, both parties bring their whole selves into the interaction such that personal values, identities, lived experiences, and worldviews are called upon to create what Hans-Georg Gadamer calls a "fusion of horizons"[30(p305)]: a dialectical interplay, a combining and broadening of perspectives. The communicative medium through which this type of exchange occurs is dialogue. Unlike a lecture or discussion, a dialogue involves

the interaction of the teacher and student as individuals and may lead to fundamental change and transformation of perspective.[23,31,32]

Discomfort, Dialogue, and Mentorship—A Vygotskian Perspective

With dialogue, learning through discomfort happens. Under the guidance of a trusted mentor and through dialogical exchange, the questioning opens up the world for exploration and discovery. This type of teaching is both demanding and imaginative: one must learn to seize the right moment to ask the right question under the right circumstances[32]—to engage in a dialogue on the threshold of great change.[31,33] To frame this work in the terms of education, one may turn to the learning theories of L.S. Vygotsky. Vygotsky, a contemporary of Piaget, studied learning in children and like Piaget, believed that learning in children is intimately linked with development.[34] Unlike Piaget, however, Vygotsky held that cognitive development does not occur in uniform, universal stages but rather dialectically progresses at different rates in different areas of knowledge, dependent on social and historical contexts. Vygotsky posits that a major component of learning and development is encountering and overcoming obstacles and impasses:

> We believe that child development is a complex dialectical process characterized by periodicity, unevenness in the development of different functions, metamorphosis or qualitative transformation of one form into another, intertwining of external and internal factors, and adaptive processes which overcome impediments that the child encounters.[34(p73)]

Vygotsky proposes that learning is associated with 2 developmental levels. The first, the level of actual development, is "the level at which the child's mental functions have been established as a result of already completed developmental cycles."[34(p85)] When the child is introduced to new learning experiences and challenges, including the unique change in learning styles and environment of school, the child enters what Vygotsky calls "the zone of proximal development." Vygotsky defines this zone of proximal development as "the distance between the actual developmental level as determined by independent problem-solving and the level of potential development as determined through problem-solving under adult guidance or in collaboration with more capable peers."[34(p86)] In other words, learning involves movement from self-possessed knowledge of the world to an expansion of perspective mediated by interactions with a more experienced other.

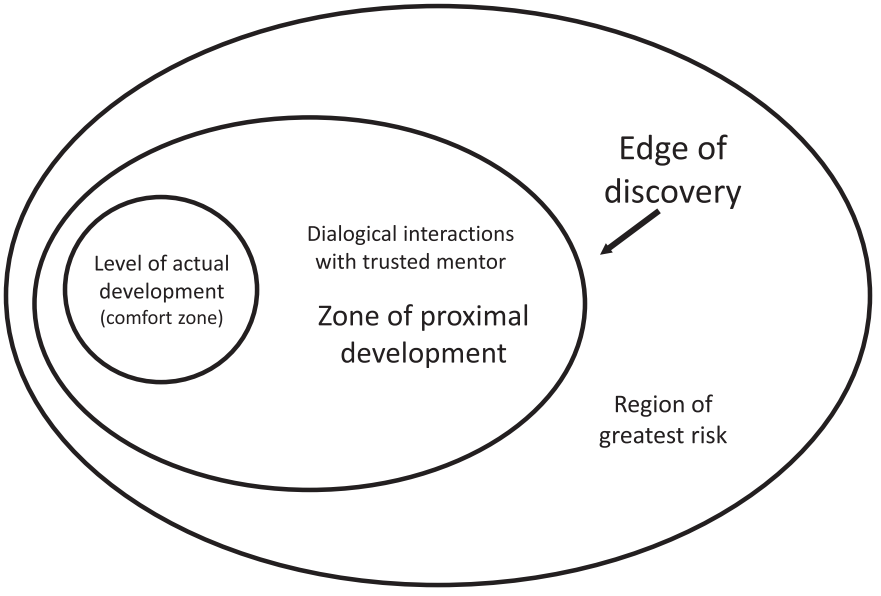

Figure 1 Learning zones, dialogue, and risk, after work by Vygotsky.[34] A learner's level of actual development is the learner's emotional and psychological security, mediated by personal identity, background, and experience. When they encounter human suffering, struggle, and pain to a degree that they may have never before experienced, learners are forced out of their comfort zone and into a state of aporia—of impasse and puzzlement—for which they may be completely unprepared. Exposure to traumatic events or situations without mediated support or supervision may place learners in the region of greatest psychological risk. However, through the help of a trusted mentor, their zone of proximal development may be extended and enriched, and their edge of discovery may be pushed far beyond their preconceived expectations.

Conclusion: Navigating Through Discomfort on the Path to Wisdom

Using a Vygotskian lens to view the role of discomfort in medical education, I propose that a learner's level of actual development is the emotional and psychological security that the learner brings into the clinical environment, a sense of security that is mediated by personal identity, background, and experience (Figure 1). Placed in a new, strange context and encountering a degree of human suffering, struggle, and pain that learners may have never before experienced, they are forced out of their comfort zone and into a state of aporia—of impasse and puzzlement—for which they may be completely unprepared. Exposure to traumatic events or situations without mediated support or supervision may place learners in the region of greatest psychological risk; however, through dialogical interactions with a more experienced other, their zone of proximal development may be extended and enriched. In this sense, their edge of discovery may be pushed far beyond their preconceived expectations.

And thus, we arrive at the end of our own journey through a darkened wood. Tracing a thematic path of discomfort and perplexity through Western thought, we arrive at a possible reason why aporia is such a powerful instrument of transformation. Through the help of a trusted mentor, a moment of discomfort can engage the individual as a whole self in prompting reflection on personally held values, experiences, and perspectives. In this sense, a mentor may serve very much like Socrates' Phaenarete: by helping learners through these difficult times, the mentor may assist them in giving birth to new and expansive ways of seeing and knowing themselves, others, and the world with insight, compassion, and wisdom.

Acknowledgments: The author would like to thank Ayelet Kuper, MD, DPhil, for allowing citation of the exercise "tell me what's weird" used with inpatient medicine teams and Thirusha

Naidu, PhD, for many invaluable conversations. The author would also like to acknowledge the faculty and fellows of the Wilson Centre at the University of Toronto, Toronto, Ontario, Canada, for providing a rich community of educational scholarship and practice.

Funding/Support: The author would like to acknowledge the F.M. Hill Foundation of Women's College Hospital in Toronto, Ontario, Canada, for support of his research.

Other disclosures: None reported.

Ethical approval: Reported as not applicable.

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