Academic Life: (A)musings from the Ivory Tower

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Contents

1 Annotating Academic Life

"If a story is in you, it has to come out."
—William Faulkner

This collection of brief ideas and notes to myself was compiled over many years in a stop and start manner. Some of these were blog posts, but I was unable to consistently blog, it just wasn't a routine that took root.

The notes are not autobiographical in any way. They are experiences related to academia and life in general. Maybe they have a perspective only an academic can have, but there is no guarantee that this is the case. All I know is that they are personal and punctuate self reflection.

I have always written to clarify my own thinking. I cannot think without writing by hand (and typing has become helpful over time, though earlier on, it would not work for me; talking to my computer has been mostly unhelpful). Many of these notes came from a single thought, urgently driving me to elaborate, leading me on to related ideas. I've realized that it does not take much to close the loop on a single idea, in an hour I am able to write slowly and complete a page or so of enjoyable engagement with my thoughts. The closure of understanding my own take on an idea is warmly satisfying. No doubt someone else reading these notes will have different thoughts and will disagree more than agree, but the point is not to agree with me. If it clarifies thinking while arriving at a different understanding, then I hope readers will get the same satisfaction as I have.

I am lucky and privileged to be an academic – the ivory tower suits me well. If you like reading, thinking, and writing, there is no better world to live in. It does not feel like work and brings deep satisfaction. That is not to say that there are no challenges, resource constraints and difficult egos are everywhere, but you also get to be yourself, and a for a maverick like me, it's great. I suspect you will get a glimpse of these tradeoffs in the notes, but I do hope you will also see how unique and different this world is. I am often asked what we academics *really do* and maybe some answers lie herein. Still, academic "life" is so much more than just the "work" of research and teaching. Many academics have written lovely biographies, describing their scientific achievements, but it's hard to convey a gestalt of life in academia, the feelings and emotions of being an academic. Maybe my notes will do some of that, though I also have read some terrific books that bring you into the mind and emotion of an academic journey, such as these favorites of mine: "Love and

Math" (Edward Frenkel[1]), "Birth of a Theorem" (Cedric Villani[2]), and the glorious "Surely You're Joking Mr. Feynman" (Richard Feynman[3]).

Academic life is certainly atelic. It's a journey with no end or direction. You consume a lot of knowledge with a view to then producing a lot of knowledge, while training others to do the same. You learn to believe in facts and truth, and not opinions, but the life of an academic is also about feelings and emotions, linked to the truth by that most amazing glue, intuition. Ray Bradbury noted – "Your intuition knows what to write, so get out of the way." Take information, add intuition and inspiration, and the outcome is original discovery. Thus, forever be an explorer!

All explorers avail of extensive freedoms, without which the academic enterprise would be a boring failure. Many of my notes are veiled appreciations of these freedoms. And they come from reading about others who exercised these freedoms. In my case, cyberpunk has been a huge influence. It leaves me inspired – many of my notes were written after reading great science fiction. I also like to think of these words as a celebration of everyone who influenced my ideas – you know who you are!

I have divided up my notes into just two categories: Academia and Life. I began with several categories but none stuck, and simplification down to just two did the trick. The first section is about academia, the second about life in general. I have not tried to be comprehensive and exhaustive, nor have I tried to be focused. I have simply written down what I thought was interesting at the time of writing.

Maybe great writing reveals the meaning of life. My writing is far from great, and I write mostly to understand myself. Not that I see myself as a complicated person, but I do have thoughts and ideas that I hope have some value when shared. As Anaïs Nin said, "We write to taste life twice, in the moment and in retrospect." I hope you will enjoy reading these notes as much as I enjoyed writing them.

[1] https://www.edwardfrenkel.com/lovemath/

[2] https://archive.org/details/birthoftheoremma0000vill

[3] https://www.penguin.co.uk/books/354126/surely-youre-joking-mr-feynman-by-feynman-richard-p/9781784877798

2 Academia

2.1 Looking Sideways: Freedom and Wisdom in the Small

This is a brief writeup of a talk I gave to the faculty on September 11, 2018, on the occasion of completing my year as Faculty Senate Professor at Santa Clara University. Many of these ideas came from reading generally about a mixture of religion, philosophy, self-help, science fiction, blogs,[4] and poetry. But the simplest ideas come from simply living a mixed life, in many parts of the world and enjoying different cultures.

My thinking has been shaped extensively by my lukewarm Buddhist practice, though my father was reformist Hindu, my mother was Muslim, and I went to Jesuit school my entire school life. My eldest son (I also have two stepsons) did his early years of school in Queens, NY, going to Jewish school, so we enjoyed a wide range of ideas at home. Surprisingly, there was little conflict and a lot of consistency.

None of these ideas are truly new for I am sure they slot into some concrete philosophical tradition of which I am ignorant. All I have done is adapt them to an academic context to make sense of my own world. And I am grateful for this opportunity to stop and reflect on my life, which is the gift from being a faculty senate professor.

First of all, thank you to the past Senate Professors for electing me as the senate professor. It is wonderful to be among you all here. I have many people to thank for supporting me on my journey and many of you are here today. It does take a village, and for the slow to grow, i.e., yours truly, it even takes a university!

I must admit that I have given hundreds of presentations but this one must surely be one of the hardest. It took me a long time to figure out what I wanted to talk about, and after much thinking, I came up with what must seem like a somewhat crazy title to you all. And indeed it is. But the genesis is as follows. Some talks are a reflection on times past and others on looking ahead. This one is only a little of both and mostly none of that. So the best I could describe it was as "looking sideways." The subtitle is actually more descriptive of what I feel compelled to talk about, which is the role of little

[4] My favorites are Medium and HackerNoon.

freedoms that are afforded to us academics, all of which add up to much more. These little freedoms give access to some interesting wisdoms, which I have been fortunate to partake of, and which I want to share with you today, especially my junior colleagues, for if you wonder why we end up staying in this profession for so long, it is because of these little freedoms. In this time and age, when freedoms are being assaulted in our own country and abroad, I am grateful for the ones we have.

There is something special about being an academic, about academic freedom, for we get to look forward while also looking back, standing on the shoulders of giants. I remind myself always, that being able to indulge in a lifetime of learning freely through research and teaching is indeed the ultimate liberation. And I hope to never abuse this privilege.

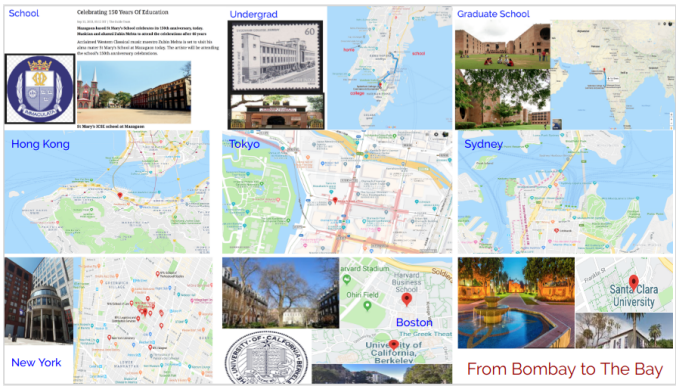
A little about me ...

With taking a break from working in industry to get a Ph.D. I have now worked for a straight 30 years of my life. I have held only 3 full time jobs ever, one in industry and two in academia, in itself an oddity outside academia. As a huge coincidence I attended a Jesuit school in Bombay, India for 11 years, which had some famous alumni, Zubin Mehta of classical music fame, Freddie Mercury[5] of the Queen, and Azim Premji,[6] among others – it was quite a place indeed. I have studied and worked in many countries and this has given me a sense of freedom out of these learning experiences.

When you develop an academic mindset, work is not work, because you reframe it as learning. This mindset is freedom itself. But we must remember, with great freedom also comes great responsibility. This graphic shows my journey from the other end of the globe to this one, through several countries. The only commonality amongst all of them is that I have never lived away from the coastline, ever. I don't think I ever could. I grew up on the ocean and I suspect, and hope, that I end my life there as well. We come from the sea and thereto shall I return.

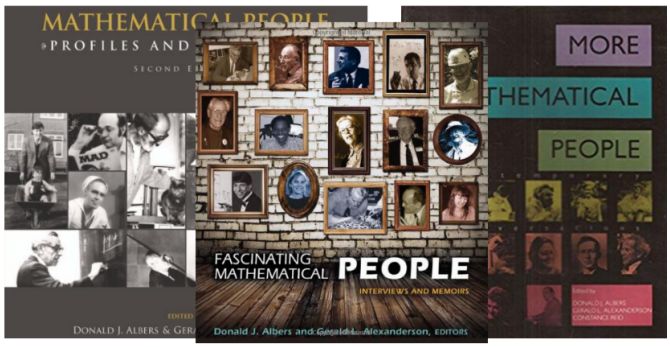
[5] https://freddiemercury4ever.wordpress.com/biography/

[6] Tech titan in India.



When you are an academic, freedom comes from simply being unshackled in space and time. Through research and reading you can travel to places unknown and never seen before. I always get this strange feeling of excitement from reading new research and experiencing the cleverness of the ideas in good papers. You know a good idea when you see one, for it liberates knowledge in a way in which you wished you had. There is something special when you feel the same excitement from the aha moment that the original researcher did. Books about this excitement are a true expression of academic freedom, and the ones you see here are a special set of my favorites. Because they come with a story from close to home.

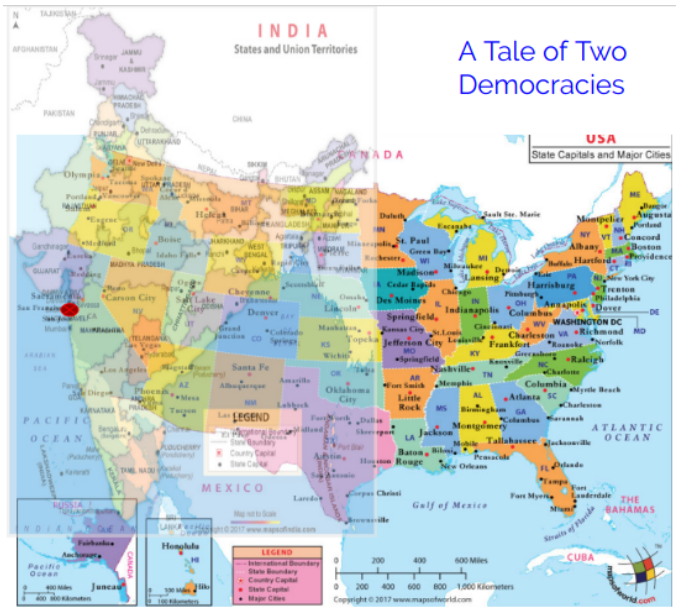
When the Math Adds Up ...



Some of you will recognize these books. And here is the interesting coincidence. When I was a boy in school in India, I used to visit the USEFI library to check out books. I chanced upon Mathematical People, short interviews and bios of mathematicians. I checked it out many times, reading

it over and over. When I got to Santa Clara, my son was in middle school and interested in math and I wanted to get him excited about it through these books, which unfortunately I could not buy anywhere. After a month of searching I decided to go look in the SCU library where it turns out there were dozens of copies. And that is when I discovered that these books had been written and edited by Jerry Alexanderson, the first ever Faculty Senate Professor! I had come from Bombay to the Bay Area and stumbled upon the source of one of my favorite books. This is indeed a small world full of surprises. Being an academic has afforded me the opportunity to in fact meet and spend time with some of the personalities in Jerry's books, such as Persi Diaconis and Don Knuth.

Such are the benefits of growing up in free societies where there is freedom to learn and freedom to express oneself. I have been blessed to have spent almost my entire life in the two largest democracies, India and the USA. In another strange coincidence, I went from the west coast of India to the analogous spot on the west coast here, as you can see from the overlaid maps. I have learnt that it very important not only to be free to let your body go where it wants but much more important, to let one's mind go where it can. And my two countries have given me that, in more ways than I could have imagined.

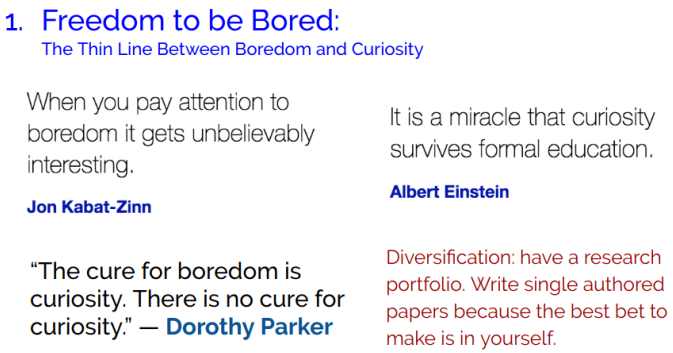


Freedom comes from the small intellectual space in which one works, but

we academics are really free in the knowledge that one can always move elsewhere to another intellectual space. Freedom is the pliability of one's state of mind. I have now worked in many different research areas, moving freely from one to the next. These are shown here: stochastic processes, derivatives, language analytics, portfolio optimization and behavioral finance, credit risk, mortgage modeling, network theory, deep learning, and now, ethics and machine bias.

So to my younger colleagues I say – "be a maverick" – you will never regret it. I love this quote from English particle physicist Brian Cox who said he was – "... fortunate to be in a position of making a living from being curious." And indeed, we are.

I will now briefly highlight our many freedoms, the ones that have particularly been of benefit to me.[7]



[7]We live in this unusual microcosm, and my thinking has been deeply influenced by Herman Hesse, who wrote two of my favorite books, "The Glass Bead Game" and "Siddhartha."

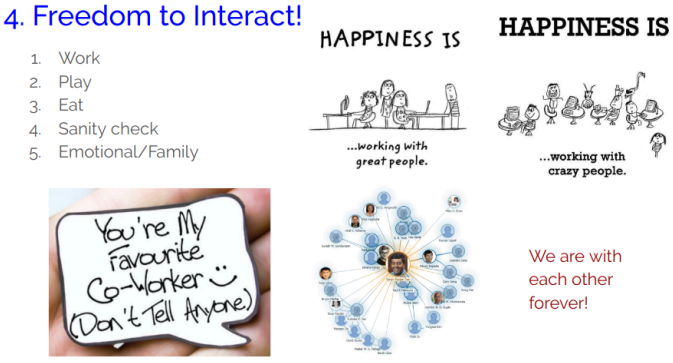
Academics gain access to a kind of freedom that is not available in the outside world, i.e., the freedom to be bored. There is a thin line between boredom and curiosity, one leads to the other. Boredom is a special kind of freedom. It is a state in which to cultivate freedom of thought. Boredom is often more valuable than learning, it is the quiet before the creative storm, an informal period of self-education. Boredom has led me to many interesting places. At the least it has created great variety in my life and led to natural risk taking. It took me a while to realize that there is great freedom in taking risks and this freedom leads to ideas in unexpected places. Ask yourself, when you are bored, who do you talk to? It will tell you a lot about where your creativity comes from. And it has told me a secret I know of myself: I am not a good listener, but when I am bored I listen. Boredom unleashes me from the shackles of my often closed thinking. Maybe this is true for you too?

At this point you may be wondering, how many freedoms is he going to talk about? The answer is a dozen, and I will spend a minute on each! You will soon be free...

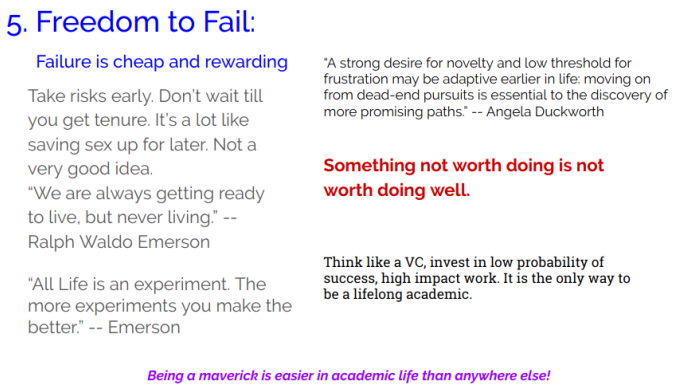
But even more important to me has been the freedom to work across disciplines. It is my firm conviction that great ideas come at the intersection of two fields and I have been lucky in some cases to have found these intersections. SCU has been wonderful at allowing these cross-disciplinary ventures, in a manner not easily available to faculty at larger schools where intellectual activity often remains siloed. As Shiller said – "In the longer run and for wide-reaching issues, more creative solutions tend to come from imaginative interdisciplinary collaboration."

As many of you know, I wandered into this field of data science before it was a "big deal about big data." I was free to do so. No one said you cannot go there and I am grateful to my department and school for allowing this. These freedoms get unleashed in a culture that exists both in and outside the university. Coming from the east coast I can tell you that it is all about Location, location, location (i.e., being in Silicon Valley), I may never have ended up working on what I do if I were elsewhere, this is a special place.

Getting back to this big data thing, its great virtue is this: The freedom of Big Data is that it allows you to look at things under a microscope, to drill down to see intricate details and free knowledge in the small. For example, we can see how different upward mobility is across the nation when seen through the big data lens. The same is true for health outcomes of the poor, and whether education spending matters at all. Each of these investigations led to interesting findings of causality than when we did not have large-scale data. And, I used to be a theorist before I moved to the west coast! So I have come a long way in more ways than one!



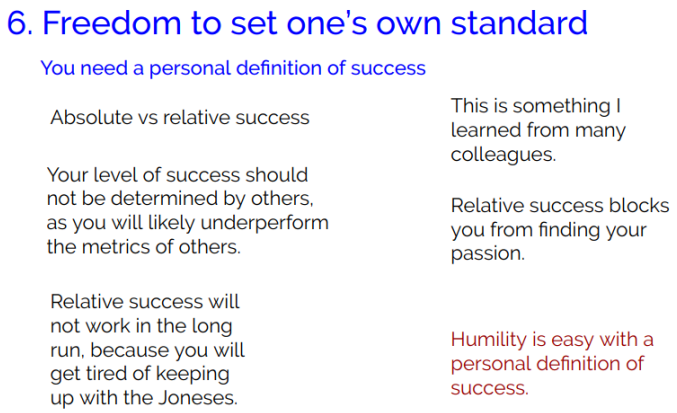
Before I studied for my Ph.D., I worked in a bank for six years. Having worked in the corporate world I can safely vouch for the fact that the freedom to interact with people in the university is tremendous, in a way that never happens in any corporate organization of the same size. I have been a wholesale exploiter of this freedom to range and forage freely across campus and make friends and work with so many wonderful colleagues. From the graphic above, you will see my take on what these freedoms have meant to me, and you know who you are! All I can say is thank you for putting up with me as I exercised these freedoms.



Freedom comes from no one measure of success in a small university. You are free to succeed in ways you can choose. Realize this and don't fool yourselves into thinking that there is a narrow criterion for success such as tenure. It is not, and when you try to succeed freely at many things, tenure is just a bonus. Think about how lucky you are to not be trapped in jobs like banking or even worse, central banking, where you cannot take the same risks as academics or people in Tech. Check your value system if you think that failing to get tenure is a huge loss, for it may actually be a liberation. In academia, a failed idea is a stepping stone. In this sense, academics is a lot like Tech. Fail fast and fail often, and even though most of us do tend to be characterized as risk-averse, this is a misunderstanding. Academics are true risk-takers, who do not even get paid for the risks taken, which we take alone, for we do not have a boss, nor do we have subordinates. We are simply free agents. What more can one ask for?

Being accepting of failure lets you pick hard problems with low probability of a high payoff. Many years ago a senior colleague changed the way I think by telling me – "Something not worth doing is not worth doing well." This

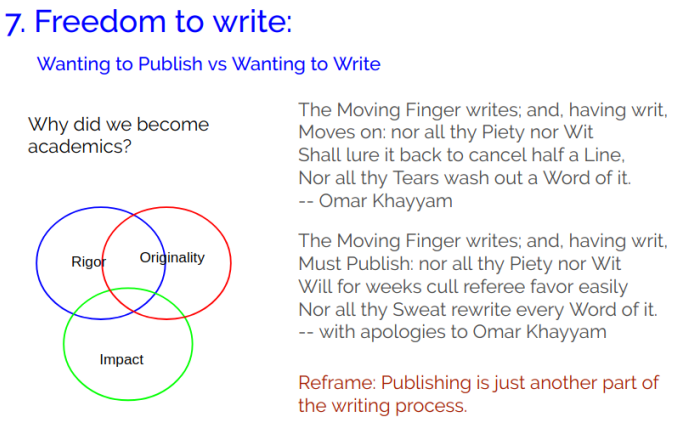
is remarkably true. We must always ask ourselves about the value of the research we choose precisely because we need to make sure we use our freedom wisely.



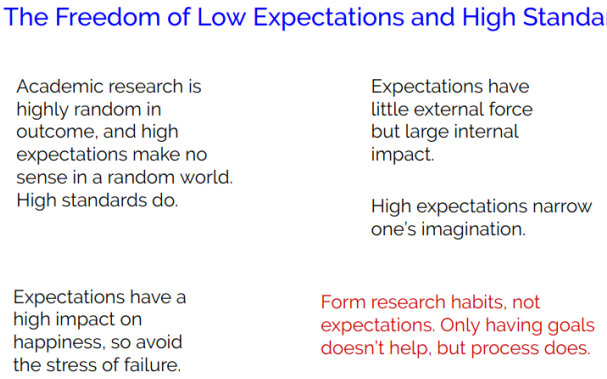
As some of you know, I left Harvard to come to the west coast. I still get asked, was that hard? The truth is I don't recall thinking too much about it as I had strong personal reasons to move west. But even then, I am often asked, are there no regrets? Honestly, there are none, and the only reason I can think of is that I learned to define my own success and not live by anyone else's yardstick.

The freedom you get from a personal definition of success is a beautiful thing. This definition can also just be the creation of a beautiful work flow. I often waste hours on this, on the aesthetics of my work environment, my computer's look and feel, etc. But it makes me truly enjoy my work and is a source of immense satisfaction.

Favor absolute successes over relative ones. Your level of success should not be determined by others, as you will likely underperform the metrics of others. Relative success will not work in the long run, because you will get tired of keeping up with the Jones-es. Relative success blocks you from finding your true passions. And absolute success breeds humility as there are no comparisons and one-upmanship to indulge in.



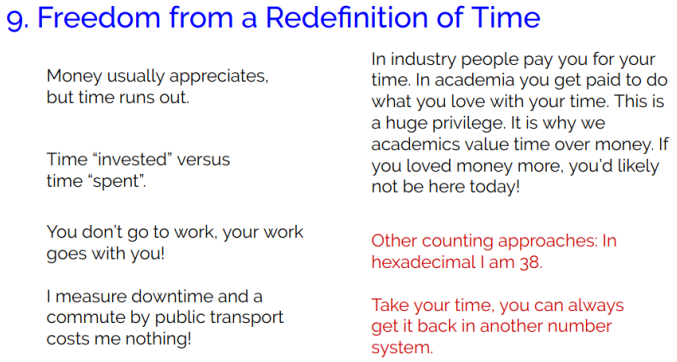
As an academic you do not have free reign to publish because there are gatekeepers, but you do have the freedom to write. I gain a lot of happiness from this freedom because I am able to reframe my goals from wanting to publish to wanting to write. I write to learn, because, to me, scholarship is the production of knowledge. Publishing is its mere dissemination. When I first started out as an academic, my second paper ever came back with heaps of critical referee comments even though it was a revise and resubmit. I walked across to my senior colleague Bob Merton and asked what I should do and if he had any advice for me. He told me that I should write the paper that I wanted to write and not the one that would get published. And that I should send it to a different journal because sometimes you need to find the right home for a paper where it is written your way. That paper is now one of my most cited even though it is not in a top journal. And it was truly my first lesson in exercising this unique freedom. I used to visit my senior colleague in his office many times, to see sheets and sheets of copious writing that he never published. I saw him learn from writing and he maximized writing over publishing, though it did not stop him from being prolific in his published output as well.



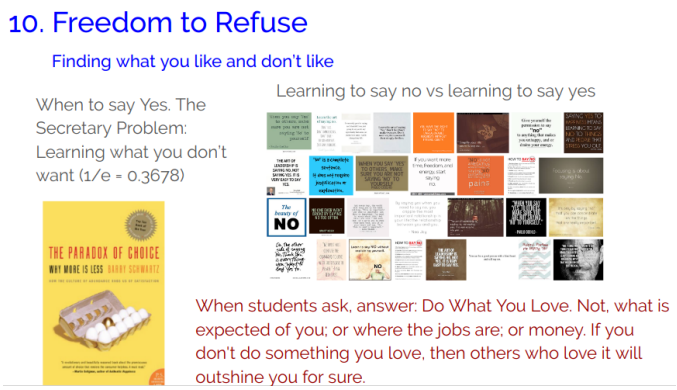
We are often told, "dream big!" But when you do, you lose freedom. Big dreams lead to a narrow focus. In academia I have learned how important it is to exercise the freedom of low expectations while maintaining high standards. In the corporate world it is just the opposite, big expectations and often low standards. We are lucky to be free of that.

There are many logical reasons for the Freedom of Low Expectations and High Standards.[8] Academic research is highly random in outcome, and high expectations make no sense in a random world. High standards do. Expectations have a high impact on happiness, so it is best to avoid the stress of failure. High standards have an intrinsic satisfaction of their own, irrespective of whether you succeed or fail. Expectations have little external force but large internal impact, and all they do is narrow one's imagination. Which is why I recommend the following: Form research habits, not expectations. Only having goals does not help, but process does.

[8]Much has been written on expectations vs standards, and my Buddhist readings seem to be one early source. But in an academic context, this philosophy is liberating and has a basis in uncertainty. I am no philosopher, so am unable to make rigorous arguments to support this idea but the intuition provides me the guidance I need.



Academics affords me an interesting redefinition of time because of the kind of work we do. Think of money, which can also be invested (not wasted, gives a return) or it can be spent (wasted). When you take a job in the real world it is more likely that your time is being spent, but in academia time still has value. In industry people pay you for your time. In academia you get paid to do what you love with your time. This is a huge privilege. It is why we academics value time over money. If you loved money more, you'd likely not be here today!



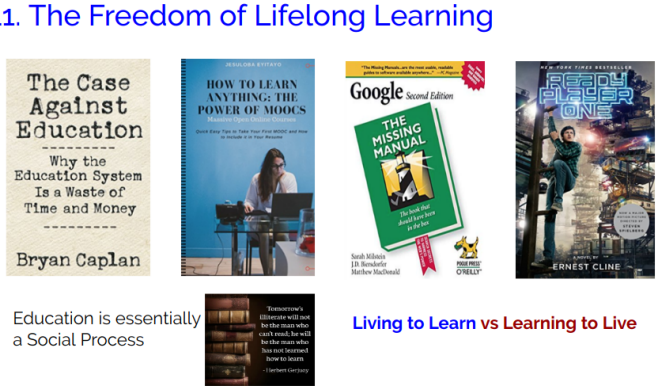
In academia, you have too many choices, leading to confusion about what to work on, and also decision paralysis. But a very valuable tool is the freedom to refuse. It is an important part of finding out what you like, and more important, what you should be working on. It is also an antidote to taking on too much, at which point you begin to trade off quality for quantity in your scholarship.

A well-known example of choosing when to refuse comes from the dating problem or the secretary problem. When faced with opportunities how do

you decide when to choose one and stop looking? The mathematical solution is to spend a little over a third of your allotted time ($\frac{1}{e} = 0.3678$) simply looking without choosing, then pick the next option that is better than any of the previous ones seen. But this ignores the fact that in academia you lock in, and run out of bandwidth for more choices. I'd say you need to set a higher bar than the math tells us. As someone who has failed to follow his own advice on using this freedom wisely, I can only tell you the price paid has been high!

It is very important to pass on this idea of the freedom to refuse to our students. They are often pressed by parents, peers, and social media to seek paths that are not a good fit for them, or to take any job too soon. They need to be pressed to do what they love because there is a powerful Darwinian reason for doing so. When students ask, answer: do what you love. Not what is expected of you, or go where the jobs are, or money. If you don't do something you love, then others who love it will outpace you.

My coming to SCU was a rare and wise use of my freedom to refuse. How did I get here? Almost two decades ago, I was on sabbatical on the west coast where my family lived (I'd been commuting back and forth from the east coast). I had an offer to join the finance group at Berkeley and a few offers in industry that paid a whole lot more. I had used my sabbatical to get a MS degree in theoretical computer science at Berkeley for I was interested in applications of those ideas in finance. I fully intended to try working in CS as well as finance, but I was told that any work outside of finance would not count. In industry I did not even need to ask to know the answer. At that point you have to decide how much your academic freedom is worth to you. SCU told me I'd be free to work on anything in any area, so I came here and refused the Berkeley offer. I have never looked back. And I am delighted to be here, exercising my freedoms even more than from years ago!



Education and learning have changed in incredible ways. It used to be that you went to school and then that ended, and you went to work. You did not need to do more. Today, that is hardly enough, we need to keep learning, and there should be ways to exercise that freedom.

Also, the freedom to learn through one's life should not come at too high a cost. Bryan Caplan's interesting critical book titled "The Case Against Education" is accurate in that the main goal of education is not learning but signaling, and sadly, signals only last so long. So lifelong learning is both an education and a signal and we do have this freedom especially as academics.

The current modalities of education are being heavily questioned in many ways, such as the emergence of MOOCs. Access is improving through the online medium. Maybe we will not need universities any more? Maybe Google will open Google University? Are we going to be challenged to change the way our profession operates? I think so. While there is no denying the need for broad education, does it only have to be in a campus setting? I was fascinated by the book Ready Player One, where everyone goes to school using virtual reality. This gives everyone full access to the best teachers in a dystopian world. Forgive me, but I found this whole education system weirdly utopian!

Still, I will argue that the traditional university has a place because education is essentially a social process, and we must live to learn rather than learn to live. Whatever system supports this goal best, in my humble opinion, is the one that will survive.

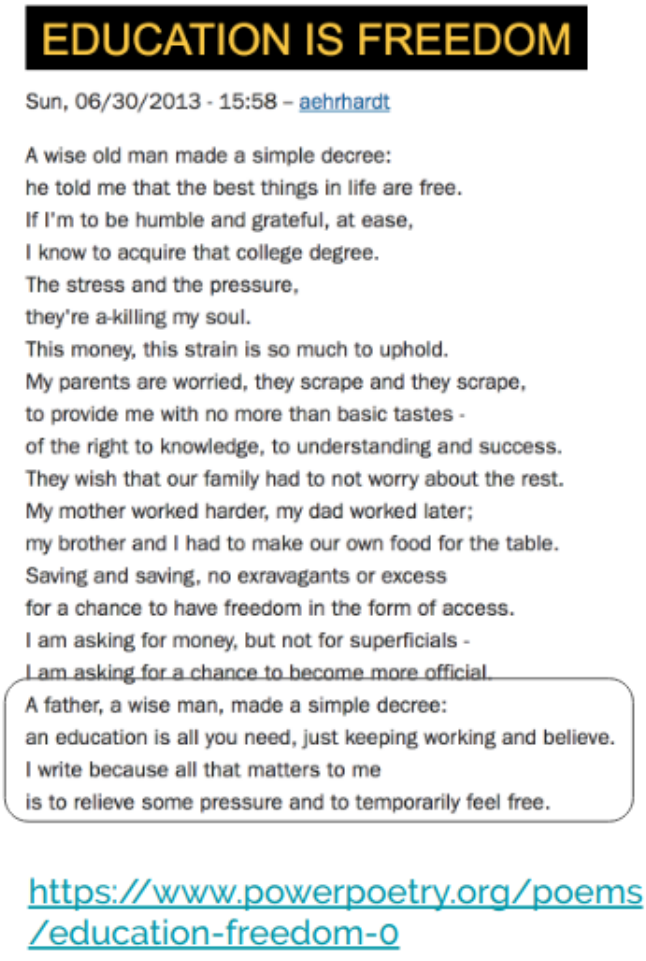
So, I have just talked about 11 freedoms to be encountered in academia. Here they are again, with a 12th, one that I think is truly important. We are free of the shackles of industry and shareholder value, so we always try to do the right thing. It is a duty to exercise this freedom, for we are lucky to have

it. And we must fight with every fiber of our being when these freedoms are threatened.

The Academic Freedoms

1. Freedom to be Bored
2. Freedom to Cross Disciplines
3. Freedom of the Small from the Big
4. Freedom to Interact
5. Freedom to Fail
6. Freedom of a Personal Definition of Success
7. Freedom to Write
8. Freedom of Low Expectations and High Standards
9. Freedom to Redefine Time
10. Freedom to Refuse
11. Freedom of Lifelong Learning
12. **Freedom to Do the Right Thing**

I try to remember that the source of these freedoms is education and I love this poem "Education is Freedom," and the last few lines are ones I have read over and over.



EDUCATION IS FREEDOM

Sun, 06/30/2013 - 15:58 – aehrhardt

A wise old man made a simple decree:
he told me that the best things in life are free.
If I'm to be humble and grateful, at ease,
I know to acquire that college degree.
The stress and the pressure,
they're a-killing my soul.
This money, this strain is so much to uphold.
My parents are worried, they scrape and they scrape,
to provide me with no more than basic tastes -
of the right to knowledge, to understanding and success.
They wish that our family had to not worry about the rest.
My mother worked harder, my dad worked later;
my brother and I had to make our own food for the table.
Saving and saving, no exravagants or excess
for a chance to have freedom in the form of access.
I am asking for money, but not for superficials -
I am asking for a chance to become more official.
A father, a wise man, made a simple decree:
an education is all you need, just keeping working and believe.
I write because all that matters to me
is to relieve some pressure and to temporarily feel free.

https://www.powerpoetry.org/poems/education-freedom-0

I end with a famous poem by the Indian Literary Laureate, Rabindranath Tagore, titled "Where the Mind is Without Fear", who wrote: "Into that heaven of freedom, my father, let my country awake!"[9]

[9]The original Bengali language poem, "Chitto jetha bhayashunyo", was published in 1910 and included in the collection Gitanjali by Tagore.

"Where the mind is without fear
and the head is held high,
where knowledge is free.
Where the world has not been broken up into fragments by
narrow domestic walls.
Where words come out from the depth of truth,
where tireless striving stretches its arms toward perfection.
Where the clear stream of reason has not lost it's way
into the dreary desert sand of dead habit.
Where the mind is led forward by thee
into ever widening thought and action.
In to that heaven of freedom, my father,
LET MY COUNTRY AWAKE!"

So let's go on to exercise our freedoms, for knowledge is free, and we should do the right thing and search for the truth, with humility, no matter the odds.

2.2 Supertasking

Academic life is complicated. It comes with a lot of flexibility and freedom, but also a lot of responsibility. With great flexibility comes huge complexity and variety. Let me explain.

A professor has many roles. First, a researcher, working usually on several projects at the same time with many co-authors, usually spread out all over the globe nowadays. Second, teaching, which itself involves many activities, from preparing classes to teaching in class, to setting homework and exams, to meeting students, advising, dealing with co-teachers, scheduling, etc. Third, university service, which includes many activities such as department chair, program head, committees of all type, raising money, and several other time sinks—like P.R., which professors are terrible at—and many other administrative make-work tasks, that have no productive purpose, but which universities excel at perpetuating. Fourth, editorial and referee work, which in itself seems light but is deceptively time-consuming. Fifth, travel for conferences, requiring prep before and catch up after. Sixth, consulting work, to make ends meet, and then also, pro bono work. It's multifaceted and crazily so, especially if you are a fully functional professor.

So, okay you say, even people in the corporate world have to do many things. The problem in academia is this—these activities are being performed all the time and one ends up trying to do all of them at the same time. It's multitasking at an extreme—I call it "supertasking."

This is not to say that school teachers are not faced with the same

supertasking chaos—they are. It's fewer activities maybe, but much more people handling because school kids are as chaotic as they come. Fortunately, we professors have less of that, and I am grateful for it.

There is this notion that all professors do is teach. Nothing else. When people find out that the average professor teaches about 100 hours a year, they wonder what we do with all the free time! They just don't know. A junior professor might spend more than half her time on research, but as you age in the profession, that becomes harder and harder and dwindles to a much smaller number. Sometimes to zero when you become a dean for example, and you become Chief Cat Herder, Money Raiser, and Complaint Box. For those of us who love our research, that becomes a source of burnout. It's when the profession ages you if you do not learn to handle it well.

But many professors are able to find the right balance and keep up their research despite the arduous pressure of supertasking. They keep going, doing their research while aggressively guarding their time. And being unavailable and upsetting those who think they should be always available.

People assume that professors know a lot more than we actually do and that our calling in life is to be on call. Because presumably, everyone knows that all we do is teach. I get emails saying stuff like—"I found your name on an internet search and your research is exactly what places you in a position to solve my job problem. I will call you tomorrow to discuss this." No. Stop. We supertaskers are already working on too much and have no time, like new parents, especially mothers. And we have our own students, who get priority. And in any case, assuming we know a lot about everything is wrong. Free advice is not cheap in the long run. Stop. I know it feels good to dole out advice, and we do get an ego boost, but it's irresponsible!

Managing supertasking is the key to quality work. When one does, it's a fantastic creative experience. It makes up for the lousy pay in our profession. In the end, all professors want is a downgrade from supertasker to multitasker. Hard to hope for much more. We need help, leave us alone for a while. Promise we won't get up to mischief!

2.3 Hundred Hours: Why an MBA Thesis is a Bad Idea

At the business school and many others, students end their MBA curriculum with a Capstone class. This class is intended to "bring it all together" and hence its moniker. It is a special pedagogical experience for student and

teacher and one that should not be bypassed. It's always good to consolidate one's knowledge and have the pieces fall in place.

Every now and then a student prefers to opt out of this end game experience, preferring the Thesis option that may be taken in lieu of their Capstone class. This is a mistake. Unless a student is highly motivated, knows exactly what he/she wants to do for a thesis, and has already undertaken at least a hundred hours of exploration of the subject matter of the thesis, it is a plain waste of time. And the opportunity cost is high, because the learning from the Capstone class is priceless. Yes, a Capstone is a lot of work, and it is tempting at the end of the long haul towards a graduate degree to want to give oneself a break. But especially in this case, it's a mistake. The trade-off is not even close, unless some really special conditions are pre-existent for the Thesis. Such as

1. The student knows exactly the question to ask in the thesis—the question is the Thesis. When a student comes to me and requests I offer up suggestions for a topic, I let him/her know that I do not want ownership of the project, which is what happens if it's my question. It has to be the student's. Else it's a no go. Much of the learning comes from finding the question to ask in the thesis. Without that it's literally half-baked. And a half-baked anything is not palatable.
2. A good question is simple, yet rigorously derived, unique, and poignant. As Helen Hunt noted – "The best movies have one sentence that they are exploring, a thesis, something people can argue about over dinner afterward."
3. As noted above, at least a hundred hours of thinking and exploring should have gone into the Thesis idea already, some of it in formulating the question, of course. Without that no one (student or professor) can be confident that the question is a good one. And a good answer to a bad question is even worse than no answer at all (or a bad answer to a good question). As a senior colleague once said to me – "If something is not worth doing, it's not worth doing well."
4. The student should be prepared to work on the Thesis over two quarters. Rushing it through in one quarter just leads to nonsense. If a student asks me to supervise a thesis I would like to see a two-quarter plan, else I decline.
5. The student should be prepared to sell the Thesis idea to the professor.

> For this you need passion, which comes from a hundred hours of immersion. Thesis supervision for a professor entails quite a few hours, with no additional compensation. It's almost like keeping office hours for an extra course when not actually going to class to teach it. So the student needs to ask – "What's it in my idea that is useful for the Professor?" – there should be a possible follow-on research paper, or something new that the professor will learn from it. A good thesis will hit a symbiotic sweet spot.

Sounds harsh? Not really. And I've learnt this the hard way. Without these conditions, it's a chore for both sides of the Thesis, student and professor. At the end of it one wishes to have taken the Capstone twice over! As Manfred Eigen[10] said – "Sometimes a scream is better than a thesis."

2.4 Wither MOOCs? Different Degrees of Education

In April 2013, the philosophy department at San Jose State University (SJSU) sent a well-reasoned letter to law professor Michael Sandel at Harvard, explaining to him why they did not need his online justice course imposed on their students by the management of the California State System. Being ordered to feed your children someone else's cooking is an affront, to put it mildly.

The debate about traditional pedagogical delivery and the new kid on the block—online education—is alive, and the SJSU faculty went to battle against the online upstart, and their administrative overlords. Universities are run by academics (or we professors like to think so), but state systems are run by bureaucrats. Conflict in our education system has been engineered in, sadly. Academics are never paid enough to often realize costs are an issue, and bureaucrats only care about costs. The truth is, the fight over online education is being fought on a battleground of costs. It would be sad if this were the only thing that mattered.

Like two cars driving in their lanes and obeying the rules of the road, massively open online courses (MOOCs) and bricks and mortar (BAM) education have been motoring down the education highway, glancing nervously at each other but not meeting in open conflict. The presence of a cost speed bump has eventually resulted in fenders touching and sparked a conflagration.

[10] https://www.brainyquote.com/quotes/manfred_eigen_211443

Road rage is imminent, and the SJSU folks were extremely calm. So far so good.

But MOOCs do bring several benefits to the table, the first and most compelling being the democratization of education, cost-driven or not. For the millions of folks with no access to good education (and I emphasize good, there is plenty of poor quality education out there) MOOCs offer a way to learn from great teachers when students have no access to even poor ones. Admission to today's U.S. college system is tilted in favor of families with resources to groom their kids for the application process, let alone the ability to pay for college eventually.

Second, MOOCs globalize education by making it possible for anyone in the world to sign up and excel. And if they do well, they are offered jobs in markets they would never have access to. Employers are more concerned that people with degrees actually have the skills their colleges certify, and the openness of the MOOC system ensures skills. In some ways MOOC testing has become a quasi entrance exam to the job market. It betrays the lie in academia of real education, where it should be harder to graduate than to get in to play the game.

Third, MOOCs offer the much-touted "flipping the classroom and home" phenomenon, where lecturing occurs offline and exercises (homework) and discussion can take place in class. This is a model that has a positive feel to it, but research and evidence of advantageous learning outcomes remains to be provided.

Fourth, MOOCs will enable good professors to reach thousands of students, and put pressure on faculty who teach poorly and do no research to shape up or ship out. And that would be great. This would alleviate one of the biggest costs of the tenure system, i.e., checked-out, expensive professors.

Fifth, almost every university is facing a classroom shortage, i.e., insufficient plant and equipment. A hybrid MOOC-BAM approach will relieve this capacity constraint. If half the curriculum is pushed online, say, we could enroll up to twice the number of students, while reducing fees. That's a win-win.

What's not to like? If education were a production process, isn't increasing output and cutting costs exactly what MOOCs do? But do they deliver a better learning approach, and are the students that come out of this channel better educated? In other words, should we also strive to deliver higher quality graduates, while working on the costs? My personal preference is

that these criteria be lexicographically ordered: quality first, cost second. If we don't worry about quality we'll end up with too many people with degrees, but no education. And quality education is not only about quality teachers, but also about quality environments (and I don't mean manicured lawns, stone buildings, and expensive football stadiums). The Culture of The University is a huge part of it all. We want not only a trained population, but also a learned one.

BAM education has its advantages too. First, and very important, students are directly connected to faculty doing research. I counsel parents who ask me to help their children choose between teaching and research schools, and I always say that if your kid is going to learn how to really think at college, the best way is to do research, and that is much easier to do if you are at a research university. It's also the reason why I think the production of knowledge (research) and the communication of knowledge (teaching) should co-exist in educational institutions. It's why we don't see a collection of community colleges and Bell Labs like outfits rather than research universities.

Second, quality education does not have to cost as much as it does, the community college system and colleges in other countries manage to deliver an effective and good product at low cost to the student, and the subsidies are well worth it. I once took (for credit) a semester-long motorcycle mechanics class at the City College in San Francisco (CCSF), and I learned a huge lot, in a very hands-on, refreshing, and confidence building manner. Separating education from unrelated university overheads will cure the system. We pay way too much for the "country club" feel of colleges and for expensive sports teams. It's a chicken and egg issue, the sports teams bring in alumni donations, which then go to support these teams to bring in more revenue. Somewhere along the way, the point of education is lost, and money does not go towards teaching and research. To it's credit the MOOC model is a wake up call to these paradoxes of our system.

Third, the BAM model is one of the last bastions against commoditization of our entire lives. When everything is becoming "one size fits all", we cannot afford to let education go in that direction. As all of us with children know, no two siblings are alike, and they need different handling. And our kids do prosper in a system where they choose (voluntarily or otherwise) what sort of place of learning they fit into. No doubt some may fit the MOOC model better and that's what they should adopt.

What will we end up with? Will MOOCs kill off all the universities? Will

the MOOCs of brand name universities (such as Harvard and MIT's edX) decimate smaller, less branded schools? Will we end up with some hybrid system? Will we get fully online degrees and will they be valued differently from BAM ones? How will we measure the quality of education in this new world?

I worry whether I will have a job in ten years. Will my profession go the way of airline travel agents and physical book stores? It's hard to say, but I suppose I've had a good education, and it's trained me to learn, so I'll go off and do something else with my skills. What will decide how this plays out? Quality (I would like to see the system with the higher quality product win) or cost? For the economics of MOOCs, see the interesting graphics here.[11]

But I think there is another important determinant than quality and cost. It is the human factor, and it will save the BAM model from extinction. The primary reason why brick and mortar universities will survive is that most people are unable to muster up the discipline to work through a sufficient number of meaningful online courses, without structure, discourse, and no transmission of perspective. Those who can are disciplined and talented human beings for whom going to college does not really matter. Those who cannot really do need to go to college, but they seem to get degrees but often no education. Herein lies the wasteful and expensive paradox of modern day undergraduate education. If modern day college education eventually flounders it will be because it collapses under the weight of its own costs, not because of a technology driven paradigm shift. But if it survives, it will be because of a deep human need for a learned society engendered in a place of deep and higher learning – The University. Hope springs eternal.

2.5 Will AI take my job?

I am asking about *my* job, not yours, which is your problem. Do we academics have to worry about our profession? While there is no doubt that AI is changing engagement at the university, and is being widely used by students and professors, is it an existential crisis for higher education?

There is a great big hullabaloo about students cheating with AI. I believe this is a second-order issue and the bigger threat is to the business model of the university as we know it. Is the emergence of AI disruptive enough that the structure of universities (that has stood the test of time) will change?

[11] http://www.onlineschools.org/visual-academy/mooc-money/

It is also possible that universities have retained a business model that has become outdated and AI will only accelerate its demise or transformation. It is likely that those campuses that do not adapt will face a crisis. No single "one size fits all" solution is likely as there are many different schools with varied emphasis on scholarship and teaching. That ensures a differential impact across thousands of campuses. These effects in the large are difficult to predict and will play out over the long run.

In the small, AI has surely changed my work. My teaching has changed in many ways. I happen to teach AI itself, specifically a course on natural language processing, maximally impacted by generative AI. I use AI to write code that I teach in my classes, and I encourage my students to use it as much as possible. I even let them use it on exams, which require extensive amounts of code writing. My students are very good at using it, and I think they turn in good work and learn better. In any case, it would be deeply paradoxical if I were to disallow the use of the very tools that I am teaching about in class. As long as I make sure to teach them about the theoretical underpinnings of the field and train them to read papers and build original AI artifacts, if they use generative AI to assist, I see no issue with the liberal use of AI. Learning by doing and using the very thing you are learning about closes the circle neatly on the theory and practice of both, the art and science of AI.

Recently, I joined the open-source team that maintains Jupyter AI, an extension to the widely-used JupyterLab notebook, which is the favorite of many scientists for research writing and coding. (The original motivation for Jupyter was to enhance reproducible research.) If you have not tried Jupyter AI, please do, the GitHub repository is here: https://github.com/jupyterlab/jupyter-ai. I use Jupyter AI extensively in my courses, and compose my class notes into Jupyter notebooks, which are then compiled into a Jupyter book, see for example my NLP notes here: https://srdas.github.io/NLPBook/intro.html. I use Jupyter AI to do research and also use it to develop problem sets for my class. Working interactively with a LLM-enabled Jupyter notebook via the Jupyter AI extension has helped me develop much nicer problems and exam questions that when I prepared these without any assistance. I highly recommend it to everyone who is developing teaching material.

Does this mean that problem sets can be created without needing a lot of expertise from a PhD trained academic? I can safely say that when I did not work interactively with Jupyter AI, the problem sets a GPT prepared when

left to its own devices were rather disappointing. Without the human in the loop directing the interaction with the AI, we get AI "slop." At least for now, this part of my job is safe, despite extensive interactive AI use. Maybe this is how it should be, AI becomes a powerful tool for me and saves me a lot of grunt work, while also acting as an intellectual assistant.

I write a lot, which is part of being an academic. Research writing is perforce original and it is hard for a LLM to dream up new ideas consistently to replace good researchers. I use various editors for my writing work, and one of my favorites is `VSCode`. Lately, it has become terribly intrusive, trying to complete all my sentences and always writing things I definitely did not want to write. It is driving me crazy! It has no ability whatsoever in knowing what I am thinking, and how can it? When working on original ideas, the LLM cannot be expected to know what it is I intend to write. The upshot is that I have had to stop using `VSCode` for original writing and use editors that do not try to complete my sentences (or paragraphs). This is reassuring, for it tells me my job is safe – while a LLM can complete my words, it is far away from being able to complete my thoughts! (May be when reasoning models are used for autocompletion, then they may be able to complete ideas, but still, they won't be able to read my thoughts.)

I have tried fine-tuning a LLM on my own writing, but even then, the writing completion it does when I am typing is unable to emulate my style and ineffective in completing my thoughts. In computer vision, there has been considerable success with fine-tuning, where models can be trained to paint in the style of a famous artist. Somehow, this does not seem to extend as well to writing and certainly not to original writing. Good writing is still very distinct from the average language on which LLMs are trained, and it is hard to imagine AI creating great books that contain original ideas. However, average creative work is well within the realm of AI, and we have already seen this emerging. Yet, the human in the loop remains an important part of this value chain.

Sometimes I wonder whether students need me for instruction at all. There are a plethora of YouTube videos that explain ideas and concepts incredibly well, especially in the field of AI. My students are adept at learning asynchronously from various media (videos, blogs, research papers, etc.) and all they seem to need me for is to lay out the scope of study in the syllabus. Classroom interaction seems less necessary — though it may be useful in courses where discussion, debate, or Socratic learning are important

modalities. I considered running an experiment where for every class I would require students to prepare the topic for the class, or bring in materials (like YT videos) that they could use to present the material in class. Then, a student would be selected at random and asked to teach a topic. The student may play a video and answer questions from the class – my role would be to step in and help in answering the questions. I've stopped short of trying this, but in all honesty, this would force students to prepare for class ahead of time and to be completely engaged with the material and the discussion in class. I suspect that it is not AI that threatens my job, but the ubiquity of learning content.

On the research side I use Jupyter AI to build economic models, comprising systems of differential equations, then the LLM provides code to implement the solution to generate analysis, comparative statics, tables, and figures. What used to take me weeks of work only takes a few hours. It eliminates my need for a RA. I work iteratively with the AI as a modeler and it keeps me absorbed and engaged. It is hard not to be research productive with this new generation of AI agents. The initial literature review you can do with AI is as good as it gets. On the other hand, the deep research models from many providers are somewhat of a disappointment, as they work independently and without interaction, and produce simplistic research that is quite passé. Nothing close to original work. I guess it is okay for business reports and may threaten McKinsey analysts, but it far from threatening academic researchers. As noted above, I am unable to even use it to write up the results of my research work, for it cannot keep up with my thinking.

AI can of course threaten how universities operate. What if employers care less about educational pedigree and more about how well an employee can use AI to get the job done. Everything from lowly office work to advanced software engineering is now amenable to AI tooling. This requires only new age vocational training and not four-year degrees. People who learn to use AI may be more versatile and hiring worthy than say, liberal arts graduates. Take away the pedagogical mission of universities and only the research mission remains (and maybe a socialization mission). Maybe we need a shorter undergraduate degree with more hands-on work experience before a fewer number of students enter graduate school to get advanced skills and do research. For that we don't need a university, just a collection of research labs. This would make education a lot cheaper and save students from the huge debt overhang they face when they graduate. Universities would not

charge high premiums for their certification role and maybe tenure would be abolished, making academic journals less likely to charge egregious publication fees. Maybe this speculative view is one future that might transpire. It would be nice to breed a nation of continual learners, assisted by AI.

My job would still exist, but it could be very different. AI will likely enable more people to enjoy an academic life in a broader sense.

2.6 So you want to do a PhD?

Here is a brief extract of comments I made in an interview in Singapore in 2012.

The first piece of advice I give to PhD students is to not be in a big rush to get the data and do something with it. You have to have a really good question first. Otherwise, no matter how good your data is, your work is not going to be interesting and you will not publish a good paper.

The second thing is, you should always theoretically analyse the question completely first because that exercise will take you to the right empirical specification for the data work that you want to do. There should be a good theory because once you have a theory, then you can derive a setup that tells you that if this assumption holds, then you should see this in the data, etc. "No theory, no paper."

Another piece of advice is not to be in a big rush to find a topic because you are going to be stuck with it for the duration of the PhD and possibly a few more years. You do not want to sub-optimally close on something that you will not enjoy.

Additional advice is to start writing right away, do not wait. The process of writing helps you structure your thoughts better, structure your theory better, structure the empirical work better. Of course you should always be ready to throw things away.

You should write early rather than late and keep writing. That is part of the life of a researcher; writing a lot is a good thing and throwing away a lot is also a good thing. And you know, you keep learning through that process, and that is important.

You should not expect to learn everything you need to know in a PhD program; that is never going to happen. There were countless things I learnt after my PhD because I needed to solve a problem, I needed a technique that

I did not know and I had to learn it for myself; you should be learning how to learn instead of thinking that everything is going to happen in the PhD program. That is the purpose of the program.

2.7 Research Environments

What makes a research environment in a business school thrive? Not the same stuff that makes firms profitable or breeds winning sports teams. It would be too easy.

The good and the bad: Consider the following scenarios I see played out at campuses across the country: Someone once asked me – "Why do you come in to work when you are tenured?" He looked at me as if I was irrational and that I should be away somewhere lying on a beach or making heaps of money by starting a company. And again, another junior professor inquires of a tenured one – "Why are you in today, when you are not teaching?" I have noticed at many universities that junior faculty do not go to seminars as much as senior ones. Is this a permanent cultural shift in academia? How come junior faculty are not being shepherded by seniors as they used to be in the old days? Why are there so many empty offices, and so little discussion in the hallways? Is this a reflection of the new generation of young faculty, or is it a reflection of norms gleaned from our senior colleagues?

There are warning signs, but also signs of encouragement and hope. There is more collaborative work than before, a greater number of seminars, and higher promotion standards, as the old excuses for the inability to publish are being shelved, as a few brave young faculty show us all how it can be done, even as journal space becomes scarcer and aggressively fought over.

A Categorization of Faculty: We may think of research faculty along two dimensions: (a) Activity: producing high quality knowledge, and (b) Presence: engaged with research activities. Just being research active is not enough, being present to facilitate the research environment is important. Viewed along these two dimensions gives us four types of faculty: {Active, Not Active} x {Present, Not Present}. I suppose it is easy to categorize any faculty into these four buckets. What type are you? Which bucket do you fall in?

The {Not Active, Present} category is more common than we might imagine. This is part of a natural cycle where Active faculty burn out and yet stay in the game by being Present. Indeed their experience is still

valuable as they maintain standards, carry valuable institutional memory and perspectives, mentor junior faculty, and can judge work to ensure that promotion standards are not lowered. This is also often a temporary phase where folks take a pause to recharge batteries and then embark anew, often on something divergent from their current interests. New ideas need time to percolate.

The {Active, Not Present} group presents an interesting challenge. How does the organization engage them so that they are more than the sum of their own activity? Being present means fostering spillover benefits. But make no mistake, being Present is a double-edged sword, it is costly to Active faculty but also comes with benefits. Too much of it can be counterproductive. But, none of it is more surely a dead loss to the research organization and the researcher as well.

Outcomes: There are several benefits/costs of tenured faculty being Present, depending on which way you look at it. Here are some:

1. Mentoring junior faculty.
2. Working with junior faculty and enhancing tenured faculty Activity.
3. Sharing the burden of ad hoc demands on the faculty that otherwise have to be borne by the Present set.
4. Quicker and higher quality group decisions in a face-to-face manner.
5. Keeping tenured faculty expertise "on-line" for access by others.
6. Better utilization of office space, a scarce resource in academia today.
7. Demonstration effect/Building culture: setting a good example and high expectations for the next generation.
8. More attendance at seminars to improve quality of discussion, and show a strong presence to outsiders so as to leave a good impression of the school's scholarship quality and environment.

There are several flavors of Present. Some faculty are introverted but work intensely with a few junior faculty. Others help a broad swath of faculty or resolutely maintain standards. Some don't come to work a lot, but come to all seminars and engage with juniors. And so on. We academics are all unique and we must each choose our own brand of Present.

Assume a highly Active and Present senior faculty. What features of the junior faculty would be evidence of the benefits of such a research environment?

1. Higher quality and quantity of scholarship.
2. Junior faculty who actively talk about their research with other faculty. This enhances the general awareness of what everyone is working on, and brings benefits of several faculty offering suggestions and pointing out related research. A self-exciting and perpetuating research atmosphere.
3. Junior faculty who give their papers to others to read, actively asking for comments.
4. Junior faculty that actively seek out engagement with practitioners, and continually ask themselves how they might influence practice.
5. Junior faculty that actively take steps to enhance the research environment by organizing seminars, inviting special speakers, setting up labs, engaging in popularizing scholarly work that transcends mere publishing.
6. Confident junior faculty who actively demand more resources for their research, and also generate their own means and funding.
7. Junior faculty who work with faculty in other departments and disciplines.
8. A greater number of submissions to top journals.

Making progress: How does a school take steps towards this idealized environment? Here are some ideas that I have gleaned from discussions with colleagues at many schools, over many interesting conversations, with faculty and administrators.

First, measurement. Take stock by classifying existing faculty into the four bucket model. This is easy for department chairs to do. Place each faculty person on the 2x2 {Active, Not Active} x {Present, Not Present} grid. What is a reasonable number in each bucket?

Second, self-realization. Discuss the grid with the faculty and ask them to think about where they are and where they might want to be.

Third, incentivize movements into the {Active, Present} bucket. Use a coarse system of raises. Faculty in the {Not Active, Not Present} bucket get no raise, and in fact should be moved into shared offices. Faculty in the {Active, Present} bucket should get three times the raise of those on the {Active, Not Present} and {Not Active, Present} buckets, recognizing that being Active and Present is worth more than just the sum of the two dimensions.

Fourth, raise salaries to market so that departments can compete in the marketplace, and raise funding to support research so that junior faculty are able to compete with others from other schools.

Lesson: There is a tide in the affairs of research schools, when taken at the flood, leads on to great scholarship.

2.8 Targeting Journals

Finding a good home for research papers is hard, and I don't mean getting the paper past gatekeeping referees. Just deciding the right journal is critical. Making a mistake on this results in poor fit, rejection of the paper, and consequent delays in getting to final publication.

There are four simple criteria that one may use to determine the best journal to which a paper may be sent. These are:

1. **Fit**: The paper must be appropriate for the journal. Appropriateness has two aspects to it, that the subject matter must be that of the journal, and the paper must be accessible to the readership of the journal. There is no use sending an empirical paper to a theory journal, nor is there any point in sending a highly abstract, theoretical paper to a practitioner journal.
2. **Timeliness**: The subject matter of a paper may be time-sensitive, i.e., the topic is a hot one and a quick publication offers a chance to be first and make an impact simply because early work may end up being seminal, and have a long citation list. Sometimes the paper needs a quick turnaround, because the author's promotion may depend on it. Lead times in my field have become longer and longer. Hence, a journal with a fast turnaround is preferable to one that is known to be slow.
3. **Impact**: This is a key criteria. The objective function is to send the paper to the highest impact journal subject to having a reasonable probability of acceptance. It makes very little sense to send a paper to a high-impact journal if the probability of acceptance is zero.
4. **Feedback**: This may be also thought of as the potential for improvement. When the acceptance rate of a journal is low, we may still send it there if the refereeing is of high quality. Then even if the paper is rejected, the comments are likely to be of immense value for the next version. But sending a paper to a journal simply for the quality of

refereeing is not useful, such an approach comes at the cost of inordinate delay, and papers that become "stale" are much less likely to maintain the author's enthusiasm for getting them published. Papers that get good reviewing end up being much better in the end, and will be more cited.

Of course, it is also useful to get as much feedback as possible before submission, from peer academics through circulating an early draft and by presenting the work in brown bags and seminars. Too many papers eschew these preliminary feedback channels and are presented in seminars after submission, mostly because presenting half-baked work is frowned upon. But academics know a good idea when they see one, even if the execution of the idea has a ways to go. So, I'd advocate getting feedback on ideas more than on analysis.

Overall, each of the four criteria: fit, impact, timeliness, and quality feedback must all be present to make one journal a better outlet than others. My personal view is that these are ordered in sequence, from most important to least. Fit is the most important criterion, then impact, etc. But the relative importance of each is determined by the preferences of each individual author.

2.9 Nomacademic

I am writing this one and a half years since I saw both, my wife and son, off to school. My son left home to start as a freshman at UC San Diego, and my wife became a Full Professor at NYU in New York. So what am I still doing here in the Bay area?

I love it here. But more so, it is home for the entire family and someone needed to stay here to keep it that way. Even though we cover three locations: East Bay, Upper West Side, and La Jolla, home is mainly in the Bay area. It's where all the "stuff" remains. It's where the extended family comes together for festivals and where we spend our holidays.

My spouse and I spend time in both NY and the Bay area. We try to spend this time together, moving between locations. Whether this is a commuting situation I do not know, but it hardly feels like that. A commute usually means one fixed point and the other one moves. In our case we both

move back and forth, a lot together. And our son drives up and down from San Diego, setting various land-speed records I presume!

This seems pretty unique—I know of no other family with our situation, though I am sure there are plenty out there. People often ask me, what is this like? Did you ever think you would end up living this way? How long can you keep this up?

It has been interesting, this nomadic life. There are many questions I don't have answers for, so the best I could do was to come up with a new term for someone like me—"nomacademic"—an obvious and self-explanatory amalgam.

I am still developing my understanding of this new state I am in. Yes, I hardly would have anticipated this life, which is very interesting of course, so let me give you my impressions. It may help me to understand things better too.

1. It is tiring and costly. Living in more than one place, two in my case, is more than twice as tiring. Not only do you deal with two of everything, especially mortgages and bills, but it adds up to more than that because you can only be in one place at a time. So things slip and then one needs to fix them now and then.
2. You get used to being minimalist. The home in NY has very little and it feels spacious and bright. I hope we never end up filling it to the brim with things. Feels light and easy. Who would have thought the simple life could be so easy to settle into?
3. You learn to travel very light. I get on the plane between NY and CA with what I would call a laptop bag without the laptop. I have a laptop stored in NY and so I do not take one with me when I fly. I also have a lot of things "in the cloud" and can work from any machine from almost anywhere. And my iPhone lets me do a lot from most locations anyway. I keep a collection of clothes in both homes and so nothing ever needs to be carried. The best part is, I do not have to pack. I have also become adept at making it from door-to-door using only public transport (walk, bus, air, subway—I use them all). Maybe I should take the ferry one day just to make sure I use all five modes of transport in one trip.
4. You get used to living anywhere any time. When my wife is in NY and I am in CA, I do not always come home from work. I have cousins and good friends covering various points of the compass in the Bay area

and I simply drop in and stay with them. It saves me a fifty mile drive each way to and from campus but more, it lets me spend time with many people I enjoy very much. The trunk of my car always has a fresh set of clothes, a sleeping bag, and outerwear for various kinds of weather, making it easy for me to "crash" anywhere. It's easy, just keep it minimal, don't get too dependent on too many comforts, and life is really quite simple. Most important–you can make home extend to the people you love.

5. You get used to a lot of solitude. I do spend more quiet evenings at home than expected, and it can get awfully quiet. I thought I would write a lot more, but it does not work that way as I learnt. I am not a hermit, so that does not work for me. I ended up watching a lot of TV, but have managed to wean myself off, and its been nice after that. Reading and writing for pleasure is all that I need. Most often better than reading and writing for work.
6. You don't have space. Strangely, you think you will get a lot of "space"– and keenly look forward to it. I realized that I already had the space I needed. Luckily my spouse always respected my space, even though I am not sure I did hers. I also realize now that having your space is more a mind thing than a physical thing. You can feel like you have your space even in the most crowded subway car, if only your mind is free to roam and do its own thing. That I always had, and so living alone matters much less.
7. I spend a lot more time at odd hours in the office. I quickly found that I got more work done in the office when no one was there, and so I stay later than usual and come in a little later too. It also helps me beat all the traffic, which in the Bay area, is a real nuisance.
8. I also tend to spend more time in other academic locations now as we tend to go together to these places. We just spent an entire month in India. I managed to travel with just one small handbag, and it made things really easy. It forced me to rule out shopping which I did none of, as it would have meant buying an additional bag. Avoided that. Laundry is a wonderful thing.
9. I am getting less work done than I was when the entire family was here. Its been hard. When we are all in different locations, you spend a lot of energy on managing locations and trying to communicate, many times quite unsuccessfully. It can be quite frustrating. So there is stress, let no

one doubt that. In the early stages it is hard learning to deal with that, but I think most of us will. Of course, it's hard, and stress is an odd thing, it kills your concentration and makes you horribly inefficient. So you need to work on that to get back a smooth, efficient work rhythm.

10. I sleep late a lot. There is a vacuüm in the house that makes me potter around, reading, writing, clearing, etc., all in an effort to fill the place with activity rather than things. I have to learn to develop a new routine and go to bed on time. But nowadays, I sleep around 2 am, surface whenever and then mosey on to the university. It feels good, even though every morning I get up regretting yet another late night.

There's is lots more to write about being a nomacademic, and I will return to this theme again. But now, as is often the case, it's close to midnight and I have only two hours more of time to binge on books and music and other distractions, till sleep just takes over and shuts me down involuntarily.

2.10 Passing of a Co-Author

I have published papers with more than 50 different people, but some time ago, Rajeev Motwani, with whom I published a paper, passed away tragically in an accident at his home near Stanford University. This is my first co-author to pass away, and I am reminded now how deep human frailty can be.

It is so unfair that death stole Rajeev away when he was in the prime of his life. I had known Rajeev for more than a decade, and I remember the early days when he was just beginning to get his feet wet in the VC business and we sat in his office and I explained to him the basics of option pricing. After that he hardly needed to ask, he was so smart that he figured out all the Finance he needed on his own. Of course, I learnt much more from him than he did from me. His book on Randomized Algorithms taught me everything I needed to know in that field. But he also mentored so many students and taught hundreds more. Many of the famous firms in Silicon Valley were mentored by Rajeev. Things came so easy to him, he could do them in a fraction of the time it took others. So he was always relaxed and had time to talk and discuss things.

While it is really sad to see him go, it is also important for me to acknowledge that in this short life, Rajeev did more than most of us would in a lifetime. Death always reminds us that we too are growing old, and that

life is uncertain. We must enjoy each and every day, and do our best with it. Who knows if there will be a tomorrow? Today is really all we have.

2.11 Student Adversity

Articles like this one are usually written at a time when things look very gloomy in the world. A recession appears deep, and students are struggling with finding jobs or even paying for their education. Yet, I still think investing in human capital remains the best investment.

However, the real investment in human capital is not monetary (paying fees) but instead, it is sweat equity. Students often imagine that their mere existence on campus after paying their fees goes directly to their human capital bottom line. Wrong. Human capital accretion comes from investing time and energy into really learning. And more, from learning how to learn.

An undergraduate education can be intense. It takes students time to settle down, by which time they may even have missed many important concepts, all of which needed to be deeply understood, so that the student can move on to the next level. But students wing it, thinking they will pick it all up later, or worse, convince themselves that it is not really important anyway. That puts a students on a slippery slope to real ignorance, and leads to deep erosion in human capital. Sooner or later you get found out, the evidence starkly staring back from the grade sheet, or if you are unlucky, you get caught in the workplace, when there is even less chance of taking remedial action. So my advice to all undergrads is: pay attention, do not slack off, and the harder something is, make an even bigger effort to master the material. It will pay off handsomely.

Here is an interesting way to think about why you need to pay attention every day and work hard to make sure you get the concepts now. Doing so will lay a solid foundation for the subsequent classes. Many courses are sequential in learning, especially the math and science ones. An excellent analogy to college classes is a video game. These games are extremely structured and sequential. And they are utterly unforgiving. You can never proceed to the next level until you have mastered the prior one. My advice to students is to treat your classes in the same way. Do not assume you can proceed to the next course in the sequence without mastering the ones that come before. Even though you clearly can move on without mastery, it still pays to treat it like a video game. That way you will get much more out of your education.

Young adults, especially boys, know how willing they are to put in hour after hour into mastering a video game, especially one in which they compete against multiple players. So why not put the same effort into classes? Your course work is the same, its a multi-player game in which some win and some lose.

As I write this, I am trying to put myself in the shoes of a struggling student, one who has seen his grades drop off, cannot get organized, finds it hard to concentrate and focus in class, feels like nothing is going right, is suffering from low self esteem, and feels like he/she may never recover. Almost every term, there is a student in my office who is in academic difficulty, and is going through a great deal of emotional stress. It has been so for the past decades I have been a university professor. What advice do I give? I always listen and then try to find a constructive solution to the problem, but until now, I had never thought about putting it all together into a simple set of suggestions. I do not know if this is feasible, but I intend to try. So here goes.

1. All is not lost. That's the first thing to realize. No matter how difficult the situation is, universities are remarkably good environments in which you get lots of chances. And even when you think there are no more chances, a creative professor/mentor will always be able to find some way to help you out. Remember, college drop-outs are those who gave up themselves, not those on whom the system gave up. So the first step is to realize that there is always a way to betterment, provided you realize two things: (a) Take responsibility, (b) Work very hard. Lets talk about each in turn.
2. Take responsibility. Remember, by the time you are in college, you are an adult. You are independent. No one can better help you than yourself. Every so often I have a student in my office who insists on blaming his/her predicament on the system, the adviser, the teacher, parents, etc. This is a huge mistake. Sure, we are often put in difficult situations by ending up in predicaments that we had no choice over, and it is easy to blame the circumstances. But no matter how justified your external problem, its better to realize that it pales in significance to your internal responsibility. Everyone ends up in situations beyond their control. How you handle these situations is what matters more. And the first step is to take full responsibility for your own success, learning and condition. It is very easy to blame your professor if he gives you a C in class, but instead you should thank him. He is nothing

but the video game, saying "game over," but he is also saying "try again, I know you can do it, do better next time." In fact, you should be saying to your self, "try harder." I promise you, just Keep Trying and things will suddenly start to get much better.

3. Work very hard. College is a wonderful time, if you work hard. I know of nothing else that pays such huge rewards for hard work. In real life, there is often a lot of luck involved. Not so in college – work hard and success is pretty much guaranteed. If you do not work, you will also do poorly. Again, it is so video game-like. Get a little distracted and you never get to the next level, nor do you score well on the current one.
4. Less is more. Okay you are saying, I take responsibility and I work hard, it seems so simple, but I have already been trying to do both these things and it just does not seem to be working, and I am frustrated and troubled, what am I to do? I am amazed at how many students just seem to be unable to dig themselves out of a hole, and there is a simple reason for this. They have poor habits. If you get up late most days, spend a lot of time watching TV, find it takes a long time to settle down to work, cannot find things when you need them, spend way to much time talking with friends, etc., then you need some urgent streamlining. Just remember one thing: "Less is More." Make a list of things you do on an average day. Then simply knock off half the items and commit to not doing them for a month. You will feel less overwhelmed by all the things you try to do (they are now halved after all). You will feel more in control. You will actually start getting things done.
5. Sequence better. Every night before going to bed, take out a piece of paper and make a list of things you need to get done the next day. It has been shown that doing this calms the mind, and enables better sleep. This means you get up refreshed the next day with a clear mind, and perform better in class. More important, you are committing to completing tasks the next day, and can plan your time accordingly. The next day, keep the list with you as you go to class, study group, mess, gym, etc. After each activity take out your list and cross off a completed item, and also scan it to see what you have left to do that day. Steadily and calmly work through your list.
6. Manage distractions. Today's undergrad has huge distractions. There are friends always coaxing you to join them in leisure activity. TV beckons. The internet is a constant craving. Your cell phone keeps

ringing, and you keep responding to text messages in class. How can you ever get anything done? There is no easy way to deal with distractions, but to exorcise them ruthlessly. Stay away from technology as much as you can. When you use the computer keep the browser closed. Do not look at email. These are "filler" activities, to be done when there is nothing better to accomplish, or when an "earned" break is availed of. An earned break is one that is only taken after completion of an important precomitted task. Note also that it becomes easier to manage distractions when operating under the "less is more" assumption. If you are trying to do too much, then nothing gets done properly. But more important, less gets done, because less bandwidth is applied to each task, and all tasks ends up taking longer. Yes, it is hard to give up many of those fun things in life. But remember, that fun stuff is a distraction and it is not even real. It loses its appeal quickly, unlike real accomplishment. Real results from hard work are the most self-reinforcing things we can ask for.

7. Be honest. To yourself. This means taking a long hard look in the mirror and being truthful about who you think you are. Do you want to do better? Just when you are feeling tired and lazy and do not want to work, even though it is critical you do so, you might hear a small voice in your head saying – "Heck! No worries, its all fine. Nothing will go wrong, the exam will be easy, you already know more than you need." When this happens, stop it immediately. Don't lie to yourself. Be honest to others as well, especially teachers and parents. It never pays to hide something no matter how ugly you think things will get when you come clean. By not being honest you pay several costs. First, you feel uncomfortable because you are lying, either to others or to yourself. Second, you are lying to yourself, and whats the point in cheating on your self?
8. Communicate with your elders. When things are not going well, students have a tendency to withdraw and not talk to the very people who can help them. Sometimes they do not want the advice they know they will get. These are the wiser ones. They know what to do to solve their problems, but are in denial, and don't want to hear of it. So they withdraw from speaking to elders. Bad mistake. Find at least one if not more than one elder person to talk to every day, and if possible many times a day. This could be a professor, parent or senior student.

It will definitely take the sting out of the emotional distress you feel as a struggling student. Once you feel calmer, you will be able to work better. As a student of life, you will continue to learn from your elders. They have been there and done that, and they can help you avoid the pitfalls they fell into. They can also help you see the light at the end of the tunnel. But most important, they will help you feel better about yourself. You will feel less alone, and more in control of your life. You will feel like you are not the only one who has ever been in this situation. And that is a huge relief.

9. Report on your day's activities. One of the biggest problems I have noticed is that students in academic difficulties have low self-esteem. And it does take some time to dig oneself out of the mire. In the interim it is important to begin to feel better about your situation. One very useful device is to commit to making a daily report to an elder. It also helps communicate with your elder but just telling someone else that you planned a list of items for the day and got many of them done will immediately bring a feeling of accomplishment, even if in very small doses. To validate your accomplishments, it is important to speak to someone older, else you do not get a sense of validation. A daily verbal report also motivates you to make sure that you have something to report, and incentivizes you to work hard to have something by the end of the day.
10. Give yourself plenty of time. One of the reasons students get into difficulty is that they do things at the last moment. This never works, trust me. And it only makes things worse, because last minute preparation for exams infuses great panic. In such a state you can never perform well. The same applies to daily work as well. If you get into the habit of waking up early you will find yourself automatically getting a lot more done. Why? Because there are far fewer distractions in the early morning. Most others are asleep and you can get started and almost finished by the time anything else gets started. By giving yourself time, you can work calmly and steadily to reaching your planned goals for the day. If on the other hand, you plan to get your class preparation done by going to the library after dinner, there is a good chance nothing will get done properly. You are tired after a long day, will get sleepy and most problematic, if the task takes longer than you expected, you have left no slack to make sure you will get things done. Thats a huge risk. Many

students and adults too, just do not get this at all. They are perpetually ill-prepared. I don't advocate getting up at 4 am or something, and I also don't advise getting up past 10 am. The main idea here is to get up early enough to get some decent work done before the big distractions of the day kick in. Also, by getting a few things done early in the day, you set yourself up for a better subsequent part of the day too. You feel happy and calm to have got some work under your belt already and this reflects in the work you get done subsequently. Nothing breeds on success like success! So give yourself time to get things done. Again, remember that less is more. Do less and give yourself more time to do it by getting started early in the day, and eliminate distractions. Do this, and you will enjoy the calming satisfaction of accomplishment.

11. Be self-aware. This is really nothing else but being honest with yourself. Do not convince yourself that you are a real genius by talking like one. Sooner or later people come to know you are full of it. But being self-aware also means recognizing your weaknesses and working harder to overcome them. Some students fail to perform adequately because they don't study enough. Somewhere along the line they erroneously convince themselves that they have mastered the material or worse, that it does not to be mastered. There is only one antidote, work harder. (Harder subsumes smarter as well.) Recognizing you are below average is the first step in working your way to becoming above average.

So, if school is proving to be hard, and you are struggling with classes, try to commit to the practices I described above. I assure you I suggested these ideas to my students and it seems to help them. I use them myself too. In short, if you want to turn things around, do less, do it differently, do awayy with distractions, and work very hard. Just do it!

It is often said – "Nothing else changes until you change."

2.12 How to Study: Prequel

The previous section dealt with student adversity, what it feels like, and how to deal with it. I also talked about good study habits, which are essential to deal with academic difficulties. It is important to remember that good habits are *yours* and not someone else's. You have to find what works for you. Studying itself is not that hard once you find the rhythm and routine that

works for you. In short, there is a lot of effort up front to find your method, and there is no short cut for that.

It is important to find out how to get into a frame of mind to be able to develop good study habits. These are the habits I wrote about in the previous blog post. The habits are concepts, their exact form depends on your rhythm, and that is what takes searching and working hard to imbed those habits into your routine. But before you start doing this, let me mention something I have seen in many students in trouble. If you are a student that has been struggling academically you are probably feeling low and demoralized. Everyone is telling you that you are no good, and should give up. You are saying this to yourself too, probably. The first thing you must do is break out of this cycle of self-defeating thinking. Here are four simple guidelines I like to share with my advisees.

1. Stop being negative. Easier said than done. But necessary. The good news is that you are now in the worst place already, and things can only get better, since you have decided to begin trying. The fact that you came to talk to your advisor about it means you are already on the mend. Things are starting to look up. Isn't that a simple thing to tell yourself? Do so, its true.
2. Stop procrastination, and begin working. The biggest reason people procrastinate is because of fear of failure. All I can say to you is that its a stupid thing to be afraid of. The probability of succeeding if you don't try something is *zero*! The probability of succeeding if you try is definitely greater than zero. The probability of failure is irrelevant, isn't it? What I am saying is, focus on the probability of success and ignore the probability of failure. You will feel better immediately.
3. Reputation and ego don't count. The real cost of failure lies in feeling bad about yourself. You may worry that others will think worse of you too. My advice is to stop caring about what anyone else thinks. You should even stop caring about what you think about yourself. Thinking about what you think about yourself is already getting you down, so why keep going there? Just do what needs to be done, and do it as well as you can. Enjoy doing it, not what you or anyone will think after you have done it. Most of the time, when you have done something after deciding to just enjoy doing it, the results are really good, and you begin to feel better anyway. You will feel better even if you don't

get results. The act of doing something itself works its own wonders. Just working on it helps intrinsically. Don't think, just do.

4. Start somewhere. At some point you will need to get a good rhythm going to get results. But thats not the first step. The most important thing before you develop a routine is to break your current inertia. Just make a list of a few important things you know you have to do, but have been avoiding, maybe because your ego cannot deal with it. Forget everything else. Now, take any one thing and begin on it. The harder the better. Don't think of anything else and give it all your attention for an hour or two. Get in the zone. You will find that what you thought was hard turned out to be not so. And then everything else will feel so much easier. You are suddenly on your way.

Well, I hope this helps. Once you are rolling, see if the next section helps. Its a eleven-point plan for good study habits. But for now, keep things simple with a priming four-pronged attack to get you on your way: (1) Negate negativity, (2) Procrastinate no more, (3) Ignore ego, (4) Go after Just One Thing.

2.13 How to Study

Many students end up doing badly because they have not been able to find a rhythm for their academics. This can be disconcerting and lead to plenty of frustration. However, it is not that difficult to work out an approach that works reasonably well. This is not to say that one size fits all and that there is a single solution that works for everyone. But there are some general principles that seem to work well in helping a student find his/her working style/rhythm. So here are some pointers.

1. Study First. Deal with the academics before everything else. Let play come later. This is a very important guideline, especially for a struggling student. Of course you need a balance between work and relaxation, and working all the time is not going to be good for you. But not putting the study time first will in fact prevent you from reaching a sweet spot in terms of balance. If you get your work done first, you will in fact enjoy the remaining time much more, as you would have earned the much needed time off to relax and rejuvenate. Ask yourself in all honesty, do you think you will enjoy your life more by doing this the

other way around? I doubt it. And believe me, I have tried it too. It did not work. So let me say this one more time, make this the mantra – Study Comes First. It's your current priority.

2. Write. Writing helps push what you learn into long term memory. It also helps you understand better. This is especially true for technical material in math or science. But it works well even for literature and languages. When you sit down to read and study, keep a pad and pencil at hand. Scribble down things as you go along, or try to create a summary of what you are reading. I call these "marginal notes." I keep them and I find that when I want to review the material after a few days, it comes in real handy. These are actually nothing but crude mind maps. Writing small marginal notes and filling all the ideas from a chapter of reading on just one page really helps put the material into visual memory as well as distills down a full conceptual understanding that is easy to retain. If you are working through a chapter, it is also a good idea to underline or highlight important sentences, but just as useful is to write "margin notes" (different from marginal ones!). Then when you re-read the chapter, those notes ping your brain and resurrect rapidly all the salient points you had stored away. It has been said that thinking flows from the tip of a pen. This is very true, your brain focuses so much better when you hold a pen in hand and scribble along points to remember as you read. So remember, keep Writing.
3. Walk and Talk (to yourself). There is documented research showing that memory is enhanced when walking. I have often found that after an hour or two of study, reading and making notes, it helps me immensely to close everything down and take a walk, with the sole purpose of recalling back everything I have just read. It is like playing the movie of my study time back in my head as much as possible. When I was a student, I would always quickly look back over my marginal notes, and then take a walk, talking it all back in my head. I have found a marked difference between my understanding of the material when I did this versus when I did not. The contrast is quite remarkable. It is a way of revising the material by walking the talk. There is something about walking that helps a lot. Maybe the act of walking keeps other distractions at bay. So, take a Walk to Remember!
4. Be Neat. The hallmark of good learning is a tidy mind. How do you keep your mind tidy and everything you are learning straight in your

head? Its simple – keep the learning environment tidy as well. Make sure your notebooks/binders are organized in a tidy manner. This takes only a minute or two a day, but it certainly helps. You can plan to do this every night before closing shop for the day. Also use the same time to make the plan or list of things for the next day. Putting your agenda on a list is another way of being tidy. But most important, make every effort to write in a tidy manner. It is amazing what a difference it makes to retention. Reading tidy, well organized notes makes learning vastly better than working from chicken scratch. So make every effort to do this. Nowadays, with computers, we write less and less. No matter. If you are working on a computer, try hard to have an organized system of working for each course. Decide on a system for folders and directories. Decide on a file naming convention so you can find things easily. So try hard to be neat in every way, and it will translate physical neatness into mental neatness, and deliver good academic results.

5. Stay Current. Be up to date in your understanding. Be on the ball every day. This means finishing classes for the day and taking the time to review all the material that day itself. You can do this along with the time you spend tidying up things. If you find there are things that you did not understand from class, dig deep into your text book till you resolve your confusion. Or ask someone for help. But do not let it go. It always comes back to bite you. The things you neglect to study have a probability of appearing in the exam that is five times that of the things you do study! I hate to remember how many times I have fallen prey to this fateful probability. And then there you are, sitting in the exam, kicking yourself for skipping over the topic when you had all the time in the world to learn it well. Now it is too late. So do it all the same day. Its not hard, and once you get into the routine, you will find it easy to do on an ongoing basis. The best part is when you get to exam week, you have nothing to do, but be fully rested for the next day. I remember getting into this rhythm about somewhere in middle school. Once I had gotten into the habit, it was terrific. I would even find myself reading ahead, which made the next classes so much easier to follow in class. I recall never even studying during exam week. When everyone else was burning the midnight oil, I would be lazing and relaxing, being outdoors and truly nailing the exams the next day. So be on top of things, its a good feeling, and gets great results.

6. Read around. Do not ever restrict your reading to just the material prescribed for class or the assigned text. Take the time to read around the topic as well. This helps in two ways. First, you see the material from different angles and this solidifies your understanding. It creates a gestalt that is deeper than one that is based on only a few points of contact. Second, you will understand the linkages between what you are learning and other important related concepts. This brings a holistic understanding that improves retention. Context is a very important part of understanding and memory. So read more, read outside the box. And nowadays, there are amazing videos and podcasts available on the web. Use them to your advantage. They are a great way to learn, and they are free. You can even listen to them while you walk. So read around, and listen around too.
7. Practice. Just like sports, practice helps. Repeating things trains the mind just as sports practice trains the body. This is why homework is very important. It really makes you good at what you are learning. It has been said that no one even begins to be an expert in anything until they have spent ten thousand hours of practice at it. So make the time, it is well spent.
8. Block out time. Students who find it difficult to concentrate and focus need to first solve this problem even before they can get down to the business of study. So it is important to ask what is causing the lack of focus? In my experience, it is almost always some other distraction, coming from an inability to realize that studying is a priority. What can one do? The solution is to block out a fixed time each day, at least two consecutive hours, where you commit to going to the library or sitting at your desk and not doing anything else but try to study. You can plan this time slot the night before, when making your list for the next day. Trust me, this works very well. It is a device that effectively keeps the distractions away. Oscar Wilde would do this and he was one of the most prolific writes of our times. He would sometimes sit for four hours and write only a few words, but it would be the most wonderful writing. If you sit down for two hours, inspiration, learning and understanding will come. Of course, just two hours of study is not enough, and you will need to put in more time some other time of the day, but having a predetermined allocation is the strong base that helps focus. You should preferably put this time slot as early as possible in

the day so that you can get started and put Work First. Even if you have no work at all, still, use the time to review or practice. The time to yourself, immersed in working the mind is very good to help you achieve a calmer and more serene educational experience.

9. Challenge Yourself. Take each course seriously. Go for an A in each class. Of course, this does not mean you will get an A, or that good grades should be the be all and end all of education. But if you aim lower you will end up much lower. So much of education and life is setting expectations for yourself. And you will surprise yourself. Why not take the chance and enjoy the surprise? You are in college to get an education. Why not give yourself the best one you can get?
10. Promise Honesty. Never cheat. Do not even think about it. Yes, there are times when you feel like getting help from a friend on a homework you are explicitly supposed to be doing alone. Resist that temptation. Ill-gotten results are dishonest and the one you are making a fool of is yourself. Promising yourself to never cheat will also leave you no choice but to work hard and be your own person. Its a gift you can give yourself.
11. Teach others. Being a good student also means helping others learn. And of course, there is no better way to master a subject than to teach it. Even if you are not going to be teaching others all the time, try and do it some times. And when you are studying, ask yourself whether you have learned the material well enough to be able to teach it to others? If not, give it another read. I think this is the single best way to become a better student. Asking yourself each and every time if you know what you studied well enough to teach others will automatically ensure that you follow all the other guidelines described above.

Well, these are just a few simple ideas that served me very well in all the years I was a student, from high school, to undergraduate and in graduate school. To recall, these are: Write, Walk and Talk, Be Neat, Stay Current, Read Around, Practice, Block out Time, Challenge Yourself, Promise Honesty, and Teach Others. Its a simple eleven-point plan. You know you can 'just do it.'

2.14 Are Students AIs?

The year 2022 ended with an explosion in AI of many types. AI has been truly democratized and the lay public now interacts with it through sites such as ChatGPT[12] and CharacterAI.[13] There are many others now, though these were the early ones.

I have been teaching for about half my life and it seems like being a professor is like being an AI. (1) We spend many years getting a PhD (DL: deep learning). (2) We teach students and engage them in deep learning, while having them learn from their mistakes. We also learn to teach by exploration and exploitation (RL: reinforcement learning). (3) We train students to organize knowledge and data (unsupervised learning). (4) They learn from many examples (supervised learning) but also from brief experience (few-shot/zero-shot learning). (5) We engage students in knowledge production and creative work (generative AI). (6) We train students to learn how to learn and adapt to changing conditions (active and continual learning). (7) And, we teach students to provide reasonable explanations for their work and actions, be honest and fair, and be ethical (responsible AI).

In many ways we find that machines outperform students at many tasks but not as a holistic multipurpose intelligence, though multi-task agents already perform extremely well. And both display some common sense but not as much as we would like, though in all fairness, humans as a whole are hard-pressed to exercise common sense (sound judgment in practical matters). Most certainly, our students are better than machines at reasoning ("the action of thinking about something in a logical, sensible way"), at least for now, but much worse than machines at memorization.

It is strange to be mapping AI concepts to teaching and learning, when in fact, the AI training nomenclature has arisen from human learning methods. But it also hides the sad fact that today we spend much more time on how we train AIs and machines to learn than on how we teach children (and adults). When we look back at 2022, we congratulate ourselves on how far AI has come, but the most salient note about school education is a lament about learning loss since the pandemic. Our machines have evolved but our students have regressed. Optimism for AI is everywhere, but there is only pessimism for our education systems. We make huge investments in the former where the

[12] https://openai.com/blog/chatgpt/
[13] https://beta.character.ai

human capital is very well paid and we make none in the latter, as teachers are paid progressively worse in real terms. Why should people who train AIs be paid so much more?

We need to invest in training the best intelligences we know, that run the best hardware there is—our students. Maybe we can use AIs for that? I hope the future will be different. Maybe AIs will teach our children and all we do is train AIs until even that is needed no more. But I hope not. I hope we will always need teachers, and that they will be paid well. I hope we will always need students, and that they will be paid well too. I hope we will always need to learn, and that it will be a joy to do so. I hope we will always need to teach, and that it will be a joy to do so too.

2.15 Need a PhD?

I get many emails from young intellectuals all over the world about getting a PhD. The gist of the missive usually runs as follows: "I am really interested in doing a PhD. It has been my dream for the longest time imaginable. Attached is my CV. Please take a look at it and give me advice on this."

This sort of naked request comes with little guidance, rendering any attempt to provide advice specific to the case a stab in the dark. Trying to do so is like a doctor prescribing apposite medicine for a specific ailment when the patient has only indicated that he/she is feeling unwell. But some broad thoughts are always helpful, and here they are.

Are you sure of what you want? Asking for advice on doing a PhD assumes you have concluded that this is what you want to do for a reasonable period of time in your life. Are you being led into this by fanciful imaginations of a gilded academic life? Is there nothing else you could do with your life than this? If the answer is a strong yes, go for it. Any doubts, I would hold off. Academia is too weird an environment and probably does not suit most people. And there is no prior experience that correlates to it. Most of us in it took a chance, and for those of us that remain, it was something that worked out!

Remember, getting a PhD is a long hard struggle for 4-5 years (maybe more) and then becoming an academic is not usually monetarily rewarding. It is said that doing a PhD is a way of giving up current income so as to give up future income! Getting tenure is hard and needs some luck at the best of times. So you have to love the work even though it is easier to love the

lifestyle. So be quite sure it is what you want most of all. You will not be able to say – "So what if I am not happy. At least I am rich." No, financial glory is not part of the package.

In broad terms, think through whether you want to use your PhD in an academic institution or you want to be in industry. If you want to be an academic then ask yourself if you like teaching? You can hate teaching and still lead a successful academic life, but this is becoming less and less acceptable at universities, though an industry research job is may be what you need.

Are you good at working independently in a self-motivated manner? Barring conference deadlines and infrequent promotion reviews, there is little pressure on academics to perform on the research front. Engaging co-authors in this process is a partial solution to this problem of motivation, but not over a long period. You have to be sure that for the next few decades, you will feel like getting up every morning yearning to do research. This is of course not always true, there are so many mornings that one gets up cynical, but if this feeling persists, it's time to get out. You don't have to if you are tenured, but seriously, there is no point in lingering. It's like being retired and doing nothing. In that mode, research retirement is the waiting room for career demise and low self esteem.

There is a lot you need to be sure about, but there is one thing you do not need – you don't need a thesis topic the day you enter graduate school. Even students that come in with a well-thought out topic often end up leaving that area of work and learning something new. Reinventing oneself, I believe it is called.

So keep an open mind as a newly minted graduate student. The purpose of all the course work in your field is to sample from the glorious buffet of intellectual ideas and then to load up on a few items. You may find that the mind food you enjoy most after a year is quite different from the initial research you came looking for.

I highly recommend trying to publish something, no matter how small, before deciding on a PhD. Innovative research and creative exposition are all very well, and intrinsically enjoyable, but there is also the painful process of getting yourself published. You have to deal with referees and editors, whose initial inclination is to reject all and everything. The effort of reworking a paper based on referee comments, and responding to all the criticism usually amounts to more than all the creative work that you initially put in. If you

cannot take the heat of the review process, then this profession is not for you. It is also hard to get this experience when you are not in the process. So why not go ahead and give this a road test by trying to write something publishable? You may even find that the process of writing is not as rosy as it was when you only imagined it. Go on, kick the tires, give it a spin.

Are you good at managing your time? It looks like academics have a lot of flexibility and degrees of freedom with their time, and yes, that's true. But it's really needed. A professor that is fully engaged has several papers in process, classes to teach (some old, some new), administrative work on campus, meetings to attend, papers to referee, editorial work, conferences to attend, and more. While this seems like a short list, it is important to realize that each of these tasks individually takes a lot of time, and needs blocks of quiet concentrated effort. Many times, it is hard to call up the focus and concentration needed to get this work done well. So there are "dead" periods when nothing is happening and it all gets really frustrating. Maybe it's good to do something else in that time. But good time or bad, you need to be very good at handling time well.

It's important to realize that being an academic is truly entrepreneurial. There is no boss or subordinates. You are truly on your own, or with a few co-authors. In the classroom also, you are the sole leader of the pack that does not have to agree with you or like you. And almost all service on campus is of little consequence if done poorly, but can have a huge impact when done well in an entrepreneurial manner. Are you a leader or follower? You may well be a solid academic as a follower but you may never be the one that has the Seminal Idea.

I think its important to be warned about the lifestyle. Its alluring but deceptive. Hang around and do nothing but intellectual chit-chat in cafes is what the outsider always seems to see. But getting paid poorly to do work that is unsatisfying (unless you like being an academic), even if you can never be fired, gets old pretty soon. After the fifth day of ignoring the calling to research and lying on the beach basking in the glow of tenure, it all begins to start feeling rather empty. I tried it, and so I know. I could not even take a month off without feeling that the "what me worry" lifestyle had failed me. I had to do something creative to keep me from losing my mind. So, don't be fooled by the lifestyle. If you really just want to make a lot of money and then lie on the beach, do just that, and stay away from academia.

So the only advice there is can be summed up as: If you "know" that

you enjoy research and will love teaching, don't mind working all the time, anytime, for small money but great personal satisfaction, then sign up now. But don't do it because you think the lifestyle is great, or you bought into some rosy picture of an academic in an ivory tower.

2.16 What's the Use?

I am often faced with the following question from students: "Why do I need to learn this, if it's not related to what I need for my career or not important for my life?"

I never understood where this question comes from nor did I grasp the question sufficiently well to be able to offer an adequate or convincing response. Mostly my responses were specific to the question asked, such as, "This topic is really important because so many dollars and this many people are impacted by what happens with these ideas that we just learnt today." But eventually, the penny dropped and I think I have found a more general reply to this question. Its summed up in two words – "everything's connected." With this perspective, it becomes clear that everything is relevant.

And indeed it is. Taking too narrow a view of education can be very costly.

1. Should not men learn about motherhood? Will it not make them better fathers?
2. Should not social scientists be aware of the main results in the hard sciences? And the other way around?
3. Should not the rich understand the poor? Can they really? If they did take a few steps towards this, the world might be a much better place. More than other things, being rich is not assured forever (though it may seem so to us lesser endowed folks). Learning what it is like to be poor might just come in handy when the good going stops.
4. Should not the physically able learn about the handicapped? And they do. There are often occasions when we temporarily injure a limb or small appendage, and quickly realize how great the inconvenience is. Even though we never expect to experience a permanent handicap, sometimes it serves us well to experience the disability temporarily in order to empathize with the less able.

5. Should not a poet learn some mathematics? Is there not poetry in mathematics? I know of no mathematician who would disagree. There is certainly mathematics in poetry, the notion of meter, rhythm and rhyme is intensely mathematical. Everything's connected.

So, even when you never expect to experience something, for example, childbirth for men, that alone is not a sufficient reason to say that one does not need to learn about it. This I think, is abundantly clear, even in this analogy.

The chain of wisdom follows quite naturally.

- Realizing that everything is connected means that nothing is irrelevant.
- Knowing that nothing is irrelevant lends purpose to learning.
- Motivated learning leads to deep understanding.
- Profound understanding begets the wisdom of the ages.

Being curious in a purposeless manner leads to great and simple wisdom. It is the simple things that are the most profound. The more you know, the more you realize how little you know. The more you learn, the more you want to learn. The more you learn, the more you realize how much there is to learn.

2.17 What's In It For Me?

I have now spent several decades in academia, primarily in business schools, and have watched social scientists at close quarters. I have also spent time in hard science environments. I may be completely wrong but social scientists (economists in particular) seem to value their time more than hard scientists, whether or not their time is or is not more valuable.

Putting effort into something brings both material and hedonic benefits. Material benefits comprise money, reputation, external respect. Hedonic gratification comes from personal challenge, resulting in growing self esteem. We tend to value the former more than the latter. Valuing material benefits seems more concrete and easy to do than understanding the value of hedonic benefits. The greater the precision with which we can evaluate an outcome, the more we seem to value it.

I have found that social scientists constantly weigh the costs and benefits of activities to assess how much they contribute to their own enrichment.

They are very reluctant to give their time to something unless the question "What's in it for me?" is favorably answered. Hard scientists on the other hand, I find, slip extremely easily into a discussion or help students and peers without even coming close to the WhatsInItForMe (WIIFM) debate. I suspect there is much more hedonic value in hard science discovery, resulting in a lesser need for material gratification. The flip side is that social scientists value their time more because the material side of their gratification is of large proportion and easier to identify. This bottom-line mentality suppresses curiousity, further reducing hedonic enjoyment.

Social scientists invented incentive schemes but still fail to understand them. Game theorists come up with complex mechanisms that "optimize" and improve the welfare of all, even when each and every one in the game is asking WIIFM. But, you see, the game is "Nashed" (achieves a Nash equilibrium) wherein the starting axiom is that people ask WIIFM. But what if this axiom were not true? What if agents did not really always care about maximizing the value of their time? What if, God forbid, people are "irrational" and WIIFM is not a guiding principle of decision-making. Is it just possible that we might achieve even better outcomes by including hedonic outcomes in the WIIFM equation? I think hard scientists have managed to solve the latter quite well without being bogged down in the dogma of tightly defined incentive schemes.

The ability to give of one's time when no material or reputation (ego) benefits are available is liberating. It simply allows you to access more ways to feel good than only when WIIFM is greater than zero. It broadens the range of things that are in it for you. It brings hedonic benefits. And if we dont value those hedonic benefits very much, then its time to really get worried about who we really are and what priorities drive us. The good news is that there are many folks every where in the world that are not stuck in the WIIFM rut. We need to remember that when we have the time and we do not give it, we lose hedonic benefits; or we substitute them for material ones, of which we already have plenty, so that the marginal benefit of these is low enough to be poor trade-ins for the hedonic ones. Even an economist would know how to maximize benefit at the margin. It's too bad that being "too good" an economist actually prevents one from being just a good one.

Repeated experimental evidence has shown that economists (in comparison to other scientists) tend to offer the least to an opponent in the ultimatum game, thereby guaranteeing themselves lower outcomes when opponents reject

their offers. (Google this is if this game is unfamiliar to you.) By working out the exact correct solution to the game in which WIIFM is the guiding axiom, they do worse than were they to include hedonic benefits in their thinking. So it is that being "rational" leads nowhere. Just expanding the WIIFM question to whats in it for others results in empirically better outcomes.

Those who define rationality too narrowly in social games may be doomed to lose the greater plot in life.

2.18 Academic Teams

Academic history is replete with examples of great team work, leading to seminal breakthroughs. But some research partnerships (pairs) are very long-lasting. Its always made me curious as to what underlies these successful marathon work relationships. One such research pair comprised my Ph.D. committee and another resides in my department. So I have been priviliged to witness first-hand the workings of such teams. Here are some of the characteristics that appear to be common to these collaborations.

1. These partnerships are forged early in the career life-cycle. I am hard-pressed to think of pairs that came together well after both people had made their marks and completed seminal work. Of course, this raises the interesting question as to whether the individuals would have been more successful on their own rather than as a team. Who knows? The fact that they did eventually also make their individual marks does not resolve whether the initial burst of seminal work would have come were it not for teamwork.
2. The initial relationships are unlikely to have been based on common research interest. Every team I know has some stronger non-research based reason for its existence. It's often times common alma maters, advisors, extra-curricular interests, nationality, vices, etc. But not similar personalities! Every team is something of an odd couple. Were it only research interests, most likely it would not have worked. Were it similar personalities, it would most certainly have been dead in the water.
3. Teams spend a lot of time in "bonding" activity, even when the relationship matures over time. Its easily postulated that with time, common interests develop, leading to the team spending more time outside of

research, but with a feedback loop into the work relationship becoming better and better over time.

4. The skills of the team members appear to be complementary and are really poor substitutes for each other. Of course, this is how it should be. I have noticed work collaborations where people's skills were similar, devolving into subtle disagreements about minor and highly similar points of view. In short, much ado about nothing. In complementary skills settings, each member remains the master of their domain, eliminating debilitating intra-team turf battles.
5. The stylistic differences of team partners is often quite obvious. For example,

    - Writing: pedantic versus light, humorous.
    - Orientation: Theoretical vs empirical.
    - Attention: Big picture vs detail-driven.
    - Audience: Academic oriented vs practitioner oriented.
    - Personality: Extroverted vs introverted. One a showman, the other lying low.
    - Training: oftentimes both team members come from very different original disciplines.

6. Strong teams overcome adversity and difficult periods. They stand together and solve unforeseen problems, and never indulge in the blaming of each other. It's a fair collective.
7. Good teams are always characterized by fairness in sharing work and balanced in taking credit. Such teams almost work too hard to be egalitarian within the team. But it's this aspect of these teams that makes the team what it is. In some cases, this works so well that readers of their research area often believe that the team is but one person.
8. Good teams tend to have ideas generated by both members. Sometimes a paper is predominantly the idea of one, and sometimes its the other. The outsider may easily identify the work of each player in the team, but not which of the two had the original idea for the work. For instance, when one team mamber is a theorist and the other an empiricist, its easy to knwo who did what, but not necessarily easy to know where the idea came from. Hence, good teams are rarely the outcome of advisor/advisee relationships. They may start out that way, but their long-term existence is dependent on the source of intellectual ideas becoming blurred to the outside reader.

9. Good teams do not always work together with no break. Of course, there are exceptions. But teams do tend to go through periods of detachment, followed by renewed teamwork. Many times, the resuscitation of the team comes with their work taking on an entirely new direction, which is also the hallmark of a good team. It's not usually stuck in the same rut.
10. Good teams retain individual style and identity. No matter how blurred together the joint work becomes, each member continues to work on other projects with others as well. This is the interesting thing about academia. Most of these team characteristics, might also apply to a good marriage. Except this last one, for whereas academic promiscuity might be enhancing to team worth, one would hardly claim this to be true of traditional marriages.

Will we see more such partnerships as collaborations become easier with the enabling connectivity of the web? Or will the ability to work with anyone in fact make it less likely to work often with just one? Hard to say. There is something exciting about being in a team and fighting for limited journal space. And certainly, it is not the intellectual partnership but the sociology of it that is most intereresting.

2.19 Communication Compactness

Languages support communication. Hence, mathematics is a language, just as much as English is. Languages may be ordered in terms of their "compactness," that is, how many characters/words are required to convey a single idea in the given language. In general mathematics is more compact than English. A single idea can often be transmitted in one formula, or theorem. This is very unlikely in the communication of non-mathematical ideas in English. You will no doubt point out various exceptions, and I will say that they only serve to prove my point. I am in short, being a little loose. I am speaking generally.

Compactness explains why journal articles in law and literature tend to run fifty to hundred pages, whereas those in social sciences such as economics are about 30 on average. And many in physics, mathematics and computer science run just 10. This is by no means a value judgment, but an exercise to elucidate this idea of compactness. Compactification of intellectual communication does not mean its all good and for the best. When communication becomes

too compact, the quality and clarity of the communication suffers, resulting in lowering the value of the communication.

On the other hand, compact communication reduces the sheer physical size of the communique, meaning that it more likely to be read fully. I suspect that fewer people read the longer journal articles properly, and more people read the short ones. One way to test this hypothesis is to do so indirectly – see whether shorter articles tend to have more citations than longer ones, after controlling for quality somehow. I suspect someone will eventually run this research idea through the data.

In 1905, Albert Einstein published four groundbreaking papers in the journal Annalen der Physik. These are collectively known as the Annus Mirabilis ("miraculous year") papers and are considered foundational to modern physics.[14] The photoelectric effect paper is 16 pages long. The Brownian motion paper is 12 pages, the special relativity paper is 30 pages, and the mass-energy equivalence paper is only 3 pages long. That's a total of 61 pages. The average length of these papers is 15.25 pages. A single paper in much smaller font in social science journals tends to be far exceed this.

Should academics in the field of literature seek to make communication more compact? Should they write fewer books and more short articles? I think not. In their case, the message is the medium, and many times, longer communiques are far more aesthetic. Likewise, in mathematics, artful compactification of theorem and proof is also highly aesthetic. In the end, depending on field, one has different trade-offs of clarity, size of communique, and aesthetics.

Compactness is obviously not a new idea, it is an obvious relative of the ideas in Information Theory (Claude Shannon)[15] and Algorithmic Information Theory (Gregory Chaitin).[16]

In my own field of finance, the size of journal articles appears to be growing. The average article length in the top-three finance journals has grown by about 30%, from approximately 11,800 words to more than 16,500 words.[17] We are generating immense bloat in many journals. So, is there some way to determine what an optimal compactness is for research communication

[14] https://en.wikipedia.org/wiki/Annus_mirabilis_papers

[15] https://www.quantamagazine.org/how-claude-shannons-\information-theory-invented-the-future-20201222/

[16] https://arxiv.org/abs/math/0701164

[17] https://www.sciencedirect.com/science/article/abs/pii/S0378426621001473

in any field? This may be a useful question because the answer enables us to ascertain what page limits might be imposed by journals in the field. But more important, readers will be able to get the most from the journals they read, by not reading too much or too little. I am going to leave this thought out there, just in case someone does come up with some way to determine what on average, optimal compactness should be. And in the name of compactness, I will stop here.

2.20 Method Supreme

It was the penultimate class in my new course titled "Quantitative Business Models" (QBM) which comprises a collection of topics about the use of quant models used in various business settings. We studied topics ranging from optimizing portfolios to estimating systems using neural networks. The entire course is an eclectic collection of topics that do not fit together inside any other course, nor do they form a meaningful thread in this course itself, apart from the common feature that all topics required somewhat advanced quantitative work.

The course was a list of topics I really wanted to learn about, and in my own selfish way, I realized that teaching was an easy way to pre-commit to my learning. I made this clear at the outset of the course, and warned folks that they were taking a big risk here. Since no one listens to me anyway, about twenty-five students remained, and I am immensely grateful. It has been one of my best teaching experiences ever. And certainly one of the best learning ones too. I hope it was as good for my students.

I think I have learned from experience that the courses I like the most are the ones where the teacher learns as much if not more than the students. When its a two-way street, its not much of an effort. This course was really hard in terms of the new things that needed to be learned before teaching, and I am sure it was hard on the students too, since they needed to come up to speed in gaining a pretty big new skill set, mainly from using a lot of mathematics, and translating that into working code using a widely used open-source econometrics/matrix language. But with feedback going both ways, it felt like no work, and all satisfaction. One week I was away at a conference, and I was surprised at how much I missed my class.

On a more important note, this class did something else for me. At a time when education is being dumbed down, and in particular, as business

education becomes progressively soft, this course felt like the last bastion of an age in which rigorous thought trumped fluffy verbiage. As buzzwords fill up the heads of business students, the chance to teach cleaner technique and eschew jargon felt like a breath of fresh air. In contrast to teaching how to sell snake oil, it was a relief to teach pure mechanics, and show that one can optimize a business decision in the old-fashioned way, that is, by thinking hard about a problem, and then applying apposite technique. Like in all business decisions, there comes a time when one needs to make a judgment call, but taking the analysis as far as it can go is an important pre-requisite that we must not lose sight of. Teaching QBM told me that there is hope left for the idea that business in schools may become a hard science, especially when it certainly seems to be heading that way in the real world.

I often teach courses on financial derivatives, and since these are zero-sum contracts, one always ends up feeling that a good derivatives trade is a scam perpetrated by the quantitatively adept on the mathematically inept. Or, one ends up teaching where arbitrages might be detected and how to profit from them. Maybe all of finance as a discipline seems tainted with this issue. So for a change, it was nice to teach QBM, where the purity of the techniques was given most play, rather than the "free lunch" aspect. It was more about the journey (technique) than the destination (making profit). Good method is its own reward.

Of course, this is just my view. Researchers fall into two broad types, those that enjoy the story and the others that enjoy the method. I fall into the latter group. A good story is what sells papers, and a good method still needs some story to go with it. Happily, this is not the case with the teaching side of QBM – the method tells its own story through the applications we looked at, but these stories never detracted from the pure enjoyment of the creativity embedded in these models. How I envy the people who first thought them up! If it is so much fun teaching this, how much more fun it must have been to discover these creative ideas. I am sure that in this class of more than twenty students, there is some chance that one of them will develop a whale of a good idea, what in the Valley we term a "killer app."

Educating students in methodology has another valuable feature – it trains the mind to think rigorously. It does not teach you what to say, but what to do. Actions speak louder than words, and the models are all about action. Action that is generalizable to other domains, because a thought process knows no boundaries. Its hands-on learning, and brings the satisfaction of

learning by doing. In my case, learning by teaching. The evening of the final class, as the students presented their projects, I kept on learning. For this gift, I am immensely grateful to all in class. I hope they learned as much as I did.

2.21 Learning for the Sake of It

One spends so much time learning for the sake of it, only to die, not taking the learning with us. So what's the point? Why do we learn things that do not add to our material needs? Why are we not totally bottom-line oriented like animals? (I am out on a limb here – I am not sure if my definition of learning should encompass all sentient beings.)

I guess there are two types of learning: (a) Learning for a purpose, and (b) learning out of curiosity. One might easily re-classify that as learning for conscious reasons versus learning for uncontrollable ones. The former usually plays out in colleges and schools, the latter in the theater of life. I'd argue that the only real learning is that which comes from curiosity. Formal learning in the classroom is only useful if it kindles curiosity.

You are going to object vociferously and say that learning to add numbers is certainly real learning. You may not do it out of curiosity, but still, you did learn something that can be used to carry out several other tasks. But did you stoke your curiosity when learning this to ask deeper questions about the task of addition, such as – "What is number?" – "How can I do this faster?" and so on. If you did not, maybe you did not really grok what you learnt, and hence, maybe it was not real learning.

Now you will say to me, can you please define "real learning"? Sure, here it is. Definition: Real learning is that which helps you learn more. You learn more when you get curious about various phenomena. So if you took that math class, hated it, and did not ever want to do math any more, did you really learn anything? Do you think you will remember and use the math you managed to pass your exams with? I doubt it. Real learning is empty in itself, its just the trigger to seek more. False learning, seemingly full of content and purpose, is sound and fury signifying nothing, for it leads nowhere.

Real learning is innately visceral. Imagine the toddler sticking his fingers into a power socket, and receiving a (non-fatal) shock. Did he learn from his curiosity? Sure? Did he "know" that he learnt something? I would argue yes. Has it ever deterred toddlers from exercising their curiosity? Hardly.

Mistakes are the feedback mechanism in true learning. Taking responsibility for one's mistakes is meta-learning!

Surprise is an incredibly powerful learning mechanism. I find that sometimes students vocalize the surprise when that eureka moment occurs in class. Such moments only happen when the student approaches learning with curiosity. Curiosity sets you up for an expected result, and then delivers another. Its the contrast that burns the idea deep into your brain. And it works in reverse too. Not knowing what to expect makes you curious, and motivates learning. Learning comes from an exploration of the unexpected.

Learning by curiosity can only be done in your own personal style. Formal learning is done in the teacher's way, and can only suit you up to a point. Therefore, the only thing a good teacher needs to do is to kindle curiosity in the subject, provide some perspective, and then let the student loose to explore at will.

There are two polarized classroom styles, Lecture or Socratic. The latter, where the teacher gets the student to learn by asking questions formalizes curiosity. The lecture method works too, but places the burden of curiosity on the student. Which one is preferred depends deeply on one's view of where the responsibility for learning lies, with the teacher or the student? Why not mix them up, and get the best of both worlds?

Our educational system is becoming more and more an arena of formal learning, and not one that fosters curiosity. Students are taking their curiosity to the internet, and leaving it behind in their dorm rooms before coming to class. We are multiplying the number of degrees and certifications, but not training people to think and question. Students are punching the clock of boredom in an insane rush to get a piece of paper that entitles them to search for a better job or salary. That's just accounting. We are measuring learning with the grading system, and not with our imagination. Who is better off – the student who diligently jumped through all the hoops and got an A, or the student who got so involved with some aspect of the class, that he spent hours tinkering with the ideas, but did not then finish his homework, only to get a B? I think the evidence of real learning is whether the student can do independent research based on what he/she learnt, because you can never do that unless you are curious. That's why I like to assign end-term class presentations, and they always turn out great, especially in substance and not in form.

Most of all, if a student worries too much about the bottom-line of the

class, to his career and job, or the grade, then its just meaningless learning for a purpose, and is not real learning. No student should come to class until its out of curiosity, just for the sake of it. So I say to you, come to class only if you have no real reason to do so!

2.22 One Thing at a Time

Successful academics (in terms of quality and quantity of output) fall into two categories, those that work on one thing at a time, and those that are seasoned multi-taskers. Many academics are neither – many check out from active research after burn out. Then there are some that are simply awesome, and are able to keep churning out great work with little effort, in seemingly no time at all.

After some decades of casual observation, totally uninformed by any framework whatsoever, I believe that the "one-thingers" do, by and large, generate higher quality work. This seems somewhat obvious I suppose. Sadly though, I remain in the set of struggling "multi-taskers" who on average, do well on quantity, but may produce less seminal work. Given that there is a wide range of styles, my polarized classification is surely dissatisfying. But like any taxonomy, it supports analysis.

Doing one thing at a time is a luxury, but an important one (I am in the camp that sort of feels that most luxuries are frivolous, and am told frequently by my spouse that I am wrong many times over on this; usually I am wrong only slightly!). So when I use the words Important Luxury, it is not to be taken lightly. Doing one thing at a time is a personal plus. I used to get up every morning and make a longish to-do list, planning to get more than one research project worked on, along with a plethora of little admin things. I then began experimenting with just doing one research related activity all morning, nothing else. Only when this is done do I stop and make a list for the rest of the day, when I plan no tasks that really need quiet and focus. So far, when I can do this, it has been working like a charm. There are two reasons for this. One, it keeps me away from debilitating and fruitless administrative chores and detail, where one can easily lapse into in the multi-tasking mode, and then suddenly find that the day is gone, and nothing really valuable was done. Two, by not making The List, there is nothing in my mind calling me to rush through my research writing, which needs complete absorption in a timeless manner. The quality of work is much better, and the satisfaction

from it is at a different level altogether.

Less is more. Multi-tasking actually causes me to pollute the environment with a lot of rushed output that the world can do well without. Hence, doing one thing at a time directly helps in filtering out bad work in two ways. One, it calls up the needed patience to greatly improve rough work. I call this "sculpting time." Two, having time to look carefully at irredeemably low quality work brings forth the resolve to euthanize it. Let's call this "killing time." Never mind what happens, its all good.

In the end, its a zen approach. Devote exclusive time to one single thing, and be immersed in it. Be one with it. Thus, it is never painful – all time is well spent. The undivided mind works miracles, and academic work demands it. There is no other way. Singularity wins.

2.23 Writer's Block

Once, I was asked to talk about my strategies for successful writing. I write a reasonable amount, both for academic purposes as well as for fun, but I have never felt like characterizing my writing as "successful." I write best when I feel the urge, but I write often because I have to. Maybe the first type is successful to me, the other one is not.

In an academic setting successful writing probably means writing that leads to eventual publication. I am definitely not good at this. My co-authors will tell you that my writing stinks. Many of them tell me to refrain from writing the final version of the paper – I am too likely to take risks with the writing, whereas sanitized, safe writing seems to work better. I don't do play-it-safe writing. Its often been said that one should write papers not to get them accepted, but to prevent them from getting rejected. I hate that idea.

Nevertheless, I have learned various ways to write even when I do not feel like it, simply because I have found that I need it for my mental sustenance. Its an essential part of life, and I think especially so for an academic. Here are some typical things that help me write and more important, glean real enjoyment from it.

1. I write best soon after I read well. I read a lot, and buy a lot of books. In a good month I will often buy several books, and obviously they will not all be read. There are some people who do guilt when they start a

book and then cannot finish it, and it blocks them from reading more. I got over this a long time ago. Since I really need to read good writing to inspire me to write, I keep a constant supply of books nearby (originally by my bedside, but now on my digital reader) and this does help me immensely. The "stack" comprises mostly non-fiction, but I think good fiction does just as well. In short, reading well leads to writing well. Even if it feels like there is no time to read, one must make time. Its the only way to be a writer. A while back I extensively read a series of books on how to write science fiction and the one theme that ran through all the books was that one had to read a lot of science fiction to be able to know what good writing in that area means.

2. I do have some favorite books that I read more than once that deal with writing itself. First, there are two remarkable essays that my son guided me to. Both are titled "Why I write" – one by George Orwell mentions ego needs, the need to express oneself and the need to change one's environment. I find I share these goals to varying degrees, but they are all there. Mainly I write for myself – therein lies the key – writing is in the end a selfish personal hobby, and why not? The second essay is by Joan Didion, who mentioned that she writes so that she may know herself, and this resonated with me too. We are here and not here at the same time, and when I write, I truly feel all here. Its wonderful. Didion pointed out that the intonation of the title of the essay is a series of monosyllabic "I"s (why I write) – a fair indication of how self-centered this pursuit it.
3. Other books. Isaac Asimov has been a great inspiration. I have this book of his short stories titled "Gold: The Final Science Fiction Collection" that contains three parts and the third is on writing. Did you know he almost never wrote a second draft, he was that good. Of course, I read this a while ago, and told myself, if Asimov can do this why can't I? This has been for many years a constant source of frustration to my co-authors! Another book that has greatly inspired me is titled "On Writing: A Memoir of the Craft" by (guess who?) – Stephen King. And you thought he only wrote grisly stories! This is a wonderful book. I greatly enjoyed "The Writing Life: Writers on How They Think and Work: A Collection from the Washington Post Book World" by Marie Arana. Her interviews and personal reflections of well known people and writers show how differently people write and come to the craft.

It seems that almost all writers there appear to have discovered their muse at a time of hardship, and in many ways for me this is true as well. Writing is a refuge, be it writing for work or pleasure.

4. What? Writing is just an expression of creative spirit. I do not think of writing as very different from doing mathematics, or writing program code. Just as there is some difference but more similarity in reading prose or a book on mathematics. Writing is in many ways the lazy person's way of being creative, which explains a lot about me I suppose.
5. How? – Implements. Pen. Desktop. Laptop. I use all of them. But I write best when I handwrite out things first, either in short form or complete paragraphs, depending on my mood. If I write at a desk I usually use a fountain pen. If in bed, a pencil. Then I transcribe to computer. My best writing has always been handwritten first. I tend to handwrite much less for research writing, which explains why that tends to be my worst efforts. Ideas flow faster and more coherently when handwriting. Thought flows nicely from the tip of a pen. I spend an unreasonable amount of money on good writing instruments but it pays off in the immense enjoyment from writing with them. More recently, I have been experimenting with writing on an iPad (and other stylus based media), it's good too but not great.
6. When? Usually in the early mornings. My best days are when I rise early like 4 or 5 am and then just write, not watching the clock and definitely not doing anything else, especially not email. I avoid all distractions by not going in to work. I keep emotionally relaxed by taking a meditation break. And I definitely avoid obviously gratifying interruptions like administrative work, which make one feel useful even while being quite useless.
7. When I don't find work-writing working, I do fun writing instead. Its like keeping fit, daily exercise is best. When the usual rigorous workout is impossible, one should not miss out on a light one. Thats what fun writing is. Think of fun writing as cross-training.
8. Good writing has been repeatedly defined as re-writing. I find it very hard to throw away even one word once its out there! I try but it does not help, each child is as favored as the other. But some prose just needs to be euthanized, and I am getting only a little better at this. So, it pays to develop a sentimental detachment at times from writing that's already on the page.

9. Writer's block is often not really that. It's sometimes location staleness. You cannot write because you are in a location of poor energy. So the simplest thing to do is just move to another location, and this works very well for me. As a child, I used to carry around a little exercise book in which I would write my views of the world. I would walk from my parent's home to an embassy library a mile from home and write there. I must have filled more than twenty such notebooks a year and my mother kept some of them even when I went to college. I remember how happy I felt when a female friend read one of them, and it was nice to have someone else relive those moments, and enjoy them too. But I digress – my point was that when you get stuck in one place, just move to another. I have some favorite coffee shops in Berkeley and Oakland where there is a quiet buzz that really works for me. I also drive down to the sea (I grew up on the ocean) and write there, or up at Grizzly peak in the hills atop Berkeley. Location is everything – you have to tap into the energy where it flows in sync with you.
10. Be prepared. You never know when the muse comes calling. I carry a notebook (and laptop and tablet) in my bag always, and write things down when I get the urge. There is a favorite black exercise book form that works for me. I also carry sometimes a smaller blue plastic-covered ring binder book to jot down notes. But I rarely use a writing pad, unless its for class notes. Instead, at home, I have two to three clipboards with used computer paper, where I write on the unused side. One is on my desk, one at my beside, and the other at large. Being lazy, I keep things handy, for sometimes the ideas one jots down may not be worth the effort of retrieving pen and paper unless the media is just there. Everyone knows that feeling of regret that comes from not writing down an idea that was so good at the time, but is now lost.
11. Electronics. I have developed another recent method of keeping ideas. When I think I might later write a blog about something, and just need to write down the title of the idea, I use iCloud notes, drop it in email, or on my cloud drive. The beauty of it is that you can access your "electronic stickies" no matter what computer you are using. Also I often attend talks and things, and when I am there it just releases ideas, many times having nothing to do with the talk itself. So I write them down and then scan them in when I come home. I am a PDF rat – I keep thousands of PDFs with all sorts of things, and have devised an

elaborate file naming convention so I can quickly list anything similar. Using a Mac helps. But I store everything on servers in my office, so that they are accessible to me anywhere in the world. I use a phone to email notes to myself for writing up later, often dictating them into the phone.

12. Proof-reading. Do it, a lot. I am very bad at this. But whenever I have been patient enough it has been a most enjoyable experience and made me proud of my work. Sitting and reading one's own work and getting thrilled with it is such an incredible act of self-indulgence, everyone must try it!
13. Read non-fiction. I am convinced that all good writers must be avid readers of non-fiction. When I have read biographies of fiction writers I have found that they inevitably read a lot of non-fiction. I think this is because great writers are innately curious people and often write to understand things better, and therefore will be drawn to non-fiction just as they would to fiction. Reading non-fiction to me is like leading multiple real lives, and it lets me borrow freely from one life into the other. It makes my writing fun and wild.
14. Finally, the most important reason I write is to have fun. Write for fun, even with research writing. Too much research writing seems aimed at desultory, dry exposition, sanitized to death. Just recently I got a paper accepted in a good journal that had taken me five years to find a home for. It encountered rejections along the way, some of them characterized by an absence of humor too painful to describe. The paper was about computers understanding human conversations, and my early versions of the paper contained an introduction that was pure fiction, about computers running the world's financial system, and the only role of humans being to inject randomness now and then to make life interesting. I felt like this was the most beautiful science fiction beginning to any paper I had written, except that every referee report categorically demanded immediate expungment of my energetic preface. Not willing to give in (sentimental attachment reigning strong), I moved it from preface to epilogue, eliciting no change in response. The final version contains no trace of that prose whatsoever, but I had so much fun with it, that it made the paper one of my favorites despite the repeated rejections. Maybe I will one day write that introduction into a science fiction story and publish it as such, but the academic paper

still sings to me with that prose even though no one else will hear it. But thats just the point, you have to have fun writing, for yourself, not for winning publication.

2.24 Loving Writing

What makes writing a labor of love? I am writing this on February 14, it's appropriate to discuss this on Valentine's day I suppose! Following up on the writer's block article, here are eleven things that keep me writing:

1. Read a lot of books, mainly non-fiction.
2. Write a little bit every day, stay in touch, stay in form. Its an imperative, not a choice.
3. If you get stuck, handwrite first, it usually releases word-processing block.
4. Keep a chunk of time free for writing, free from people and email.
5. Write at a time of the day that ensures emotional calm for you, usually before doing anything else.
6. Always have two to three favorite writing places, such that at least one is always accessible.
7. Use good writing instruments, they make a bigger difference than one would perceive.
8. When word processing, make the pages look aesthetically pleasing, and if this means ignoring journal guidelines, go right ahead!
9. Make outlines before word-processing – sometimes very detailed, at other times sketchy, as required.
10. Beware of administrative work – it is the disease that impedes writing, while making you feel like you are justifying your existence. Administration is anathema to academia. If you find yourself doing too much, start worrying deeply about your writing.
11. Be creative and have fun in the process.

2.25 Fighting Burnout

Every intense profession is characterized by burnout. Not only professions, but any activity repeated long enough without balance. It could be marriage,

friendship, hobbies, anything routine. But in academics the evidence is naked – tapering off of publication records, dissatisfactions with meetings, rampant cynicism, and stoppage of personal growth.

To be an academic is to be charged with pushing the frontiers of knowledge. This is the purest form of academe. But developing new research is also accompanied by conveying it through seminars and teaching. All of this with very little feedback, especially of the positive sort, tends to kill off enthusiasm faster than an icicle in the middle of the desert.

How we deal with burnout is critical, yet it is least discussed in all of the verbiage that clutters academia. (In the corporate world it is widely understood and less ignored.) There is little I have been able to uncover in terms of structured writing that deals with this issue at all. So, here, lets break it down into the following: (a) What is burnout? (b) its symptoms, (c) its causes, and (d) the antidotes.

(a) Definition: Simply put, "burnout" is the sudden inability to function at one's level of expectations. Note that this implies a state of disfunction preceded necessarily by a period of functionality. Hence, it is a transition into this state that characterizes it. You cannot be born burnt out already! Of course, having very high expectations increases the chances of burnout, but being ambitious may delay its onset as well. One way to avoid burnout is to have low personal expectations, or to manage one's expectations over time. We do this well in other aspects of our lives, especially the physical. Sportsmen never expect to be at peak form once they get older, and work through this in a sensible manner.

(b) Symptoms: The onset of academic burnout is often sudden but can also be gradual. If writing the first draft of a paper (let alone a revision) feels like filling out a tax return, then its likely to be a case of burnout. Here are some obvious noticeable things that I catalogued from seeing many friends and colleagues who complain of burnout.

- The inability to develop new ideas and follow through on them. Not for want of trying, but despite one's best efforts, one cannot seem to get "flow."
- Increasing failure to participate fully in collaborative projects. Sometimes we find it easier to work on our own ideas and sometimes it is easier to work on others' ideas. But letting down co-authors, and doing guilt about this, yet being unable to break the rut characterizes burnout.

- Growing cynicism about the value of one's own research and others in the field.
- A gnawing feeling of being out of date. Feeling like a relic and a dinosaur and being worrying about being left behind.
- Complaining excessively about editors and referees.
- Unwillingness to attend seminars, talks, and conferences. Disengagement from the profession, avoidance of situations that are overtly academic. Feeling less like an academic, more of an outsider.
- Increasingly targeting lesser journals and avoiding aiming for top publications. This is especially an issue after tenure when the researcher does have the luxury to aim for nothing but the best at one's own pace.
- Growing lack of concern for students and the process of teaching.
- Substituting other teaching and administrative tasks for research. While this may seem to contradict the previous observation, it is actually complementary. Many of us, needing to feel that we are working still, overinvest in teaching even when the enjoyment is not there, just because we are afraid to try research in case we fail yet again. Administrative work is an even easier palliative. Being a good academic does not exclude administrative work, but to replace research with it is the beginning of the end.

(c) Causes: There are many routes to burnout, it is such a widespread phenomenon that no one cause explains it all. How we envy those that have never experienced it, they seem to chug on writing and enjoying research like the original glow never wore off.

- Life imbalances – believe it or not, spending too much time on research to the exclusion of all else is a prime cause. One needs to devote time to the other things in life like family, getting exercise, other reading, hobbies and social engagements, etc. Burnout seems to be more in fields in which the intensity of social deprivation is highest, such as mathematics. Burnout there happens early and to many.
- Overplaying the game – hitting the bottom line in terms of publications but not paying enough attention to the intrinsic enjoyment of good, satisfying work. Choosing projects that are in fashion, not ones that are of interest, is a killer. Focusing too much on the publish or perish paradigm. Not working on one's own ideas enough.

- Difficulties in other aspects of life that leave little emotional energy for quality research. Stress kills research even faster than it kills you.
- Not varying one's research sufficiently. Many folks have a single bag of tricks and use them too much. Sure, it's easier and comforting to call upon the well-trod path and to generate papers with fewer mistakes buttressed by experience, but when boredom strikes, as it definitely will, there is a feeling of helplessness. To state an analogy, a good athlete will always cross-train. Very good athletes will migrate to other sports as well. Such as Michael Jordan who tried his hand at baseball, or Valentino Rossi who is preparing to move from motorcycle grand prix racing to formula one cars.
- Picking off low hanging fruit only, and not working on at least a few really hard problems. Its like doing very mild exercise. Eventually you lose muscle tone. The mind is like that too.
- Being disorganized. There is method in every madness – if you cannot see it, start getting worried. Get it together, and you will stay with it longer.
- Failing to invest in one's human capital. Amortizing human capital leads to burnout with high probability. One criteria for choosing projects is to ask if they add to one's personal growth or are just repetitions of past work. Old wine in new bottles is just that – old.
- The absence of long-term goals. Be very wary of the incentive system at your university. Most of these system count numbers, and also have very short-term goals, like a calendar count of output. This does nothing to foster long-term growth in quality which is one of the few things that keep academics fresh for long periods.
- Poor training – this obviates the ability to keep learning and comes with an eventual dissatisfaction with poor quality of one's own work. This disillusionment results in lowering of intellectual self-esteem. In many ways this is your gene pool that you were bequeathed from the PhD program you were in. But there is no reason to stay with that only. The luxury of being at a university allows one to take courses and retrain any time. Why pass up on that?

(d) Antidotes: So, feeling like all this is too close to home? Here is a 6-step plan to get cranked up and dig out of the hole.

1. Get Away. First, calm down, stop worrying and take time off to think and re-think. Read popular intellectual writing – its accessible, and good writing usually kindles the urge to begin writing oneself.
2. Intellectual Cleansing. Jettison old projects – these are like poison in one's system. Delete them off your hard drive, off your vita, make sure you never see them again. Liberate yourself from the shackles of stale work. Its like cleaning out a wound.
3. Self-Renewal. Re-invest in your human capital (a) outside your field, so as to avoid immediate cynicism, and (b) then in one's own field. Taking a walk on the other side is usually not wild, but fun. Recharge your batteries this way. Try some new fuel.
4. Focus Patiently. Take your time looking for just one project to work on, no more no less. Make it a three-year plan, not shorter. So choose well and be patient in the search. Be mindful of how you do this, the process is more important than the result.
5. Get Out of the System. Talk to practitioners more than academics. This will avoid all the self-reinforcing cynicism that floats around. Also, its a great source of grounded ideas.
6. Focus Inwards. Work for your own edification, not for publication. This will avoid what caused burnout in the first place, and create powerful long-term internal, intrinsic incentives. You will begin to see why you became an academic in the first place.

No matter how much we try to prevent burnout, it is inevitable to us all. In some, its severe, and in others less so, but everyone faces the demon at some point. Its good to know this, and also to take time dealing with it, to enjoy being an academic all over again.

2.26 Original Discovery

It is the nature of physical science to discover "absolute" truths, the core of the matter, that which is created other than by human. This brings with it a sense of wonder, because what you find is not subjective, but infinitely objective – it cannot be different than what it is, even if you change your viewpoint. For example, the laws of motion are seemingly immutable, and their discovery, or even re-discovery, comes with an awesome aha! Even when

we learn about discoveries of such type, it is as if we share in the spirit of the original scientist with whom it all began.

Being a social scientist inevitably comes with many cynical moments where one feels deeply the absence of "original discovery." Our findings are clothes we decide to dress up our observations in, conceptual footprints, but not immutable, original. It is the nature of the social sciences to simplify, condense, and explain shifting human phenomena, but never to discover originally. And in those darkest moments, one has to ask, without original discovery, can there really be science? I am told that there is as much science as one wants provided we rigorously adhere to scientific method, but one is often not convinced. There remains the need to discover something that is exactly what it is, leaving nothing to interpretive license.

Interestingly, original discovery even exists in the so-called "softer" fields of literature and history where exact facts are uncovered about ancient times today, hundreds of years later – do you remember the movie "Possession" and the joy of Gwyneth Paltrow and Aaron Eckhardt in uncovering the real life of poet Ash? Fiction it is, but original discovery plays out so well with full flavor in the movie. This meets the litmus test, the discoveries are at their basic level factual, not colored by interpretation. Certainly, literary academics and historians will, as a matter of course, clothe discovery in voluminous interpretive verbiage, but this does not detract from the original kernel of discovery embedded therein.

A world-renowned colleague in my field decided recently to eschew financial economics for history, and it might well be that his thirst for original discovery weighed overwhelmingly in his making this decision.

Original discovery seems to live in the domain of the Arts and Sciences, and not in the fabric of the social sciences. With passing time, the social sciences themselves are being bifurcated into areas of original discovery versus interpretive content. For instance, in psychology, fMRI (magnetic resonance imaging) based research comes closer to original discovery and is deemed more of a hard science; indeed, the very word neuroscience being used to describe it tells much of the story. Yet, much of the social sciences comprises "spin," and less substance.

This is not to argue that social science is not important. Far from it. It is easy to make the case that interpretive knowledge does more to impact our lives than hard scientific fact, especially through politics and economics. But from a simple, naive researcher's point of view, one hopes, even as a

social scientist, to alight upon an original discovery from time to time. One is hard-pressed to imagine how and where this will happen, but keeping one's eyes and mind open, as well as crossing over to the Sciences, must surely be useful.

2.27 Visiting

It is a strange aspect of academics that to get deep work done, you need to get far away from your place of work. Proximity breeds inefficiency.

The past many years I have been getting away to Hyderabad or Mohali at the Indian School of Business (ISB). I live on campus, walk to my office, and lead a quiet life, eating three large square meals a day, which I don't need to prepare. No cooking, cleaning, driving – just time to myself with no distractions. Even working a few hours a day, good work gets done. The work feels good, and quality trumps quantity in the output. The students are excellent and life seems complete, even when I am doing far fewer things.

So why does life back at home base get so complicated? Because I don't know how to keep to myself and just say no? Or is there some debilitating human condition that leads us to get over involved even when deep down we know its bad for us? Having been led to believe that a simple life is a failed life, we proceed to complicate it, so that feeling stressed, we may feel better!

We all need to get away from our routines, to somewhere that less is more. Not take a busy holiday rushing around seeing all and more – what good would that be? No, we need to become anti-tourists! Not just on holiday but in life at large.

Visiting another academic institution is a great way to simplify life without actually changing it. Same familiar routines of pleasurable work, but no interruptions. No emotional pitfalls because one is unplugged from the politics of home base.

One day at ISB I went into the library and spent two wonderful hours browsing the excellent collection of books. It has been so long since I last went into my own university library. I used to think that it was because books were becoming redundant, victims of this electronic age. But now I know I was wrong – it was just the lack of time, calm time to myself, which prevented me from getting around to doing something that I clearly still enjoy. So I read a while and then decided to blog, after a hiatus of almost two months. I learned a good personal lesson: to be oneself required no effort, just time.

Do less, be oneself more, give in less to the structure of society, just be.

Of course, the culture here in India is different – its like a kaleidoscope – because there are more visiting faculty than permanent faculty – and the mix changes every term as the kaleidoscope gets rotated through another iteration. The culture gets a blood transfusion every six weeks. Seminars have been fresh and invigorating – every one comes, no one needs to be dragged to them. Its simply because all of us visitors have this gift of time for enrichment, unlike back at home base.

In a short time, I will return to the real world in California, back again from this idyllic visitation. I look forward to that too, for I plan to be as much a visitor in mind set in my real life as well, so that I get the freedom to do more by doing less. Slow and fulfilling days, cheers to them all!

2.28 On Creativity

I recently had an interesting email conversation on creativity. So I figured I would list eleven things that I believe about the creative process:

1. Creativity works better in the absence of distractions.
2. It takes work to get into a creative mood. There is a hump to get over.
3. There is a link between mindfulness and creativity. Meditation can help being mindful, and hence clearing the mind is an essential cleansing in preparation for good work.
4. Its hard to be creative when you are too sure of where you want to end up.
5. Creativity is all about the process, not the goal.
6. It needs deep think, and then down time for background processing. Being creative is not a matter of a single epiphany – it takes many sessions of sink time.
7. Being motivated by money or ego is a negative – it allows the goal to supercede the process.
8. Sometimes you need to change environment to light the spark, or in other words, you cannot think outside the box if you are sitting in it!
9. Creativity is a gift you cultivate and give yourself, but it has an impact on more than many.

10. Creativity does not have to be paradigm shifting – even learning about yourself is highly creative.
11. Creativity feeds on itself. Being around creative people and reading creative work sets you up in the mindset to be creative. It is a self-reinforcing cycle.

Being creative is a process that comes from truly taking responsibility to learn from your own actions, and not being dependent on anyone else for it. Find yourself a creative person, and you will see someone who has failed many times, but has not given up trying to learn for themselves.

2.29 Review Blindness

Wonderful as it is, Google distorts the peer review process in academia. The blind review process is not blind any more as many referees often find out who the author of a paper is before making a decision on a manuscript.

There are two effects of this, both negative. First, objectivity is lost. It is hard for a referee to avoid being positively biased once it is known that the author of a paper is a well-known academic. Likewise, it is easier to reject a paper from an author of less renown, or from a smaller, lower brand name institution. Even if the referee has all good intentions, and does not intend to be swayed by knowing who the author is, there is a hard-wired bias that occurs, as people prefer to correlate their opinions to that of others. Conformity bias compels each and every one of us, whether we choose to admit it or not. My solution to this is to never try to determine who the author is when reviewing a paper.

The second negative effect comes from a bad collective response to the first negative issue – that is, a growing reticence amongst academics to posting their working papers on web sites. Many academics from smaller schools as well as younger assistant professors have told me that they fear being googled when sending a paper out for review, and as a result do not list the working paper either on their vitae or on their web sites. This is terrible, it simply suppresses the dissemination of ideas. One might argue that eventually good ideas will be published, and this process might even save everyone the bother of reading bad work. But, given the review process is biased in many ways (including the first negative issue above), less common, risky, yet valuable ideas might be lost forever. Hence, we are in a bad equilibrium – no one has

any incentive to eschew Google. Indeed, when I asked the same young faculty whether they googled author names when refereeing, they all admitted to doing so, even though they feared the practice just as much.

We need to realize that preserving the blind review process is absolutely essential to our profession (though we do have journals where this is not followed as a matter of policy). Each one of us needs to independently avoid googling to discover authors. Let us all have self-confidence in our individual abilities as judges of good work. Not knowing the authors in fact makes life easier, and avoids conflicts in our thoughts. Justice needs to be blind. So pick up your blindfolds and avoid unnecessary biases. Stay in the dark, so that there may be light.

2.30 Social Science Selling

There are times when I just hate being a social scientist. Especially when I get a rejected paper, and my selling is at fault (which is often). This is not to say that I write terrific, deep theoretical papers with perfect empirics that would change the world if only I could sell them well enough to get someone to read the full paper. But it is annoying when the referee did not see the neat stuff in the paper because I was too obtuse to realize that my writing was more of a conversation with myself, not for someone new to the ideas in the paper. So, in short, I write badly, as I am frequently told by my co-authors.

There is a reason for this which is simple. I do not write papers only to see my name in print – I write them to learn something new. After enjoying the process of digging into the problem, doing the math, writing neat program code, seeing the results, I am done – the learning is over. As I am told, at this point, I am 20% done, and there is the big 80% left, the writing bit. There is something in my brain that does not get this – I am in denial that in the social sciences, the story is almost everything. To me those first drafts bear a haughty air of finality, attracting rejections like moths to a flame!

Now, I am aware that in the hard sciences, writing is important, but there, the story is not everything. In math, if you prove a new theorem, the paper is home, as long as you write clearly. It is less a function of the "story" – and not so much a matter of taste, or a function of whether the readership will be receptive. In the social sciences, you can reject papers on taste – which means the referee (or more usually the editor) did not feel good about it. If I had a dollar for every paper rejected on grounds of taste or readership by

an editor with no expertise in the area, overriding a referee with plenty of knowledge, then I would have a good pile of dollars. But thats the way it is.

The catch is that you need to have a good story, but not such a good one that the referee can find a reason to reject. So there is a fine line that needs to be tread. Sell the paper with a good story and also sterilize it sufficiently so that it cannot be rejected. Not everyone is good at this, and certainly not me.

Theoreticians are clearly at a disadvantage many times. The key ideas in some papers lie in the beauty of the mathematics, which takes work and training on the part of the referee to see. Knowing this, you spend a lot of verbiage explaining things for the average referee who needs the hand-holding. What you end up doing then is writing a little bit too much – it's that extra rope that then hangs you. Something in there becomes the raison de rejection. In my field (finance), there is a classic rejection line which I receive often, as I am told that the paper is mere "engineering" – relegating it to the stuff of the hard sciences, intruding on the pure turf of economics, and clearly unbecoming of the readership! In the social sciences, this is worse than a bad paper – and one is told off off in no uncertain terms that the foreign material should be banished at once.

If you need a diagnostic as to which fields the story matters more than the analysis, here is a good one. The average length of papers is directly proportional to the importance of story-telling in the field. Why is it that in the hard sciences, the average paper is about ten pages? Whereas in the social sciences, it is strictly more than that on average. I am pretty sure that almost all papers in the social sciences could be cut down to ten pages with little loss of content or impact. The fact that the average length of papers is increasing off late highlights the growing role of spin in the publication process.

Despite my frustrations, I have to acknowledge the value of good story-telling in social science. A good narrative is essential to changing thinking and eventually the way the world works. Still, a good story does not have to be a long one.

I am now trying very hard to write short papers in my field. I plan to stick with this for a while just to see how much I can get away with. Clearly remaining within a ten page limit will be hard, and without a story, I may see loads of rejections. But life will be good, keeping it simple, and hopefully, not leaving loose ends to hang myself. I might even write better! And to be

credible about this, I will stop here.

2.31 Copy Cats

Plagiarism has been making the news recently. Whereas this seems more widespread at the undergraduate level, it is also evidenced at the graduate level and is linked to lower awareness and training.[18] No doubt the existence of plagiarism is clear cut, the evidence is not in dispute. Much of it appears in the cut-and-paste approach to literature reviews, students seem to think stealing words is less of a problem than stealing ideas.

This raises the issue that there are two types of copying. One, in the version stated above, there is verbatim reproduction of the work of another person. Two, is the copying of ideas, which is a lot less verbatim and a lot more insidious. As far as I can see, the former is benign, the latter is malicious and much more damaging. Yet, the latter is more likely to be punished because it is easier to prove.

I once received a working paper from abroad that had replicated one of my studies on the U.S. bond market using exactly the same econometric specification as I had but applied it to data from a European bond market. Of course, this is not stealing my intellectual property; instead it complements and validates my work. But, the author had copied the text of my paper completely, and only changed the tables and figures to reflect numbers from the different data set. It was plain that he had used my paper as a template into which he fit his analysis. I was nonplussed and took it to a senior person in my department and asked if I needed to do anything. After some discussion I let the matter be (other than writing back in a gentle manner), wondering if imitation was the sincerest form of flattery; but more, there was an intellectual contribution that maybe, just maybe, constituted "fair use" of my work, which did not damage me in any way. Yet, strictly speaking, this was clearly plagiarism. The author had cited me often but not represented my text in quotes. While this is clearly a gray area, I do not think it constituted his "representing my ideas as his" – and to me – that is the acid test. Did the author steal my intellectual property? – I think not. Did he copy? – yes. I wrote back alerting the author to why the copying was not acceptable, and he revised the paper.

On the other hand, I have received papers to referee where the author has

[18] https://scholarcommons.sc.edu/biol_facpub/2/

clearly taken the kernel of an idea from another paper and then made some minor tweaks to make sure that legality is preserved. Here, there is much more to feel concerned about. Intellectual property is stolen and disguised in different clothes. In the previous case, no intellectual property is stolen, only the clothes are the same. I leave you to disagree with me, but I think the provably punishable version is less damaging. Would I recommend either? Not at all – one should always do the legal thing and not commit plagiarism, no matter how harmless. But it is much more important to be ethical than legal. The unethical stealing of others' work by dressing it up differently is pre-meditated, and often the purely illegal version tends not to be, and maybe just an unconscious mistake, the lack of proper training. We should be teaching this out the gate in every degree program, not burying it in honor codes that are read as much as any fine print tends to be.

This is not to say that the copying chunks of material from the web and presenting them as one's own work, as is the case with term papers and such like is condonable – in such cases pre-meditated misrepresentation of others' work as one's own is clearly taking place. Such actions are unethical and illegal. Avoid them at all costs. And we should also try not to make mistakes unconsciously, it is easy to become a victim of one's intellectual laziness.

This contradiction where violations of the letter of the law are strongly prosecuted and violations of the spirit of the law are often allowed to pass off without redress, is to my mind, a huge calamity. Its effects extend beyond the realm of intellectual endeavor and tend to corrupt the fabric of society more deeply. A case in point is the manner in which airport security operates. Next time you go through an airport, look carefully at how the screeners carry out their jobs. They tend to do exactly as procedure warrants, rather than use their judgment. This is because if they used their judgment and missed one procedural step, they would be in trouble, even though using their judgment is on average more likely to make our flight system much safer. Cover your rear is again an example of monitoring what is easy to do, rather than monitoring what is hard to detect, and most of us would agree that the latter is more important.

In short, when we tell our students what constitutes plagiarism, we need to explain what is wrong in spirit and ethics, not only what the letter of the law is.

2.32 Blocking Time

As an aging academic, I am beset with scholarship sclerosis, that is a clog in the smooth flow of writing output. All academics face these problems. We write more and more about less meaningful things, and yearn for a return to the days of Assistant Professorship, when no one knew of our existence and left us alone to enjoy the great freedom of time to think and write well.

Writing today comprises responding to numerous unproductive emails, administrative work, editorial and referee work, reports on our own work, creating syllabuses and slides, giving presentations, etc. Much of this has been brought on by the computer. Were it not around, there would be no emails, no slides, much fewer reports, and in general better writing (and better handwriting too!).

But the big problem seems to be that we have become multi-taskers, resulting in a loss of the ability to spend large blocks of time on specific deep-involvement production. And, this leads to lower output quantity (despite all the stated virtues of multitasking), to compound the problem of the drop off in quality.

Here is how this happens. Many, if not all of us academics, need blocks of time in which we can sit down and attend to the serious business of writing a good academic paper. We are unable to begin the process of writing unless that chunk of time becomes available. Hence, the absence of a block of time turns into writer's block. With the greater arrival of distractions, like emails, web events, etc., there are shrinkages in the blocks of time, resulting in fewer episodes where we feel ready to sit down and write. Hence, we write less of what matters, and write more of what does not.

The antidote to all this is to just sit down and write, without thinking about completion. In fact, it is recommended that we sit down with the idea of writing for a fixed amount of time, and then we should stop, whether done or not. It is said that Oscar Wilde wrote four hours a day and then always stopped, even if he was in the middle of a sentence. Knowing that you have a fixed, limited time for something actually helps avoid distractions, since it implicitly raises the cost of being distracted.

We tend to overestimate the effort and time to complete a task. Often I assume a writing task will take two hours and then do not begin if I have but a half hour available. If I do start to do it, I find that it has only taken 20 minutes and I am actually done with time to spare. I suspect there is no

easy way to avoid the time overestimation problem, which seems to me to be pretty much hardwired in our brains. So, the only way to deal with it is to just start the task. The Nike people got this all figured out I guess – we just need to do it.

There are people who just cannot gain from regular writing for a fixed period of time. I know some of them. They go for days doing nothing, and then in one day, can accomplish what I usually need two weeks for. But then, such folks do not need to worry about time blocks and so on. All they need to do is manage their guilt for the time they sit around waiting for their burst of output. For the rest of us monkeys, we better sit and pound on our keyboards, even when we don't know what we are doing.

2.33 End of Term

End of Term is a Time of joy and sadness. Joy at putting the hard work behind us, at being "done." There are few times in life when it appears that closure comes so comprehensively. Just for that, exams are a good thing.

Sadness permeates too – not regret that an interesting teaching term is done, but that it highlights the frailty of the human condition. Exams, and other end of term stresses, accentuate other problems we all inevitably have in our lives, and for students, this can become a cause of immense anguish. Absences rise, sickness prevails, and as teachers, we stand witness to the compounding effect of young people's problems. Year after year it happens, and it never gets easier or simpler.

Over time, we see the same issues arise, and also learn to recognize it in ourselves, and thus reconnect to our times as students. Only it seems as if today, our students deal somewhat better with their problems than we did; they just are more mature and worldly-wise. Yet, this does not change how hard it is to relive those experiences through a younger person's experience. I wish we did not have to. It also really amplifies our own problems, however different or varied they may be.

In the end, sadness lingers on after the joy has been spent. Grades are turned in, it's all squared away, yet one remembers that bumps in life are exactly that – ups and downs. Just when the road seems smooth, there is a bump, with the high and the low – we cannot have one without the other. End of term is like a bump, quite inevitable. The finality we seek at the end of a school term or year is hard to attain. The end of term is just not

terminal.

2.34 Integrating Teaching and Research

From personal experience, it is clear to me that I have been happier when the teaching aspect of my life has fused seamlessly with the research I do. From the point of view of the teacher-scholar paradigm, this is the ultimate goal. The fusion enhances the quality and satisfaction of both activities – together, they form more than the sum of each part.

Achieving this integration is easier said than done. But there are circumstances that foster this goal. Here are some personal reflections on the conditions that I believe make research and teaching two sides of the same intellectual pursuit, rather than compartments of independent achievement.

1. Freedom: The more choice that faculty are given in choosing their courses, and processes therein, the better. It is the simple and best way to empower faculty. Too many departments cripple their faculty by having fixed notions of what content should be taught. I believe that teaching content is meaningless, for transmission of facts that are relevant today is a sure way to cripple the student tomorrow. Instead. teaching how to think through the medium of the subject is most important. Faculty that are given the freedom to bring their research into their courses, or at least bring their area of research into alignment with their courses are more likely to teach students to think, because they are allowed to teach on topics where they themselves have spent a lifetime of deep thought.
2. State of the Art: When teaching and research are integrated, it is much more likely that the classroom experience is current, and state of the art. I have seen faculty that teach the same thing year after year, with almost no changes to their class notes, though admittedly there are some courses that do not have to change with time, though perspectives still change as society evolves. (They simply go to class with a tattered and beaten manila folder that has seen better days.) This can only happen when research is not integrated into teaching. A course that taps into research cannot help but be updated regularly, bringing the benefit of new paradigms and fresh thought to the classroom. Viewed in this manner, research is the life blood of the teaching scholar.

There are many faculty that have stopped doing quality scholarship or do no research at all. How can they offer the best education to our students? Integrating teaching with research is therefore, an imperative, not a choice.

3. Idea labs: The classroom is an effective way to seed research. Teaching sparks research ideas. Just last month I was teaching a well-known model to my students when one of them asked me a question about the model that I had never thought of. It was an obvious question, but it had surprisingly been ignored so far in published research. I suggested an answer in class, and conjectured that the answer involved a particular differential equation, which I told my students I might actually be able to solve. I am now working on this problem. Is this integration of teaching and research? – I believe so. There is something fertile about the classroom environment that generates research ideas richer than does quiet, reflective thought. The classroom is an excellent idea lab.
4. Diversification: Teaching research topics that you are interested in but do not have time to take on whole hog right now is a way to avoid shelving them altogether. And of course, we know best what we seek to teach. Suppose you are interested in an area of research sufficiently different from your original training, but you want to make time to learn more and eventually dig into it with all seriousness. There is no way to achieve this without a lot of self-discipline and motivation. However, deciding to teach those topics is an excellent commitment device. It ensures you make the effort to know the material well enough to teach it, which otherwise may have not transpired in the face of other demands on one's time.

   Here is what happened in my case. There are a slew of topics in quantitative modeling across fields in the business school that I came across over the past three years while reading journals in my field and in related ones. Not having the bandwidth to delve into these, I kept adding them to a file I kept in my computer with brief notes. For the coming year, I put these all together and decided to propose a course comprising a mix of those topics. The course has been approved, and I will be teaching it next Spring. It promises to be an exciting, challenging, yet intellectually invigorating time. Yes, it will be hard learning and teaching at the same time, but integrating my teaching

into my "off the beaten track" research goals might just pay off.

5. Research literacy: I believe that an important goal of faculty should be to expand the level of student literacy in their major subject. This can only be achieved through accessing research as part of course work. One of the advantages of teaching in a business school is that there are two types of journals – academic and practitioner ones. The latter type of journal is quite accessible to students, and indeed, is an important avenue of keeping up to date even after they graduate. So bringing research to them in this format ensures they will be able to learn from it now and long term. Most students do not believe they can access this literature, and it's surprising to them when they find they can. In some courses, I even require that the end of term paper be based on readings of academic journals, undertaken to the best of their abilities. Most students say later that reading the research literature was not only a revelation, but also gave them a very different way of thinking than they got from lectures.
6. Exchanging ideas: A university is nothing but a market place for ideas. Where do new ideas come from if not from research? Therefore, integrating scholarship and teaching is a necessity.
7. The "You" factor: Much of teaching is about keeping students' attention. Talking about one's own research is an effective way to engage students, for no matter what our priors, they are quite interested in who we are and what we do. Start a sentence in class by saying – "Let me tell you about what I found in this research..." and watch them sit up and listen. Talking research is an effective way of connecting intellectually.
8. Latent guest speaker: In business schools, bringing in an expert in the field to talk to students is an enriching experience. When there is no expert, talking about new research in the field is an effective alternate medium, if not better. Its like having many experts in the room at one time, whenever needed.
9. Validation: Teaching validates research. I now realize that my best research was also the easiest to explain in class, including some pretty esoteric mathematical work. We also end up more likely to teach the research we enjoyed most, which also makes it likely to be the research that was better. Which ensures that students get the best of our research work, not the worst.
10. Closure: I find that an understanding of a subject is never complete

unless we convey a "state of the subject" talk at some point. Research is a key component. I usually round out and end the course by talking about the current hot areas of research, as well as what the big open questions are. I also tell my students that they do not need to come only to class to learn more, that an entire body of research awaits them, accessible and full of enrichment. They should go to it now, and even after they are done with school.

Thus, incorporating research into teaching makes good teachers great; it makes great teachers outstanding. There is the old parable that goes – "give a man a fish and he will not starve today, but teach him to fish and he will eat well for ever." Research in the classroom makes students think, not just today, but for the rest of their lives. It is the best way to teach students how to fish, and then some.

2.35 Attendance

It has been said that the most important part of life is simply showing up, even if late. Showing up, even if it buys you nothing right there, supposedly pays off in the long run. I have mixed feelings about this.

I generally do not like being somewhere just because I have to. I would much rather be there because I want to. I usually want to when it is important, even if there is no gain to me. Being there, for someone else, is just as important as being there for myself. If you want to be there, then you are there for yourself anyway. So this is somewhat tautological.

Being a teacher means at some point one determines whether or not to impose attendance rules on students. My casual observation tells me that there are some faculty that believe in taking attendance, and there are those who do not. These groups are sharply polarized, having taken their respective stances early in their teaching careers, and with heels dug in, resolve to never budge. I have never believed in attendance, yet am understanding of professors that feel they must – to each his own. One has to figure out what works for oneself, or at least what one thinks works. Of course, the poor students have to deal with both types, with some flexibility to choose between them. Some, but not much.

I abhor attendance for some good reasons (to me at least):

- I believe that one must teach well enough that students come to class

eagerly. If you add nothing to the knowledge of your students by being miserably incompetent as a teacher, it seems hardly fair to expect students to come to class. The rational ones would clearly realize that they need not waste their time listening to you waste yours.

- Conditional on your being a good teacher, if a student misses class, then he/she is already paying the cost for absence. By marking them down on attendance, you end up double counting the cost. To me, this is patently unfair.
- Even if you believe that students need to be encouraged to come to class for their own good, assuming for the moment that they are unable to measure the cost of their absence, bringing them there does not ensure learning. I for one spent a good proportion of my time sleeping in class, for no other reason than the fact that I used to stay awake most of the night, making up my sleep deficit in class. I must admit though that I still gained from being in class than being elsewhere. But warm bodies in class is no guarantee that learning goals are being attained.

We are entering an age of multimedia in the classroom, where each lecture is being recorded, re-packaged, and then audio-visualized and compressed onto a single file that may be reviewed on a laptop or on an iPod. I am in fact using such technology this term in my class. Will this lead to greater absences from the classroom given that students can access the entire multimedia experience later. Are we going to become TiVo-University?

Apparently not. On campuses where audio-visual recordings are becoming commonplace, attendance seems to have been encouraged because students find that they want to ask questions and ensure that more content is digitally preserved, as I learnt at a recent talk by Apple reps on campus. They are no doubt thinking ahead and realizing that they can take the entire experience in college with them and revisit the classroom years ahead. This entire generation of digital people is more far-sighted than we give them credit for. And they clearly believe, more than previous generations, that education is a long-term endeavor.

Its also important to understand what we mean by "attending" – is it mere physical presence in class, or is it access to the classroom experience? With digital technology, Apple points out that replaying the class through an iPod while in the gym or on a walk means that many more slices of time are being expended on attending class; extending it well beyond mere classroom hours.

Finally, coming to class may be important for critical energy in the room. But I doubt this – I would be just as happy teaching a small group of two or three and recording it for the remaining fifty who would receive it virtually.

Therefore, attendance does not ensure attending, so why bother. The sooner we remove the tyranny of "habeas corpus" from our classrooms, the better.

2.36 Term Papers and the Internet

The internet is making original thought obsolete.

As teachers we do not ask for blinding insights, just original work. Yet, access to the internet makes it too easy for students to avoid thinking by allowing effortless regurgitation of other people's work, with sufficient modification to avoid plagiarism.

One (or maybe two) decades ago, a term paper required library research, and this usually resulted in a framework that placed the researched material in an analytical context of the student's own making. It made the teacher's job as reader and evaluator that much more interesting. We teachers do not want to read what other experts say – indeed, we are keenly interested instead in what our own home-grown talent can come up with after we have finished teaching them.

Nevertheless, research on the internet is here to stay. But its presence is not benign. There are three levels of problems that I perceive:

- Level 1 – Cheating and Plagiarism. I have stopped giving students a term paper to write as it became an exercise in frustration for me. Too many papers read as if there are two different writers, as the term paper oscillates between the student's own writing style and that of the phantom from the web. I am often able to quickly google the source, which is only referenced half the time.
- Level 2 – Absence of Originality. Even when the source is cited, there seems little point, as the bulk of a term paper ends up lacking original thought. It's all legal if you cite your source, but then what did the student do that a librarian could not?
- Level 3 – Information death spiral. Web sources are often not first-hand thought, but rehashed from other web sites. So not only is the material turned in unoriginal, it's just plain poor quality. You can imagine what

brain damage is being inflicted on people who have to grade this stuff. So I don't.

I am running scared – my son does all his research on Wikipedia. He knows perfectly well how to stay legal and cite his sources, being told this in school and much more severely by both parents. But does he think when writing? Not sure – he knows how to argue his case with parents, but that's not original thought either. Amazingly, his school has a software that they use which works out how much of the submission was original, presumably by discounting all words in quotes or something like that (I don't know for sure). It also references web search engines to match large sections of the turned in paper, and with LLMs, this becomes easier to detect. So people are wary of the problem, and there is an attempt to redress it.

Looking up reference material is not bad per se, but making it too easy means there is no lag time between sourcing and production, which in the past going to the library forcibly interspersed some thinking time in between. This process of digesting the material so as to diverge and build from it one's own living and breathing original contribution, is seemingly a retreating phenomenon.

My solution has been to require in-class project presentations. This does not prevent the creation of powerpoint slides that are mere distillations from the web. But it does force the students to think through their presentations, and to defend their projects in class. This can only be an interim solution. There must be some other way to induce deep, independent thought (yes, I know, its writing a PhD theses). Everyone cannot do doctoral work, but yes, every one can be a scholar. I hope the web does not impede this, and I fear that deep research tools in GPTs will make it even harder to get students to think for themselves.

2.37 Theorists and Empiricists

Academia is composed of two complementary types of talents, the yin and yang of intellectual activity: theorists and empiricists. In the latter set are also experimentalists. There are some theorists that will from time to time, undertake empirical work – these are the pragmatic ones, especially in social science. Many theorists remain pure and avoid dabbling with data completely. On the other side of the fence, there are empiricists who do some theory and

those that do none at all. Whereas there are many who crossed over from being pure theorists to being empirical, I know of no one that moved from being empirical to doing pure theory.

To argue that this must follow from the fact that doing theory is hard, and empirical work is easy, is to be somewhat naive. I for one, do not buy it. I feel that empirical work is much harder, and to be a good theorist, laziness is a positive attribute. So many a theorist is made out of necessity and inertia. It takes work to be empirical. The pseudo prestige of being a theorist just tips the balance enough to attract those smart enough to realize this and clever enough to survive without getting their hands dirty with data.

Just who is a theorist is unclear. In business schools, people who write papers with lots of equations and no data are ascribed to be theorists. Many times, these are people who do formal game theory, econometrics, mathematical modeling, etc. But this is a terrible definition. To me, even the "gurus" who do management models, the guys who coin buzz words like "core competence" are also theorists. They come up with testable ideas, and that seems to be the definitive mark of a theorist. Hence, being mathematically intense is not necessary nor sufficient to be a theorist. Indeed, almost every empiricist has some idea that is being taken to the data. So, to focus better, lets call someone a theorist if he/she is primarily involved in coming up with models (descriptive or mathematical) that may be tested, and is not primarily concerned with the testing itself. In a roundabout way, we have arrived at a pretty good definition of a theorist – someone who does not want to work with data!

This of course is facetious. The theorist must perforce imbue a distaste for data to be any good at what he/she does. The meaning of being a good theorist lies in seeing beyond the data, looking for deeper meaning than what is present in current fact. However, all good theorists must be grounded in empirical reality. Therein lies the symbiotic nature of the theorist-empiricist relationship. The theorist needs the life source of empirical soil, facts that underpin any reasoning of "why." In turn, the empiricist needs theories in order to understand what he/she finds when they overturn any rock with data underneath. Else, we will keep turning up rocks or opening shells, not being able to recognize what we find, even when we do. It is this complementarity between theory and empirical work that is ultimately satisfying.

At some level, both theorists and empiricists do what they do because the disbelieve the other. An empiricist produces data telling some story, and

the theorist builds a model, either unconvinced with the story, or looking for further deeper meaning. Empiricists test theorists' models, pushing to find their limitations, sending theorists back to the drawing board. Each plays the game as if to show they can perform the other's role better. The jousting carries on continuously, leading to discovery and progress.

Being a scientist, theorist or empiricist is wonderful. What of the remaining people in the world? Well, each and everyone, is all aspects of life, takes on the role of empiricist or theorist. Think about this and ask yourself, what type are you? When you are introspective, maybe you are being a theorist. Some self-realization dawns and you decide to make changes in your life, experiment with something new, to see if the introspective conclusion has worth – now you are an empiricist. Putting yourself in someone else's shoes, that's being a theorist. And so on. Are life-theorists more likely to be introverts and life-empiricists more extroverted? Thats just conjecture, my being a theorist. So, again, what type are you, your spouse, your children? Life is strange, but maybe being scientific about our daily routines might replace some tedium with stimulation! Enjoy the ride.

2.38 Form, Substance and Thought

Teaching today seems to be emphasizing form over substance. What else explains the incessant need to use multimedia, presentation slides and computer-driven aids, as opposed to traditional blackboard teaching?

What happened to reading before class, and discussion in class? It does not exist. Now we have class, and then slides are the take-away. Summarized chunks of buzzwords, that's it.

Form serves some important functions though. Using multimedia for example, can elicit that first spark of interest, and focuses attention. So its not altogether bad. But then, if teaching is good anyway, I can hardly imagine that shock and awe from media-driven attention-keeping will add much value, if any.

Form sometimes becomes part of the substance, in which case it is useful. Seeing a 3D image of a physical object, watching its dynamic manipulation, sometimes brings a depth of understanding that would not otherwise be reachable.

Overall though, there is little doubt that form is being substituted for substance, especially in business schools. (I know, I work in one.) We even

have workshops on teaching which are primarily geared towards making faculty more adept at growing form at the expense of substance. There are seminars on using graphs, workshops on using the web for teaching, talks on the impactful teaching presentation, discussion groups on board technique, software for recording lectures with sound, video, etc. Nothing but props, foliage hiding the vacuous state of the classroom intellectual process.

What is substance? I see it as content, the core material of the courses we teach. Concepts, tools and vocabulary of the subject matter. However, even a lot of substance, while good is not enough. We need to spend time in class thinking, deeply. Therefore, I believe we need to substitute away from both form and substance, with more thought. Getting students to think in class, with or without props, multimedia, whatever, is supremely important.

I have found it very useful in my class preparation to ask not what will I teach today, but instead, what should we think through. Shoveling information is hardly the goal, putting the brain through a logical process is more worthwhile.

Think different!

2.39 Long Term Scholarship

Research can be short-term in outlook or long-term. It is said that Einstein took ten years to figure out relativity, a time in which he eschewed many other avenues of investigation so as not to be distracted. Donald Knuth spent ten years working on his typesetting system LaTeX. My colleague, Hersh Shefrin, now spends almost all his mindshare on his current book. Clearly this pays great dividends, for the quality of such work is inexorably high.

What if these outstanding individuals had been asked by their respective organizations to justify their positions on an annual basis? No doubt, their stature would have prevented such questions being posed, but it is not unusual in academia today for annual reviews to be the marking points for awkward questions about productivity being asked of even high quality individuals, who should not have to justify their research styles and preferences any longer. Top academics are thinkers, not salesmen. They should not have to meet annual goals or targets.

Yet, so many departments I know of only ask how many "A" publications an academic produced in the past academic year. Not one of these departments ever takes the trouble to even read the work of its faculty. And so, it is

nothing but an accounting, bringing a bean counter mentality to the review, debasing the very process of intellectual endeavor.

No doubt the very top departments are less likely to fall prey to asking – "Well, last year you won the Nobel Prize, but what have you done this year?" – this is not as far from reality as one might imagine. Most departments are not free from the curse of the annual review, and succumb eventually to the yardstick of the "A" journal or the bean count.

There are many articles even in "A" journals that have no impact whatsoever. Short-termism is the reason for this. Since most faculty need to make their "quota" of A publications, it fosters the repeated generation of good but not great quality articles we often see. Without the annual pressure to meet a threshold count of articles, less average quality articles would be seen in top journals, and surely even fewer low quality articles would be submitted. I referee a lot of articles, and the general quality of submissions seems to be dropping year by year. Might short-termism be the cause of this malaise?

Whereas the constant procession of decent but not great top journal articles is consistent with the current incentive systems of finance departments, it is not clear whether this is optimal. Here is the basic trade-off. Requiring annual judgments on research productivity prevents the laggards from getting away with laziness, but the costs appear in the quality of research. Further, it prevents faculty from taking the time to invest – either in long-gestation ideas or in themselves. In my humble opinion, great intellectual developments did not come from treadmill environments. We can see the results today – no one reads papers to evaluate faculty, mostly we just count papers.

Really good thinkers get frustrated by all this. They eventually leave for Wall Street. if they are not going to get the time to think deeply, it makes sense for them to at least make money without thinking. This leaves the feeble mediocre behind to run the show. Hence, the death spiral for research.

Short-termism in academia also shows up in business school rankings, where deans are pressed to make sure ratings and rankings rise on an annual basis. So they then need faculty to do their share to prop up the school's PR efforts. The distortion of incentives shifting effort from research to PR is having a devastating effect on finance departments everywhere.

So what are faculty to do? I feel lucky to be in an institution where there are many paths to research success. Not just a small set of restricted journals with annual goals. Even though we have an annual review, its an occasion for feedback, not a salary meeting.

We need to treat the annual review with a bowl of salt. Be a skeptic. Count ideas, not papers. Assess research agendas, not high/low journals. Count impact, not teaching ratings (I do not open teaching rating packets). Be a thinker, not a publisher.

2.40 Professor, by name

The most important thing I do on the first day of class is to ask students to call me by my first name. Not "professor," and especially not "sir." I like being called by my first name (not my last), and my ego does not need the boost from the title.

Despite being explicit and clear in stating my wishes, most students do not comply. Could it be that it is too much trouble to remember my name? I doubt that. Mostly, I think the force of societal courtesy prevents an adaption to a more informal interaction.

Now, I am not very good at remembering anyone's name (faces I am good at). Maybe I can be excused for I have many more students than students have professors. But by the end of term, I know most, especially by first name. And I definitely remember students who call me by my first name. All this is a pretty unconscious process. Reciprocity seems to work in some strange way, though I cannot put my finger on the reason.

So what good is the "professor" nomenclature? Is it to show respect? Why is it at all necessary? Is a student's respect for the professor necessary for learning? May be. I think a professor's respect for the student is just as necessary. Given that mutual respect exists, then is the formality at all required? I think not.

Especially today, I think formality has become habitual and somewhat meaningless. Formality is like a false positive – respect is shown when in fact, none may exist.

Formality is also political – correctness that is imposed for reciprocal gain, not for its true intrinsic value. What you see is not what you get.

I like my first name, it is mine. More than my last name which is my family's. More than my title, which is that of my guild. Not my qualifications, which are just human capital, already spent.

So, call me, on anything, but call me by my name.

2.41 Grade Inflation and Peace of Mind

I recently gave a quiz to my evening MBA students that turned out to be harder than they expected. Actually, it was harder than I expected it to be too. So, I have been receiving a flurry of emails and concerns about it. To not think much about this would be callous, and there is no getting away from worry, even if it is someone else's.

That everyone found the quiz hard (as I know from grading it) means that relatively speaking, no one has actually done as badly as they think they have. In fact, since grading is relative, it is true to say that most have done better than they think they have.

The format of the quiz, since it did not follow closely the back of the chapter problems, but rather, my presentation in class, might have thrown folks off. But, each and every question was specifically based on something I repeated more than once in class. I set these quizzes with a view to them being a summary of the most important concepts. In my mind, the role of a quiz is to provide a break point for study (consolidation and closure) and to give feedback on what students know and do not know.

Students work very hard, and I can see why it is disappointing to not crack a quiz after lots of work. In addition, being evening students means many have to deal with job idiosyncracies, making education a harder slog than it should be. So there is a great worry about getting grades below a B+. In fact the average cut off to graduate is a B (a 3.0 GPA in graduate school here).

We use scores to rank students (so it's relative), and then decide cut off scores after calibrating for the level of difficulty entailed in the course. If the test is hard, it just moves the average, but not the ranking. And now for the statistics: unless a student knows close to nothing (a C grade or worse to me), we have the following range of grades to work with: A, A-, B+, B, B-. If we center the distribution on B+ (which is also the cut off GPA for meeting certain requirements) then 25% or more of the class will be below the required level. That clearly is untenable as it seems to me that MBA programs across the country target the percentage of students failing to meet requirements at less than 5% (maybe even less). So where do I need to center my distribution so as to make sure that across many classes only 5% of students get below B+ on average? Turns out it needs to be quite high, making a B- very far out in the left tail of the distribution. And therein lies the dirty secret of

grade inflation.

Of course, it takes little to realize that grade inflation does not make students "feel" better – it only makes them feel worse, for two reasons: (a) it leaves them wondering whether they really deserve the high grades being handed out (impostor syndrome), and (b) it makes everyone think a B stands for Bad. When I went to business school I got loads of Bs and a C too. I ranked high in the program and my GPA was only 3.4! If you simply compared our grades to today, we were relatively a bunch of miserable underachievers! But we did not have to worry about grade inflation. I am not sure when these grade cut offs entered business schools, but they cannot be a good thing. They seem to be a way to correct for admission errors, but end up imposing harmful externalities on all students. Professional degrees are better off being managed on a pass/fail system. Last time you went to your doctor, did you ask for his/her GPA?

But worse, is the consequence that students will also believe that their true worth can be measured in their grade. This false notion will lead to a disastrous modification of the education system. It already has surfaced in the grade inflation we see. One reported statistic is that 47% of graduating seniors in California high schools have an "A" average. So of course, colleges will begin to discount this, nevertheless, the pressure on students to hit this goal still remains, but in addition they have to do more to distinguish themselves from the others. The end result is to burden our children even more, and rob them of their childhoods.

This is the vicious circle in place. As students focus more on grades, and less on learning, we will see more grade inflation to keep them happy. Grade inflation means students have to do more to separate themselves from the pack, leading to a huge burden, and no time to truly engage in the education process.

I think we all need to slow down. Peace of mind is more important than grades. Learning is more important than peace of mind. So learn, but do not worry about it too much. It's just a grade after all. It's what you do with what you learn that matters.

2.42 Leaving the Area

I spent most of last week attending a conference on Random Networks. Not as one might say, a random conference on networks! It was wonderful. Much

of it whizzed by me without so much as a by your leave, but the excitement of the various work being presented was too palpable to miss.

There were physicists, mathematicians, computer scientists, and even people from the medical field (modeling disease spread on random networks).

Everyone should attend at least one cross-disciplinary conference such as this once a year. I came home invigorated and refreshed, and much more theoretically oriented than I was a week before. There were some problems I was working on where I had resorted to numerical experiments for some time. Now with this new mindset, I put to work, and suddenly, the theory yielded itself, leading to my now having fully analytic results, not requiring computer simulations. I do not think anything but my going to this conference would have inspired me to work on these new results.

I am teaching 3 courses this term, and so am up to the gills with classes; and all the usual editorial work, referee work, etc. So, I worried some about taking out almost a whole week to go attend a conference that had absolutely nothing to do with my own work (though I have been working tangentially on it – as of current editing, I ended up writing several papers on financial networks as a result – yes, we underestimate how much can happen in the long run). Yet, I had read a lot about this area, and decided to go nevertheless. The proof is in the pudding. Taking a few days off to refresh and learn from a new environment led to some of the nicest theory work I ended up doing this week. The moral seems to be that having fun as an academic can also be very productive.

And of course, it also taught me to learn from fields outside my own. This is something I do a lot of, but it is still gratifying to see some proof of it every now and then. I came away fascinated by power laws, and ended up writing a survey article on it for a journal.

Time away is time well spent.

2.43 Unreal Education

I returned from India ten days ago, where I talked about advanced credit models at the Institute for Financial Management and Research (IFMR) in Chennai. This was a series of three days of talks, where I had planned to speak for 4 hours a day, from 9:30am till about 2pm. I had not bargained on the extreme interest of the students attending the talks, they were extremely engaged and asked questions all the time. I ended up finishing at around

6pm! So much for a quiet day's teaching, and then time to myself for writing and dealing with referee reports and other administrative work.

Just this weekend I taught an executive MBA class on swaps and floating rate products, and the same thing happened. I was hard-pressed to get even a reasonable amount of the material covered in the class time. The students had so many detailed questions, and they kept me busy answering many things I had not really thought out before hand. It was invigorating.

I count myself fortunate to have had such experiences two weeks in a row. This is clearly the exception, rather than the rule. Students tend to be tired mostly, and worried about their grades. Education without measurement seems to be the only "real" education there is left. As we get better at window-dressing our vitae, it is leading to an arms race – better grades at all costs.

The true problem behind this malaise is a lack of time. As life becomes more and more hectic, (and technology has a lot to do with this), employers and other evaluators of students are failing to put in their own efforts to determine the quality of people they wish to hire, leaving this role to the grading system. The consequences are obvious for all to see.

2.44 Math Code

Math coding is the writing of software to implement a piece of mathematics.

Being extremely fond of writing software but not being dependent on it for a living makes it truly enjoyable. Every now and then I find myself the victim of bad design, always self-inflicted. Like recently, I wrote a piece of code for posting the solution to a homework problem, and did a pretty hasty hack job, so much so that while still being a pretty nice piece of programming, it lacked the clean, readable form that tells you instantly when it is done, and done well. And for that reason, more than any other, it had a bug, and maybe more. I have still to debug this, and will do so I know. But its hard to go back and fix something that does not deserve it. Trash is trash, who wants to take it from bad trash to good trash?

Good code (especially that with a mathematical purpose) needs to be short. It should be as readable as the underlying mathematics. Really good implementation code is so good that reading it is sufficient, you do not need to read the math; superb code is even better – after reading it, it improves your understanding of the math.

How do you write good code that implements mathematics? So good that you need almost no comments? There is but one way, in my opinion, make it really concise. This will also make the code simple and efficient. Take everything out that is superfluous. Here is a quote, which is spot on, simple and elegant: "A designer knows that he has achieved the perfect design not when there is nothing left to add, but when there is nothing left to take away" – Antoine de St-Expurey.

Here are some rules that I have learnt from experience over the years.

1. Math code can be very different in different languages. Choose the language well. The good news is that you do not need to know many languages well to choose one, and the bad news is that some languages are much better than others. Some like Perl, are not meant for math code, its syntax makes it hard to later revisit the math. Python is much better but is also not really suited for this. C and Java are pretty good. But best are packages like Matlab, Octave, Mathematica that have grown into full-blown programming languages. I find VBA programming in Excel very conducive to writing good math code – using the macro interfaced with spreadsheet offers tricks and hacks (all elegant) that are unavailable in other environments.
2. You can write really good math code without knowing heaps of features of the chosen language. Writing good math code is a matter of style, not that of the richness of language features. I hardly know a lot of language features, and tend to find them when needed. That is why I enjoy reading student written code in homeworks – there is always something in the programming language that I am introduced to.
3. Develop a personal style. It is really important when writing math code. I have one, and I know it, it suits me well. It took me a long time to feel it. I am afraid I cannot tell you how to do this, it's personal. All I know is you will not find it by looking over someone else's shoulder. Just write a lot of code, and if you are not enjoying it, then your style is off. You will know when the style fits.
4. Keep trashing the code until it looks good. Its got to be pretty. Don't get locked into the first version you write, ending up with some variant of your initial draft. This sounds like the same advice given to young writers of prose, and in many ways, yes, it is the same thing. But math code is different – if you buy into to the idea of keeping it short, your

final product is about one or two pages of code, well-commented, if necessary. With that in mind, it is not in the least bit painful throwing it away and starting again. Do this often, and soon, you find your first versions are pretty good already. Once it feels good, go back and take out all the unnecessary stuff. The usual programming instinct is to tidy up by adding comments. Good math code does not need it. Whoever wants to read it needs to know the math anyway, and if you write it clean and neat (and concise) it will be easy to read. Correct math is truth, and truths are meant to be self-evident.

5. If the code is unwieldy, runs slow, is hard to read, and fails to improve after a few writing iterations, there is something wrong with the math or the numerical recipe you came up with. Many times, in sheer frustration, or from absolute need, I have had to go back and revisit the math, and lo and behold, there pops up a terrific new way of dealing with the whole problem. Work it out nicely, reprogram and voila, it works great. Never be reticent about revisiting your mathematical analysis. I am never happy with my theoretical work until I have the model coded and running, running really well. Often running well in two separate languages. Good math works well. Write once, run anywhere.

There is something different and special about writing code to implement math. Its a different mind set, a varied skill, and not easy to develop. Most mathematicians will never be good at it, despite knowing the math well, which seems like it must be a major prerequisite. Physicists are great at it. So there is something about training. Engineers should be, but are most often not good at it. There is an essential attitude – something about trying to mimic the real world in software that makes for writing good code, and that is something physicists do well. So do people with computer-science degrees. And some in Applied Math.

What I like about math coding is that I always deeply enhance my understanding of the math through the process of programming it. Its like a wheel of understanding, it comes round to feed itself through the code. Most of all, it enhances my passion for the math to see it really "work" well.

2.45 Mathematics and Finance

There is a serious lacking in the business undergraduate's ability to engage in conceptual work involving mathematical logic. After getting disappointing

results in two recent quizzes on quantitative material, I am faced with a quandary – should I just not proceed further and spend a few classes instructing everyone on all the high-school mathematics that they should know and just plain forgot? Or is it too far down the road for this now?

The problem lies not in an absence of prior mathematics instruction. It lies in the approach to mathematics. Math tends to be taught as a set of rules and is usually taught by example, and not from first principles. This is like teaching a tourist the most popular phrases in a language before a trip, leaving only a rudimentary knowledge of the language. Such knowledge is not enough to "speak" and "reason" with, yet is enough to "get by" with.

Unless mathematics and logic become first languages for students, subjects like Finance will always remain out of reach. No math facility implies no finance fluency. Doing finance is speaking math.

I believe there are positive externalities too. Analytic thinking develops well with subjects like math. This is an invaluable skill even with non-quant subjects like strategy and policy. Math immersion brings conceptual clarity across the board.

Paul Graham goes so far as to emphasize that the only way to keep all life and academic options open over the long run is to make math a priority. Given a choice he suggests always choosing to major in math over economics. Doing math allows one to later do economics as well, but never vice versa. For a superb essay on these matters, see http://www.paulgraham.com/hs.html.

It's never too late to seek mathematical training. I know many friends who came to math late in academic life (myself included). Initial progress is slow, but then the pace quickens. It's a subject where some immersion is required before everything begins to fall in place. There is a reasonable period of waiting, and then mathematical maturity begins to arrive. It's a great feeling.

Long run, the problem needs to be stemmed at the high school stage. It is here that the abhorrence of math develops. The subject may be presented in a dull, dry manner. It is taught in a rule-based way, and very little appreciation for the physical nature of mathematics is conveyed to the student. By the time the student arrives in college, any positive inclination (barring those always serious students) to the subject is stolen away.

An additional problem is that no societal incentives exist that would attract students to math in the U.S. Mathematicians are looked down upon, they are badly paid, and even ostracized as "nerds" by big-talking bullshitters.

In the corporate sector, the math-skilled are relegated to factories, back-offices, and research shops and glory goes to the marketing people. On Wall Street, quants are often abused by traders, most of whom have confused their stock portfolios in the bull market with their IQs.

My students need to see that the finance profession of the future will belong to the math-skilled. Just take a look at the growing numbers of people in quant finance – most have PhDs in quantitative disciplines. Maybe it's safe to say – "The Geek shall inherit the Earth."

2.46 Burn Out

I think teaching has burnt me out. The other day I had this conversation with my inner self, which is okay, as this happens often (don't tell me you don't talk silently to yourself – it's simply the monkey mind being organized). But it had never happened while I was standing in class teaching. Very odd. It went something like this.

Inner Self: "Did you not teach this topic to these same students before?" Self: "Oh God! Maybe I did." So I ask the class – "Did I?", and they reply, no, maybe, sort of.

Now, things are really bad when you teach the same thing too many times, and you have taught a lot of everything in your field there is to teach, and you go round and round with it in circles, not being able to keep it straight. No one should be allowed to teach too much. Inevitably, you begin to get bored with yourself.

There is a reason to teach a little and do a good job. It leaves time for research, which throws up new things to teach. There is a freshness when you do not teach things too often. The past few years I have been staving off the inevitable by trying to teach as many new things as I can, but there is only so far as you can go. This time, I decided to change my teaching style to keep from being bored, and so have been using Powerpoint, which I had solemnly committed to never doing. I must admit its made my prep much more organized, but has also escalated my in-class boredom.

I am also trying to cram awful quantities of material into each class, under the notion that if I do more, it may save me from dropping off while teaching. I can see this is taking a toll on students, who are running to keep pace. Slow down, slow down. Someone once said, prepare only half of what you think you can teach, and in class, deliver only half of that. It's best for students

that way. Maybe its time for me to take this advice.

I guess the silver lining comes from the students – they are awfully alert and ask many good questions, saving me from complete meltdown. Many of them work all day and then come to class. So its time for me to get over the hump here. Fight burnout!

2.47 Failed Reading

A disappointing trend sweeps modern youth – the inability to read well. Much has been written about this already, and maybe there is little to add. Today's children, barring a few who have miraculously found the joy of reading, are for all practical purposes, quite illiterate, for an inability to read cripples the ability to write. Not knowing good reading is to have no idea of what good writing is either.

"Mediocrity knows nothing higher than itself; it requires talent to recognize genius." – Sherlock Holmes.

That is an important point. Standards in society are falling, because a most essential source of good standards is reading. I have not known anyone who set high standards and did not read voraciously and well. Good reading is widely available in our library system, yet there is plenty of rubbish too. But people are less likely to engage continuously with poor literature as with poor television. The difference lies in the fact that television is a passive engagement medium, and so, it is costless (in effort) to stay with it, even when it is barely keeping one's attention. Reading requires active involvement, and if the material is not captivating, which is the case with poor writing, the effort is just too much to continue reading. Hence, good writing overwhelms the bad. Yes, even good pornography trumps bad. And indeed, a person who reads well, upon finding poor television, will just as often switch off the set and turn to a good book.

Our school system can emphasize deep reading. I am apoplectic every time my son comes home and announces he has a quiz, and then produces a sheet of questions with answers for me to quiz him with. What do most children do? They read the questions, and do not read their books. They have one-liners written on their sheets. At most, their preparation involves reading 3–4 pages. Which is awful. Our children are capable of reading into the hundreds of pages if called on to, from which they will learn not only to access and enjoy an entire body of writing, but also engage with a subject for

a long enough period of time to learn to concentrate and synthesize a "whole" picture of the material. Real engagement comes from lengthy reads, not from a hundred hyperlink jumps across the internet. But reading has to fight with technology for mind share, and technology is a monster that is hard to beat.

I am greatly in favor of tests that require full understanding of the material from reading. Giving practice tests in advance provides automatic curtailment of the subject coverage. How many students prepare by only working over past tests? Too many altogether. It should be pretty obvious that when students don't know what specifics to expect on a test, they will have to read widely and cover more material than when they are told what the boundaries are, explicitly or implicitly.

It is a vicious cycle. Unless we set standards high, reading will continue to decline, and that decline will lead to a further fall in standards. In the old days, when there was no internet, asking school students to write forced them to read first. Now it only makes them cut and paste. So, the problem has become even more difficult.

As I see it, there are four goals of reading: (a) For information, (b) for relaxation, (c) for understanding, and (d) for reflection. School children today seem to read for (a) and no other reason. Other media take care of (b), and (c) and (d) do not seem to even happen anymore. When children want to understand something, they do not turn to a book, they go to web sites. These are usually of such poor quality (from lack of editing, and the absence of economic filters) that the child fails to understand, or even worse, thinks he/she has understood when it is not so. And finally, reflection and self-awareness, which are deeply fostered with reading which is connected and grounded in active mental engagement, is now being replaced with extremist shows or sitcoms whose main purpose is to distract and remove people into an unreal world so they can run away from the stress that permeates everyday life.

So what are we to do? We must all take our children to libraries and book shops. Leave them there for hours, lead them to the water, and they will drink. But, it means being there and doing the same, which is not that hard. We are lucky to have excellent book shops and libraries. Who knows, it will also slow down our own pace of life, and overall, everyone will be better off.

2.48 Racing to Keep Up

(This was written at a time when financial engineering was booming the way AI is booming today, maybe not as fast, but certainly quite rapidly. The context here is dated, but reflects thoughts and feelings about any fast-growing paradigm.)

The field of Financial Engineering is growing at a breakneck pace. It has become impossible to keep up with every new idea that is being created by researchers, let alone practitioners, and there are many others adding to the pot of intellectualism.

I asked colleagues whether they thought this was broadly true of the field of Finance, that is, pervasive in all its subfields, or not. Most felt that the amount of high quality output is rising, but not at a breakneck pace. Likewise, this may be true of all fields in the business school.

Financial Engineering appears to be different – its growth is exponential. I serve as an editor for one of the journals that specialize in the field, and I find it hard to keep up with the stream of work. Quality is rising, and the quantity of top research emerges as a blast from a fire hose.

First, one distinct difference is that the field is fair game to people with diverse backgrounds. Many top hard scientists have left their primary fields for good, and now work solely in financial engineering. Physicists, mathematicians, computer scientists, engineers, astronomers, operations researchers, siesmologists, weather forecasters, actuarial scientists, etc., have all been drawn to the fascinating mathematical problems that permeate this area.

A second driver for this phenomenon is that a move into the area is a step up in terms of career payoff. It is also intellectual arbitrage. Physicists and others experience three satisfying aspects of this career change: (a) There is the excitement of a new, living, thriving field, with immense practical application. (b) It is easier to technically outperform most financial economists working in the field, and (c) the visceral thrill of money; it is about money and there is more money in it personally too.

Thus, if there is an explosion of work in the area, how does one keep up? After thinking much about ways to stay on top of things, there seems to be no new way to do this that comes to mind. I guess one just has to stick with the old ways, which are:

1. Keep doing research vigorously. It forces you to read the literature critically.

2. Do referee and editorial work – it pays off in keeping current, as you see all the new work.
3. Go to seminars, even though many of them may be terrible. If nothing else, you see new ways of thinking about problems, and get a sense of where one should focus one's reading.
4. Go to seminars outside your area. Or more simply, get a breath of fresh air.
5. Think though new ideas – it focuses your reading.
6. Read – it focuses your thinking.
7. Read widely – it broadens your thinking and leads to creativity.
8. Write – it forces you to read and think.

I short, even if the river flows faster, stay in it and go with the flow.

2.49 Quiz Show

Administering quizzes is like doling out medicine, no one is happy with the experience. Unless the medicine works. Even then, it does not make students happy at the time, although I must say I have come across some who have loved quizzes – kept them awake in class they said – forever grateful!

So, it's bad during the quiz. You stand around praying that they do well enough to know that they learnt something after all. Or at the very least, learnt what they did not know. Mostly, they hate you for it – no way around that, its the cross every teacher bears. The only way to generate happiness is to make the quiz really easy, which I sometimes do, shamelessly and for a good reason. Its better to make the class hard and the quiz easy, rather than the other way around. My way, students are scared into learning a lot, and then they hate the quiz experience less. The other way, they don't really learn. The beauty of it all is that if you make the class really hard, and keep saying how easy the quiz is and that they should not study for it, the less they believe you – which is fine – whatever gets everyone to engage, whatever works, whatever causes learning, go for it.

So during and after, there is pain yet light at the end of the tunnel. Before the quiz? Thats the worst. Students organize into different categories, some of which are:

(a) Worriers – there are students who get up every morning in a cold sweat, because the course is hard. They fret that they will finally fail a class.

They wonder how they are going to deal with the quiz. It usually ends up in an email which begins with the words "I am lost ..." When I get too many such emails, then I will turn into a worrier too, but it has not happened yet, so I guess things are not that bad, and this is not my Atlantis. Most "lost" students are sincere and hard-working, and are really not lost, they just need to stop worrying.

(b) Testphobes – are students that spend an inordinate amount of time trying to get you to tell them what is on the test. There are many ways in which they go about this. The one that usually works is to simply ask – "What's on the test?" – some sort of frank answer usually suffices, and then its time to prepare. But there are many other good questions like – Do I need a laptop? Do I need a calculator and a laptop? How many questions are there? Are there multiple choice type or essay type? Do we really need to know about the CAPM? (answer = yes) Will everyone finish the quiz? If I don't do well, what can I do to make it up? I know you explained it really well in class, but do I really need to know what a portfolio is? Can I learn topic X later? Is the last week of class included in detail? Is any of the extra reading important? And so on – the only antidote is avoid learning about the quiz and start learning the material...

(c) Coolios – are risk takers, and have a long history of taking tests on the fly, from which they have learnt that it only takes attentiveness in class to do reasonably well. They see the forest but not all the trees and thats okay for them. Every answer they turn in is not gold-plated, but seems to evidence a lot of learning. They are great students, they ask good questions and they balance time and payoff better than any others.

(d) Steadies – are the diligentsia, and do very well. They take the time to prepare and don't worry that they got it all (who does?). Good test takers, they are centered and not lost. Quizzes come and go, like small ripples on their equanimous bearing.

It takes all types to make up a class, and everyone has their role in keeping us teachers honest. Quizzes will remain, simply because they make us all learn, students and teachers all together.

2.50 Learning

Its the end of the Winter quarter. Tired, yet exuberant. A wonderful group of graduate and undergraduate students. This time the undergrads surprised me

immensely. They surpassed my highest expectations. Funny how it happens when you least expect it.

I think I learned more from them about myself than they did from me. Here is what I learnt:

1. I have always felt hard pressed to cover all the topics I want in a single quarter. So I decided to leave it up to the students to crash as many topics as possible in the last week by doing ten minute presentations. Which they did, in very high quality. I think this may be the solution to the "quarter system constraint."
2. I learnt that students are better at picking interesting topics than I am.
3. I learnt that you can always treat undergraduates as graduates and they will meet the moment.
4. I learnt that maybe student-run courses would work just as well as faculty-run ones.
5. I learnt that setting expectations high is the easiest way to get students to surpass your expectations.
6. I learnt that you know best what you teach, but you teach best what you love and find most interesting – so there is a huge benefit in finding that which you enjoy.
7. I learnt that it is better to learn to ask good questions, than it is to know all the answers.

2.51 Teaching Philosophy

I think it is more important to teach in a scholarly way, than to be a scholar who teaches. Teaching must imbibe critical thinking, much less the mere transmission of facts. It marks the difference between scholarly learning and information acquisition.

Teaching and research are related. I have found that teaching topics different from my area of research has led to novel research, since it gives pause for reflection on new questions. It is also easy to teach one's own research in a scholarly way. Such teaching is always emotionally charged, richer in experience, better informed, and more critical. I believe that good researchers make good scholarly teachers, and an active research program is essential to creative teaching.

I view teaching as a process of joint responsibility of teacher and students. Hence, when possible, I prefer the Socratic method over the lecture approach in the classroom. It calls for the students to take responsibility for discussion and their own learning. They need to prepare before class, and it raises questions in class, leaving many unanswered, so that thinking does not stop asked once class is over. The two-way Socratic form fosters retention of ideas, while the one-way lecture may not.

Teaching to think is more important than teaching to know. Facts change, and knowledge becomes obsolete; however, thought process is adaptable. I try very hard to make sure that my class plans are directed towards "How we should think about today's topic" versus "What is there to know about the topic." Students have responded well to this.

I try to teach the "whole" person, and have fun doing it. In the Socratic approach, you cannot avoid the student's biases, and other influences, and this is not a disadvantage. Students, via discussion, often connect the class to other courses, and one must be careful not to circumscribe the discussion by overly specifying the boundaries. Moreover, it is more fun, and the feeling of freedom the students have is its own reward.

I tell my students not to be afraid to make mistakes in class. I want them to understand that I give high grades for class participation when someone takes a risk and makes a mistake. There is tremendous learning for all from one person's misconceptions. It helps even more when they point out my mistakes.

Finally, I like to set demanding standards for the courses I teach. My courses are designed to be challenging in the level of course material and thought process. I teach to the upper portion of the class, and believe that the weaker students will work harder and improve their performance. Students rise to the expectation levels we set for them. I prefer to teach rigorously, and to foster thinking and technique. I believe this approach separates the best students from the others, while increasing the number of good students.

2.52 Trekking in class

A funny thing happened in class the other day – again.

It was one of those "special" classes I often end up teaching when I realize that many students are missing some basic training that is holding them back. I decided to teach a "software" class – which in business schools is better

titled as "All you can do with spreadsheets, but were never forced to do." This involved various things like using goal-seek and solver, matrix inversions to solve problems, web data extraction and analysis, and on and on and on. I had asked my students to bring their laptops to class if possible and to work along with me. And to make the learning concrete I revisted and solved problems we had already seen earlier in the course.

I am sure it was hard to follow along – these things are never easy. Students always find it hard to work with material that they have been exposed to in only a limited way in the past. It's not their fault, it's the way we set them up with lower expectations. We make them believe that if they have not seen something before, and the new learning is hard, then its not really "expected" of them anyway. If a topic is hard, there must be something wrong with the curriculum. Education is so easy, self-esteem is cheap.

And I made that mistake – again – the one you all know we make! I said that it was better for everyone to pay attention and really understand, and not to take notes, and that they could do so because I was not going to make them test on it. Big mistake.

For those of you who trek in the woods, there is often that moment when you hear a rustle in the bushes, and you know that a sentient being has quietly crept away. And you respect that – every living being has to exercise the right of self-determination. Now, teaching an ad-hoc class (on which no test will depend) is a little like that. There is a time in every student's life when they have to creep away. And so it was that day in class! A turn to the board, a light rustling sound, and one more student – gone! By rough estimate I lost 40% of my class that day.

I wonder how many will come back.

But, this is not a bad thing. After that point when the attrition rate slows to a crawl, and you are left with the "truly curious" folks, class is utopian. Simple joys, happy faces, eager learners. It is terrific to know that I have 60% in a class – that is a big number. I could spend hours and hours with them.

To be honest, when I was in school (from high to post-grad) I must freely admit I was in the 40% group. But I never left class, I just slept right there. And I think I learnt a lot through my drowsy haze. So, if there is any advice to give, here it is: do not check out, just take a nap.

I love class, like a trek in the woods.

2.53 Business School Tango

It happens again – and again – you set a hard quiz, and suddenly, you are the villain. This is reality for teachers today in business schools across America. The malaise is spreading, and spreading fast. Business schools are fast receding into being rubber-stamping operations, and finding rigor in our academic environments is like searching for a needle in a haystack. Yes, the inmates are running the asylum.

Unless we reassess where our business education is going, we will recede into irrelevance. While business becomes more and more technical, business schools become softer. Technology use is growing, but only to emphasize form over substance. The more ethics we teach, the less ethical the environment becomes. Students care only about grades, very little about learning.

Business schools are a particular problem, though there are other departments that come close. A colleague once made an incisive observation – "We need to stop treating students as customers, and treat them as products." I believe that thinking is spot on – and it will surely help in producing better students.

Teaching ratings lead to distorted incentives – faculty try to keep students happy to buttress their ratings. This only lowers standards, which have been dropping steadily over time. Powerpoint is the drug that students crave – hand out some slides, and keep those withdrawal symptoms away (see Edward Tufte's article: http://www.wired.com/wired/archive/11.09/ppt2.html). It is only in business schools that students keep telling faculty how to teach. I never experienced this even once in engineering school, and I am absolutely sure that residents dont keep advising surgeons how to perform operations.

But of course, we are not surgeons, and we are not saving lives. That is just the point. The future lies with us business school faculty – we should be taking our jobs more seriously, and our work is as important, if not more important, as any other professional course. We have to become more rigorous, and create an environment in which we raise standards to engage the best students in class, not keep the complaining ones happy. For it is those hard-working sincere students that are the future of our business schools – I see so many of them in class every week, and it is they that keep me going, despite the other frustrations. I write this out of respect and gratitude to you – my sincere students.

2.54 The real benefit of tenure

Receiving tenure can be truly exhilarating. Many of my newly tenured colleagues are profoundly happy with their newfound status. There are many too, who decry the benefits of tenure, and suggest that it was a huge anticlimax, or that too many others obtained tenure, when in truth, they did not deserve it. But by and large, people seem to find it a happy state to be in.

Whereas tenure seems to come with a general sense of well being, the underlying reason for this satisfaction seems to vary a lot. Some are happy to be able to be simply done with the tension of "making it." There is a sense of relief that this phase of their lives is done with.

There is also the good feeling that comes from not having to worry about losing one's job. It enables one to plan ahead, and do it with low risk. There is the calming influence of being able to pace oneself nicely.

Many academics (unnecessarily I might add) put their lives on hold until tenure arrives, and gain a new found freedom from these shackles of their own making. Why anyone would choose to suppress needs in a monomaniacal rush towards the "grail" beats me, but it is too widely spread a phenomenon to discard it as irrational. But freedom is freedom, and release from a prison of ones own making is still a release.

Too many academics savor the fact that this achievement comes with the benefit of not having to work hard again ever. While it is hard to suppress this conclusion, taking it too seriously can be quite dangerous. The real benefit of academia comes not from not working but from intellectual pursuit.

This is the only reason for tenure, and should be emphasized more. Intellectual pursuit is the only "holy grail" in my opinion, and tenure makes it riskless and unfettered. Still, it is sad that many, if not most academics, behave post-tenure in a manner suggesting unawareness of this, the only real reason for tenure. Indeed, they are off taking unfettered risks in any area but academics. I have no problem with folks that decide they have paid their dues and while continuing to publish research, also decide to allocate some of their time to the pursuit of wealth or leisure.

But to continue to be risk-averse in academic pursuit, while risk seeking in other aspects of life seems to be a huge waste of the true benefits of tenure. Still too many academics look back and say tenure was no big deal. They just don't get it. If only they looked ahead, they would cherish and exploit

the great benefit of true intellectual freedom they have been given.

2.55 Education for the "Masses"

As universities adopt a "portfolio" approach to admissions, I fret that real talent will be left by the wayside. The ability to detect true genius is orthogonal to the portfolio admissions system, for a person with great talent in a single, unfunded area would never make an admissions cut. We will admit more of the "above average" kids of the world and fewer of the truly gifted.

However, it is also undeniable that the portfolio approach de-emphasizes in-depth test-taking ability, and this is a good thing. A range of talent is often missed in monoline tests. What we really need is a set of "general" yet "non-standard" tests – though this may be very hard to implement. The problem today is that kids spend way too much of their lives taking classes to prepare them for tests, or doing parentally imposed "portfolio" activities. Children are being robbed of their childhoods.

But mostly, the portfolio approach biases admissions in favor of kids of privilige. Poorer families just do not have the time and resources to enable their children to build a reasonable portfolio.

A "lexicographic" admissions approach might be better than the "average" portfolio one. Children should make it on a few cuts, and the ability to sort kids is not distorted with the lexicographic model. Maybe its time for campuses to give this a try. As long as kids know they need to do a few things well, parents will relax, and the "arms race" in portfolio building might cease.

3 Life

"Life happens when you're busy making other plans."[19]

3.1 Future Thinking with AI

(I wrote this well before the Generative AI revolution took place, in response to an email asking for contributions about where the future was heaed – I

[19]This quote has been attributed to John Lennon, though it is not clear if he actually said it. See: https://www.snopes.com/fact-check/john-lennon-life-happens-quote

think this was from the Future of Life Institute, though I may be mistaken.)

AI will enhance search to create interactive reasoning and analytical systems. Search engines today do not know "why" we want some information and hence cannot reason about it. They also do not interact with us to help with analysis. An AI system that collects information based on knowing why it is needed and then asks more questions to refine its search would be clearly available well before 2030. These "search-thinking-bots" will also write up analyses based on parameters elicited from the conversation, and imbue these analyses with different political (left/right) and linguistic (aggressive/mild) slants, chosen by the human, using advances in language generation, which are already well underway. These "intellectual" agents will become companions, helping us make sense of our information overload. I often collect files of material on my cloud drive that I found interesting or needed to read later, and these agents would be able to summarize and engage me in a discussion of these materials, very much like an intellectual companion. It is unclear to me if I would need just one such agent, though it seems likely that different agents with diverse personalities may be more interesting! As always, we should worry what the availability of such agents might mean for normal human social interaction, but I can also see many advantages in freeing up time for socializing with other humans as well as enriched interactions, based on knowledge and science, assisted by our new intellectual companions.

Database technology as we know it will cease to exist. Modern protocols will automatically keep and tag data irrespective of which cloud it resides on. We will be able to obtain a view of all our data as all storage and devices will be linked. SQL and NoSQL databases will long be extinct. Instead, some modern version of knowledge graphs will be implemented. These new "information structures" will replace geo-spatial-temporal relationships with relationships based on concepts and context. Legal frameworks will adapt to allow our data to be fully owned by us. Everything will be homomorphically encrypted with new mathematical algorithms, allowing us to reveal different views of our data to specific entities, in the same way as we compartmentalize non-digital human interaction today.

Technological revolutions improve the world not because they offer cool new toys but because they improve lives with the better use of information. The distribution of means (broadly defined as wealth) is strongly affected by the distribution of knowledge and the use of information and AR/VR systems will become widespread, leveling the knowledge playing field. While the

distribution of means has become wider (i.e., the proliferation of inequality of means/wealth), it is clear that the entire distribution has also shifted to the right. I think of this as Phase 1. Eventually, Phase 2 will see greater equality in the distribution of knowledge, followed by greater equality in the distribution of means. The risk to this view lies in political systems and thought not evolving quickly enough. These systems implement control through inequalities in knowledge, which lead to inequalities in wealth. Advances in technology unaccompanied by enlightened politics may delay progress and create turmoil in the short run. It may take a mutiny by a tech elite to move things forward in the right direction. The tech elite will have the knowledge and the means to do so. The question is, will they have the will? Or will they go rogue, favoring their own interests versus that of humanity? I am optimistic that they will do the right thing, but it will take time. The future is bright, but the path is not clear. It is up to us to make it so.

3.2 The Less You Know

The more you learn, the less you know.

What? How can this be? Some sort of weird paradox? No – the more you learn, the vastness of what you do not know becomes more apparent, and hence, you become increasingly aware of how little you know. The ignorant are unusually blessed for they know not what they do not know.

I think it is true to say that knowing what you don't know is even more important than what you know. So many mishaps have occurred because we assumed we knew, when we deep down we knew we didn't. We should not make a virtue of trusting in our ignorance. Instead, admit that we don't know, because it is the first step in knowing deeply.

Half-knowing is just as bad. But not knowing and assuming that it's okay is worse. I'd feel much safer with a doctor who would tell me he did not know what was wrong with me than with one who said he did when he didn't. Or a lawyer for that matter who gave me false hope or advice. Because in the end, the truth is most important, and someone who leads you on as if he/she knows pushes the truth further away, and in some cases, such as medicine, it can be quite dangerous.

Admitting one's ignorance to one's self is very hard, and often our egos won't allow it. But letting in the admission is winning the battle. It marks the beginning of the learning process. Sometimes you have to learn it the hard

way. I remember the first few months of my graduate education at Berkeley when I was studying computer science. I was the only one in class with no background in engineering or computers, so was pretty lost in those early weeks. I was floundering and not sure what to do as jargon and terminology, as well as math, kept whizzing by. Having had plenty of experience with continuous math, I found discrete math hard, but failed to admit it, so I just assumed I should know, and that I did know. Yet, I didn't and nothing would change the facts. I was stuck and not learning.

In the end my frustration got me to admit to myself that I did not know (a lot). I began to carry a little notebook around to jot down every word and concept that I had no clue about and that I needed to know. I would return to my cubicle after class and then question whoever was around in the grad student room to tell me about the new unknowns in my notebook. This little book was my confession of how little I knew. It was also my salvation. I went home every day enlightened by answers to the ever-growing list in the little notebook. It became the symbol of my salvation, my new found knowledge. I began to feel good about how little I knew, because it was gratification wrapped up in humility. The less I realized I knew, the happier I became.

Make a list of stuff you don't know[20]—it is your gateway to knowledge. Of course, it is impossible to make an exhaustive list, it would take forever. So make a list of things you do not know, and are interested in. Keep it short. Even if there is just one thing on that list but you spend time to get to know it well, it will be exhilarating.

3.3 Framing

I love spending time looking at art in museums or galleries. It's like a big buffet and you can consume more of what you like, and sample some of the other offerings. And just like a good meal, I am satiated, tired, and happy at the end of the indulgence. Mentally and emotionally, that is. And to add to that, walking around mindfully in a museum is enervating and generates "flow." I am sure many of you have had similar experiences.

I was with a friend recently at the DeYoung museum who commented on the excessive ornateness of the frames on the art, which distracted and detracted from the beauty of the painting itself. And it struck me, literally and figuratively, how much framing matters.

[20] See https://mdswanson.com/blog/2011/12/04/whats-on-your-learning-list.html

We exhort ourselves to never judge people by their looks, or a book by it's cover, but at the end of the day, we succumb to framing. Advertisers have been exploiting our shallow judgment heuristics for years.

So, when given a choice to frame something like a great work of art in good light, why do we choose bad framing? One can understand the opposite, where framing can be used to improve a poor impression, but adverse framing is harder to reconcile.

Really good art should have no frame, just like a truly beautiful woman needs no make up. And closer to my own field, a truly original idea does not need to be dressed up in an excessive number of mathematical equations. And yet, so many beautiful women overdo their face packs, and research papers are written in trappings that obfuscate and confuse, rather than make us more knowledgeable. Why?

At some level we are all insecure, because we do not really know that we are already worth a lot just as we are. Thus we err by overdoing our framing. We end up not enhancing but cluttering. Like a house with too much furniture or art on the walls that feels less like home and hard to live in, we become uncomfortable in our trappings, and deny the pureness of our own skin and being. This only makes us more insecure and perpetuates the excess framing cycle.

Or, we play the frame game. Signaling becomes the goal of framing. Form over substance. It is why we need to wear an expensive business suit to meet a client, to show we are serious and the client is important. That in itself is not a bad thing, but the client really begins to believe we are more qualified than someone who could not afford the same expensive suit. The converse is worse. When we do not wear the expensive suit even when we are better qualified, that we are downgraded, to everyone's detriment. Framing to signal is deep-rooted in nature. Birds with better plumes attract better mates. It's a time-tested outcome of Darwinian evolution. It's when we try to do more than nature prescribes that we make a mess of things. And when we do it collectively, kowtowing to the exaggerated norms of society, we make things even worse!

We are a strange collection of paradoxes. When we are supposed to be more creative, as in the art realm, we end up conforming more. Art is heavily framed because that's the way it's done. No ifs or buts. Casual Fridays exist, but not casual Wednesdays, which I think would be much nicer! But the former has a frame of previewing the weekend.

So it's acceptable. Yes, I know I am exaggerating a bit. Frames can be utilitarian. They protect art. Our clothes are frames, to protect our sensibilities.

This is what nature intended. But we are cursed to be fooled by frames, and also to indulge in bad framing. Maybe that's also what nature intended?

3.4 Asynchronicity

The world is becoming ever more asynchronous. We do many things together, but this has become increasingly likely to be done at arms length. Face to face meetings have become less likely. Even worse, instead of talking on the phone, an email often suffices. Everything has become asynchronous. Truth be told, we probably like it this way!

There are examples everywhere. Instead of playing cards by sitting around a table, we now play internet poker. The same is true of chess, which is not only online but asynchronous, yours truly being a shining example of succumbing to this phenomenon. Instead of the phone, we send emails. Even TV watching, which used to be a joint family past time is now relegated to individual laptops in separate rooms. Instead of the entire nation watching a TV program at the same time, DVR technology has ensured that we all watch it on our own time. Even sports is watched with time delay in so many locations.

But making it convenient to consume entertainment has made it inconvenient for us to spend time together. We are all running to complete the ingestion of content, leaving little time for blank moments when we might spontaneously interact with each other. Is there no way out of this mess?

Here are some ways to fight this, for in this case the trend is not your friend.

1. Consume less media. Most media consumption is now asynchronous and done independently of others. We do not watch the news together, not even sports. So just consume less of it. That goes directly to curtailing asynchronous consumption of media. Watch as much live as possible, with someone else. News and sports are ideally suited to this approach.
2. Stop using recordings. It isn't that hard. Just get rid of the DVR. Reduce time spent on streaming services. This will also help in reducing the vast amounts of time spent on TV. It will help you do just one

thing at a time. I began taking my phone along on a walk to listen to podcasts, and as a result stopped looking around and enjoying nature. I just missed out on the peaceful quiet on my night walks, and I did not realize how much I had enjoyed it till I stopped taking the phone with me.

3. Switch off all cell phones, computers, and singular distractions after some specific time each evening. This really works. My reading went up three-fold once I took this step. And my sleep was much better. There is plenty of evidence that imperceptibly flickering screens can mess up sleep for several hours. After switching off screens, I was not sleeping much more, but my sleep was of much better quality.
4. Produce something every day in place of consumption. Instead of only reading, write something, and I do not mean emails. Responding to emails is not "producing" anything, and it does not bring deep satisfaction. But writing, even something trivial like a blog post, feels really good.
5. Play team sports, and I don't mean MMPOGs (massive multi player online games). Getting exercise this way is much better than the isolating act of going to the gym and pounding a treadmill alone. There is so much more stimulation getting exercise in groups. Even just hiking can be so much more than just an exercise in exercise. Do things with your hands where community is required, for example gardening clubs.
6. Join a few meetup groups. Meetups are cool, new phenomena where interest groups organize get-togethers using web technology. The meetings are in person and synchronous.

Synchronicity is about community, and community is very important. However, we seem to be slipping into a world of asynchronicity. The good news is that this problem is beatable, one person at a time. As everyone, one by one, starts engaging in synchronous activity, we unwind asychronicity rapidly, because when people do things together, a network builds rapidly, and network effects rebuild synchronicity.

3.5 Wracker

I love writing and I also love programming, but I am not very good at either. I'd say my skill level is fair. But who says one must be good at the things

you love?

As one grows older, you experiences a growing unease, a loss of anchoring that makes for deep dissatisfaction. Having passed the usual thresholds of ambition and need, happiness comes not from being good at things, or better than others, but from doing what you love.

This simple realization came to me as I was taking a walk down Broadway in New York. My alter ego tapped me on the shoulder and asked why I did not indulge in writing and hacking? And the truth is, I don't know. The truth is, I love writing and hacking, but have been distracted with stuff like Internet, TV, work. So maybe I need to be a "wracker" — someone who writes and hacks!

It's an act of pure creation, unlike TV, Internet, and some sorts of work that are, in essence, mere consumption. So it seems, real satisfaction in life comes from producing cool new things, not just from consuming. But economics does not acknowledge this secret! That a large part of utility comes from the opposite of what goes into the mere consumption of things.

It's easy to be a wracker nowadays since the internet makes both pursuits available easily, in the form of a blog. It's like being able to be a short-order cook. So I would like to write my blog more often, but I also enjoy posting annotated program code that I develop and post to my open course websites for others to use.[21] I guess Medium figured this out already.

It's a subtle thing, and a fine balance, but when production displaces pure consumption, that's when we have true satisfaction.

3.6 Saving Time

Just a month ago I made a failed attempt to get to New York for Valentine's Day. You see, my then wife lived in NY and I was hoping to be there for V day. But instead of reaching there Tuesday evening, it snowed and snowed, and eventually the airlines told me that I could only get there on Friday evening at the earliest. Since I was to return Monday morning, I decided to abort the trip altogether as there was no guarantee that flights would work okay. This, after being rebooked and canceled four times. When you are not meant to go, you ain't gonna go!

So I stayed in California, and had five days clear with no appointments.

[21] See for example: https://srdas.github.io/NLPBook/intro.html

And I got more work done in that time than any recent time I can remember. I really needed those blocks of time, and it had been impossible for me to get those built into my schedule. Except when the weather came to my rescue!

Lesson: Save time just as you would save money. Save it for a rainy day. When it's there it gets put to good use. Having a stash of free time is important.

In many ways I feel quite stupid for having missed this simple strategy for years. I am quite adept at saving money but I was hopeless at saving time. With this realization I hope to be better (brave words, for discipline is not my strong suit).

Where was I going wrong? I let too many people take my time because I did not place a high value on it. When someone would ask to talk to me I would just check my calendar and if the time slot was free I would happily schedule a meeting, not once stopping to think if it was a good use of time. The cost is only apparent later, when you need the time and it isn't there. It's just like spending money willy-nilly and not saving for a rainy day.

Going forward I hope to be saving time aggressively. I have been doing it for a while, and things are much better. I have breathing room, and I feel less pressured (less is a relative term, of course). I am also saving others from wasting their time. If everyone saved time aggressively, there would be so much time left for important things.

So schedule less, talk less, do a few things and do them well. Keep it simple. There is plenty of time for that. Time is money or not, but save both, for they are simple, excellent habits.

3.7 xPhone

Everyone remembers the Matrix movie where the phone is one's connection into the grid and you can hyper-transport to anywhere you want to go. It seems great till you realize that the phone is why the grid has its tentacles into you all the time. The iPhone (or Android, etc.) is the umbilical cord that has insidiously eaten away your freedom. Brothers and Sisters, Big and Small, are always watching. How horrible is that?

It gets worse. The cell phone will drive us all to distraction. Of course, driving distracted with a phone is a leading vehicular problem, but more than that, the phone disrupts your life tremendously, and not just when driving. The cell phone is the leading cause of interruption in one's daily routine. Why

do we allow it to be so? If a person interrupted you ever so often while you were reading, talking or just trying to get things done, you would consider it rude. Yet we are infinitely forgiving of this inanimate object, showering it with gratitude for making a mess of our day!

The segment of the population most impacted are teens to young adults, who have been raised in part by a cell phone. They spend more time interacting with it than with humans, books, or nature. Being raised on a steady diet of information driblets, much of it vacuous talk, is the most unhealthy foundation on which to grow one's mind.

Like a parasite that is destroying young minds, it sucks away useful time and destroys concentration. My casual empiricism suggests that even if there are two five-minute calls each hour, each of which lead to a further loss of five minutes each in terms of interruption of some other tasks, we lose one-third of our waking hours to this scourge. For students, in terms of study time and quality of life, this is a humungous cost. In terms of mental development, the long term costs are catastrophic.

A study[22] in the journal *Learning and Individual Differences* showed that one additional hour of phone use per day lowered current term GPA by 0.152 points on average. So it's possible for a student with a 4.0 GPA to fall off in their GPA. It's become that easy to depreciate an A-student to a B-level one.

Interruptions from a cell phone not only impacts the receiver's performance, but it also distracts others and affects them negatively too. It's become as bad as second-hand smoking! Maybe even worse, because while the number of smokers is declining, the number of young cell-phone addicts is climbing exponentially.

The parallels with smoking hardly end there. Have you noticed how funny it is that the orbital region of 20 feet from the entrance to a building is mostly populated by smokers or cell phone users? Sometimes the poor victim has succumbed to both scourges. Have you noticed that the way people walk when smoking or cell-phoning seems strangely similar? Self-absorption with a glazed-over look. Blissfully and self-importantly unaware of impending doom. The only problem is that we have not yet invented a "patch" for cell phone quitters.

Cell phones are of course lawful. There is no legal age before one can get a cell phone. I'd like to propose disallowing it for anyone below the age of 16

[22] https://www.sciencedirect.com/science/article/pii/S1041608021000728

(or older?). It would save an entire generation from academic deterioration and lay the groundwork for a better society. My advice to all you college undergrads is this: make the cell phone the "xPhone."

3.8 Writing to decide on writing

Is it possible that something unfounded in reality be greater lived than that which is grounded in fact? Can the unreal live longer than the real? Paradoxically, this is true more than most.

Fiction has greater shelf-life than non-fiction most of the time. Classic novels are timeless, whereas an analysis of the current election, or the past one, wanes in interest quite rapidly. Books about economic crises, climatic catastrophe, trends in food and diet, the status of healthcare, are all written to satisfy very current thirsts for information. They are certainly not meant to be appetizing reading for generations. But, novels about the human condition, romance, crime, hate, sweeping histories, evolution, etc., live on forever. Interestingly, religious books last longer and remain rigid in their message, long after the underlying norms and extant practices bear no relation to those of our forefathers.

So, if you want to write a book, what should be your driving objective? Do you want to make a fast buck, capitalizing on the mass whim of the day? Or, do you want to write for generations to come, with no thought of egregious remuneration. Maybe both? Just having completed a manuscript for a text book, and feeling weary but ready to embark on another, these polarized thoughts have been populating my thinking, asking aggressively for resolution. So, the question is: Write another text, for which I have plenty of material, or leap into the unknown, and write a non-technical book for the lay person, about a phenomenon that is both timely, yet has been with us through the ages and will no doubt, always be?

Do not wait with bated breath for me to describe further my alternate paths, dear reader, for I intend not to do so. I apologize if I whet your appetite and then rudely yanked the serving dish away. But I am afraid that being too specific will lead me to the wrong choice. So bear with me, for I prefer to discuss the choice in the abstract for as long as is tolerable. I guess this debate with myself in the abstract may be more useful than one can imagine, since abstraction usually leads to generality, meaning that this little discussion we are having may apply to more than just the question facing me,

but to many others that several readers may have too.

Should I write about what I know (a text), or get to know something new as I write (a new book for everyone)?

There are many advantages to the former. Its easier to write, for I have the material at hand already. I have done it before, and can bring experience to bear. There may be a bigger and ready-made market for a text, certainly one of baseline proportions that one can expect with some degree of certainty. There is context, and hence structuring the material will be easy. The content has already been road-tested in my classes, and the effort will pay off as I use the book to teach more classes. Finally, it will probably get done quicker, and will certainly be more career relevant, though who cares about that any more?! Its certainly the path well-trod, and one that I know well.

But what about the other path, a wander into the uncertain? Should not that be given play? Its certainly the less boring path to take. And it will probably outlive the shelf-life of the text, that is, if it survives its infancy. It also comes pre-packaged with freedom, since there is nothing to tie one down after such a book is written. No revisions, no return on investment, no guilt about not teaching it, just because one wrote it! I would place even odds on being satiated with the material upon completion of the text, so that just when it begins to pay off, one does not want to engage with it anymore. My Book for Everyone (BFE) would certainly not bring with it the Curse of Completion, instead, it would enjoin me to move on, and find something new and exciting. There is something exciting about such a literary one night stand!

The Book for Everyone would be mostly also, the Book for Me. No paradigms to adhere to, no structure to obey, or buck. So much to learn, and so much to contribute, timeless, unique and fresh in ideas and perspective. With the Text, I would be content to write what I know, but with the BFE, I'd need to talk to those more in the know, learn about new ideas and trace their history. It would be the most exciting journey and would derail the mid-life crisis I have been in denial from over the past few years. No one said it better than Robert Frost – "Two roads diverged in a wood, and I...I took the one less traveled by, and that has made all the difference."

But, while it seems so clear, I am not yet ready to decide. These decisions are not about excitement alone. They depend also on personal taste, life's exigencies, ego needs, writing history and ability, and of course, a sharp trade-off between the need for exposition and the need to satisfy one's curiosity. So,

wait and see, there's a book somewhere in the future, near or far. Which one will it be? I don't know and to help me decide, I go round and round writing about writing. I am in a "strange loop", as coined by Douglas Hofstadter in his new book. There is this sort of meta phenomenon going on where to begin writing, I first need to write about writing. As I loop, the centrifugal force will drive me out of the loop, and launch me into one or the other project. And I am using this writing to manage my impatience.

3.9 Teenage Lessons

I have long been disabused of making New Year's resolutions, yet I have not stopped experimenting in other ways in which to make life more interesting. I recently decided to try living my life in the manner of my teenage son. What does this entail? Simply put, my generation grew up with the simple attitude that we should be responsible, and take care of work. On the other hand, my son's generation thinks that they should be responsible and take care of play. I am beginning to see the subtle wisdom in this.

Over the past week, I decided to plan a few things to do, keeping items that did not have immediate deadlines strictly off the list. Then I decided that I would finish these things off very quickly so as to make sure the more important "play time" could be accessed as soon as possible. I have been getting my day's work done in about half the time it usually would have taken me. And I am greatly enjoying my "hard-earned" play time. In short, by not finishing one job, and then feeling guilty and finding another one and so on, thereby immersing myself in work all day, I am getting things done, and then stepping away from the computer and enjoying quality time reading and writing in a manner that is more focused and far less frenetic than skipping from one time window to another, in a mad rush to chase down all the "interesting" things that one can do when one is tethered to a device that is tethered to a connection technology of some sort. And more than that, I am also being able to get outside a lot more, and enjoy the beautiful outdoors with a great sense of satisfaction of having put my day's work behind me. More than that, the stuff that is urgent and needs to be done gets done, and I don't revisit and waste time on it making cosmetic changes and corrections. Anyway, what did I learn? Lets see if I can make more sense of these lessons than the stream of consciousness you just read.

1. Make a do-able list, stick to it, and when done, stay away from work

very strictly. Don't bother with it at all, and go about doing something else that is not "work." Of course, the other way is to only get to work at the end of the day, and then you have already limited the time for it. This is the teenage approach and I am using it – and yes, it works quite well, I am pleased to admit.

2. It helps to walk away from the computer. I am a pack rat and when I read a magazine and want to look something up that strikes me as I read I would usually go to the computer and make a note of something there, or look up the item being referred to in the magazine. I don't do this anymore. I just dog ear the page in the magazine and then keep it on the desk for when I am next going to be on the computer. Which is probably the next day. Just so you know, teenagers don't even really bother with email. They know its inefficient. Now, some time after this writing, I am reading magazines on the computer and have to work hard not to click on links that take me away from the article I am reading. I am trying to read the article in its entirety before clicking on any links, and then only if I really need to. This is new effort, but I am getting there.
3. By staying away from work you are also staying away from email (disable all related notifications). Email is fast becoming the greatest time sink of most working people. Just yesterday, the Chronicle released a study where employers were all commenting on the amount of time being wasted in trivial email tasks and various protocols have been suggested to people so as to avoid clutter in in-boxes, for example, we should not copy people more than absolutely necessary. Teenagers do not copy people – I notice they usually send messages to one person only most of the time.
4. Read and delete stuff, and only respond to the absolutely essential. When responding, keep it to two to three lines maximum. A teenager would not go more than a line.
5. Make email the last thing you do in the time set aside for work. Once you have done your chosen work tasks, you are ready to play, so opening email then will force you to be efficient with it, because it's what's standing between you and the good times. Teenagers don't even make email something that needs to get done. I rarely get a response from a teen on emails that I send. There's a reason that email arrangements for my son's scout troop are sent to parents and not the kids.

6. Texting, phoning, and instant messaging are all more efficient than email. Yes, this is true. Teens already know this. I find it incredibly efficient now that I am getting away from email. The big advantage of email is that it is totally asynchronous, whereas all the others are completely or somewhat synchronous. However, this is also email's major source of inefficiency, it rewards delay and lack of brevity, both of which teens have eliminated already.
7. Time away from the computer is time that gets used thinking better. I find that since I am now spending at least 2/3 of my day not working, much of it goes into thinking, some of that about the next day's work. I find that I am much better "prepped" to get my planned work done the following day, as I have run it through my mind many times, turning it round and round, so that when I sit down to write, it flows smoothly, and takes half the time it normally would otherwise. This was an epiphany to me when I saw what was happening. (This blog post has been running in my head for a week now so much so that it took very little time to write out just now.) Teens seem to know this already, and they talk through things a lot more before getting down to work them out – it seems to really work well. Of course playing several hours of video games must definitely keep help in background processing all those important tasks for the following day! (Thats a joke.)
8. I have learnt that trying to organize all the information that we get (and I do try very hard to do so) is a waste of time. I spend a lot of time filing things into folders, keeping PDFs and so on, and really, this is unnecessary. When needed these things may be accessed. My generation spends so much time organizing things that the time left for processing information is too low. Teenagers on the other hand, just don't bother, they process what they need and let the rest go, relieving themselves of lots of overhead, keeping their minds clear for information analysis and not organization. Better to carry a few things in one's head than use one's head to store many things best left on a hard drive. Just ignore much of what flows across one's computer, it surely improves the signal to noise ratio of what we digest. Otherwise, information overload will become the cancer of our minds. The great secret of mastering digital media is letting go.

I am also learning to enjoy both, consuming digital media, as well as generating my own content. There always needs to be a good balance between

consumption and production of content, preferably more to the latter. But to dissipate some of those activities toward organization is wasteful. Keep that to a bare minimum and you will see what our teenagers already seem to know only too well.

3.10 Email Intrusions

There is this latent pressure that every email deserves a response. This idea persists in the minds of senders and receivers of email. Why this should be so for solicitous email has me baffled. And I dont mean spam – solicitous email is not mass-mailed.

Is this also the case for snail mail? When we send someone a letter, do we unreasonably expect a guaranteed response? I am sure this is not so. Even when we write to family and close friends, we would love to get a nice letter back, but are not greatly offended when none transpires, nor do we really feel guilty about not replying. So then why have we developed this strange guilt that drives us to respond to all mail, even if just to say "thanks"?

I get a lot of email where someone tries to get me to do something I am not really interested in based on the recommendation of someone who knows me. Does such email deserve a response? I am very often guilted into responding because of the one-removed personal connection that has been invoked through the connection with the recommending friend – the "personal" hook.

Many times we respond because its Pavlovian. We are so used to reading and replying as if they are one and the same thing. With snail mail these two functions were never melded together into the same neurological response. But with email, we are progressively trained to do so. As the number of messages arriving rises with time (as all of us know it does), the urge to respond reaches a suffocating crescendo, and we just end up committing to something we would never have agreed to when faced with the calmer reading of a written letter. No other activity I can think of lulls us into a feeling of being productive while wasting time than replying to email. And the number of people trying to help you stay far away from what you really want to do appears to be growing.

Solicitous email is like the vicious dog that latches on to your ankle and does not let go until you do what it demands. Even when you possess that will power needed to put unresponded emails aside and get back to other

things, you will eventually re-open email, only to be instantly reminded of all those emails you failed to deal with the first time around. Like ghosts of minutes ago, they rear their ugly heads, demanding your mind share like a petulant child in a tumult of tantrums. No wonder it evokes a response very different from snail mail. which when put aside, doesnt actively intrude, unless you remind yourself of it.

I have written in the past about how the only solution is benign neglect of email by reducing the frequency of attention to less than once a day. But that does not change the fact that solicitous email remains in one's inbox and taunts you repeatedly. It will have its pound of flesh, no matter what. Here are some ideas for dealing with the problem.

1. If you dont want to respond immediately or ever, and dont have to (this should cover more than 3/4 of the email I get), then move the solicitous email out of the Inbox. I usually forward the email to another email account that I check only very infrequently. You can use a folder also. I'd name it "black hole". Seems appropriate. You can even move it to a folder called "Urgent" – trust me, it will feel less urgent than the Inbox.
2. I get more than my fair share of "please help" emails. I have been burned trying to help too many times. One feels bad and guilty, despite knowing full well that you cannot do anything. Yet, I end up trying, thus wasting other people's time in the process, and only prolonging the time it takes to respond in the negative, usually hours later and after many back-and-forth emails. Barring the rare exception, such emails are best euthanized.
3. Remember that solicitous emails are often misdirected based on hearsay that you are the "one" most knowledgeable about the subject. Should you even reply explaining that you are a misfit, and completely unfit for the request? Probably not. Half the time when I write explaining a negative reply, I get another message in return completely changing the request to account for the reason for not engaging in the requested activity. So its best to lie low. Any response sets off a chain reaction that then eats up much more time than we can ever forecast. The best response is not "no" – it is no response.
4. But sometimes one should not just ignore messages, especially when you are aware that a non-response will be interpreted by the sender as a failure of transmission, resulting in new deluge of messages that

you already deemed fit to expunge. Therefore, one might want to acknowledge the message in a non-committal manner. Then, ignore the repeat or follow-up requests.

Unsolicited email is like someone walking into your house to ask you for a favor without bothering to knock first. I believe the best response is not to lock one's house, but to refuse to engage in dialogue and evict the intruder.

3.11 Complaining for Control

I have an incredible set of students this term – not one has complained about anything, its remarkable. Especially given the fact that the course is untried, untested, and certainly not smooth sailing. Most faculty can safely say that this is a rare event. By standards of academe, this is an even rarer event – we academics complain more than most!

This leads one to think about why people complain at all. This class has certainly not done so, and I do not see them any worse for it. But maybe we need to stop and define "complaint": A complaint is an explicit expression of dissatisfaction, justified or not, with or without the hope of some benefit. Granted, many times complaints are justified, but I wonder if they are always the best means to an end. My students chose to participate in improving the new course and counteracted deficiencies by means of constructive suggestions, rather than complaints.

It looks like in all situations, when things need improvement, we stand at this fork in the road: to complain or not to complain, to seek constructive thought or not, these are the choices. People opt for complaint when they feel they have no control over the situation, and of course, the act of complaining offers a vestige of control, or the illusion of it. People who are in control or comfortable with their situation, no matter how hopeless, feel no need to complain, and try to find some channel for improvement. Actively seeking control only serves to relinquish it; letting go in fact leaves one more in control. Just the zen of it I guess.

It is precisely for this reason that organizations provide complaint boxes, or in our case, teacher feedback forms. By providing the illusion of control, organizations in fact retain it. A grieved person feels in control when stuffing an inert box (vigorously no doubt), or blackening circles on a scantron form. What if these outlets did not exist? Feedback would have to be more personal,

direct, and I believe, more constructive. We need fewer outlet valves, and more channels of straightforward communication.

People complain when out of control because it psychologically places the blame for missing equanimity elsewhere (this is not to say that the fault is theirs). It is a perfectly natural defense mechanism, but certainly not a source of solutions (which constructive criticism potentially is). In hard courses, students complain about teachers. Faculty complain about Deans. Faculty complain about students. Faculty complain about information technology, about editors and referees. Its just awful – faculty complain a lot – we have too much time for this. Instead we just need to do our best, enjoy what we do, and stop complaining about what others do and don't do.

Okay, so maybe you don't complain much yourself, but are surrounded by people who do. What is the solution? Complain about them? No. Ignore them? No. Then what? I don't think I know a good answer, but here are some ideas to stem the complaint scourge.

First, try not to complain yourself. Try to remember that for every complaint, there is a constructive idea out there as well. If there is one thing I learnt from my recent class, this lesson is it. Just because others complain does not mean you have to.

Second, try to remember that complaints feed on themselves. Never respond to a complaint with another one. Escalating complaining is a group-think recipe for a total loss of control. So, ignoring complaints may be good after all, but then it may lead to a repeat complaint, more vigorous and more out of control. Responding constructively ignores the complaint in a positive manner. Redirection of the complainant's energy into a solution trumps simply absorbing or deflecting it. Even in cases of blatant complaining, it is not that hard to see the little constructive element in it. Treat every complaint as a useful suggestion.

Third, pre-empt complaints by conscribing the environment to minimize their occurrence. This does not mean creating the perfect environment in which there is no cause for complaint, that is simply a pipe dream. But suggesting that complaints are not welcome is a good starting point. Make it clear that valuable criticism (constructive) is okay, but destructive criticism (complaint) is not. Do away with complaint boxes. Complaining is really a supply side problem!

Fourth, if complaints arise from an illusion of control, then removing the need for control cuts off complaints at the spigot. If we all individually

realize that we are not the center of the universe, then complaints would diminish drastically. Ego and complaint are happy bedfellows. Do your bit by exercising personal humility, irrespective of others.

Finally, get a sense of humor, and supersize that to get a life. Funny people don't complain too much, at least the ones I know! They are too busy having fun, and relinquishing control, they have no need for complaints. If you can laugh at yourself, trust me, you will have no need to complain about others.

People who complain spend a lot of time telling others what to do, and end up not learning from them. Lucky me, I got a class that taught me this lesson about life. I hope I really did learn something, well, I am sure I did – I had good teachers. Here's to having much fun again.

3.12 Is the Pen mightier than the Keyboard?

Resistance to change is universal. Stability is an integral part of self. Yet adaptability is just as important in a changing world. Hence, a flexible and evolving self has become the personal paradigm of the modern world. Nothing epitomizes the conflict between the old and the new as much as the question: Is the pen mightier than the keyboard?

It is often said that thinking flows as the ink from the tip of a pen. That summarizes the need to get the mind going by first getting the hands moving. This is a beautiful example of the essential interaction between mind and body. Just think of it – all beautiful writing requires this intrinsic dual role play of physical expression and intellectual thought. Therefore, why should things be any different if we replace the pen with a keyboard. One might argue that a keyboard is even better, as now both hands are brought into play, and it is just that – being totally engaged in good writing is as much play as it can be!

Viewed as such, there should be little difficulty in moving from the pen to the keyboard. Yet, many people are unable to make the switch easily. They still need to use a pen to think at their best. What changes? Indeed, there are many changes. One, the physical orientation of entry and display is disconnected. When you write on paper, both input and display are on the same paper, in the horizontal orientation. Not so with the computer. Here entry is horizontal, but display is vertical. Does this require extra processing by our brains? It might just be, though there is no scientific evidence of

it that I know of, and I expect this has still to be investigated. Yet, over time, the extra processing does add up, and clever people might find that handwriting is just superior for the thought process, as it wastes fewer brain cycles.

Two, unstructured thought seems better done on paper than on the computer. When writing on paper, the ability to access any coordinate of the writing space with equal ease makes for much more flexible expression, and frees the mind up for creative processing. When working with a screen, most word processing programs, or even presentation programs impose a linear layout on our expression, which implicitly impacts the freedom of thought. Yes, there are desktop publishing programs that are certainly geared to full range layout, and which certainly help. And with the new tablet computers, this might be changing. However, the tablet is as much an admission of the intellectual advantage of thought through the pen than via a keyboard.

Three, the variety of writing instruments is far greater with pens than with keyboards. Even with keyboards, I find that I write better with some than with others. Do you also find that when word processing, certain fonts are easier to think with than others? In my case, I certainly find that the Helvetica or Arial font leads to better thought than Times Roman in flat files (it's the opposite for me when reading Latex output). I also find that editors that automatically word wrap leave me more time to think than editors that do not. There is something about an untidy paragraph that needs constant re-alignment that throws off my writing. With paper and pen, I get a range of colours, tips, nibs, tactile feels, and other choices that are conducive to the specific writing I am doing. For instance, when doing a referee report, I like to use green highlighter and green ink. When proof reading my papers I like using red ink. When handwriting I use a fountain pen with black ink. And when deriving mathematics, or taking class notes, I always use a mechanical pencil. Mostly the 0.7mm tips suit me best, but then, every now and then I just have to use a 0.5mm lead. And when writing checks and signing documents, I use a black ball point. Call me crazy, but I never get such well defined choices with a keyboard. Mostly its a font choice, and I seem to have become used to Apple, Dell QK and Logitech keyboards. And oh yes, I also vary the location of writing from desk to couch/bed. On desks, I use a desktop (surprise) and on the couch, a laptop. I need both – don't know what I would do without either. Thats the big problem with working on campus – no couch – hopefully my new office will accommodate one.

There is something interesting I have learned by watching people write and keyboard. I use the Latex typesetting program, and prefer to have the input screen on the left, and the preview screen on the right. I have noticed that people who prefer this tend to also write with the paper to their right. When they read and type, they prefer the document being read to be on their left. If the writing is being done on the left side of the keyboard, and the reading from pages on the right of the keyboard, people tend to have the input screen on their right, and the output screen on their left. This left-right to input-output orientation seems to be an interesting regularity based on (very) casual empiricism, and maybe there is some deep left brain right brain logic for it.

The growth of voice recognition programs raises an interesting issue – do we write better when dictating or when we use our hands? I have tried voice to text programs, and my writing comes out very different. I guess its worse. I do not speak in the way I want to write, and I feel it reads worse too. There is something about using my hands to compose what I write that is critical. It cannot be substituted for by my voice.

Despite some of the advantages of the pen, the keyboard is gaining rapidly in relieving the pen of its role. Certainly, for a trained typist, it is much faster to type than to write. The keyboard is also economical because many times we use the keyboard to write as well as to visit web sites while doing research on what we are writing about. This makes the efficiency of keyboarding higher than writing, because the keyboard becomes both, the medium of research and the producer of output.

There are folks I know that have made the shift from pen to keyboard and find it hard now to write well unless seated in front of the keyboard and screen. I am still half way. In fact, I like to handwrite the basic structure before sitting down at the keyboard. What I do find is that I end up with something completely different than what was planned. For example, I wrote the notes on a small scrap of paper for this piece last night, and then used these notes to flesh out my typing today. Since I do this often, it has now stopped surprising me as to how different the typed version is from the original handwritten ideas. There is clearly a different thought process that results when one uses a keyboard than a pen.

All said and done, expressing one's writing in pen seems more fulfilling to people who write regularly. Yet, the new generation is leaving this behind, and becoming the keyboard crew. The tablet computer is an interesting

innovation that will likely span those offered. Maybe voice programs will become very accurate and hence useful, making the traditional approach a thing of the past. The time has come now when we need to look for a completely different way to solve the problem of expressing ourselves in a total mind-body way. Till then, the pen and keyboard will co-exist, and we will continue to use both, depending on the task at hand. I am sure that there is a place for both in our lives, and that the pen will not be replaced by the keyboard any time soon. But I do wonder if the pen will eventually become a relic of the past, like the typewriter, or if it will continue to be used by those who write for pleasure, as opposed to those who write for work. Only time will tell.

3.13 Man as Machine

A recent issue of Time magazine analyzed the multi-tasking behavior of modern children. The upshot of the cover story was that our interpretation of multi-tasking was flawed for the simple reason that children do not explicitly do more than one thing at the same time, as they would were they simultaneously walking and talking. Instead, they concurrently engage in many things, like talking on the phone, typing instant messages, doing their email, watching TV, and working on homework. Such behavior is clearly distinct from true multi-tasking; it is more the continuous cycling between tasks. Taken purely as a matter of logic, it should make no difference were the child to take up one task, finish it, and then proceed to the next one. This sequential completion should not take more or less time than when the tasks are all worked on a little bit at a time, but never simultaneously.

However, it is still useful to distinguish pure sequential processing of tasks from the incessant cycling between tasks, which may be better denoted as time-sharing. As with a vacation time share between three people, it does not really make a time difference were the time per person to be used in one block of four months, or four separate blocks of one month each separated by a periodic hiatus.

Of course, there is one small fallacy here – in that time-sharing may be more efficient than sequential processing when the former allows downtime periods in sequential processing to be filled with another task. For example, we may be working on proving a theorem, having resolved not to undertake any other task unless the one at hand is completed. However, if one were to

get stuck in the endeavor of proof, then it may be efficient to step away from the task and use the time getting some email out of the way. Time-sharing can be more efficient than sequential processing since it is the same as the latter without the constraint that any one given task be allocated to a single block of time. Time-sharing may be less efficient when there are switching costs that are incurred when moving from one task to the next, as we cycle through them all.

Whichever mode is efficient, there is one strikingly interesting parallel with modern computers. microprocessors are designed to time share, switching between processes on the computer at the speed of its internal clock. This has made multi-tasking on the computer very efficient. It is indeed ironic that so much of science fiction has been devoted to creating machines that behave like humans, when in fact, if anything, today we are closer to microprocessors in the way we handle tasks. Hence, a better view is to see that humans behave much more like microprocessors than vice versa. Given the complexity of human behavior, and the simplicity of the operation of the microprocessor, this is hardly surprising. Man to machine convergence is probably happening faster than we think.

3.14 Information Overload

George Kingsley Zipf stated the Principle of Least Effort: Each individual will adopt a course of action that will involve the expenditure of the least energy. Hence, when faced with too much information, we tend to acquire the easiest to access, rather than the best information for the task at hand. It is like looking for one's lost keys wherever the light is good, not where they may be more likely to be found.

Therefore, too much information can easily be a bad thing.

Zipf is known for Zipf's Law, which describes the frequency of words in text as following a power law. The frequency of the n-th ranked word in the English language is found to be proportional to n^{-a}, where 'a' is the power coefficient. 'a' is known to be close to 1. In the same vein, if 'n' is used to denote increasingly relevant sources of information, the frequency of good information drops off quickly. Hence, we need to be careful to spend more time on choosing good sources of information rather than acquiring any and all information.

In fact, collecting the easy-to-get information means that we may in fact

collect too much of it, and thus end up spending more time and money on it, than if we were more selective.

This almost suggests a "toe-in-the-water" search model in two parts:

(1) Get only as much information as is needed to evaluate the quality of the source and no more, and then drop it if found wanting.

(2) Set a higher than average threshold for quality, so as to avoid waste.

The emotional cost of information overload is non-trivial. That cost is distinct from the one being discussed here, which is related to bad decision-making, not mental stress. But the relevant point still is that bad information has a three-fold cost in terms of (a) emotion, (b) time, and (c) money.

Bad quality information breeds even more bad information. This is because too often information is simply served up in another form. The student term paper has become a special case of this form of abuse of information. There is an interesting negative dynamic to easy access to information. In the past, when researching a term paper, much effort was involved in gathering information. So before doing so, we thought a lot about what exactly we wanted to achieve, and then only did we begin information gathering. This process usually resulted in the "first access" of information being of reasonably high quality. Nowadays, because there is easy access to way too much information, the process of thought before retrieval is often skipped, resulting in low quality "first access." In general, information gathering tends to follow a stopping rule which is just based on stopping some time after first access.

Mostly, once we have gathered a certain a certain quantity of information, we tend to stop. Hence, the quality of our data will almost always be a function of the quality level at initial access.

So, what can we do to avoid these pitfalls of information overload? There are many things I like to try.

(1) Avoid using the browser unless you absolutely have to. Even if it is work-related, determine if it can wait. The days I collect my web-based activity (including email) into one chunk of time are often the days I get quality work done.

(2) Do as much theorizing as possible before reaching out for data. I often find that I decide against pursuing an idea, and for good reason – after thinking a lot, it simply is not worth it. If I had instead rushed out and collected data, then it would be time spent badly, and, the much bigger problem is that once I have collected data, then I am much more committed

to the project (sunk cost fallacy) and throw even more good time at it.

(3) If I am not sure about some information, I try not to waste time reading further to examine it. I simply save it away on my hard drive with a brief descriptor. (I have an excellent mnemonic system on my personal server for saving files, giving descriptive file names, syncing it with my other machines, and accessing the data from many places. This is in addition to the usual software for indexing my drive on my Mac and Linux machines.) This way, if I need it, I can get it, but for now, I have saved time and effort in dealing with information "on the cusp." I was reading the book on Fischer Black (by Perry Mehrling),[23] and was struck by how close my system is to Black's. He was clearly already grappling with the problem years ago, and had a detailed collection of manila folders where he stashed all his information and ideas. Were he alive today, I am sure he would have figured out something vastly more sophisticated than what I have.[24]

(4) Jeff Hawkins had this idea of the brain in his book "On Intelligence".[25] He likens the brain not to a fast CPU but to a vast memory bank. The brain solves problems and makes judgments exceedingly fast because all it does is fast retrieval, through pattern recognition of stored life scenarios. Every iota of learning is stored, and remains dormant until recalled. This is similar to stashing information for probable future use.

(5) Pull at information, dont allow it to be pushed at you. Ignore Amazon's recommendations. Given, that software is pretty smart, and often does very well in anticipating your latent needs, but then, it all comes at a cost.

(6) Never spend more time reading web sites in a day than you spend reading books or newspapers. You know why already.

Most of all, do not worry about being on top of all the information being thrown at you. If you want to live life like that in a reactionary fashion, then you are done for already. Modern AI will re-regenerate the information you need and keeping it all like a packrat is increasingly unnecessary. The information you need will find you, and if it does not, then you probably did not need it anyway.

Information is the food of the mind – eat well and do not overeat.

[23] https://www.wiley.com/en-ae/Fischer+Black+and+the+Revolutionary+Idea+of+Finance-p-9781118203569

[24] More recently, see the excellent program called the Second Brain, developed by Tiago Forte. https://www.buildingasecondbrain.com

[25] https://en.wikipedia.org/wiki/On_Intelligence

3.15 Information Angst

There is altogether too much information in our lives today. In the past, people broadly chose one of two levels of broad information, by deciding to read or ignore the newspaper. Or listen to the radio or not. Information was never "pushed" at you – except for the rare occassions when newspaper boys ran around screaming "Extra, Extra!". How much times have changed.

The big difference is that information flow is now continuous. World events are continuous by definition, but reporting used to be very discrete. You got the newspaper but once a day, or heard the news a couple of times on the radio. Now, with everything in "streaming" mode, reporting major events as they unfold makes for an incessant barrage of information, mostly unavoidable if our lives have a semblance of engagement with the world. So it has become harder to "get away from it all."

Continuous information creates an insidious need to compare ourselves with everyone and everything, simply because we can. We want to know if we are richer, happier, healthier or just plain better-looking than some benchmark. Most often, in an effort to compare and feel better, we usually end up feeling worse. Maybe we would be better off avoiding making comparisons at all. But that is not our nature. We are competitive to a fault, and information overload translates swiftly into competitive angst.

It's automatic. We dont start out a session with our computers with the goal of doing anything else but channeling our curiosity. Sooner or later the engagement turns into one where bits of information that are self comparative start becoming salient, and drive the emotional course of this human computer interaction. It's inevitable, it's hardwired. It's a bias we cannot rationalize away. I find that I am somewhat calmer and happier on the days when I eschew or minimize the interaction with the computer. Is it the same for you?

We have been brainwashed into believing that more information is better than less. It all sounds pretty rational – take a large superset of data or information, simply distill out the relevant parts to get a concentrate of pure valuable knowledge. We believe that this approach is more optimal relative to one in which we receive a smaller subset of possibly less relevant information. But, there are many ifs: (a) How good are we at distilling knowledge from large sets of data? (b) Do we get better or worse doing this when data sets increase relative to knowledge sets? (c) What about the cost of all this information processing? (d) And finally, if as a byproduct, the interaction

results in heavy competitive angst, is it all really worth it?

I think we need to carefully evaluate how much information our lives should have. Information is necessary for sustenance of our modern lives, just as food is necessary for our bodies. But, just as we know that we need to be careful about eating in a balanced way, we want to be measured in our intake of information. Mental and emotional well-being is as critically related to our information diet, as balanced meals are to our physiques.

The hard problem is that we do know what a balanced diet is when speaking of food. We also know better to avoid some foods in excess. But with information, it is often hard to know it's bad for you till after you have consumed it! So maybe we should just limit information intake more generally. That said, maybe you should not have read this!

3.16 On Dabbling

The world usually rewards people for perseverance, those who stick to one thing, master it, or are just lucky to find what they are good at, and then proceed to excel in it. I am, on the other hand, driven in the opposite direction – far be it for me to spend all my time perfecting one thing. No, I am a self-confessed dabbler.

For me, life is too short to spend it all on one thing. In fact, even a day is too short to spend it on one thing. I tend to read about ten books at a time, all of them in various stages. Quite understandably, I have a huge collection of bookmarks!

My eating habits are also those of a dabbler. I rarely eat the usual numbers of square meals a day. My consumption function appears to be more of a random walk, nibble here and there, and sometimes a binge. No steady diet for me.

Living a well-structured life is detrimental to dabbling. People who plan their next day by thinking through it and making a list the previous day will make poor dabblers. A true dabbler will, on the other hand, wake up in the morning, and ask – "So, what should I do today, if anything?" I don't mean that I may not teach a class if I am to do so, but its more that, outside of the few hours of regimen, life seems wide open to possibility. The core of the dabbler mentality lies in placing trust in random-walking through life.

Being a dabbler is pretty hard-wired into one's psyche. You cannot take someone with good discipline and turn them easily into dabblers, nor should

you. There is a purpose to everyone born with organized habits and routines. Books are written about these people, such "The Organized Life" and so on. But no book has been written about the benefits of the dabbler ethic, presumably because we have exercised social value judgments and agreed that the dabbler is the root source of much of what ails us. Dabblers have been labelled as people with ADD/ADHD, when what it really was is a heightened sense of curiosity, one that does not need satiation but just one that needs constant feeding. Dabblers are not people who lack concentration – dabblers are simply people who need to act on every random thought that comes along.[26]

What good is a dabbler then? Dabblers see connections between things, which does not always happen when we are too focused on something to the exclusion of much else. Dabblers seem to have deeply internalized the wisdom that the entire world is closely connected, and by foraging widely, these connections will come to light.

Dabblers are more likely to be open-minded, as they are naturally receptive to alternative ways of looking at things. They are hard-wired to tune into hundreds of frequencies, easily switching between them as often as necessary.

Dabblers are less likely to want to protect their turf. This is an easy virtue, for a dabbler does not have a turf. The question of protecting it does not really arise. There is a smug satisfaction in claiming all the world as one's own stage.

If you know you are a dabbler, make time for your gift. I take some time off every week to make sure I give my habit the time it deserves. It pays off handsomely on the days I do not goof off. I am fresh with ideas, drummed up in dabbling model.

Every now and then, life conspires to sorely test even the die-hard, seasoned dabbler. Life demandingly asks for undivided focus on a single task. And it is in these moments that the true dabbler shows his colors, by refusing to cave in and dabble on regardless.

Dabblers of the world unite! Oops, I forgot, dabblers are by definition unable to do this.

[26] A recent book, "Tiny Experiments" by Anne Laure Le Cunff, https://nesslabs.com/books/tiny-experiments is related to dabbling.

3.17 The Value of Cultural Property

I spent an entire day this week at the Linux World conference and expo in San Francisco. I have been going there for quite some years now, and this year there was a marked change. Clearly Linux has taken off, as measured by the presence of suits and the absence of the usual casual jeans and t-shirt crowd.

The way I see it, the Linux explosion is not a revolution based on freeing software, or of intellectual property being free to roam, but it is based on a cultural revolution in which those jeans and t-shirt people set about collaborating to make wonderful things happen. And as I walked the main expo floor, it was saddening to see none of the people there. Everywhere one saw marketing androids, jazzy displays, fast-talking snake-oil sellers, piggy-backers on the great ideas of the hidden progenitors of this wonderful software movement. In other words, the culture was missing, replaced by the commercializers, grim reapers of intellectual property rents, amortizers of human and cultural capital.

Someone told me that there was another floor upstairs. So I went looking and found all the originators there: FSF, KDE, Gnome, Debian, Gentoo, Mozilla, etc., each and every one of the not-for-profit organizations was relegated to this attic, clearly unable to pay for the now-expensive marketing main expo floor space. The humbleness was in striking contrast to the commercial arrogance on the floor below. The soul of Linux has died and been sent upstairs.

So, I am worried. If we discard the culture of the movement and just adopt the values of the commercial, will the movement remain what it is? I cannot see its vitality remaining for long, when its core is assigned scant respect.

We are becoming a nation of marketers, selling our values to the highest bidder. We have become good at protecting intellectual property (IP), but are failing to protect its very source, our cultural property (CP).

The recent patent and copyright extensions that Congress underwrote are a case in point. By protecting monopolies of IP, we are diluting the culture of distributing intellectual capital for the greater common good. It is a transfer of the cultural value that forms the roots of our nation, to property value that can only be sustained as a monopoly. Intellectual property that is mostly surplus rent (created by monopoly) and not fundamental value (based on

culture) is in the end worthless.

Take another hot button: outsourcing. By suggesting solutions that are tax-based or some other form of protectionism, we seek to protect our rents, not the true underlying source of value, the culture of scientific progress that raised America to its eminent status. We should be fixing our schools, not protecting our jobs.

We see it starkly in corporate settings. Companies that prevail in maintaining their cultural values that led them to their breakthrough successes, are those that do well in the long run. Companies that do not, eventually find that the very people that built them leave, dazed by what became of their cultural brainchild.

We see it in academic settings. By rushing to protect our business school rankings, we ignore the true culture of great academic institutions, their role in knowledge creation. By turning professors, whose role is the creation of human and intellectual capital, into marketing people, the rankings racket is short-selling our academic culture.

Think rust – cultural property is like shiny steel, the protection of intellectual property is like rust forming on the steel, robbing it of sheen and effectiveness. Steel begets rust, especially when it lies unused and ignored. This week I saw rust forming in the attic of the expo hall. I hope it can be shaken off vigorously.

3.18 Return to Paris

Paris is an interesting study in contrasts. It is hectic and bustling, yet forces serenity on you. I have been here less than twelve hours and already had the best Father's day in my life. Just returned from dinner at almost midnight after starting the meal at 9 pm. A good meal, eaten at a most leisurely pace, and a wonderful time with my wife and son.

I arrived here with my son at noon, then took a taxi to the apartment, smack in the middle of the Marais, which is wonderful. In fact, from the living room of our apartment I can sit and watch the revelry all day (and night). Just wonderful. We have been coming every year, and this time, we figured we would just live in the middle of it all. (Last year, my wife decided to live in the middle of the red light district, an opportunity I passed on, though because of prior exigencies.)

Its a Sunday, Father's day, what a good one it has been. But its already

been a mix of good and bad. Bad: the person from whom we rented the apartment came an hour and a half late, while we waited on the stairs in the sweltering heat. And the shopkeeper would not sell me a single bottle of milk because he refused to make change for a twenty. But I ate the best dinner ever, and for lunch, the best tomato salad ever. I guess that puts me net on the plus side.

But it is one of the places in the world where humanity is clearly distinct from the machinery of life. Where aesthetics dominates economics. Where the service is superb even though no one tips. Where economic motive, though behind much, recedes into the background, so that human beings can relate to each other in non-transactional ways. Religion presupposes to explain what the meaning of life is, and man's role in it. Paris, by deed itself, bypasses the need to explain, implementing meaning directly. Everyone finds their own meaning; to me that is really religion – the freedom to be who you really are.

The Marais reminds me of Greenwich village, where I spent many years in grad school. It reminds me also of Berkeley, where I have spent many years of my recent life. I feel lucky to have tasted these environments. And to be sitting writing these words, looking down from the second floor window into the happening street well past midnight, the mood can never be described, only experienced.

Its always nice to reflect back on the day and ask – what did I get out of my day? Sometimes the answer is a gratifying "nothing, but I still had a great day." Today the answer is: I really lived it, including the four-hour afternoon nap. I have these days when I look back and can clearly recall each minute, and I know, those are to die for. Today was exactly that. I remember every detail. And I also learnt one thing, that life is too short to spend it on things where you do not enjoy absolutely each and every minute of what you do.

Well, it's now the end of the week, and we leave for Madrid tomorrow. But it's been a very strange week, unlike any other I have spent here. There were several events this week that made it unique. First, it was beastly hot, and Parisians told me it was twenty degrees higher than normal. This heat coupled with the fact that there was never a quiet moment in the streets outside the apartment meant that I was usually only able to sleep at 5 or 6 am. So unlike the rest of the family, I had little sleep at night, a lot in the mornings and a pretty serious siesta in the afternoons. Only way to beat the heat and the noise of revelry that went on through the night.

Second, it was the week in which we had the "Fete de la Musique," which

happens every year on June 21, the longest day. Its an occasion when every street in Paris has a band playing and people walk around listening to music all night. We did too, it was wonderful, except that around 2–3 am, it degenerated into mostly the drunken smashing of bottles and the streets in the Marais were strewn with glass and other trash. The little restaurant on the ground floor of the building we live in, called the "Politburo," decided to install the loudest music system they could find, and blared techno music till about 5 am. At sunrise, the cleaning crews came out and the city was clean by early morning. Quite remarkable! It would be too much for the city's pride to leave the mess lying around longer than that. I think there is a deeper reason too – it makes the wild night a great experience with no bad after taste.

Third, it is also the week of the "soldes" – the big clearance sale of the summer season, when everything in every store goes half price off. The sales run Friday through Sunday, but nothing really remains after the first few hours on Friday. We saw lines to get in on early Friday morning. In a stroke of luck, my son, needed a suit for a wedding in Spain, so I took him to Galleries Lafayette on Thursday, so he could try out stuff that might fit him, and they were in the process of marking things down and agreed to sell us at sale prices a day earlier. That meant we missed a "pleasant" two hour wait in line to get a refund of the value added tax. It took but 10 minutes since we were there a day before soldes.

It is now 2 am, and I am unable to sleep, hence writing is a release from the now deepening depression I am facing with "insomnia from external causes" (wilding and overstimulation). Of course, tonight there will be no respite, as it is the gay parade, which began around 8 am this morning, and shows no sign of ending though it is now well past midnight! We ate dinner again tonight at one of our favorite places in the Marais, a Corsican restaurant below our apartment. For two hours, we ate and watched the tributaries of the parade stream by. It was wonderful. And it is nice to be sitting here on the carpet in the one spot in the apartment where there is a whiff of a cross wind giving some respite from the heat, writing this piece.

Its been strange in many ways this time. For one, I no longer feel like a tourist, only a visitor. I came away from a very hectic past two months, teaching a whole lot, getting lots of work done on our home, so the respite has been good for me. Its now been eight days since I last looked at email or the internet, and if its another eight weeks it would still be too soon. I am

enjoying sleep tremendously, strange for someone who is quite happy getting by on just five hours a night. I have eaten a great meal every night, and taken 2-3 hours to do so. Its been like going to Chez Panisse for a week of groundhog days.

Anti-American feelings still seem to run quite deep. Being American but looking Indian (which I am originally) led me into strange situations where people would treat me differently because they thought I was not American, and then wierdly, when I told them I was an American who lived in the Bay area, forgave me for being who I was because of where I lived. Left me feeling like this is going the way of the old French-British stand-off, which also came up every now and then. It surely seemed like there were fewer Americans here this year. I do hope all this disagreement dissipates, as it seems pretty unnecessary. But it left me feeling strangely worried, because the feelings on both sides now seem to be deep rooted at the individual level, with an inability to separate the politics from the personal stuff. I grew up in India, being told constantly that Pakistan was bad, but somehow, individual people in both countries seemed to know deep down that it was all politics, and Indians and Pakistanis get along really well individually despite their political, and more important, sporting rivalries.

My son though, who has grown up in the Bay area, offered a counterpoint to the French attitude. He remained staunchly American, refusing to adapt to anything with an inflexibility butressed by what he thought was point of principle. Nothing here was right, it just was not done the way he would like it done as it is back home. So, thats just it, the current stand-off is nothing but a culture clash that will always exist, sharpened a bit in the recent past by some political to and fro. I think we all need to loosen up all round. It would really help.

So its been a week of complete hedonic experiences. If there is one difference between America and France, it is this. Much more in France seems to be done for no fathomable economic motive whatsoever. Now, where would that happen in America? Not easily. I like this, living life for purely hedonic reasons. In America today, with all the political correctness bordering on religious fundamentalism, the life in France would be interpreted as bordering dangerously close to social sacrilige. It would be wrong and we would do guilt. If there is any guilt here in France, it is well hidden, probably under several feet of attitude.

It is now 3 am and the street outside is noisier still. There are more gay

couples of both sexes outside on one street than I have possibly seen in my lifetime. Gay folks here are not agitating for marriage rights as they are in the Bay area. Maybe it is because they are so much a part of the fabric of society that it really does not matter. Back home, they are not and hence it may be necessary to fight for the status that LGBT folks in France get for free. I am not sure though that it is the right way, legal change is only a half way measure, in the end cultural change must come. And assuming that legal change will be naturally followed by cultural change may be a purely probabilistic, or worse, an erroneous premise.

But of course, cultures are different and that is what makes life so interesting. It can be disconcerting at times, like in France, dealing with attitude is something I find hard, though some Parisians told me that the only way was to return more attitude. Sounds like a death spiral to me! I also found the mysterious absence of the police when bottles were being smashed somewhat odd, but maybe it is known to work – leave the mob to staunch its own enthusiasm eventually. Premature interference may actually lead to more trouble.

I am writing some of this now that I am back in Berkeley, and no matter how interesting other places may be, there is no place like home.

3.19 Email is Evil

Let me apologize in advance if my email(s) have wasted your time. If so, you have every right to be offended. I am trying very hard not to burden you with electronic clutter. So from now on, all email correspondence with me is likely to be highly probabilistic.

I made just one New Year resolution this January. I decided to slowly eradicate my use of email to the extent possible.

Since then, I have kept my counsel and assiduously refrained from sending an email unless it was absolutely necessary. I have been sending many emails to myself, reminders of various things to do, and so far, this seems to be the best use of email – as a portable to do list. I can access it from anywhere. But for communicating, I use it very little. I have been picking up the phone and calling a lot more, and its much more efficient.

Here are some reasons why I got fed up of email:

1. It is a huge distraction. Every time an email comes in, it interrupts

my train of thought. This is not good for my kind of work, for research requires immersion, and getting into the zone. Email makes this impossible.

2. Email fools you into a false sense of productivity. Many of us work 8-hour days and spend 2–3 hours tending email. That is a horrific waste of time, yet, we all feel even more productive on the days we spent more than the average time on email. Remember the old days when we actually worked all 8 hours? And did not have the luxury to take 3 hours off for email? Since I reduced my email interaction, I have been much more productive.
3. Email brings in a lot of freeloaders. I get at least one email a week from a student on some other campus asking me some long, detailed and convoluted question, expecting me to respond in detail, so that my answer may be cut and pasted to form a major portion of a term paper. No one would do anything like this if it were not free. Even though I know that no professor would respond to an unethical request such as this, it still results in disturbing one's mood and leading to loss of productivity. Thus what is a free interaction from one viewpoint, turns out to be very costly from the other.
4. The length of an email is inversely proportional to its value. This I think comes from the fact that the people with the most time to waste, will do so. Those who are busy and pressed for time, tend also to respect others' time as well. I find it best when I get a short 3–4 line email focused on what is needed. Anything more seems better done on the phone.
5. What goes around comes around: I have noticed that the more email I send, the more I receive. There are weeks when I just have not felt like sending email, and the inflow also seems to trickle to a smaller flow. So, if everyone only used email when absolutely essential, we would all be better off.
6. Nothing goes wrong if email is responded to at the pace of snail mail. Try it, you will see. In fact, I find that the quality of my email correspondence has gone up as I have begun to reply when I felt more like attending to it, rather than doing so instantly.
7. Email is not an integral part of my job. A research career has this huge plus – there is no real time need to respond to email. I can well understand people like lawyers, accountants, businessmen, corporate

managers needing email to get their jobs done; they need perpetual connectivity. Well, thankfully, I do not. At teaching time, sure, students will email with questions, but immediate response only seems to get another, and does not foster learning or problem resolution. There seems to be some happy medium response time within which, left to his or her own devices, students will find the solution themselves. And this leads to deeper learning. It is very tempting to reply at once, especially since you feel gratified at having a good turnaround time, but it does not always help the learning process. So many times, I have been unable to respond in time, pressed by other demands, and in the interim, I get another email from the same student asking me to disregard the previous email for he/she has sorted out the quandary. Yet, there is a loss of student time, two wasted emails. To be fair, students are very respectful of my time, and maybe, should be more respectful of their own!

8. Email ruins your writing style. It has a perverse code of its own. It would make an English schoolteacher cringe. It makes people bad readers and bad writers.
9. Email steals vital downtime. Before, when we had a quiet moment we savored it. Remember transiting in airports, reading quietly, staring out the window? Now those days are gone. Now everyone in transit is rushing to check his or her emails. No wonder everyone is so stressed out; they do not get that much needed downtime anymore. "Oh, I have five minutes to spare, let me check my email – I feel so cool and accomplished." Its the new treadmill.
10. It's become an excuse to avoid hard work. People use email as an excuse to avoid hard tasks. If one is having a hard time concentrating on a focused task, a natural instinct is – "let me check my email" – so, please stop that, you know you can always find an email that will take you away from your main task. Is it any wonder that we get less done nowadays?
11. I make mistakes in my email correspondence all the time. I am not sure why this is. One, it might be that in my hurry to clear the mail from my in box, I just "deal with it" and make an error driven by my impatience. Two, it may be that I know I can always send a correction just as quickly as I did the mistake. Three, it may just be that the medium fosters poor clarity of thought. Of these, my money is on the

last one.

12. Email is hard-to-jettison baggage. It keeps coming back. There are too many people who simply love replying with a couple of words, but attaching all the previous thirty or so emails. This back and forth correspondence has gone on long enough so that we remember all the past correspondence anyway. But no, we need to send it around yet one more time! There needs to be some discipline here. Yet Google is not institutionalizing the problem with its filing of "conversations" – who are they trying to fool? Is email a conversation? If so, then I have been talking to some people for months.

I now only read my email when I have to open it to send an important message to someone. Even reminder emails to myself do not need me to open my email. Since I am a Mac/Linux user, I can send myself an email from the command line without opening my email client. Because I know, once I open the mailbox, even Pandora could not have designed the trap better.

Actually, none of this is new. There are many others who, engaged in creative pursuits, have realized how detrimental email is. Donald Knuth has stopped using email altogether. See his web page for a honest admission of the time sink he needed to extricate himself from: https://www-cs-faculty.stanford.edu/~knuth/email.html.

Neal Stephenson writes of the ill that follows from the use of electronic interruptions. He quotes Linda Stone, who has coined this as the problem of "continuous partial attention" which makes giving any one thing the full attention it deserves near

So, use email as one would use snail mail – only when necessary, and only when you know it will not be a waste of someone else's time.

My biggest fear is that email is making the world superficially smaller, and draining all quality out of interpersonal communication. Now, instead of calling and really talking to someone, we shoot off an email and assuage our guilt by convincing ourselves we had a meaningful interaction.

I think I would rather not participate in this charade if I can help it.

3.20 Email is Evil – II

A while ago I wrote about the evils of email, primarily about its ability to destroy productivity. Studies have reported on the results of a University of

London study that showed that overuse of email results in an IQ loss of 10 points.[27] In comparison, regular marijuana use only drops IQ by 4 points. About 62 percent of respondents felt obliged to reply to their emails within an hour, and indeed they almost all did. Professor Debra Myerson (Stanford Business School) suggests that simply "being available at all times is a source of stress." Following the study HP has dissuaded employees from bringing laptops into meetings, and also advised against one-line emails saying "thanks" or such other response.

Well, all this is not what I plan to write about. But it is symptomatic of the extensive ills of continuous electronic engagement. So apart from the loss in intellectual productivity I wrote about in an earlier blog, and setting aside the deleterious effects on our IQs, I have over the past week, found that email has a huge personal emotional cost to me. There is this new disease which I think needs definition, which I will call EAD, for Email Attention Disorder. The major costs of this disease are emotional.

I found that I was trapped into dealing with emails as a response to any lull in my day. It has worn me out completely. What I now realize is that a lull in the day should remain just that. Rushing around trying to fill it up responding to emails is no way to relax. Moreover, the lull is important, because it is like the pause to catch one's mental breath before feeling renewed, and then plunging into a new task with renewed vigor. Email sucked away any real vigorous renewals I might have had, and I have decided to make a call on that one.

As an experiment, I decided I would strictly restrict my accessing of emails to once a day. Not at any fixed time or anything, but just when I needed to send some emails out, then I would take care of all the email business at that one time, and then, never log in again at all for the rest of the day. It has worked like a charm, but mainly in two important ways. One, I am feeling hugely relaxed for I have stepped off the treadmill and I hope I never ever have to get back on. Two, my creative energy has come back, and I am being able to write again, with little distraction. So, if once in a while, we are blessed and get lucky, this must be one of those times.

There are now blocks of time that I suddenly have wherein I can write well. Of course, by definition this is true. A block of time is one stream of uninterrupted moments in which to immerse oneself into good work. By

[27] https://www.entrepreneur.com/living/why-you-are-losing-10-iq-points-every-time-this-happens/309039

default, if email keeps interrupting, there cannot be a block of time. There are then only chips of the old block, and what good are those? Fragmentation of time breeds severe emotional discontent. Moral: stop that email, de-fragment your time.

In case I did not say this often enough – email is evil – it destroys (a) your productivity, (b) your IQ, and (c) your emotional well-being.

I was away in India two months ago and was very busy but still felt entirely relaxed. And I realize now that a good part of the relaxed feelings came from not accessing email regularly, but only a few rare times on my visit.

The other major byproduct of limited access to email is an improvement in conversational quality. Having reduced my access, something unusual that is now occurring is that my conversations are deeper, longer, and more meaningful. I am not just trying to respond in a knee-jerk manner, something that becomes second nature after extensive email usage. Modern technology has changed human interaction from fewer periods of extended interaction, to hundreds of periods of miniscule interaction. Just read that last sentence and ask which one you would prefer. No wonder most of us are confused about what happens with our time.

But, the big catch is that even if we all agree that too many short interactions are bad, we do nothing to stop it. In fact, we perpetuate it by idolizing those "always-on" people as being "productive" – why? Because it is really easy to be productive in this way, and so the lowest common denominator prefers it. The "democracy of the busy majority" wins over the "minority of the productive."

Email has become the great new "passing the pillow" game. Its so easy to pass the buck when you don't need to speak to someone. Imagine playing this game every hour you are tethered to your desk. No wonder it makes us physically and emotionally tired. While cell phones also force you to be always on, they still contain a human element, whereas email is simply dehumanizing.

The instant response element of email also means that most often we reply without thinking clearly. We all know how often we have wished we could retract that last email we shot off. I find that accessing email but once a day means that I take my time, deal with each email more calmly, because I have set aside the time for it. I am no longer trying to respond to an email while in the middle of something else. It makes for better communication by far. The quality of my email correspondence has improved and the quantity has

declined, both very welcome developments.

So there are two modes in which we may choose to live with email – synchronous and asynchronous. It seems the bulk of the population is converging on the former, which means we are heading for an equilibrium in which life speeds up incessantly. The emotional fallout of this is likely to be large. Hopefully, more of us will opt eventually for the asynchronous mode, and bring life back to a calmer, more welcome pace. I am doing my bit for asynchronicity.

3.21 Tragedy of the Commons

The other day I was unable to use my email. I received so many messages from my students that I crossed way over my email box limit (a measly but disciplined number of MB). (Nowadays, this never happens, but you can imagine the same happening with our usage of Google Drive and Dropbox.) Why I receive so much email is another whole issue, but let that ride. Now, the way our campus mail works is that once you cross the limit, you are not allowed to send mail until the box is within limit. So, in effect, the only way to reply to email is to first delete it. Is that a Catch 22, if anything?

Here then is a perfect example of a tragedy of the commons. Overgrazing this resource makes it inaccessible and stops working for all involved, even though every single person acted independently, innocently unaware of the impact of their actions.

Yes, there are ways to get around it, such as using another email account and copying back and forth. Or forwarding the whole mess to another account. And so on. But it usually simpler and easier to just delete all messages. That way, no one's email gets preferential treatment.

I used to read my email only a few times a day, so as to prevent it from interfering with my concentration, which is needed if I am to get any research done (and help save the world from ignorance, haha). But now, with my mailbox topped out, I need to keep it on and respond fast, and then delete – so I am a rat on a wheel, trapped in email hell forever. I have no idea how long I can keep this up.

Quite apart from aiding communication, email seems to spawn thoughtless interaction. Just because it is easy to shoot off an email, everyone assumes that work is getting done. But it isn't. It can't happen unless thought is applied first. Also, waiting for a response is not getting work done, its waiting

to postpone getting work done. It's also a waste of time.

But I realize that one must set an example. I try very hard now not to send email without thinking, and never if it has no productive purpose. Some rules:

- Do not send emails saying "Thanks". I agree, it is important to let the other person know you got the message, but why not let that be the default option?
- Email is asynchronous. Why make it like the telephone? Don't make it into a conversation.
- Never assume that asking a question merits an answer.
- Do not let email allow you to push your thinking onto someone else.
- Delete any email from an unrecognized source.

3.22 The Injured Minority

Six weeks ago I tore up ligaments in my knee in a failed attempt at learning snowboarding. It took only a moment to wreck the knee, and many weeks later, I am still limping around wondering if it will ever return to normal. There is a lesson in this somewhere that I am avoiding. Maybe it is as simple as the idea that we should stick to what we are good at, and not believe we are good at things we clearly are not cut out for. But it may just be a lesson too hard for someone like me to learn.

But I am wandering off my main point, which is that when you have an ailment, or an affliction, you are drawn to others with the same. Almost every fifth student has come up to me and related his/her own tale of woe on the ski slopes. The first two doctors that treated me in the emergency room both cheerfully informed me of their ski injuries and assured me that like them, I would be back on a snowboard in a couple of weeks. Six weeks later, I am quite sure that retirement from the slopes is the only sane option for me.

Now, when I walk the streets, dragging the bad foot behind the better one, I sometimes encounter another limping person coming from the opposite direction. Our eyes meet, and sometime we both smile, in the same instant commisserating with each other, and also feeling truly connected. We are for that moment, kindred spirits, sharing the yoke of injury, being comforted not to be the only ones in a bad predicament. Misery loves company, for sure.

It's like being in the minority, and when that happens, people tend to feel close to others in the minority. I am now part of the ski injury club, and wear my wounds and limping gait like a badge of honor, proclaiming to all, especially my fellow injured, my membership of pain.

It's actually quite nice, this belonging to the minority. Its a fake cloak, comforting nevertheless! Its the same with the sportsbikers in the Bay area. We have an unwritten code that we wave to each other when passing. When I first started riding I noticed very quickly that everyone waved, and I quickly got with the program too. It's just nice, I felt welcomed, even if it were anonymously. Of course, the Harley guys never wave, they seem to live by some other grim code of angst and pent up anger. The minority of sportbikers is wonderful.

It's hard to feel special, unless one is part of a small group. So what am I going to do when my knee heals and I am kicked out of the damaged-knee-ligament sect? Who knows? I will have to find another minority to latch onto! (Postscript: My knee healed well, so much so that I was unable to remember which knee it was. Until one day I was back on the slopes and after an hour I knew exacttly which one it was.)

3.23 Balance in Life

There is no free lunch in life, which is a good thing. If you overdo something, you have to let go of another. Some of us like living at the extremes, obsessed with a few things at the cost of everything else. It's a life style choice. Others seem to do better with being in the middle of the road.

Like most things in life, there is an optimal amount of time one may spend on any activity. After this, the law of diminishing returns kicks in. Deviating from a path of balance seems only optimal when one might experience the law of increasing returns. Whether or when this switch-over occurs is more a philosophical matter than one of fact.

For example, if we wish to learn to play a musical instrument. Are we better off playing for a little time each day or crash-coursing it by playing several hours for the first stage of the learning process? There is something to be said for both approaches. In the former, we are likely to err on the side of stopping before the right amount of time, i.e., on the path of increasing returns to time spent, but short of the optimal. In the latter, we are likely to err on the side of reaching the region of diminishing returns. Where this

optimal point lies varies from person to person.

Hence, when we talk about achieving "balance" in our lives, we are (a) referring to our self-awareness about this optimal stopping point, and (b) we are dealing with a notion of "relative" balance, and not an absolute one.

Nature has the notion of balance hard-wired into its system! Take going to the gym. At a low level of exertion, you do not reach an aerobic state and the activity is physically worthless. Once you cross a threshold where your heart rate begins to climb you are in a "low" aerobic state, wherein the body is not stressed, yet begins to burn fat to provide energy, since fat needs time to burn, and with low stress, this is possible. At a slightly higher exertion level, you remain in a "high" aerobic state, but now, the muscles need energy fast, and the body burns less fat and more carbohydrates, which release energy faster (we know this as the cardiovascular state). Any exertion beyond this point is too much for the physique to handle, and is bad, and is known as anaerobic. In this phase, lactic acid accumulates in the muscles, suffocating them, rather than answering their clammer for more oxygen. So our physical systems are great examples of "balance" – too much or too little physical activity is detrimental. Doing nothing is bad, and "thrashing" yourself in the gym is even worse. Buddhists know something when they speak of the "middle" path.

The same works for the mind. Through much of my life, I have always worked steadily, never doing things at the last minute. It has served me well. I never studied in "exam week," but simply put in the time slowly over prior weeks. This is one of the prime reasons for my learning to drink coffee very late in my life – I assume most people develop a need-based fondness for coffee in those crazed days of cramming for tests. We are all only too keenly aware of the fact that we function so much better when we have had plenty of sleep. And when we oversleep, it also takes the mind time to recover from the stupor. Learning should never be undertaken too slowly or too fast. As with eating, there is a good middle digestive time.

I have begun to notice that my friends who multi-task well seem to be those with a good awareness of their optimal balance points. Multi-tasking, across the physical and intellectual domains seems to be highly correlated with balance. Again, low bandwidth or too high a bandwidth life style seems to work poorly; getting the balance always does.

As an academic one is always striving for that right balance between teaching and research. I worry about those that complain incessantly about

teaching, stating that research is the real role of an academic. They a-priori discard their free option of balance. We academics are indeed lucky to have such a clear cut scale to work with, and I do believe many of us find our optimal point.

3.24 Digital Convergence

Minitiurization is creeping into everything, and with it, electronics has gained an insatiable urge for digital convergence, whereby we provide more and more functionality on a single device. Its not been so long ago that the basic land line telephone has given way to the cellular handpiece, slowly going to shrink to a thumbnail version of itself.

It's not just a phone anymore. We can use it to store music and files, emails, browse the web, instant message, keep our appointments, calculate mortgage payments, word process, build spreadsheets, play arcade games, take notes, store addresses, and act as an alarm clock (amongst other annoyances such as hundreds of ring tones). In fact these instruments are not even decent cell phones anymore. Half the time there is no service, which is why one needs all those hundreds of other features, to camouflage the fact that it just doesn't do what it is basically meant to do!

This is the big failing of digital convergence. It moves us from an instrument of reasonable economy and performance to one with poor basic functionality. Since the implementation of convergence has failed so completely, we end up carrying many multifunction devices, all of which fail to perform any one single function in an adequate manner. This probably explains why land lines persist still.

We are a nation of distracted people, due in no small measure to living in our electronic storm. All the gadgets, none of which work adequately, are driving most to distraction. Hence, we are doing "more" and yet remain as dissatisfied as ever. Even when we avail of the basic functionality of any electronic medium, the additional myriad functions beckon incessantly, forcing us to pause and take in some of them for at least a little while, if not more. With land lines, after making a call, we did not need to also tap into the instant messenger and email. Every little additional time-consuming detail, no matter how insignificant, deleteriously extracts its piece of time, leaving in the end, nothing but a rushed, unaccomplished feeling.

It's all a waste of time, money, and energy. When was the last time you

used your computer to send one email, or check a movie time, only to also read all the email, respond to pop-ups, check the news, mail someone on an off thought, and end up shopping online? Sounds like something you did only yesterday? And usually 3–4 times a week? Sure, admit it, you are a technoslave. Fess up, you are unhappy about all this, but are unable to resist it.

The way I see it – there will be a polarization. Some of us will realize whats happening, and make a strong effort to resist the grasp of e-mindlessness. Others with less self-discipline will dive right in and swallow it up. One way to avoid the trap is to use instruments that are simple and tailored to the task. Ever used Google for search? Sure – and did you end up shopping or emailing after that? – Sometimes yes, sometimes no. Even though Google's interface is set up for simplicity it makes every attempt to distract you into shopping for something or at least keeping you on their site.

Another example, use Linux for work, and there is small chance of getting led astray. Fewer beckoning popups, no multimedia fanfare, no viruses to keep working off. Windows is designed for the e-mindless, and there will always be a big user base for this. At the other end of the spectrum, will be those that want a computer for what it does, not for the social interaction. This is where the Linux machines have come in handy for me.

Hence, lesson to myself: KISS = keep. it. simple. sanjiv. Pick gadgets to do one thing only. Use for that purpose only. Do not misuse. Keep the number of things to do small and simple, and they will be of high quality. Fail to do this and you will be just tired and unaccomplished after running in response to loads of stimuli. Let that phone ring, especially if it has a custom ring to it, there's no need to always answer it.

3.25 Sow Now, Reap Later

There are many things in life that are unpleasant at first, and it is only after we spend time doing them that we realize they are a lot of fun. Likewise, there are many things in life that are immensely enjoyable, and become less so after a while, that is, if we are lucky.

Many times we receive advice about doing some things, but we disregard it, because it seems dull, tedious, and unappealing. These are precisely the things that are good for us. How many times has the doctor told you to get enough sleep and exercise, and how many times have you disregarded it? It

turns out, most people hate exercise, and yet, we see some people who cannot get enough of it. Exercise is one of those things that, if done regularly, goes from being a boring chore to an invigorating part of one's daily routine. Its good for you, but you have to give yourself time to see that. And thats the rub – most of us never do.

Television, on the other hand, has instant appeal. Who can resist the tube if there is nothing else to do? So, it's an example of something that takes very little time to get used to, yet after a while, most of realize that it's really not the best way to spend one's time, and it comes with couch-potato related ailments, both mental and physical, so we eventually reduce our engagement. Too bad, a huge percentage of the population does not, and are badly afflicted with the disease, and sad to say, many are children.

Bad things are easy to get into and hard to get out of. Good habits are difficult to form, but once in place are also hard to get out of. I guess I just defined habit. Duh. But seriously, it only underlines the need to be careful about the habits one forms.

There are so many things we may think of that are good for us, but are resisted deeply. Take reading for example. Initially, most children resist regular reading – it requires mental effort and active engagement, which Good Friend of Passive Living TV does not demand from us. But once over the hump, children become voracious readers. No one needs to tell them it's a good thing – reading has that quality within that makes children "know."

Learning a musical instrument – it can be frustrating, as the initial period is also ego defeating. You are absolutely sure there is no musical bone in your body, as the musical instrument wails in pain at your touch. But eventually, time passes, the notes sound better and better, and you become a musician. From then on, you need a daily fix, some time to play, and it opens up a lifetime of satisfaction.

The simple good things of life are wonderful. They require some investment, but they always pay off. And the investment is often quite small relative to the bounty they bring. What else can be so rewarding? – nothing money can buy.

The distractions in life pay off in the short term. Indeed, they feel like a free lunch, for with no investment, you get some pleasure. But in the end they take a toll on your life, and you realize, it was no free lunch, the payment was just back-ended.

It's all pretty obvious, which is why I am left wondering why it took me

so long to get it.

3.26 Long time, and mundane

Its been a long time since the last time I wrote, and I feel like I need to get back to writing more regularly. Just been busy doing nothing, which is another way of defining the holidays. Now that I am back teaching, I need to find distractions to keep from being mired in work. Writing for myself is perfect.

So I went to the MacWorld expo this week. Just terrific to see all the new products, quite uplifting. And the crowds are fun. Like everyone is so nice to everyone else. Beaming away at all the new cool products, just like we were all collectively responsible for them. Everyone from the same religion, children of the Mac, pleased as pink.

The Mac Mini is going to make a huge difference, there will be many new Mac users. As a regular addict, its pleasing to know the club will grow. But there is also the mild chagrin from knowing that the club will not be small, cozy, and exclusive anymore. All these new members will be streaming in, with their bad habits brought from the World of Windoze. But, with more and more users, people might write more software for the Mac now, and that would be cool.

This week my students (more than usual) have been asking for the deeper meaning of what they are learning. Curious – never ever got this sort of question before, and never more than once. "Yes, we get the math, but whats the point?" or "We get the idea, but the math is hard." One or the other, so I am doing everything wrong or right. There is a deep human need to take all learning and squeeze into some perceived framework, which I wish everyone, including students will take great pains to avoid. Best to not reference the past when looking anew. It's like not looking in the direction one is going.

Resolve to never use a PC (Windows) again, always Mac or Linux. That is the most productive thing I have done all day. Maybe need to think this out in the cold light of day tomorrow. So I give the decision a few days settle. Thats all for today. More stuff later.

3.27 What to do when your calling calls

There is something to be said for finding your "thing" in life. It is not easy, and most people hope to be able to find it one day, and when they do, hope to remain able to pursue it.

Lately I have been asking myself, have I found my calling? Is this my calling? How happy am I with what I am doing? And strangely, I think this is it. For years I felt it was not it, and could think of several other more exciting things to do, but now, I do feel like I am close, and can see myself being an academic for ever. At least, till I drop dead.

Why do so many people feel that they have missed their calling, even when they do not know what it is? I think the answer lies not in the fact that one's calling is hard to find. Its got more to do with not being able to recognize one's calling even it comes up and says "Hullo." I can mention several people I know who I think have really found their calling, and are spending all their time being unhappy looking for something else.

So there you have it, your calling comes calling and you send it packing. And it calls again, and you send it away yet again. That's how people are – always dissatisfied with what they have, and looking for things ephemeral.

Why do we make this mistake? One can never be sure, but I think it has something to do with the thinking that one's calling is going to be the most exciting thing on earth. And why should it? All it has to be is something you turn to every time you want to feel good, feel settled, feel like you. My love affair with academia is not full of torrid, exciting passion, its just a sensible cloak that fits me well. It's taken me some time to realize this. The only thing one needs to know is that the calling has got to "feel" right.

And you say to me, that's really vague. And I agree, but let me explain. It's like a good marriage, confortable, happy, not always perfect, and just the right amount of stress, not too much nor too little. Its always useful to try and define something, even when it often means different things to various people, and even more often, has different meaning to the same person at various times.

A calling is something that you never get bored of. It does not have to be something you do not get enough of, that would be too much, and maybe oppressive. It wouldn't *feel* right (there we go again)! But, it's something you know will be a source of long-term fulfilment.

A calling demands committment, it isn't a free source of gratification.

This does not make it unnatural. We are in love with the notion that finding your role in the world must be the most natural thing of all. Don't believe it for a moment. It takes work to find your calling. So put in that work, it will be a tremendous source of happiness. You may have seen this little quote from Winnie the Pooh that goes something like this – "Everyone's got a happy place. Too bad most people won't take the trouble to find it."

Callings are not mutually exclusive. In fact they will always co-exist. Once you've found one, you may find another, and continue to enjoy the first. Remember, its something you never get bored of; thus by definition, co-existence of callings follows. How many people do you know that seem to enjoy two or more quite unrelated pursuits for a long time in their lives? Some? Sure! It's probably because, if you've learnt how to go out and find your calling, you've become good at searching, and found more than one. There is no law that says there is but one "happy place" – rest assured there are many.

You may find your calling when you least suspect it. it's almost surely epiphonous. I have a few, other than academia, and they all came about in random fashion. So, do not hesitate, go forth and explore, visit wierd places, look around in an interested manner, keep muttering "Interesting!" and sooner or later you will find it. Look not where the light is, look not where people tell you to look, in fact don't really look. "Browsing" defines it better! Forage, it always works. Isn't that what it means, for-age-s, finding something for ever? Who knows? How will you know if you don't get out there? Do it! Now! Your calling awaits you, and it will not wait forever.

3.28 Observational Equivalence

I repeatedly agonize over the manner in which terrosists send their young people to blow up other young people in the cause of freedom. And I am just as troubled to realize that the war on terrorism does very much the same. The actions are observationally equivalent, even though the goals are diametrically opposed. We should know better.

3.29 Machine Intelligence

I just read an article that states that Americans read much less today than they did in 1992, when the internet started to become an alternate medium

that grabbed our attention. In fact, it seems that the number of us reading for relaxation has dropped even more dramatically, which in a warped kind of way means that we are so stressed out that we do not need to relax any more!

I don't agree that it's right to blame the computer as the source of this malaise. After all it's but the medium, and to blame it would be like shooting the messenger. But it has gone from being an active mode of brain usage to a passive delivery mechanism, very much like television, with all its deleterious effects on our minds. It's a new form of addiction, and we are glued to it. While it provides information, it might just be be saving us from thinking, which seems to be a major objective for humanity nowadays. And some feel that AI is only making this worse, as it is now possible to have a machine do the thinking for us.

But this was not what was intended for it, not by its designers or makers. While it is now a medium of news and knowledge consumption, it certainly did not expect to become so. Far from being consumptive, the computer was intended to be an aggressive, thought-provoking knowledge production device. It still is, but its major uses are often not in sync with these out-dated modes in which the machines were used.

Just look at the way laptops are named: Thinkpad, Powerbook, Inspiron, etc, all intended to be thoughtful, creative, energized. It's a pity that the laptop has gone from being a device of inspired creativity and thought, to being a souped-up juke box. It's a glorified phone, offering n-way conversation via instant messaging at slower speeds than voice – why?

Do we use it to think any more? Or do we use it to simply let people know we are here, available on instant messaging, ready to respond, ready to consume, anything to break the productive cycle!

There is but one cure – stay away from the machine unless you need to produce something. Else it will suck you in, feed you unwholesome food, and drug you enough into wanting more soon afterward. And read, read, read – on paper. Consume away from the machine, because it feeds you mercilessly. Do not buy into the electronic diet, minimize the machine interaction, it is the cholesterol of the information age.

3.30 Democracy and Progress

I enjoy eating at the faculty club on campus, but not for the food. It's the company. And I particularly like eating at the "big" table, the one where

business school (and some other) faculty eat. Mostly the older senior faculty, and then there's usually some of us younger ones. But for me, there is much wisdom here, as well as a change of pace. Discussion flows freely in the absence of youthful ambition.

Sukhi Singh from Engineering the other day explained something most profound to us all. Since the elections has just finished back in my native country India, and had resulted in an overwhelming defeat for the ruling party, despite their presiding over one of the biggest economic success stories in Asia, we were talking about what had changed and what had not.

Sukhi (which means happy) said that India would not taste real success unless a fundamental aspect of its culture changed. He called this the "premise of distrust." Every bureaucratic institution in India is pervaded with this, resulting in a system of intricate checks and reviews, requiring approval at many levels. You see, since everyone in India is expected to break the law if not checked repeatedly (and this is quite a valid assumption mostly), there are stages of checks, overlaying great chokes on economic endeavor. And then the checkers too need checking, which greatly raises the possibility of corruption, which becomes endemic.

In contrast, Sukhi said, the United States functions in a manner with a premise of trust. Everyone is expected to follow the law, and mostly everyone does. The checks are ex-post and not ex-ante, for breaking the law is normally punished, with no exceptions (though being rich can help). Creative people are free of bureaucratic hinderance unless they break the law. But they are not checked, reviewed, second-guessed or exploited by people with no ability to provide a proper input on their work.

My father-in-law, one of wisest people I have come across, said – "We must trust people to make them trustworthy." He was so right.

What struck me later was that this was it. Just trust versus distrust. While we may continue to fool ourselves that it is democracy in the U.S. that makes us so productive, it may not be. Freedom surely paves the way for trust to work its magic, and that freedom is ensured by democracy, but in the end, its the culture of trust that does it. Democracy alone would be insufficient. Otherwise, India would be the most successful country in the world! It is a country with over 80% Hindus, yet the President is Muslim. In the most recent election, it almost had a women executive head, of Italian origin, born in Rome (and she would have been the second woman to run the nation). The final choice for Prime Minister is now a Sikh, with a degree from

Oxford. If anyone needs evidence that democracy is a western prerogative, let this be the best counterexample. Compared to India, democracy in the U.S. is at a much smaller scale.

But, the culture of trust does make the U.S. unique. We are taught early to trust ourselves and believe in our thoughts. How many countries preach this gospel? Which religion even comes close? So, when the state starts to mistrust us, big brother us, use the Patriot Act to smother us, it makes us really unhappy. When we are told to trust them, not ourselves, something is wrong. When government tells other nations to trust them, not themselves, we insult them with distrust. And we need to be really careful, because if carried too far, we will lose the mother lode that makes this country what it really is. In any case, let's trust in ourselves, instinctively and surely.

3.31 Connectivity

One cannot but be amazed at the pace at which communication technology has evolved in the past several years. I am able to email anyone, crossing borders in seconds where before I would have to mail documents, enticing inspection. I can call anyone anywhere. But mostly I can call everyone, by just writing publicly. Baring your mind, heart, and soul has never been easier.

My wife carries a cell phone on which I can reach her anywhere in the world by calling her local number. She has been away now for almost two weeks, upsetting the rhythm of our lives. When you have been married as long as I have, its nice to have that quiet time to oneself as your spouse travels, but the absence of routine eventually becomes harsh and oppressive. That's when I call, hoping to proxy my routine in a few minutes of conversation.

The human connection has transfer rates that far exceed that of any technology we may ever devise. Even as physical telephonic contact is made between us, my wife opens the emotive connection as well, operating at a bandwidth far exceeding the physical voices that pass over the lines. And she asks – "Are you ok?" – to which I reply "Of course."

I sense a sudden disappointment – does she not know I am feeling out of sorts? What happened to my hypothesis about emotions and infinite transfer rates? Was I wrong?

And then with relief, I realise that she is not asking me, she is telling me she knows. Logic will never outstrip instinct.

3.32 San Francisco Sunset

I am lucky to live a few miles from what must be the best sunset in the world. Today, when I drove my motorcycle up to Grizzly Peak in the hills above Berkeley, I could not help feel blessed as I saw the sun slowly come down over the Marin hills caressing everything into the gentle night.

I ride up to Grizzly Peak as often as I can – it is now an integral part of my psyche. From up there you can see all five bridges that cross various points of San Francisco Bay, and you get this incredible view of the Golden Gate bridge standing calmly next to the city spires. Later in the year the sun will move so as to set right over the Golden Gate, and from my vantage point, with Alcatraz right in front of the bridge, it is a triple delight. And some days, the fog mixes with the sun and bathes the bay with a golden halo – it is very impressive, not just for its powerful expanse, but also for its infinite variety. No matter how many times I go up there, it is always different.

Today there must have been at least 40 sport motorcycles up there – gorgeous feline machines, and their crude and rough riders, the drug-filled air and foul-mouthed tones casting a pall of dissonance over the mountain. This is "The Wall" – one of the most famous meeting places for bikers, who begin to gather two hours or more before sunset, usually dispersing rapidly right after, especially when the fog rolls in and it becomes bitterly cold.

But never mind – the sunset smothers all with calmness, despite the rubber burnouts, and loud speed drives past the wall. The soothing rays bring enervating relaxation to me, and I wander towards it, oblivious to the testosterone and tatoos around me. It's that sunset, the pied piper that draws me up the mountain, always there and such a bonus, as it comes as a perfect end to any sort of day.

And it will always be there, my friend, and I hope I will be there for it too, as long as I live.

3.33 Seeing Mars

This month, the red planet is visible in the southern sky from my driveway – and its become an old friend, for I see it every night when pulling the car into the garage. It shines like a gentle beacon down on my life. I will miss it when it finally leaves its post.

Mars does not look red, not to the naked eye, nor with looking glasses.

But it is tinged with a hot character, unlike the cooler look of the other stars in the sky. So it is special and always will be.

In many ways, since it came into the night sky, my mood has become more reflective and sombre. But then, that's surely a coincidence. Academics are prone to data-snooping just as much as anyone else – just as psychologists are not immune to failings of the psyche. But there is nothing wrong with wishful thinking – my reading rate since Mars appeared has doubled, and I will wait and see if it drops off when Mars leaves!

But the arrival of Mars is a metaphor for life. Even though it occupies but a tiny fraction of the visible sky, it has made me look much more closely at a disproportionately large expanse. It started me gazing, and even after looking long at Mars, there was so much to see. It is but a catalyst for engagement with the night sky. So it is with life – small things lead to much bigger things, well in excess of their sphere of immediate influence.

Mars is hope – nothing is insignificant – small things lead to much more. So keep looking, and don't ignore what may be small details, for they are most meaningful.

3.34 Is the "Best" always of interest?

I recently asked a young man I know well if he would be interested in going to see the "best" in the world perform, without knowing what area of endeavour I meant? The reply – "maybe." What would you say if you were asked this question?

Would you go see the best tennis player in the world, even if you had no interest in tennis? Would you go to an Eminem concert even if you hated rap? I would, but I daresay many people would not. In all likelihood, the world splits into two groups, those that want to see the best, no matter what, and the 'maybes.'

There is no value judgement here, but it is interesting to ask why there is a difference. I believe it has to do with two reasons people go to a performance for: (a) the content of the performance, and (b) the pleasure in seeing an engaging performer. Admittedly, there are many team performances of outstanding quality, where no one single person can be singled out for greatness. These are lost on me. I would be happy however, to see an average performance, where the performer was thrillingly engaged. Without a doubt, these two aspects of a performance are highly correlated, and hence, it is not

obvious that the distinction is always clearly made.

Therefore, asking the "best" question helps in finding out what kind of person someone is.

3.35 When suboptimal is superoptimal

Academics usually do not fly first class unless there is a strange reason. In my case today there was – the airline messed up and I found myself in seat 1A coming back across the country from Massachusetts to California, a route I have flown more than 50 times in my life before, but never in first class; but I digress.

Sitting up in the front usually comprises a return to infancy. You sleep, go to the toilet, winge, and generally get fed (which mimics closely my first 12 months of life). So here is the strange thing – when the purser began asking me which of the various meals I would like for dinner, I just took the first one, even before he completed telling me what they all were. The first option was something I liked, and I just took it, passing up the chance at something better. When he asked me – "Don't you want to know what else there is?" – I simply said "no." I was happy, content. I enjoyed this meal more than any other on a flight, I had gotten exactly what I wanted, no choice costs and no opportunity costs. Why don't we always make decisions this way?

(a) By stopping at the first acceptable choice, we have low choice costs, for we do not have to choose between many alternatives, just one at a time. That's easy.

(b) By not knowing the other options, there are no opportunity costs, no regrets. Just satisfaction.

You know, this works for me. I just realized that I am not an optimizer. Nor am I a satisficer. Maybe I am just easy to please. Are all people that are easy to please likely to make decisions in this way? Who knows? It's not bad being a simpleton. We like making choices by Dutch auction.

Now what if that first option was clearly below a threshold? Then just move on to the next one. Take it one at a time. If the chance of the option being acceptable (not optimal) is 50 percent, then there is a very small chance that you need to look beyond 4 choices. You may not reach the optimal, but you will surely be happy. Which is often not what we are when we have made the best choice.

In a word, just make a good choice, and stop worrying about making the best one. Good enough!

3.36 Calling it a Day

Am I at the end of This. Academic. Life? I have now been an academic for 35 years, including my time as a PhD student. That's more than half my life. No regrets, none whatsoever, and I think — how many people can say that of anything you have poured yourself into? If given a chance to go back, I daresay I'd do nothing different.

Academia has given me a lens into Life, one that I am infinitely grateful for. It is a different lens, one that seeks truth and not opinion. The training is such that it makes us that way, but it also therefore makes one unsuited for the real world, where facts matter less, and the vagaries of people and their opinions do hold sway, and no matter how much we academics would wish the world to run on facts, it just isn't so. So we are well-trained misfits, living in our ivory tower.

Does this make us useless in the real world? No, we are valued for the different perspective we bring when engaged with industry or government. I have been lucky to enjoy the best of both worlds. For someone like me, with high levels of curiosity and FOMO (the Fear of Missing Out)., it has been idyllic. I have been able to marry theory and practice, which helped complement my smallish academic wage, but more than that, it fed me ideas and led to research that would not have been possible if I'd not strayed from the ivory tower. Though I often wonder if I'd be happier simply enjoying the view from the academic's gilded outpost.

As of this writing, I am beginning to feel as if I have strayed too far, no matter how much I tell myself that it was to discover new lands in search of fresh academic ideas and pursuits. Maybe it was because of frustrations with the long academic publication process (though it can be just as tedious in industry). Maybe it was to learn faster, and to be renewed. Like some sort of space walk, but always calling for a return to the mother ship.

More recently, I have engaged as an open-source contributor, working with an unimaginably wonderful team, learning the ropes, albeit very slowly. The motivation for this comes from the fact that working on open source is unrestricted, you can do it any time, without regard to holding a position or job that grants access. What a brilliant system! — No entry barriers, it

is both selfish and cooperative at the same time. An open world — what academic could ask for more? You can retire and still have a home for quality work.

This brings me to the essential question — when to retire? Everyone hopes to check out when on top, and not when it is inevitable. It is hard to know when that is. I'd say I've done my best work, but how far past the peak am I to decide to call it a day? The same goes for my work with industry. There may not be just one peak, and there may be another one coming up. Hard to say. Does one have to lose interest in climbing academic peaks and look around for some other ones (family, travel, a startup)? Or manage both, as some seem to do rather well.

I've been considering retirement as simplification, dropping out of non-academic work, and retreating into deep research work with full control over my time. Isn't this what retirement brings? You get to almost unilaterally determine how you spend your days. This is why we academics are so lucky, we do not need to retire from "work" but simply redefine what we do as "deep play." Doing research or working in open-source allows you the freedom to engage in productive intellectual activities without needing the trappings of a job (though it can help with resources at times).

One often worries about losing the income one has when retiring from a job. What we need to remember is that there is a money versus time tradeoff. Don Knuth "retired" because he did not need his academic position nor the money to keep working on ideas that excited him, and retiring paid him in time units to do what he loved.[28] So once you've stashed away your nest egg, start getting paid in time. For me, retiring from my industry work means I get paid in time while still getting paid from my academic role. This is the big payoff of an academic life! Leaving industry behind to get paid in time is gaining JOMO (the Joy of Missing Out).

More than that, the training enables you to remain curious and excited forever!

[28] https://cs.stanford.edu/~knuth/retd.html