



**Psychology Imagination Retreat
November 20-22, 2016
Union League, Philadelphia**

Participants:

Roy Baumeister
Leda Cosmides
Jonathan Haidt
Steven Pinker
Thérèse Rein
Martin Seligman

*Report prepared by: Maria Konnikova (lead author), Scott Barry Kaufman,
Marie Forgeard, Elizabeth Hyde*



What is imagination? How do you teach it, nurture it, allow it to flourish—and are these goals worth having? These questions guided the recent meeting of the Imagination Institute, with psychologists Steven Pinker, Leda Cosmides, Roy Baumeister, Jonathan Haidt, and Martin Seligman, and businesswoman and human rights activist Thérèse Rein. At the heart of the discussion were issues that touch not only on the creative mind, both generally and within psychology in particular, but on the very essence of what academia means and what its function in society should be.

What is imagination, from a psychologist’s viewpoint?

Imagination, the group discovered early on, is a bit like pornography: you know it when you see it, but when it comes to defining it precisely, measuring it, putting it in some sort of easily digestible form, most current approaches fall short. We know when something is imaginative, but that doesn’t necessarily allow us to discover what, precisely, led to that conclusion. What are the elements that make one thing imaginative and another, not, one creative and another, simply kooky? Generalizations, it turns out, are hard to come by, but all the same, a few general themes soon emerged.

Imagination, panelists agreed, involves one particular ability: seeing what could be, rather than what is. It’s about identifying the gaps in our existing knowledge and understanding of the world, and picturing what could, one day, fill those gaps in. By way of illustration, think of George Bernard Shaw’s lines from Act I of his play “Back to Methusaleh”: “You see things and you say, ‘Why?’ But I dream things that never were; and I say, ‘Why not?’” It’s in the dreaming of the “why not” where imagination



predominantly lies. (Of course, it's important to remember that, in this particular case, the words were spoken by the serpent in the process of seducing Eve, raising a future theme: is imagination always beneficial and something to be desired?)

Identifying gaps in knowledge, though, isn't altogether straightforward. It's not something one can do in the absence of substantial preparation. Imagination comes in stages—and parts of those stages look decidedly unimaginative. The first part of the imaginative timeline, the group decided, lies in exposure: you have to be exposed to multiple areas of thought, to gather knowledge from myriad walks of life. For without knowing what exists already, how will you know what's missing—and how will you know how to devote your precious, and scant, mental resources (that is, the old cliché about the risk of reinventing the wheel...though clichés are such for a reason)? Next, one must consolidate the information: mull it over, let it percolate, let it become part of your psyche. This stage is essential, panelists agreed, but is increasingly at risk in the modern environment: it requires solitude, both external and internal. You not only have to spend time by yourself, but you have to spend time with your own thoughts, without external distraction. You have to be willing to work alone, to have a certain “butt-in-chairness” that survives even when no immediate insight is forthcoming. It's a persistence that we more associate with drudgery than creative insight.

For, imagination, the panel agreed, is born of expertise rather than dilettantism. Yes, you have to be adept at divergent thinking (i.e., at generating multiple original ideas), at approaching problems from different points of view and knowing to look at less than obvious connections. But you also have to be someone who has thought deeply in at least

one area, rather than someone who has passing knowledge of many areas, but no deeper well of expertise to draw upon. True expertise can translate into remarkable “lateral insight” (i.e., the ability to bring in information that may not at first glance seem relevant or logically connected to the problem at hand in order to solve it).

For instance, one of Steven Pinker’s former students had in the past worked in wild life recapture. The student applied an observation from this past experience to a problem of linguistics, namely, how to approximate the size of someone’s vocabulary given that you can’t record his or her speech every hour of every day (and even if you did, the approach of straight counting would be tedious and necessarily imprecise). Why not use the method preferred by ecologists looking to study animal behavior, the student suggested? They mark the animals they capture, and release them back into the wild. Then, based on the rate of recapture—how many animals that have already been marked are caught a second time—they can approximate the total size of the population in a given area. The same approach could be used for vocabulary: see how many “marked” words are “recaptured,” to approximate the total size of the word population. Absent a deep expertise in one field, the imaginative insight into another could never have taken place.

Even understanding some of these basic mechanisms, though, it remains difficult to figure out how exactly to measure imagination—a question that, for psychologists in particular, is a pressing one. One line of thinking: do we measure imagination by its ends, that is, is imagination necessarily *successful* imagination? There’s a difference,

participants pointed out, between the productive imagination of someone like Steve Jobs and the imagined ravings of, say, a patient who suffers from schizophrenia. Both come up with vast amounts of imaginative outputs, insofar as they express a “what could be” rather than “what is” mentality, but we’d be hard-pressed to equate the two and give them the same label of “imagination.” What matters, perhaps, is the filter: imagination isn’t simply the ability to generate ideas; it’s also the ability to filter out the productive, or at least, potentially interesting ones, from the rest. You can’t just throw out anything that comes into your head. You need to have some sort of effective internal selection mechanism that pre-evaluates, in a sense, the potential quality of that internal stream.

Steven Pinker, Leda Cosmides, and Jonathan Haidt liken the idea to pruning the branches of a tree: your pre-existing knowledge (that exposure and expertise that we’ve identified earlier) helps you isolate the branches that are most likely to bear fruit from the ones that will likely remain barren. And so, you devote the majority of your resources to exploring and nurturing those branches, rather than spreading your resources thinly—and equally—over areas that are as likely to be productive as those that aren’t. It’s fine to be wrong in your initial choice: misidentifying a branch is a part of the imaginative process, and fear of that wrongness shouldn’t lead you to an overly conservative estimation of the fruit-bearing capacity of your tree. But some sort of direction is essential; else, you may spend your entire life making sure you didn’t miss anything on any given branch—and failing to explore those that would actually be meaningful. Time is an incredibly precious resource, and it only makes sense to evaluate how it’s spent, to the best of your abilities, before actually devoting massive amounts of it to any one pursuit.



Whatever the proper measurement of imagination may be, one thing is clear: there is no consensus in the field. Current laboratory measures—tests of divergent thinking, inventories, self-assessments and the like—are incomplete. They fail to capture some forms of imagination, and end up rewarding people that few would call imaginative outside the test setting. It is the Imagination Institute’s hope that the \$3 million worth of grants that are being funded to develop better ways of assessing and promoting imagination and creativity will bear fruit (see <http://imagination-institute.org/grant-recipients> for further information about the projects).

Part of the problem stems from the incredibly individualized aspect of imagination: to see if any given person is imaginative, we must know his or her specific background and inspirations. What environment would bring out her imaginative side? What types of questions or tasks? What kind of approach? Not everyone responds in the same way to the same prompt—especially when the element in play is one as elusive as the imaginative mind.

Leda Cosmides sums up the tension. “I want people to flourish. But understanding what makes them flourish is an empirical thing,” she says. “The whole point is to figure out how it works: figure out what will make that goal come true.” Unfortunately, it’s difficult to find a standardized solution to something as non-standardized and ultimately individualistic as imagination. We can begin to approximate certain profiles that may be more likely to lead in an imaginative direction—say, brilliant divergent thinkers, or nonconformists—but those profiles will necessarily miss some individuals and misidentify other.



Strengthening imagination

So, if we're not quite sure how to measure it, how do we go about building up imagination? What are the key elements of the creative mind that can be developed and strengthened with time and practice? As with most human qualities, part of imagination, of course, is innate: some people are indeed born with certain preexisting aptitudes. Martin Seligman calls these people "naturals." For instance, in his chosen pastime, bridge, he has come a long way toward mastering multiple elements of the game, and has become a skilled and accomplished player. But, he says, no matter how much he plays or how many hours of practice he invests, he lacks the intuition that characterizes the game of many of the foremost bridge players in the world. They are "naturals": they are able to make intuitive-seeming mental leaps that he, tied to a more logical approach, cannot follow. The same, Seligman asserts, is true in psychology. "You're all naturals in psychology," he tells the group. "It's not a matter of knowing the truth but taking a premise and running with it." The panelists are capable of the truly imaginative insights on which much of psychology is based, treading in areas where others, those who lack the "naturalness," may not always be in a position to go.

But that's not the whole story. Even seeming "naturals" have usually had the right sort of support, environment, and training in order for that naturalness to come out. In a different set of circumstances, they may well have fallen in a less inspired category. One of the factors that seems to unite them—and that could help foster imagination in young minds—is the presence of the right sort of mentors: people who take the time to see you, support you, teach you, correct you when needed, and encourage your progress. It's



difficult to learn in a vacuum, and being surrounded by the right people is key to making the most of any innate talent or interest—and to developing them even when you didn't realize they existed.

Mentors may just happen, so to speak, but they can, as well, be cultivated in the right institutional settings. Some environments have built-in mentorship programs; others make it easy to find a supportive superior if you so desire by virtue of their organizational structure or attitude. Other settings, however, seem unapproachable and closed-off: those are the types of environments to be avoided. For instance, imagine several versions of a college. One is a small liberal arts school, where not only are students paired with an academic advisor, but that advisor then suggests possible senior faculty to serve as mentors through the experience. One is a large university, but one where faculty make themselves readily available and explicitly encourage students to come to office hours; there may be career fairs, mingles, and other opportunities to meet and interact with professors and other senior figures. And one (unfortunately probably more common) is a large university where departments are largely closed off—interdepartmental collaboration is not encouraged—and where students must actively seek out a professor if they want any chance of meeting her; office hours may even be “by appointment only,” not open drop-in periods but interactions that you have to make a conscious effort to arrange. The first two settings foster imagination; the third only works for those who have already developed it, know exactly what they want, and are already “naturals,” in Seligman's words. The first two are more conducive to the sort of imaginative flourishing



that may be more broadly applicable and that may bring out innate talent or encourage burgeoning interest where, in their absence, it might very well die.

Who, precisely, the mentor is, is also of fundamental importance to fostering imagination: not just any senior figure or leader will work well for any individual.

Panelists stressed the importance of the right personality fit: even the best mentor will be terrible if the individual fit isn't quite right. (Steven Pinker pointed out that he almost quit Harvard University's Psychology Department because of the dominance of mathematical modeling, to the exclusion of all other approaches, that characterized the Department at the time he entered it; it was only once a new hire was made—and that new hire became his mentor—that he embraced his calling.) Once you've found the right match, though, a mentor can help with two crucial questions, the ones from which much of successful imagination may stem: what are you really good at, and what are you really interested in? Imagination is strengthened when the mind meets something that is of intrinsic interest: not something you're doing for a future external goal, be it financial or otherwise, but something you do because it just fascinates you. That fascination allows curiosity to bloom and expertise to develop in its wake. It leads to a near-fanatical obsession, in the strongest case, and a rabbit-hole-pursuing passion, in slightly weaker terms, that forms the basis of imagination. But to reach that end, as this weekend's panelists have all done in their own right, interest and ability must combine. Interest alone is not enough, and even the best ability will never attain the necessary focus if the intrinsic motivation remains absent. And the sorts of eureka moments one associates with creativity and



imagination? They never really are “out of the blue,” every panelist was quick to point out. They are founded on hours, weeks, sometimes years of obsessive

thought. Finding that match between your interests and skills is crucial to maximizing your imaginative potential, for only then will you be in a position to obsess, so to speak, to the necessary extent—and to step away from the obsession long enough for your mind to seize on the connections that you hadn’t previously consciously noted. You can’t train insight as such. What you can train is the type of thinking and approach to the world that will foster the curiosity and sheer number of hours necessary for insight to eventually emerge.

One point where the panelists differed was on the personal background most conducive to fostering imagination: do some sorts of backgrounds encourage imagination in and of themselves? For instance, do imaginative people go through childhood or other early adversity? Or, conversely, do they have supporting family environments where their skills are closely monitored and developed and their interests, reinforced and encouraged? Some follow one path, it turns out, and some another. There doesn’t seem to be a unified profile – and exposing your child to adversity just to strengthen her imagination seems a fool’s errands, just as encouraging every possible shred of talent may still not turn your young genius into Einstein. Some of the best minds grew up in stable, loving environments; others experienced deep loss. All of them became imaginative, regardless of specific background. As with so many things, then, nature and nurture surely combine in the truly imaginative individual.

The current state of the psychological imagination

By now, most people are aware of the so-called “replication crisis” in the field of psychology: that certain—some say, many—effects in the field don’t stand up to closer scrutiny. Last year, *Science* published a paper on the results from the Reproducibility Project’s efforts to replicate one hundred papers from 2008. Only between a third and a half of the studies replicated. The result, and the attending media publicity, has led to a kind of crisis of conscience within the psychology community: what does a failure to replicate mean for the field? Does it mean that much of psychology is wrong or misguided? Is the field existentially endangered—or is the replication effort itself a wasted one? Indeed, in March 2016, a rebuttal to the original *Science* paper appeared in the magazine, challenging both the statistics of the 2015 publication and the methods of reproduction themselves. The rebuttal was itself rebutted in the same issue, and on and on in a seemingly endless meta-cycle of scientific existential angst. But here is the question central to this panel’s mission: *is the quest for replication at odds with the type of imaginative and creative thinking on which great psychological discoveries depend?*

In many ways, it is, the panelists agreed. For in the background of that specific question lies a bigger and more fundamental one: how do new big ideas emerge? In what kind of an environment is big thinking rewarded, and in what kind is it penalized? The current situation in many ways resembles a witch-hunt, panelists argued, where studies are picked apart and a failure to replicate immediately casts blame on the original rather



than the replication—or on any of the other variables that might have been involved.

Research is difficult, and replication, just like original study design, is both science and art. Some researchers who aren't well-versed in a sub-field or the specific methodologies may fail to replicate a result that is actually sound. So, faced with the specter of replication attempts and immediate attack, what is a young researcher to do: pave the way with bold new approaches, or stick to something that is unlikely to garner any negative scrutiny? In the current climate, panelists argue, original ideas may never even have the chance to be tested, or even if they are, may not stick around long enough to mature and become robust, lost in the eagerness to immediately question that has overtaken the field. Imagination in psychology, in other words, is currently at a severe risk.

And that risk seems higher than in any other field. Somehow, psychology is easier to criticize on replication grounds than any other science. Even though failures to replicate and changes in knowledge that render older methods moot and sometimes even upend established theories permeate other areas (think physics, biology, chemistry, medical research—all fields where entire areas of knowledge have been crossed out and replaced with newer versions), in psychology they are deemed evidence of the failure of the field whereas elsewhere, as necessary steps of progress that in no way invalidate the area or push it into existential angst. Psychology, after all, is about humanity, and to modern-day data-hounds anything human is necessarily suspect. This knowledge, panelists agree, is making the field much more sterile: promising students go into tried and true areas, promising researchers embrace questions of neuroscience over “softer” questions. Theory takes a back seat, and so, never gets developed beyond its current state.



It certainly doesn't help that the current "publish or perish" mentality leaves researchers with little time to think deeply, come up with thoughtful new ideas, or evaluate alternative approaches and ways of thinking: all elements crucial to imaginative work. In an era of quantity over quality, topped with a fear of replication hounds, only some types of ideas are rewarded. Empirics triumph over theory, and the result is a highly problematic one. "One thing about creativity is how you lead your life," Cosmides says. "In a profession where you have to do a million idiotic things at once, it's like being a ping pong ball. There are too many things to juggle, too many things to do." When decisions like promotion and tenure hinge on sheer number of papers, rather than their substance, the result poses a serious problem to the entire profession. "It's a terrible culture. It encourages thoughtless publishing," Cosmides continues.

It certainly doesn't help that quantity in publishing comes at the expense of deep thought not just in research but in all areas of your life: you don't actually have time left for much thinking or exploration beyond your immediate area of specialization. "[The climate] crushes creativity, the time you have to read other things," Cosmides concludes. "And sometimes you need time to *not* think about things." Those moments of quiet reflection, so essential to developing imagination, are lost in the shuffle. The result is a field that very well may be in existential crisis—not for failure to replicate but for failure to truly innovate.

Stifling imagination in academia



Throughout the entire weekend, one theme permeated every single discussion—a theme that, in many ways, gets at the heart of what imagination means and under what circumstances it flourishes or falters: the rise on college campuses of a culture of over-the-top political correctness, evidenced by phenomena like unproductive discussions of “microaggressions”, “trigger warnings”, and a call for campuses to be “safe spaces.” It’s a phenomenon Jonathan Haidt terms “illiberalism.” He noted that liberalism has its origins in respect for liberty in all forms, including freedom of speech, religion, and commerce. Illiberalism occurs when one group takes it upon itself to tell others what they can and can’t say or do. Therefore, progressives can be liberal or illiberal; conservatives can be liberal or illiberal. And nowadays, on campus, we are seeing an explosion of left-wing or progressive illiberalism. A statement that may somehow be interpreted as expressing negativity toward a member of a protected group, or even an idea, is called a “microaggression”—an act of insensitivity and violence. Any material that could possibly be deemed controversial or somehow hurtful—anything from *The Odyssey* to *Huck Finn* to *The Bluest Eye* has been implicated under this umbrella, as have discussions of, say, race in an anthropology class—has to come with a “trigger warning”, or warning that this could possibly provoke anxiety in some students and that they can opt out of it. And campuses should, in general, be “safe spaces”, or spaces where nobody feels threatened by any word, thought, or gesture.

That climate, Haidt and others point out, is in many ways the antithesis of a climate that fosters free thought and free speech, which are needed for academics to thrive. (Indeed, on one campus, free speech posters were deemed a “microaggression”



and torn down.) It creates a chilling effect on what people can do, say, and, it follows, think. Academic ideas that may somehow be deemed controversial are taboo; research that impinges on established orthodoxy or somehow hurts the image of a protected group is not to be funded, pursued, published, or discussed in lectures. Entire areas of psychology—gender differences, behavior genetics—may be too sensitive for inclusion in a course or even for applications for grant funding. Even areas that seem uncontroversial—discussions of trauma or resilience, say—may be deemed too dangerous, if even one student reacts negatively to them. Here, then, is the question posed by the panel: *can you be truly imaginative if certain areas of thought are off limits, and even reasoning in that direction gets you in trouble?*

Social consensus, the panelists argue, is stifling for freedom of thought. If you can only express majority opinions, the very essence of academic inquiry is undermined. Haidt positions the debate as one of competing sacred objects: social justice versus truth. “In the academy, the sacred value has traditionally been truth,” he points out. “You can’t lie and you can’t mislead.” No matter how much you want an idea to be true or gain traction, justifying it with flawed statistics or flawed arguments is unacceptable. Conversely, no matter how unpalatable an idea may be, if the data support it, you must accept it, in all its messy reality—even if it goes against social orthodoxy or furthers an unpopular notion. It doesn’t matter if the truth is hurtful: as an academic, you must uphold it to the best of your ability.

The current campus climate has a bit of a paradoxical effect: on the one hand, it encourages civility—respect for everyone and a heightened sensitivity to how people feel and respond. On the other hand, a culture of civility also implies a culture where all ideas,



even the ones that go against the grain, are considered. But what if considering them gives offense to someone, thus undermining the civility? It's a paradox: civility means welcoming everyone into the discussion, while worrying that welcoming some people's ideas may be offensive to other participants. This is a very specific culture of civility: only ideas that are deemed "civil" by specific groups of people can be heard. Freedom of speech takes second place to freedom from offense. Your right to not have your feelings hurt trumps my right to say what I am interested in. That approach has the sacred value of social justice rather than truth, Haidt argues: truth plays second fiddle.

Can you be both politically correct and imaginative, the panelists ask? Can you conform and be creative? Can imagination flourish absent a deep respect for free speech? Can heterodox approaches survive an onslaught of absolute orthodoxy? As a group, they are skeptical. If the current climate continues and progresses, many fear that psychology, especially social psychology, will be one of the areas where imagination will suffer the most. For it deals with many of the social issues that are central to the current conversation. And what if the data point in a less than socially acceptable direction? Imagination thrives on nonconformity, and social consensus—safety—is where it may well go to die.

How can academia in general and psychology in particular be made more imaginative?

Imagination is the freedom and ability to see things that do not exist, to consider a world different, in no matter how small a way, from the one you currently inhabit. At its best, imagination is the path toward changing the world. But you have to understand the



world in order to change it for the better; otherwise, absent deep knowledge, you may very well just make things worse. To make the most of imagination, to create the sort of soil where imaginings may grow and flourish, requires a very specific type of fertilizer: a

base of knowledge, of ideas, thoughts, and musings, that will guide young minds in a productive imaginative direction.

That base, the panelists all feel, starts in a general humanities education. Even though each of the weekend's participants has specialized deeply in their chosen field, in order to reach their most creative insights, they had to draw on areas far removed from their specific point of departure. When asked to name their most imaginative achievements, not a single participant turned to something directly in their field of specialty. Indeed, many stressed the importance of working across fields—not just similar ones, but ones wholly unrelated. (To wit: Steven Pinker's frequent forays into the world of fiction.) For Leda Cosmides, it was an insight linked to reproductive biology and basic science; for Steven Pinker, a lens into the violence in society; for Jonathan Haidt, an understanding of free speech; for Roy Baumeister, a window into the evil of humanity; for Martin Seligman, a glimpse into the function of dreaming. Each idea was born from interaction with and exposure to seemingly unrelated areas of knowledge—areas that, if you were gaining an education with a purely practical objective, you would have never had cause to explore.

Many imaginative leaps and creative insights discussed came from a synergy between two unrelated fields or ideas. Think, for instance, how prevalent analogical



thinking is in so many crucial, game-changing insights. Indeed, the panel spent quite some time tracing analogical leaps throughout the weekend—one phrase that reminded of something else, one phenomenon that nudged another out of memory, combining to create some of the most insightful moments of the conversation. If you only study

narrowly, if you specialize too early, your mind will never be able to make those leaps and connections. Your analogical thinking, so to speak, will be at a severe disadvantage. An education in imagination, then, begins with an education that is necessarily broad.

It is also an education where boundary-crossing is actively encouraged: where approaches or knowledge from one area can be applied without penalty to another. (It's the opposite of the teacher who grades you down for not solving a problem the "right" way.) Steven Pinker reflected on his work writing in domains outside of psychology, such as philosophy, political science, and international relations, explaining, "In every case where I venture into some other field, I immerse myself in the literature in that field and I try to understand from the inside. What kinds of questions do they ask? What kinds of answers are acceptable? What kinds of evidence are relevant? That might be the difference between the successful cross-disciplinary applications and the less successful ones."

We already pay token homage to the importance of interdisciplinary collaboration. But in reality, such collaboration is both infrequent and difficult to foster: funding is hard to come by, proposals are suspect, students who express interest are seen as noncommittal. What schools need for imagination to grow, panelists argue, is more cross-



disciplinary talks and collaborations and departments. “Human reasoning is limited and flawed and biased,” Haidt says. “We need to put people together in the right way.”

The implication for the panelists is clear: an education with a view to imagination is an education that stresses a broad liberal arts foundation and exposes students to different modes of thought. It is an education where students read not only deeply but widely, and where multiple approaches are taught, encouraged, and developed. It’s an education in both multiple topics and multiple lenses, that teaches both ideas and approaches to evaluating and challenging ideas. It doesn’t shield from any possibly unpleasant, hurtful, or frightening topics but rather teaches to engage with all topics on a critical level. It is, to put it simply, liberal arts plus critical thinking, openness rather than closed-mindedness—and openness even, especially, when you bridle and disagree with the content.

Another essential component of a system that will foster rather than stifle imaginative thought is a creative ecosystem: an educational institution that functions as an open forum where all ideas, even unpopular ones, are heard, and all ideas can be attacked. Only with the knowledge that there is a place for any and all ideas to get a fair hearing will people learn to think both creatively and well—a functional sort of imagination that will lead to real gains. “Human stubbornness and self-deception can hold out for a while, but in an open forum, if you need to defend your ideas against critics, some ideas will lose,” Steven Pinker points out. “If you’re an activist, you want freedom of speech in general, but especially in the university, so that the type of arguments that prevailed against slavery, harems, and human sacrifice can emerge.” A broad humanities



education, then, and an open forum where the ideas gleaned from that education can be expanded, rehashed, debated, and, possibly, discarded.

For, one of the prerequisites of imaginative flourishing, the panelists contend, is viewpoint diversity: being exposed to ideas different from yours, conceptions of the world different from your own, points of departure radically opposed to your own. The group even proposed an initiative that would study how to foster such settings: Civil Contrarianism in the Social Sciences, an attitude where taking contrary approaches is encouraged, even if those approaches end up losing out to more prevailing notions.

But part of the ideal imaginative environment is also one that stands at odds with the pressure-cooker that the school system, from pre-school through graduate school, has become: it's an environment with built-in downtime, where you can take breaks from thinking and study and let your mind roam wherever it will, even if there's no apparent value in the immediate future. Imagination can't thrive under constant pressure. Insights need to be incubated—and incubation takes physical time. One can imagine an educational system with breaks built-in: a course where you pursue whatever you want, for instance, a class where all you do is sit and let your mind wander.

It's an attitude that starts from the top: one that holds that breaks aren't wasting time, and that you can get ahead, and even be rewarded, even if you aren't in constant productive mode. It's also an attitude that is currently absent, be it for students or for professors. (The panelists lamented the constant treadmill of getting tenure—a treadmill that makes imaginative ideas highly unlikely, if not impossible, to emerge.)

Reconceptualizing academia as a place where pure reflection, with no measurable output, is valued would be an essential first step in making this imagined future a reality. It



would mean different metrics for evaluating work and determining success. It would mean research money that is more flexibly delegated—not for a specific project, but for an idea, an exploration, a possibility. It would mean allowing more frequent sabbaticals for professors, and encouraging more frequent breaks (gap years, semesters off, and the like) for students. It would mean a reconsideration of what it means to be productive. It would mean, in many ways, a return to the academia of yore, as a place of scholarly pursuit for its own sake rather than a race for some sort of goal of immediate productivity.

How can we use the tools of psychology to foster imagination more broadly?

In some ways, psychology is the discipline most able to shed light on creative thinking and the processes that may foster imagination in human minds—it is, after all, the study of the human mind and how it works. “It helps to think of everything as a kind of psychology,” Steven Pinker says. He uses his own writing as an example. “*The Sense of Style* treats the problem of how to write clearly and stylishly as a problem of psychology, applying linguistics and cognitive science where it hadn’t been applied before. Same with my history of violence [*The Better Angels of Our Nature*].”

Psychology is a lens that can help shed light on both the process of creativity and what we can do to make that process both more accessible and more desirable on an individual level.

As researchers interested in understanding whether imagination is learnable (and perhaps teachable), some fundamental questions must focus on understanding the relevant cognitive processes. As Roy Baumeister noted, “It’s probably no accident that human beings, the only really conscious species are the most creative as well. So ideas



may originate from the unconscious, but the conscious has to put them together and fashion them. Conscious processes become more automatized over time, so that the unconscious gradually takes them over and comes to learn them. This suggests that the unconscious stuff might be trainable. So, if you're doing, say, creative hobbies, that could stimulate the unconscious part of the creative process to be better, but the conscious is a limited resource. If you're spending an hour a day composing music, maybe it's depleting your capacity to do that. So, the short-term effect could be negative. My interest would be to break down the process by which imagination occurs, understanding interplay of conscious and unconscious processes. I would not expect there to be a simple yes or no answer to the question of, is the whole process trainable or not? Some parts may be and some parts may not be.”

From psychology studies, we know that divergent thinking is important to imagination—but the best way to teach divergent thinking isn't to flat-out teach divergent thinking. That is, a lesson on what divergent thinking is would be unlikely to foster it in any real way. Instead, why not teach it through problems that are intrinsically exciting—that just happen to require some of those techniques to examine and solve? People learn best when they want to learn, when they are internally motivated to pursue a topic further, when they are inspired to dig deeper on their own, to go beyond assignments and class and official requirements. Understanding that fundamental truth about human learning leads to the development of a very different kind of curriculum: one that finds compelling subjects, or presents less compelling ones in compelling ways, where the tools of imagination are discovered almost as a byproduct rather than an explicit lesson.



Another critical element of imagination is critical thinking: *how do you examine and disagree with ideas?* You can't just imagine a different version of the world; you need to know how to present it, how to respond to challenges to it, how to, in turn, challenge other notions. Teaching critical thinking goes back to fostering an open and tolerant environment where ideas are heard, and where the proper way to examine and respond to those ideas is modeled by people who have already gone through the process. There's a reason the ancient Greeks included rhetoric in their curriculum: it taught not just public speaking but a way of looking at and interacting with the world that forced you to be more stringent in examining and presenting your own ideas, to hone those ideas to the best possible versions of themselves.

Another crucial question—and one, unfortunately, with no easy answer, is one of testing: *how do you test students' knowledge of material?* Do it one way—say, multiple choice questions—and it fosters one type of thinking and study. Do it another—say, long essays—and it fosters another approach entirely. Open or closed book? Timed or no? How objective are the criteria for grading—and what types of knowledge are considered essential to test? Different cultures, panelists pointed out, already test differently, and the end results couldn't be more different. A student educated in China may take many of the same classes as one educated in the United States, but emerges with an entirely different knowledge base, approach to learning, and approach to thinking. Which is likely to be the more imaginative—or is it some heretofore unexplored or underexplored combination of approaches?



Of course, the truth is that this entire weekend has been predicated on one very specific notion of imagination: an American one. Different cultures approach creativity differently, and it means different things in different contexts. In order to foster imagination on a truly global scale, we need to understand not just imaginative processes in a vacuum, but as they interact with elements of specific cultures. We need to understand each culture in order to use its strength and learn how to get around the mental blocks that it imposes (for instance, shame is a huge motivator in some cultures—and shame at failure can mean an unwillingness to try imaginative approaches that may fail). We need to be imaginative in how we think about and understand imagination.