Generating Alumni Giving Projects via Crowd Sourcing

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A Proposed Alumni Giving Project — "Advancing Yale Student Health"

This paper is in two sections. The first suggests a new way of engaging alumni interest in contributions – that is, to use a crowdsourcing platform to allow individual alumni (and students) to propose projects that they think deserve support.

Other Yalies would comment on proposed projects, modify them, and vote them up or down. The top ten would then be circulated generally, and alumni could agree to contribute to particular projects, again using a crowd funding platform. Projects that attracted sufficient contributions would be implemented.

The second section outlines the project that I propose: A detailed study of ways to advance the care of students' health at Yale, to be performed by the new Yale Center for Innovative Thinking.

In support this proposal, the rest of this paper describes a variety of elements which might be included in this "Innovation Center Health Study."

The first group focuses on improving things that Yale now seems not to do well – support for student health doctors, and the controversial forced withdrawal for students with mental illness.

A second group is "reach" projects, to advance Yale's care of students in the forefront of what can be achieved with emerging technology. These include methods of reducing the likelihood that students will have significant mental illness problems, and "big data" approaches to guiding judgements about a student's propects.

As collateral benefits, these "reach projects" would (i) offer Yale's computer science department a platform for improving its battered reputation; and (ii) improve Yale's economics.

I. Crowd-Sourcing of Alumni Giving Ideas

An Argument for Crowd-Sourcing Alumni Projects

In recent years, it hasn't seemed very interesting to give unrestricted contributions to Yale. Any check I might write is dwarfed by the big contributions. It would be much more fun to be able to fund something with your name on it – like Kroon Hall, or the Adams Music School. And even these gifts wind up in the shadow of the enormous contribution my classmate David Swenson makes to Yale simply by running the endowment.

Crowd sourcing of alumni giving ideas has several advantages. It would offer us "normal" alumni the opportunity to be part of a specific project that we find interesting, even if we can't endow a building.

Crowd sourcing of ideas also offers a way to obtain the "wisdom of the group." Many leading corporations – Google, Coca Cola, Apple, GE, IBM, Microsoft – use crowd-sourcing of ideas from their employees and customers.[1]

Mechanics of Crowd-Sourcing

First, Yale would host a website using standard crowdsourcing software.[2] Alumni and students would post descriptions on this web site of projects they would like to see supported. Proposed projects would attract suggested modifications, and as modified, be voted up or down.

The 10 highest ranking projects would be marketed to alumni by class, school, etc. Projects that alumni agree to fund adequately would be adopted. Yale, or a generous alum, could influence this by agreeing to match some percentage of particular project costs.

Finally, to reduce the conflict and administrative distaste for restricted gifts, unspent funds would revert to the general endowment after 10 years or so.

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[1] See *"6 Best Global Brands use creative crowdsourcing"*, retrieved from http://news.eyeka.net/2012/03; Schlagwein & Bjørn-Andersen, *"Organizational Learning with Crowdsourcing: The Revelatory Case of LEGO",* 15 J. Assn. Info. Systems, pp. 754-778, Nov. 2014

[2] See Wikipedia's "Crowdsourcing" article for general descriptions of crowdsourcing and crowdfunding methods, software platforms, etc.

II. A Specific Alumni Proposal — A Study of Ways to Advance Yale Student Health

My suggestion is to fund a major study by the Yale Center for Innovative Thinking of both (i) changes in student health areas that Yale seems to do badly, and (ii) changes that might help make Yale a creative leader in student health. I suggest funding the study at $1 million.

Potential benefits. Ideas coming out of this study might do a number of good things. First, Yale's sometime-claim that Yale offers the best undergraduate experience would be bolstered.[3] Similarly, success for Yalies in the post-graduate world could be improved by these ideas. And, having more successful graduates would improve Yale's economics.

Another good result could be opportunities to improve the reputation of Yale's somewhat-beleaguered computer sciences department.

A. First Phase: Review of Apparently Substandard Yale Practices.

This section suggests several Yale policies which should be studied because they seem to fall below the "best practices" level. These include (i) limited access to the expertise of Yale medical faculty members, and (ii) the recently controversial "withdrawal" policy for students showing signs of mental illness.

Limited Access to Medical Faculty. I gather that Yale student health doctors and Yale students themselves have only limited access to advice from the Yale medical school faculty.

First, I have been told by a Columbia medical school professor (and graduate of Harvard and its medical school) that student health service doctors at Columbia are given the telephone numbers of medical school faculty experts and encouraged to consult them if a complex situation arises. This is evidently not the case at Yale or Harvard.

Similarly, I gather that the Yale student health medical insurance program does not refer students for treatment by experts in the Yale Medical School – who seem to be "out of network" to students.[4]

This is bad for students, but also for the medical school – a skiing friend who was a long-time Yale medical school professor told me that the medical school suffers from a lack of patients with complex diseases, because they are siphoned off by the medical complexes in New York City and Boston. If so, why turn away Yale students?

The "Withdrawal Policy." [5] Yale has long had a policy of rusticating students who present with serious mental health issues. A contemporary of mine was well aware of this policy as a graduate student in the late 1960s. In 2005, the son of a classmate who sent several children to Yale was forced to withdraw after he turned bipolar in junior year, and then died alone in his off-campus apartment. Three years ago, an undergraduate published a searing personal account of the effect of

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[3] See *Highest Student Satisfaction Rates* at http://www.bestcolleges.com/features/highstudentsatisfaction/ (ranking Yale #4 behind Princeton, Dartmouth, and Notre Dame); *50 Colleges and Universities with the Happiest Freshmen*, at http://www.collegechoice.net/rankings/collegeswithhappiestfreshman/ (ranking Yale # 1, Princeton #4)

[4] I recall having been told or read this. I can't readily confirm it now after some searching on Yale websites produces no evidence one way or another. I conclude that either (i) my supposition is true – and Yale doesn't want to talk about it – or (ii) I am wrong, and Yale is failing to take credit for treating its students well.

[5] As I recall, this "withdrawal" policy was known as "rustication" – a suitably preppy term – at least when applied to students found with girls staying overnight in their room.

the withdrawal policy in the Yale Daily News.[6] Two years ago, The Atlantic published a detailed examination of the rustication policy, following the disturbing suicide of a twice-rusticated Yale student,[7] and Newsweek had a long analysis titled "How Colleges Flunk Mental Health."[8] At the same time, the Yale Daily News Magazine had a comprehensive and insightful collection of student and administrator views of these difficult issues.

Reading these often-passionate stories, it seems fair to summarize the most important of the competing concerns as follows:

- Yale's concerns:
    - Student health resources are limited, as reflected in a "12 therapy session" limit, as compared to the large and increased student need for therapy, threatening to overwhelm an already expensive system.
    - It is hard to predict if a student will do better if sent home or kept in familiar campus surroundings.
    - It is better to avoid situations where Yale is blamed – or held responsible – if a student remains on campus and bad things happen, to the student or to others.
    - These decisions are made much harder by the difficulty and imprecision of judgments about the severity of a particular student's situation, including the possible effect on other students.
    - Other things being equal, Yale would prefer that a troubled student be elsewhere.

- Student concerns:
    - The scarcity of therapy resources means that treatment is difficult to arrange initially, limited in extent, and inflexible – as for example if you wish to change therapists.
    - There is an overriding fear that if you ask for help with mental issues, you may be forced to withdraw from Yale; and
    - Reflecting Yale's difficulty in deciding how serious your problems are, the decision can get tipped toward forced withdrawal if a student is candid about the severity of her symptoms and thoughts – so it's better not to talk about your worst fears.
    - Yale's decisions to force a student to withdraw are difficult to predict, seem to be made idiosyncratically, and are not well explained even in retrospect.

Looking from the outside, it seems possible that much of Yale's withdrawal policy is simply the persistence of an historic practice – despite enormous strides is treatment of mental illness since the policy was established well before I came to Yale in 1960s.

That this withdrawal policy is more historic and less reasoned is suggested by what a distinguished psychiatrist and leading bi-polar expert said to me last year – that forced withdrawal is a reasonable for a schizophrenic student, but is terrible for bipolar patients. I think he said "it's

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[6] Rachel Williams "*We Just Can't Have You Here*", Yale Daily News, Jan 24, 2014.

[7] Andrew Giambrone, "*When Mentally Ill Students Feel Alone*", Atlantic, March 5, 2015.

[8] Katie J. M. Baker, *"How Colleges Flunk Mental Health",* Newsweek, Feb. 4, 2014.

nuts", and that changing it "would mean less tragedies." And yet, my friend's bipolar son was forced to withdraw in 2005.

Similarly, its seems likely that withdrawal decisions are often made on a hurried basis by a single overworked mental health administrator who doesn't have much of a reasoned framework to apply in making a decision. Here is some supporting evidence from a striking 2014 Yale Daily News essay by a student who was rusticated after "cutting" episodes:[9]

> "And so, when I say "yes" to the 'I admit cutting myself' part, he nods his head and closes his eyes like someone has just given him a bonbon.

> I tell him when I come back to Yale, I will get a therapist on campus and keep working with the one I have at home. I will stop cutting.

> "Well the question may not be what will you do at Yale, but if you are returning to Yale. It may well be safer for you to go home. We're not so concerned about your studies as we are your safety," he says.

> "I'm sorry," I say. "What makes you think I will be safer away from school, away from my support system?" School was my stimulation, my passion and my reason for getting up in the morning.

> "Well the truth is," he says, "we don't necessarily think you'll be safer at home. But we just can't have you here."

Withdrawal Policy Topics for Study. My suggestion is that a study be made of:

- Ways of reducing the anxieties that potentiate student mental health problems before they lead to withdrawal decisions.
  - These methods, discussed in Section II.B, include:
    - The Cognitive Behavioral Therapy programs used by Joe Bankman at Stanford Law School and Ian Ayres at Yale Law School to help reduce the high levels of anxiety in law students,
    - Earlier intervention via big data predictive analytics programs which look for patterns associated with increased future levels of depression, anxiety, etc.;
    - Training for roommates, YDN mental health column,
    - Sleep advice, and even training, for new students,
    - family history

- Ways to reduce the disincentives created by the mere existence of the withdrawal policy – reluctance to seek mental health help, and then reluctance to be honest with the therapist.
  - The worst feature of the rustication policy may be that it discourages students from reporting their problems, given that the biggest problem in student health is that only 25% of the students with treatable mental health issues actually talk to someone who can help.

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[9] Rachel Williams essay, above.

- o Would it help the therapy process if the student's therapist is not the one who makes the withdrawal decision?

- Ways to speed up the process of beginning treatment:
  - o A major complaint about Yale's mental illness policy is that a student can wait a month or more before Yale's triage process is complete and their mental issues are addressed.
  - o My proposed study would consider whether adoption of algorithmic programs to assist in the initial "triage" process would lead to quicker results.

- ***Could there be more a sophisticated and accurate basis for making withdrawal decisions?***
  - o Create a decision-tree manual based on input from mental health experts?
  - o Require the decision to be made by a three-therapist group rather than by one individual?
  - o Develop an expert system computer program to assist in making withdrawal decisions?
    - ▪ There are decades of research suggesting that an algorithm derived from analysis of a number of actual cases can more effectively diagnose illness, even mental illness, than can individual practitioners. The seminal analysis is in Paul Meehl's famous book, CLINICAL VS. STATISTICAL PREDICTION: A THEORETICAL ANALYSIS AND A REVIEW OF THE EVIDENCE (1954), which showed that psychoanalysts who tried to predict what would become of their neurotic patients fared poorly compared to simple algorithms.[10]
    - ▪ This superiority of algorithms over individual expert judgment has been confirmed by many psychology studies in succeeding years.[11]
      - This applies both to physical illness (for example, the MYCIN program for bacterial infections) and mental illness.[12]
  - o A new startup discussed in the next section, PsychoGenealogical Research, LLC, seeks to create a database of family genetic and behavioral background to help predict current health issues – perhaps a guide to how severe a student's issues are and how they are likely to evolve.

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[10] The fascination that Meehl's analysis held for Daniel Kahneman & Amos Tversky is amusingly described by Moneyball's Michael Lewis in THE UNDOING PROJECT: A FRIENDSHIP THAT CHANGED OUR MINDS (2016).

[11] *See* White, M. J., et.al, *"The Meta-Analysis of Clinical Judgment Project: Fifty-Six Years of Accumulated Research on Clinical Versus Statistical Prediction"*, 34 The Counseling Psychologist. 341–382 (2006)

[12] See Wikipedia entry for "MYCIN" (artificial intelligence program to identify bacteria causing severe infections and to recommend antibiotics); Ziba Kashef, "*Research in the news: Big data model improves prediction of key hospital outcome*", Yale News, Feb 17, 2016; See Meehl material cited above for mental illness.

- A student whose has unrecognized bipolar relatives which are revealed by this company's program would be treated differently that a student without such a family background.
   o Adopt the Texas professor James Pennebaker's pronoun analysis program to predict which students are most suicidal?[13]
- Finally, what about significantly increasing the resources in the student mental health system?
   o Another part of the study would consider the feasibility and cost of a major effort to increase the availability of mental health counseling for students.
   o What would enough resources to meet demand cost?
   o Could some the costs be reimbursable by health insurance? Expanded student loans?
   o As discussed in the next section, would the cost be offset, implicitly, by having healthier and more successful alumni?

B. Next – Can We Move Yale to the Forefront of Advanced Student Health?

Students are a physically healthy population. The reality is therefore that, as studies routinely conclude, most of the difficult student health issues concern mental health (including addiction). Accordingly, any effort to improve student health needs to concentrate on mental health initiatives.

An immediate concern with mental health treatment is the possibility of adding large expenses to already difficult university budget decisions.

This section will argue for a study of costs of expanding mental health services, to include:

- How expensive would it actually be to expand the treatment of important aspects of student mental health?

- Since the economics of elite universities are dependent on the long-term success of their graduates, can any cost of improving the success of graduates can logically be seen like another other investment in the university's implicit endowment?

- Can investing in the mental health of students be good for both the university and the students?

This proposal concludes with suggestions about ways student health could be improved. These include use of "big data" – looking at all measurable aspects of student experiences to see if problems can be reliably predicted, and therefore treated before they reach more serious levels.

Finally, I address some practical issues. How difficult are the privacy concerns that would accompany expanding "Mother Yale" roles to include looking closely at a student's health, especially mental health?

And, where should a study effort like I propose be located institutionally?

My Personal Experience as an Argument for Proactive Attention to Student Mental Health

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[13] See discussion below in Section IV.

- My history – I turned 17 the month I showed up at Yale, a scholarship kid from the Midwest.
  - I had a lot of anger that I really didn't recognize as such, and an angry refusal to be successful in college because I didn't want my parents to take credit for it.[14]
  - I also had a fear of success in school – basically my reaction to years of trying to get emotional attention from a depressed mother by being a clever little boy and a great student, which never succeeded in gaining my mother's attention, so the hell with it, I'm not exposing myself to that disappointment again and again.
  - Nobody asked why my predicted average of 89 turned into an 80 average by junior year, or why I never studied at Yale.
    - A kind instructor passed me when I panicked with taking the freshman final exam in Russian – but didn't send me off to talk to somebody about it.
    - The only comment I got from a Yale administrator was from one dean of students who blasted me for not studying, when he counseled me about law school as a senior.
- It never occurred to me to go to a therapist until I got to the University of Chicago, where therapy was the norm – both my roommates, my law review editor and a girlfriend were in psychoanalysis, and they all said "hey, you're too intense, you need to go to a shrink if you can't relax."
  - So, I started analysis, and have spent maybe 25 years, off and on, in different kinds of therapy, to my great satisfaction.
    - The second time I saw my first analyst, he pointed out that I didn't see that I was actually a success – second in the class at Chicago, graduated from Yale, etc.
    - This started the long process of trying to come to grips with all this ambivalence about success and seeing myself as competent – as it turns out, a standard problem with high achieving students.
  - This experience argues, to me, that colleges should be more proactive in asking students who are struggling to talk about what their issues might be.

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[14] I recently found myself described in a famous psychoanalyst's notebook: "As I know, the child who has to parent itself is at risk in relation to self-destructive trends, negative reactions to success, etc. When it survives (after a long struggle, exhausted by having kept the sun in the sky by day and the moon by night, in the belief that nobody else would do it if it didn't) and due to its over-developed capacities for dealing with reality, it succeeds admirably in something, and then it hears its mother (real mother) expressing her pride, he tries to convert her into the self-protecting object he has had to be for so long; he resents her pleasure, projects the anxiety that probably belongs to her back into her and risks destruction again, in the hope that this time it will be protected from outside, or at least, in order to wipe the smile off the maddening face of the proud mother, when the mother inevitably fails to take over the protection role, the patient assumes it once again and reluctantly and resentfully continues to succeed." Casey Schwartz, *In the Mind Fields: Exploring the New Science of Neuropsychoanalysis,* p. 125 (2013).

What is the Interaction of Mental Health Counseling and Yale's Economics?

- A friend on a Seven Sisters board reports that a dominant thought among board members is that mental health counseling is "good, but really expensive, how can we reduce the costs?"

- But, many mental health issues are relatively cheap to treat – depression, once recognized, is often successfully treated with inexpensive anti-depressants, for example. The best treatment for bipolar disease is lithium pills, whose expense is principally in getting the dose right. Anxiety is often resolved with cheap drugs and/or a small number of counseling sessions.
    - From this point of view, the main difficulty is getting students to come in for help, not the cost of the help itself.

- Even if expensive counseling is required, is it fair to argue that more student mental health support – easy to see as good for the student – is also a good investment for Yale?
    - Can we assume people with better mental health are more successful?[15]

- As famously argued by Stanford economist Carolyn Hoxby,[16] the leading analyst of higher education economics, the economic model used by high-end colleges requires large alumni gifts to make ends meet.
    - Her argument is that colleges at Yale's level typically spend $100k per year on a student, and typically collect $20k, after adjusting for scholarships, and therefore must depend on these students to grow up into successful and generous alumni.
    - Accordingly, we should study whether Yale, just from an economic point of view, should want to do as much as it can to improve the mental health of its students, if only to improve the likelihood of their long-term success.

Would it Make Sense for Yale Alumni to Endow a Major Expansion of Student Mental Health Programs?

- This study topic would be quantification of the costs of treating student mental health, not as a cost to be avoided, but a service to be provided to the extent students are benefited.
    - Estimates of usage of mental health services if they were freely provided rather than rationed as at present.
    - Estimates of costs that could be recovered from parent's health insurance, government programs, foundation grants.
    - Would it be sensible to offer student loan programs to support significant long term therapy programs?
    - What offsetting cost savings might come from earlier and more comprehensive treatment of student mental distress?
    - Should we worry that Yale would become a psychiatric country club, affecting its reputation and even the types of students who apply?

What Ways Could the Sophistication of Student Health Be Improved?

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[15] Citation to consensus article.

[16] Caroline M. Hoxby, *The Changing Selectivity of American Colleges,* 23 J. Econ. Perspectives 95, 107-109 (2009).

- ***Adopt a CBT Program to Reduce Student Anxiety?***
  - o Bankman/Ayres CBT program for CBT for first year law students.
    - ▪ Joe Bankman, a tax scholar at Stanford Law who recently received a Stanford doctorate in psychology, has focused on ways to use cognitive behavioral therapy to reduce anxiety in the highly competitive and talented new students in the Law School.[17]
      - • Bankman enlisted Ian Ayres for a similar program at Yale Law School.
      - • The first hour of Bankman's CBT program helps students express their fears – which to their surprise all turn out to be variations of the same fear, that they are not as good as the other new students — and the second hour teaches the students CBT techniques for dealing with this anxiety.
      - • Students have written to Bankman months later saying that these two hours "changed my life."
    - ▪ Yale has nothing like it for undergraduates – who have the same fears[18] – except for a summer program for disadvantaged freshman.[19]

- ***Should Yale Give Better Advice to Undergraduates about Sleep?***
  - o Losing a night's sleep can be disastrous for kids with a tendency to bipolar disease, and perhaps even for students with latent schizophrenia. [20]
  - o I had lunch several years ago with two psychiatrist friends who are leading bipolar experts. We had a long conversation about treatment of new mothers who have "flipped" bipolar and have homicidal feelings toward their babies, and how 20% of them can be restored to sanity just by being enabled to sleep for 8-10 hours a night.
  - o It occurred to me to ask "Do you think that lack of sleep could "activate" latent bipolar disease in college kids?
    - ▪ Their expert reaction: "Of course, we all know that."
    - ▪ Since a Yale freshman with a bipolar parent has a 25% chance of turning bipolar, why doesn't anybody tell them not to stay up all night?

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[17] See "*Stanford law professor creates new way to help students deal with the stress of it all*", Stanford News, at http://news.stanford.edu/ 4/7/2015.

[18] See *Conquering the Freshman Fear of Failure,* http://www.nytimes.com/2016/08/21/opinion/sunday/html. *See also* the many descriptions of similar "I'm not as good as these other kids" fears in the several public discussions of the

[19] *Bridge programs for incoming freshmen expand reach*, Yale News, 10/24/2016

[20] See, e.g., McKenna & Eyler, "*Overlapping prefrontal systems involved in cognitive and emotional processing in euthymic bipolar disorder and following sleep deprivation: A review of functional neuroimaging studies,*" Clin. Psychol. Rev. 2012 Nov; 32(7): 650–663; Swaminathan*, "Can a Lack of Sleep Cause Psychiatric Disorders?*," Scientific American, 10/23/2007 ("Study shows that sleep deprivation leads to a rewiring of the brain's emotional circuitry").

- o Clearly, undergraduates with a family member who is bipolar (or schizophrenic) should be told of the risks of staying up all night – but I am sure they are not.

- o More broadly, should Yale try to give undergraduates sophisticated advice about their health?

  - ▪ For example, recent unpublished research suggests that progesterone-only birth control devices actually damage the adrenal gland over a long period?

  - ▪ Should Yale stretch to provide this sort of leading-edge advice to undergraduates?

- • ***Establish a "sleep center" to help students sleep better?***

  - o There is a significant amount of research suggesting that good sleep patterns have a significant effect on mental and physical health.[21]

  - o There are a lot of things that can be tried to improve sleep, which could be offered to students.

    - ▪ Apnea diagnosis, with mechanical device to resolve issues.

    - ▪ Fitbit can be worn to measure sleep soundness.

    - ▪ "Grounded sheets" have long been reported to improve sleep quality.

    - ▪ Hormone levels – e.g., progesterone deficiency, can greatly interfere with sleep.

    - ▪ "Sleep sound" machines and earplugs to mask outside noises can be effective in noisy dormitory settings.

    - ▪ There are a number of effective online CBT programs which offer relief to insomniacs at rates roughly comparable to in-person therapy. [22]

- • ***Should We Train Roommates to be Alert to Warning Signs?***

  - o Teaching students what to watch for in roommates

    - ▪ Have a Yale Daily News column reporting actual experiences with roommates in trouble?

  - o Anonymous reporting?

  - o Even Facebook tries to identify people who might be suicidal, and suggest interventions to their Facebook friends.

    - ▪ Should Yale specifically help students see signs of serious depression in their roommates?

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[21] *See* articles cited in note xx above, reporting relationship between sleep deprivation and adverse psychiatric reactions; *See also*, The Economist, "*Why disrupted body clocks trigger liver cancer*", Dec 3, 2016; Harvard Mental Health Letter, "*Sleep and mental health*" July 2009 ("Once viewed only as symptoms, sleep problems may actually contribute to psychiatric disorders."); Richard A. Friedman, "*Yes, Your Sleep Schedule Is Making You Sick,*" New York Times, March 10, 2017.

[22] See, e.g., "*6 Online Options for Insomnia Therapy,*" at http://www.sleepreviewmag.com/2014/12/online-options-insomnia-therapy (Dec 11, 2014)

- Should Yale do something to identify students who may be struggling?

- ***Should Students be Advised about Addiction Patterns?***
  - Addiction is a problem many students face or will face in the future.
    - Standard stuff – opiates, stimulants, alcohol, but non-"substance" abuse involving internet, sex, gambling, video games can be equally destructive.[23]
    - Yale is a sophisticated leader in addiction research and treatment, but there is little evidence that Yale focuses on treating its own students.
  - For example, nothing related to students is mentioned in a lengthy June 2015 Yale Psychiatry department announcement of a collaboration with the National Center on Addiction and Substance Abuse to establish a Yale "center-of-excellence" to "expand critically important work to shape public policy, disseminate evidence-based practices, and educate families, providers, and policymakers."
  - Should Yale offer addiction education to its students and parents?

- ***How can Yale increase the number of troubled students who seek help?***
  - The biggest problem with student mental health is that very few – say 25% – of students with depression or anxiety disorders come in to talk to anyone.[24]
    - "I've always felt this way, what's different?"
    - "There isn't anything they can do anyway?
    - "Doesn't everybody have problems?"
    - "I should just tough it out, that's the way the world gets by."
  - How could this percentage be increased?
    - Stop forcing students to withdraw if they report significant mental health issues?
    - Proactively contact possibly troubled kids?
      - E.g., If the school has a family history, and it suggests the likelihood of problems like bipolar disease?
      - Ask Facebook to supply their social media "suicide algorithms" for use by Yale?
      - Have a version of the Bankman/Ayres CBT program at freshman orientation, with the expectation that it will increase student's awareness of their own anxieties?
        - Include a short presentation on what sorts of help are available?

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[23] [Citation to [2005] address by President Marcia Goin, M.D. to the American Psychiatric Association.]

[24] Hunt J, Eisenberg D. *Mental health problems and help-seeking behavior among college students*. J Adolesc Health. 2010;46(1):3-10.

- o See the "big data" discussion below for possible sources of other predictors.
- **Establish "very best practices" for student health doctors?**
  - o *Opiates*: Current research at UC Irvine Medical School suggests that the brains of some teenagers who are given short term opiates – e.g., after wisdom teeth extraction – can actually "flip" into a processing pattern symptomatic of addiction.
    - ▪ Should Yale have an expert system which monitors treatment of students to advise against prescribing opiates to undergraduates except in specific cases?
  - o Adopt the Columbia model of allowing direct access by student health doctors to medical faculty
    - ▪ Modify the Yale student health insurance so that, at least, consultations with Yale Medical school faculty in complex cases are "in network."
- **Should Yale adopt the Big Data "FIT" Program?**
  - o The "feedback-informed treatment" program, or "FIT", is the product of a major big data effort which has studied the patterns of hundreds of thousands of mental health counseling case histories, and created a computer-analyzed weekly patient questionnaire to assist therapists in judging patient trajectories – progress, risks.[25]
  - o Some mental health centers – notably the Calgary Counselling Centre – have achieved regular and sustained increases in positive outcomes by using the FIT program to enhance their therapists' effectiveness.
  - o Would adopting FIT make Yale mental health counseling more efficient, both in numbers treated and in results?
- **Establish a Long-Term Preventive & Predictive Medicine Program?**
  - o Should Yale offer to collect detailed medical and genetic information for students who join a comprehensive health program?
  - o Student health issues could be better predicted if the college had a comprehensive medical history, including family history, a hormone and genetic profile, and a personal medical history.
    - ▪ I had a wonderful stepdaughter whose body makes essentially no progesterone, a fact not discovered until her late twenties.
      - • This created all kinds of sleep and anxiety issues, which arguably led to her self-medicating for years with opiates.
      - • She would have been greatly helped if somebody had, before she was 27, simply done a hormone levels panel.
    - ▪ A student has a 25% increased risk of developing bipolar disease with one bipolar parent or two close relatives.

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[25] See Tony Rousmaniere, "*What Your Therapist Doesn't Know*", The Atlantic, April 2017 ("Big Data has transformed everything from sports to politics to education. It could transform mental-health treatment, too—if only psychologists would stop ignoring it.")

- A student with this family history should never stay up all night, and should be monitored for bipolar symptoms.
    - Doing a DNA analysis is increasingly cheap, and can help both predict disease and assist in curing it.
        - Should students be offered the option to submit a cheek swab and have their DNA profile analyzed and stored?
- ***Should Yale make other leading edge health advice available to students?***
    - Should Yale study the adoption the program offered by an innovative startup, PsychoGenealogical Research, which proposes to combine many different sources of data – DNA databanks, historical death records, marriages and divorces, accidents, employment data, census data, etc., to produce a basic picture of the influences on an individual?
        - Notably, this company proposes to incorporate research by UT's Professor James Pennebaker which claims the ability to derive significant psychological knowledge about a person just by analyzing the structure of the language they use, and particularly pronoun use.[26]
            - For example, letters written by an ancestor could be analyzed to create a psychological profile which might be applied to more quickly understand a descendant's current difficulties.
            - In my own case, my childhood memory tells me that my mother was quite depressed for long periods – but it would help to have this confirmed by language analysis.
        - Although these claims seem remarkable, the ability to use language to predict psychological developments has been conclusively demonstrated by the famous "Nun Study", in which the "density" of ideas in autobiographical essays written by 22 year old nuns was found to predict with considerable accuracy whether the nun would develop lowered cognitive function (Alzheimer's, dementia) late in life.[27]
        - Pennebaker's recent unpublished research extends his analysis to language-based predictions of whether particular mentally ill people are more or less likely to commit suicide – surely a topic interest to Yale therapists trying to triage students presenting with depression and suicidal thoughts.

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[26] J. W. Pennebaker, THE SECRET LIFE OF PRONOUNS: WHAT OUR WORDS SAY ABOUT US. New York: Bloomsbury (2011) (www.secretlifeofpronouns.com).

[27] See D.A. Snowdon,, S. Kemper, J.A. Mortimer, L.H. Greiner, D.R. Wekstein, & W.R. Markesbery, W. R. (1996*). Cognitive ability in early life and cognitive function and Alzheimer's disease in late life: Findings from the Nun Study.* 275 JAMA 528 (1996); Kathryn P. Riley, David A. Snowdon, Mark F. Desrosiers, William R. Markesbery, "*Early Life Linguistic Ability, Late Life Cognitive Function, and Neuropathology: Findings From The Nun Study*", 26 Neurobiology of Aging 341 (2005).

- - ▪ Pennebaker also recently published evidence that the language structure of student essays on college applications can usefully predict student performance in college.[28]
        - • Would this analysis be useful to students and/or administrators?.
    - o Other examples abound –
        - ▪ For example, current unpublished research strongly indicates that progesterone-only birth control methods interfere with normal adrenal gland response to stress – is this something Yale students are entitled to know?

- ***"Big Data": Yale Computer Science department & IBM's Watson program?***
    - o IBM's Watson program – an artificial intelligence program which famously won Jeopardy – is being incorporated in over 20 rule-based expert medical diagnosis systems.
    - o Yale's computer science department has a dented reputation, despite being housed in Watson Hall, after the Bloomberg News article reporting that Silicon Valley employers – and unhappy Yale computer students – don't think much of Yale's computer science programs – "If you want a job in Silicon Valley, don't study computers at Yale."[29]
        - ▪ The problem is seen partly as a lack of interest in practical applications:
            > "Yale's computer science department has focused more on theory than practical applications, unlike Stanford University, known as the birthplace of Google, or Harvard, associated with Facebook and Microsoft."
    - o Watson seems like an ideal program to use to look for (practical) big data insights into student health.
        - ▪ As a simple example, someone with my undergraduate combination of high predicted average and low actual average should get talked to.
        - ▪ Typically, a big data approach would gather all the information it could about a group of students – physical measurements, age, month of birth, past medical history, variability of grades – and look for patterns.
            - • A recent successful big data program studies health records to predict which patients are likely to die soon, and offer them a choice of palliative care as a supplement or alternative to continued maximum effort treatments like chemotherapy.[30]

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[28] Pennebaker, Chung, Frazee, Lavergne, Beaver, *When Small Words Foretell Academic Success: The Case of College Admissions Essays, PLoS ONE 9(12) December 2014.*

[29] Bloomberg News, "*Want a Job in Silicon Valley After Yale? Good Luck With That*", March 5, 2015 ("One of the world's top universities in most respects, Yale has fallen way behind in computer science."

[30] [citation].

- Since the Watsons graduated from Yale, and Yale's Computer Science department needs some high-profile "practical application" projects to improve its image, a Yale-Watson-IBM-Student Health collaboration seems beneficial for all participants.

  - Indeed, getting larger databases to analyze, by recruiting other Ivy League colleges to join with analysis of student data – modified to eliminate personal identification – would improve Watson's predictions.

What about Privacy, and the "Big Brother" Factor?

- The proposed study would have to devote considerable effort to the ethics of implementing these big data ideas.

  - As a simple example, what should be done if a genetic analysis makes clear that the student's parentage is not what the family has represented?

  - Can simple advance consent remove privacy issues? Is both parental and student consent needed?

  - How can data be protected from ever being used to the disadvantage of the student?

  - *[Insert analysis of effectiveness of dealing with the obvious issue of privacy concerns by allowing opt-outs, or requiring opt-in, perhaps with parental consent.]*

- Will the constituents be alarmed by the possibility of Snowden-like hacking of personal information?

- What about the risks of doing it badly?

  - The idea of using big data comes with the possibility of doing it badly, as illustrated in a ProPublica article describing how a program used to predict the possibility a criminal defendant will re-offend did so badly, with grim consequences for defendants whose sentences were increased, etc.[31],

C. What Institutional Home for an "Advanced Student Health" Study Project?

- There is an obvious need to have an institutional home for this project.

  - The new Yale Center for Innovative Thinking has a charter which sounds ideal for working on this project.

    - December 2016 Yale News: "The center's mission will be to inspire students from diverse backgrounds and disciplines to seek innovative ways to solve real-world problems."

  - Yale Student Health?

  - Yale Computer Science Department?

  - New positions in the Yale Dean's Office?

  - Academic position, in Psychology department for example?

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[31] ProPublica, March 26, 2016 "*Machine Bias: There's Software Used Across the Country to Predict Future Criminals. And it's Biased Against Blacks,*" available at
https://www.propublica.org/article/machinebiasriskassessmentsincriminalsentencing

- As noted above, I suggest that my specific crowdsourcing proposal will be to fund an intensive feasibility study for "Advanced Student Health" by the Yale Center for Innovative Thinking.
    - Such a study would, presumably, lead to a series of additional projects for alumni crowdfunding.