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A Conceptual Exploration of Anti-Fragility in the Context of Confucian Heritage Culture Education

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Keywords

Education, teaching and learning, anti-fragility, risk, students

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Abstract

It is a common but not unrealistic stereotype of Asian students that educational success is a matter of personal identity and status. As such, achieving distinctions in as many subjects as possible (the popular target of becoming a 'straight A' student) is usually a non-negotiable objective nurtured by both parents and educators. However, unfortunately, such an obsessive pursuit of academic excellence produces both laudable outcomes (e.g., the tendency of Asian students to outperform their counterparts) and dangerous ones (e.g., worrying rates of mental health problems). This theoretical paper hopes to apply the concept of anti-fragility developed by Nassim Nicholas Taleb, one of its methods known as the Barbell Strategy, towards student learning in the hope of a) maintaining a trajectory of academic excellence while b) avoiding the psychological pressures which usually accompany Asian students.

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Introduction

On May 16, 2016, an 11-year-old Singaporean boy came home with his report card. He attained 57.5 out of 100 marks for his science examination. Two days later, he committed suicide by jumping from seventeen floors of his apartment block; his mother was heard crying in Mandarin next to the body, "I only asked for 70 marks, not 80." (Hussain, 2016).

Unfortunately, this tragic event is not an anomaly in countries like Singapore and Malaysia, where the pressure to succeed academically is endemic. In such societies, an inevitable topic that pops up during extended family gatherings is how the cousins performed in school. Specifically, each generation will want to compare the academic performance of the ones before it. It will be mental torture for any kid or teenager who did not get at least the top ten in class. Those who did, especially anyone who obtained the equivalent of magna cum laude in primary school, will be delighted they dodged a bullet…until the following semester or year in which

they will be pressured to repeat and report their stellar performance. If this is not a vicious cycle, it is at least arduous.

It is a commonplace Asian (especially Chinese, Korean, and Japanese) culture for parents to expect their children to perform well in school, obtain good grades, and generally be among the top students in the class. Within East Asian or Confucian Heritage Cultures (Tan & Yates, 2011), parental monitoring and control of children's behaviour and use of time towards academic pursuits are prevalent. Academic excellence, in such societies, is a matter of cultural respect and status:

> "The children would be unlikely to resist such control and would conscientiously fulfil parental expectations because of certain cultural values and norms that *relate academic achievement to family honor*." (Schneider & Lee, 1990)

Essentially, many students in such communities are pressured to deliver regular and *straight* distinctions for every year and semester in school, with said pressure coming from peers, their teachers, parents, and society as a whole; failure is severely frowned upon (Schneider & Lee, 1990; Tan & Yates, 2011). Academic excellence, mainly as characterized within a Confucian Heritage Culture, can only mean that a student excels in all the subjects.

The rise in private tuition enrolment is undeniably associated with this ubiquitous social desire to excel in education (Raffick Foondun, 2002). As someone born and bred in urban Malaysia, I can attest to the popularity of such independent tuition centers. However, many of my classmates still need to be provided with the option of not attending. Societally, parents of students not going for tuition would themselves be peer-pressured to send their kids for these additional classes, the Malaysian psyche having embedded within it the idea that academic success cannot emerge otherwise.

Sadly, the pressure to excel academically in everything—while generating scholastic rewards for a minority of students (usually those already gifted in academia)—also creates an unnecessary level of stress for most of them (Cho & Yon, 2005). Given how the teenage years also represent a critical phase of brain and mental development in which high levels of emotional empathy, identity-and-status formation, and risk-taking abound (Sapolsky, 2018), it is not at all surprising that such pressure to excel produces depression, mental health problems and, tragically, even suicide among adolescents (Wan Salwina et al., 2014; Vijayakumar et al., 2005;

Zeng & LeTendre, 1998). Academic issues are even listed as one of the factors contributing to suicide in a recent national report on the matter (Chua & Rao, 2021).

It was, in fact, the regular occurrence of news reports in which teenagers hurled themselves off buildings or hanged themselves, which prompted me to ask if my community's approach to academia may be creating more harm than good. In private conversations with friends in Hong Kong, some have informed me that condominium committees on the island have proposed and implemented suicide safety nets considering the increasing frequency of teenage suicide.[1]

It is unrealistic psychologically and impossible statistically to expect any given child or adolescent to perform superbly well in academia. For most parents to pressure their children to attain, such scholastic superiority would be akin to expecting most students to end up like footballing superstars or singing celebrities.

What can be done if we do not wish to jettison the goal of quality academic achievement? How do we address adolescent anxiety and unhappiness related to the human desire for achievement without promoting a lax attitude toward school or raising the risks of mental health problems even more?

The 'barbell strategy' is *one* proposal to address this dire situation. Developed and popularized by Nassim Nicholas Taleb as part of a suite of anti-fragile approaches (explained below), it is hoped that this approach will not only reduce the stress and anxiety of students caused by the need to outshine all their peers but also promote a level of mastery not accessible to students whose main priority is excelling in *all* academic disciplines or subjects.

It must be emphasized, however, that—work on strength-based learning notwithstanding—there has been no detailed research on the barbell strategy in the context of education or teaching and learning. As such, I hope what follows can be viewed as something akin to a research proposal for educators seeking a fresh approach to minimizing student depression without preceding academic progress.

Anti-Fragility, The Barbell Strategy, and Schooling

The concept of anti-fragility relates to the property of a *dis*proportionate effect from increasing levels of external shock (up to a point). So put, fragile things (like glasses, third-world

highways, and certain corporate egos') break or unravel from increased pressure, but that which is anti-fragile (like a rock star's popularity or a viral video) not only remains resilient against attempts to destroy it but, often, even grow in strength (Taleb, 2012).

In pandemic times like ours, this concept can be seen very strikingly. Airlines and the tourism sector appear severely fragile to a national lockdown to contain the Coronavirus. On the other hand, the telecommunications sector and glove manufacturing companies (especially those who produce Personal Protective Equipment) will thrive, i.e., they are anti-fragile to the problems caused by COVID-19.

Using another example, one could point out that desire is anti-fragile to snuff it out; try to quench the fire of sexual attraction, and we only enflame it even more. Likewise, morality appears to be the opposite of desire in that it does not take much for many people to give up their moral standards in an increasingly liberal world. To reiterate, the anti-fragile grows stronger from attempts to harm it or knock it out of equilibrium.

This idea of nurturing and developing a quality that *allows something to gain from disorder* would be enthusiastically accepted in schools and among educators. However, there have been relatively few attempts to apply the concept in education, mainly dealing with how students should equip themselves to handle future real-world complexity, the value of local on-the-ground knowledge and adapting to pedagogical technologies and so on (Çepni, 2017; Polowy, 2016; Fortunato, 2015; Weller & Anderson, 2013). Thus far, there has been no proposal that seeks to address the community-wide problem of stress and depression among Asian adolescent students, most of whom are socially pressured to excel in the whole range of subjects.

On the other hand, anti-fragility is almost by definition about minimizing, if not removing entirely, whatever is fragile from any given system (not least the stressed psyches of adolescent students!). To this end, the barbell method aims to reduce the risk of *ruining a* negative black swan, which is an irreversible event of exceptionally high impact (Taleb, 2007) ─ to zero, while, maintaining exposure to lucky breaks or a massive upside, that is, a positive black swan. This is reflected in the *shape* of the average barbell (a long bar to which attached discs of varying weights at both ends), in which the two extreme opposite ends are given priority while the middle is avoided. Staying clear of the middle is central to anti-fragile thinking because

focusing on the 'middle ground' is a frequent culprit for ignoring the risks at one end and failing to achieve the unlikely upside at the other.

Barbell thinking, therefore, is about juxtaposing a highly conservative strategy with a risk-loving one; it is about mixing 'paranoia' over anything which may ruin us with an aggressive entrepreneurial-like approach towards reaching for unlikely successes. Hence, the two required extremes of a barbell. If only the conservative end of the barbell were prioritized, this would mean, at best, resilience, or robustness in the face of shocks without the advantage spurred by said shocks. If, however, only the adventurous end of the barbell was given attention, this would mean exposure to huge tail[2] events, which could bring about irreversible damage. Again, both ends of the barbell are essential, not just one (Taleb, 2012).

Translated into the discourse of the average student struggling with exams, the barbell method would aim to avoid the 'ruin' of depression while encouraging an above-par mastery of a particular discipline. Unfortunately, the situation at present precisely does the *opposite*, i.e., it exposes thousands (if not millions) of teenagers to unnecessary mental stress. At the same time, the students who thrive are pushed to produce report cards depicting a string of distinctions with no particularly in-depth exploration of any one subject. The formal outcome of being a "straight-A" student is the visible endpoint, with the invisible risks being that many young people suffer from the failure to deliver such a lofty target.

How specifically would barbell thinking address these problems? What concrete action steps can a student take which would (a) prevent the onset of depression (from a failure to perform academically) and (b) increase the likelihood of said student surpassing the average benchmark for a given subject?

Removing the Downside, Pursuing the Upside

In the biography of Elon Musk, the billionaire CEO of SpaceX and Tesla, Musk talks about his schooling years. It reveals an approach suggestive of an anti-fragile barbell mindset: “There were compulsory subjects like Afrikaans, and I just did not see the point of learning that. It seemed ridiculous. *I’d get a passing grade and that was fine. I got the highest grade you can get in things like physics and computers.* There needs to be a reason for a grade. I’d rather play

video games, write software, and read books than try and get an A if there's no point in getting an A." (Vance, 2015).

Musk's strategy was two-pronged. First, obtain a passing grade, especially for subjects one either cannot appreciate or (believes one) needs to have the acumen. Second, outshine everyone else in the subjects one is passionate about. Critically, Musk refused the 'spectator sport' mentality in which students should get an A for the sake of getting an A. He said, "There needs to be a reason for a grade." Hence, to reiterate, for subjects that did not resonate with Musk, he was satisfied with a *passing* grade for the straightforward reason that a failure would hold him back in school; for subjects he loved (like physics and computers), he surpassed everyone else because that is what top performers in any field naturally do.

We glimpse the essence of the barbell strategy in Musk's approach. In contrast to traditional (Asian) practices whereby students strive to do better than everyone else in all subjects, an anti-fragile tactic proposes instead that students excel *selectively* (in the very subjects which fascinate them or bring out the best in them) while not least concerning subjects they do not have the knack for ensuring they attain the minimum necessary to avoid failure or dropping out.

This, then, is the essence of the barbell strategy: For students to focus on excelling in *only* those few subjects their love or are innately effective at and to attain merely the baseline (a simple 'Pass') for those subjects they do not resonate with or have found unusually difficult. This would require rejecting the mindset whereby a good student achieves top grades in *all* subjects.

The myriad benefits of adopting this method include students' freedom not to excel unrealistically or continue participating in a joyless academic rat race (Landes et al., 2012). Because the barbell strategy abhors the middle-ground between superior performance and a baseline minimum, students are liberated from pursuing class-topping acclaim in *every* subject, as per the traditional imperative laid down by teachers and parents alike. Instead, Apropos Musk would be free to earn the lowest scores necessary to pass and move on to more enjoyable parts of the curriculum. If authority figures tell these students they 'must try harder,' they need not expend unnecessary effort on subjects that produce more strain than scholarship; they merely need to focus on the areas they are passionate about diving deeper into.

Optionality, Tinkering, and Convexity

This flows naturally into the second benefit of the barbell strategy, which is that students' desire to learn can be expected to rise exponentially precisely because they are working on something which matters to them or interests them or affords them a chance to demonstrate above-moderate levels of mastery. Such a 'strength-based' and personalized learning trajectory almost inevitably leads to gains in student motivation, engagement, goal orientation, self-awareness, response to the instruction, desire for feedback, quality of assessment performances, and so on (Eaves, 2014; Ainley, 2006; Shane et al., 2004).

Furthermore, this approach aligns well with some key traits of anti-fragility. First, the method itself is practically defined by its focus on *optionality*. Unlike the traditional approach, students can now choose pet subjects on which they can focus their energy and efforts. As long as the other subjects achieve a passing grade, students can devote as much attention and interest as they like to select a few disciplines. For an adolescent societally expected to deliver distinctions in all or a majority of his or her school subjects for many years, this new directive is akin to a breath of fresh air.

The emphasis on promoting options for students also relates well to the recent (re)-discovery of the advantages of students *not* specializing too early in their education; there is undeniable value in students being encouraged to tinker, 'flirting with their possible selves' and try new things (Epstein, 2019). While this focus on students' range of skills superficially may contradict the barbell strategy's stress on what a student excels at, I see Epstein's work complementing Taleb's approach.

Epstein's "range" findings suggest that students should avoid specializing too early, should be open to switching disciplines, seek 'match quality' (between their skills and their intended career roles), and should view their schooling years as entirely formative even to the point of downplaying good grades in the short-term in order to develop long-term 'deeper' learning via exposure to concepts, knowledge structure, and learning skills as possible. This approach to education flatly contradicts the typical Asian modus operandi of pressuring school kids to obsessively collect Distinctions, *de facto* rendering it a natural ally to the barbell strategy. While the latter does encourage students to revel in subjects or areas, they find themselves excelling at; it certainly encourages learners to experiment as widely as possible *without*,

crucially, seeking to best others in everything they put their minds to. Exposure is more important than a flowery report card. Tinkering is a vital component of the anti-fragile (Taleb, 2012).

Secondly, and because these are subjects the students either love or can perform well in, they would *welcome variability and uncertainty* in said subjects; to be passionate about an area is to be eager to explore all issues related to it. This is a massive improvement from the usual case of top students whose chief goal is to memorize[3] their way to an A; learning, in such cases, is limited to (and thus restricted by) the goal of producing a sparkling report card. In short, the barbell strategy promotes active learning against the rote learning characteristic of traditional methods.

Finally, as per a central attribute of anti-fragility, the barbell strategy *clips the downside* of student depression and opens him or her up to a potentially massive upside. When adolescents are given the unrealistic demand of excelling in the entire suite of subjects on pain of reprimand or lower self-esteem, the hidden risk of demoralization and anxiety constantly remains in the background; this problem is exacerbated by the obsessively competitive and status-oriented nature of academics within an Asian outlook (Tan & Yates, 2011).

Novelist Haruki Murakami highlights the chagrin of academic pressure, saying he was never interested in subjects he was forced to study (2008). He continues:

> "I told myself *it was something that had to be done*, so I wasn't a total slacker and was able to go on to college, but never once did I find studying exciting. As a result, though my grades weren't the kind you have to hide from people, I don't have any memory of being praised for getting a good grade or being the best in anything. I only began to enjoy studying *after I got through the educational system* and became a so-called member of society. If something interested me, and I could study it at my own pace and approach it the way I liked, I was efficient at acquiring knowledge and skills." (Murakami, 2008).

The disconnect between schoolwork which 'had to be done' and studying subjects at one's own pace and approach could not be more significant. Harking back to the opening lines of this essay, Murakami even mentions the typically Asian 'event' of being praised (or not) for achieving

good grades, which he associates with his non-enjoyment (or 'slacking') in school. Once again, this reveals the competitive nature of the education system in Confucian Heritage Cultures societies in which the urge to compare grades is pervasive and, worse, often becomes the all-exclusive reason for learning at all.

Crucially, the barbell strategy takes as its starting point the removal of this comparative-obsessive dimension; to the extent, students do 'compete,' they only do so within a domain in which they *already* demonstrate an aptitude for or a passion (or both) which increases the likelihood that the student becomes exceptionally skilled or well-versed in said domains. When wedded with the potential for exponential learning and improvement (in their chosen area), such a removal of the downside produces what Taleb calls *convexity*, that is, the asymmetrical situation in which gains exceed losses (Taleb, 2012).

In academic parlance, convexity means that students' recall, understanding, application, and continuous improvement to any subject grows exponentially with time spent learning. On a personal note, I can attest to the convex nature of my 12-year-old's progress with the Rubik's cube. Once he started on the cube, within a few weeks, he was solving it in under a minute. His independent self-tutorials were conducted via YouTube and other websites, with zero input from his parents. In contrast, his experience with certain school subjects (especially in Malay language proficiency) can be regressive. His mom sent him for private tutoring, and his schoolteachers gave him extra sessions, but his grades barely improved. This sad phenomenon Taleb describes as *concave*, i.e., when gains fail to catch up proportionally with the effort expended.

Taleb's testimony of how he approached schooling in his early years highlights the value of refusing to 'learn' everything on offer. Calling himself a 'barbell autodidact,' he says that he:

> "(Studied) the *exact minimum* necessary to pass any exam, overshooting accidentally occasionally, and only getting in trouble a few times by undershooting. But I read voraciously, wholesale, initially in the humanities, later in mathematics and science, and now in history—outside a curriculum, away from the gym machine. I figured out that *whatever I selected myself* I could read with more depth and more breadth—there was a match to my curiosity… The minute I was bored with a book or a subject I moved to another one, instead of giving up on reading altogether—when you are limited to the school material and you get bored, you tend to give up and do nothing or play hooky out

> of discouragement. *The trick is to be bored with a specific book, rather than with the act of reading.* So, the number of pages absorbed could grow faster than otherwise. And you find gold effortlessly, just as in rational but undirected trial-and-error-based research. It is exactly like options, trial, and error, not getting stuck, bifurcating when necessary but keeping a sense of broad freedom and opportunism. Trial and error are freedom, (Taleb, 2012).

In the above, one can see convexity and optionality result from self-selecting subjects one loves. By using boredom as a filter, Taleb gained more enjoyment and depth from the subjects he did decide were worth his time while (not unlike Musk) giving only minimum effort to the school-based requirement of passing exams. His quip about being bored with specific books instead of the act of reading warns against throwing out the baby of learning with the bathwater of institutionally prescribed learning material. This is far and away from how the average Asian student experiences school, in which learning as a discipline is undervalued compared to outdoing one's peers in a definite topic (which may or may not capture one's interests).

In most Asian schools, one rarely comes across students reading 'beyond' the texts or what their teachers will be in the forthcoming exam. All that matters in such a context is the eventual report card. Again, Taleb's approach is the precise opposite: *the academic report card does not matter*. The anti-fragile student only needs to ensure he or she is not held back another year; every other concern after that is an open sea of enjoyment, exploration, self-direction, and experimentation. This way, true academic freedom lies.

Furthermore, when students no longer must compete to obtain a higher number of As,' they are freed from the depression associated with such a demanding task and freed up to be the best they can be in their favorite subjects. The downside is domesticated, and the upside is potentially legion; such convexity is anti-fragility at its purest.

Conclusion and Challenges

In cultures that valorise academic prowess, every news report of teenage suicide due to exam stress can only be perceived as an exception to an otherwise effective system, never a symptom or a diabolical problem. Every parent who continues pressuring their child towards top-of-the-class merits would refuse the idea that their child is at any severe risk; in such cases, one can only hope that reality does not prove them wrong.

I will repeat the earlier analogy I made with the COVID-19 pandemic. In many countries, wearing masks and practicing social distancing remained anomalies. Even in Malaysia, where laws were put in place to punish those who refused to wear masks in public, it was not uncommon to see people flouting the rules. The same mindset in dealing with academic pressure prevailed towards public health regulations: "It is very unlikely that I or my family will be affected, so why bother?"

Such objections, from statistical probability, are extremely commonplace, if understandable. Thus, a significant area of education for public awareness is the importance of randomness in the world and what is known in statistics as fat-tail events (Taleb & Goldstein, 2011). You will only convince people that a (seemingly) improbable occurrence can cause irreversible ruin to their lives once you persuade them that the mental models of reality they are working with usually cause them to overestimate their powers of prediction and control are invalid.

There has yet to be formal research (which I am aware of) that validates the use of the barbell strategy, especially in education. However, Taleb's endorsement of the method has been applied to fields of investment, fitness, finance, etc., although these remain largely anecdotal.

While I cannot imagine it would be easy obtaining parental approval, one approach to study the effectiveness of the barbell may be to introduce it to schools and later compare key performance and 'emotional health' indicators between such students and their counterparts in control groups. However, of course, one hugely anticipated obstacle in such a research strategy may be persuading parents and students that not achieving a full house of distinctions does *not* equate to some shameful failure in life.

Herein lies the biggest challenge to the proposals in this essay, that is, the culturally entrenched view of academic ‘success’ (defined in a particular way) as an exclusive and non-negotiable towards rewards and stature in the future. In true fragility fashion, students are offered no other *option*. This indeed explains why, despite Singapore's Ministry of Education's October 2018 announcement of a reduction in school exams, third-party institutions (like private tuition centers) rush in to placate parents' anxieties (over the lack of exams) by offering their examinations (Chua, 2018).

Alas, and again, nothing can transform mindsets better than actual (and often tragic) events which force a change. Ironically, fixed ways of thinking are among the most anti-fragile things in the world. It is hoped that if more students and schools experiment with alternatives to 'excelling' in academia, society will follow suit. Gladly, there is a minimal downside and every advantage to expect to tinker with something new.

Author's Footnotes

This is an increasingly urgent concern in my own country, Malaysia (Lee et al., 2018). However, unfortunately, I have also lost count of the number of times I have given talks to secondary school children and, upon asking them how they feel about their upcoming exams, received that oh-too-familiar collective groaning and sighing in response. In contrast, when I talked about this issue with parents of school-going children, chances are these parents will inform me that academic pressure "is what it is" and that school children should be pushed to excel because their futures depend on it. If there were ever a case of conventional wisdom which stubbornly refused to rethink of any kind, this would be it.

After one of my lectures on a similar theme, a Malay parent came up to me and shared that, according to his understanding, suicides were more frequently committed by Chinese students. For Malay students, the 'coping mechanism' of choice for academic pressure was drug addiction. A tail event is a doubtful point at the 'tail-end' of a normal curve with enormous consequences, which people generally ignore (to their peril). However, this is the leading way secondary school students' study and even excel in Malaysia. Being in the system for more than a decade as a student and a teacher, I can confirm that this practice remains alive and healthy among most students.

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